# Hewlett Packard Enterprise

# HPE 3PAR StoreServ 3PAR OS 3.3.1 Support Matrix

For HPE 3PAR StoreServ 20000, 20000 R2, 9450, 8000, 10000, 7000

## Revision

| Version | Changes | Date |
|---------|---------|------|
| 1.0 | 3PAR OS 3.3.1 GA Publish | 29th March 2017 |
| 1.1 | Fixes | 17th April 2017 |
| 1.2 | Remote Copy Fixes | 24th May 2017 |
| 1.3 | Added Support for 3PAR 9450, 20800 R2, 20840 R2, 20850 R2 | 5th June 2017 |
| 1.4 | Added new changes for File Persona, Async Streaming, Quorum Witness  in 3.3.1 MU1 | 8th August 2017 |
| 1.5 | Modified Supported hypervisors for deploying QW | 8th March 2018 |
| 1.6 | Remote Copy updates for 3.3.1 MU2; Federation Details Added | 17th May 2018 |
| 1.7 | 331 MU3 updates | 5th September 2018 |

# Contents

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

# Host Connectivity

Host Connectivity details and upper limits

## 3PAR StoreServ 20800R2, 20840 R2, 20850 R2

| Connectivity | 3PAR StoreServ 208xx R2 Limits |
|---|---|
| Host Connectivity Total (Fibre Channel, iSCSI, and/or mixed) | |
| Fan-out (max initiators per HPE 3PAR Storage System host facing port) | 256 |
| Max initiators per HPE 3PAR Storage System | 8192 |
| Host Connectivity (Fibre Channel) | |
| Fan-Out (max initiators (host HBA ports) per HPE 3PAR Storage System port over SAN) NOTE: This limit is an aggregate of the total iSCSI and/or FC initiators | 256 |
| Fan-In (number of HP 3PAR Storage System ports visible to a single initiator (host HBA port)) | 8 |
| Max initiators per HPE  3PAR Storage System (direct-connect only) Max 6 target HBAs per node | 192(for 8 nodes) |
| Max initiators per HPE 3PAR Storage System (SAN or SAN/direct-connect)[1] Max 5 target HBAs per node | 8192 |
| Host Connectivity (iSCSI) | |
| Fan-Out (max iSCSI initiators per HPE 3PAR Storage System port over IP network; each Linux iSCSI initiator counts as two iSCSI initiators on the HPE  3PAR Storage System) Note: This limit is an aggregate of the total iSCSI and/or FC initiators | 256 |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator) | 8 |
| MTU Sizes | 1500 through 9000 bytes |
| Max iSCSI initiators per HPE  3PAR Storage System | 8192 |
| Security | CHAP |
| IPv6 Support | Yes |
| Max distance from host to storage (tested and supported) | 100 meters |
| Host Connectivity (FCoE) | Not Supported |

Notes

1. A single FC host initiator WWN would count as multiple initiators if it has logins to multiple host facing FC ports on a HPE 3PAR Storage System.

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

### 3PAR StoreServ 20800, 20450, 20840, 20850

| Connectivity | 3PAR StoreServ 20000 Limits |
|---|---|
| Host Connectivity Total (Fibre Channel, iSCSI, and/or mixed) | |
| Fan-out (max initiators per HPE 3PAR Storage System host facing port) | 256 |
| Max initiators per HPE 3PAR Storage System | 8192 |
| Host Connectivity (Fibre Channel) | |
| Fan-Out (max initiators (host HBA ports) per HPE 3PAR Storage System port over SAN) NOTE: This limit is an aggregate of the total iSCSI and/or FC initiators | 256 |
| Fan-In (number of HP 3PAR Storage System ports visible to a single initiator (host HBA port)) | 8 |
| Max initiators per HPE 3PAR Storage System (direct-connect only) [1]<br>Max 6 target HBAs per node | 96(for 4 nodes)<br>192(for 8 nodes) |
| Max initiators per HPE 3PAR Storage System (SAN or SAN/direct-connect)[2]<br>Max 5 target HBAs per node | 8192 |
| Host Connectivity (iSCSI) | |
| Fan-Out (max iSCSI initiators per HPE 3PAR Storage System port over IP network; each<br>Linux iSCSI initiator counts as two iSCSI initiators on the HPE 3PAR Storage System)<br>Note: This limit is an aggregate of the total iSCSI and/or FC initiators | 256 |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator) | 8 |
| MTU Sizes | 1500 through 9000 bytes |
| Max iSCSI initiators per HPE 3PAR Storage System | 8192 |
| Security | CHAP |
| IPv6 Support | Yes |
| Max distance from host to storage (tested and supported) | 100 meters |
| Host Connectivity (FCoE) | |
| Max HPE 3PAR Storage System host facing FCoE HBAs per node | 5 (for 20800, 20840, 20850 AFA, 20450 AFA) |
| Max HPE 3PAR Storage System host facing FCoE ports per node | 10 (for 20800, 20840, 20850 AFA, 20450 AFA) |
| Max FCOE initiators per port | 128 |
| Max FCOE initiators per HPE 3PAR Storage System | 8192 (for 20800, 20840, 20850AFA),<br>5120 (for 20450 AFA) |

Notes

1. Direct Connect supported on 16Gb HBA from 3.2.2 MU2
2. A single FC host initiator WWN would count as multiple initiators if it has logins to multiple host facing FC ports on a HPE 3PAR Storage System.

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

## 3PAR StoreServ 9450

| Connectivity | 3PAR StoreServ 9450 Limits |
|---|---|
| Host Connectivity Total (Fibre Channel, iSCSI, and/or mixed) | |
| Fan-out (max initiators per HPE 3PAR Storage System host facing port) | 256 |
| Max initiators per HPE 3PAR Storage System | 4096 |
| Host Connectivity (Fibre Channel) | |
| Fan-Out (max initiators (host HBA ports) per HPE 3PAR Storage System port over SAN) NOTE: This limit is an aggregate of the total iSCSI and/or FC initiators | 256 |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator (host HBA port)) | 8 |
| Max initiators per HPE 3PAR Storage System (direct-connect only) Max 6 target HBAs per node | 192 |
| Max initiators per HPE 3PAR Storage System (SAN or SAN/direct-connect)[1] Max 5 target HBAs per node | 8192 |
| Host Connectivity (iSCSI) | |
| Fan-Out (max iSCSI initiators per HPE 3PAR Storage System port over IP network; each Linux iSCSI initiator counts as two iSCSI initiators on the HPE 3PAR Storage System) Note: This limit is an aggregate of the total iSCSI and/or FC initiators | 256 |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator) | 8 |
| MTU Sizes | 1500 through 9000 bytes |
| Max iSCSI initiators per HPE 3PAR Storage System | 1024 (for 8200), 2048 (for 8400, 8440, 8450) |
| IPv6 Support | Yes |
| Security | CHAP |
| Max distance from host to storage (tested and supported) | 100 meters |
| Host Connectivity (FCoE) | Not Supported |

Notes
1. A single FC host initiator WWN would count as multiple initiators if it has logins to multiple host facing FC ports on a HPE 3PAR Storage System.

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

## 3PAR StoreServ 8000 Series

| Connectivity | 3PAR StoreServ 8000 Limits |
|---|---|
| Host Connectivity Total (Fibre Channel, iSCSI, and/or mixed) | |
| Fan-out (max initiators per HPE 3PAR Storage System host facing port) | 256 |
| Max initiators per HPE 3PAR Storage System | 4096 |
| Host Connectivity (Fibre Channel) | |
| Fan-Out (max initiators (host HBA ports) per HPE 3PAR Storage System port over SAN) NOTE: This limit is an aggregate of the total iSCSI and/or FC initiators | 256 |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator (host HBA port)) | 8 |
| Max initiators per HPE 3PAR Storage System (direct-connect only) [1]<br>Max 1 target HBAs per node | 12 (for 2 nodes),<br>24 (for 4 nodes) |
| Max initiators per HPE 3PAR Storage System (SAN or SAN/direct-connect)[2]<br>Max 1 target HBAs per node | 1024 (for 2 node 8200, 8400, 8440, 8450)<br>2048 (for 4 node 8400, 8440, 8450) |
| Host Connectivity (iSCSI) | |
| Fan-Out (max iSCSI initiators per HPE 3PAR Storage System port over IP network; each<br>Linux iSCSI initiator counts as two iSCSI initiators on the HPE 3PAR Storage System)<br>Note: This limit is an aggregate of the total iSCSI and/or FC initiators | 256 |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator) | 8 |
| MTU Sizes | 1500 through 9000 bytes |
| Max iSCSI initiators per HPE 3PAR Storage System | 1024 (for 8200),<br>2048 (for 8400, 8440, 8450) |
| IPv6 Support | Yes |
| Security | CHAP |
| Max distance from host to storage (tested and supported) | 100 meters |
| Host Connectivity (FCoE) | |
| Max HPE 3PAR Storage System host facing FCoE CNA's per node | 1 |
| Max HPE 3PAR Storage System host facing FCoE ports per node | 2 |
| Max FCOE initiators per port | 128 |
| Max FCOE initiators per HPE 3PAR Storage System | 512 (for 2 nodes),<br>1024 (for 4 nodes) |

Notes

1. Direct Connect supported on 16Gb HBA from 3.2.2 MU2
2. A single FC host initiator WWN would count as multiple initiators if it has logins to multiple host facing FC ports on a HPE 3PAR Storage System.

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

### 3PAR StoreServ 10800

| Connectivity | 3PAR StoreServ 10800 Limits |
|---|---|
| Host Connectivity Total (Fibre Channel, iSCSI, and/or mixed) | |
| Fan-out (max initiators per HPE 3PAR Storage System host facing port) | 128 |
| Max initiators per HPE 3PAR Storage System | 4096(for 4 nodes)<br>8192 (for 8 nodes) |
| Host Connectivity (Fibre Channel) | |
| Fan-Out (max initiators (host HBA ports) per HPE 3PAR Storage System port over SAN) NOTE: This limit is an aggregate of the total iSCSI and/or FC initiators | 128 |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator (host HBA port)) | 8 |
| Max initiators per HPE 3PAR Storage System (direct-connect only) [1]<br>Max 6 target HBAs per node | 48(for 2 nodes)<br>96(for 4 nodes)<br>192(for 8 nodes) |
| Max initiators per HPE 3PAR Storage System (SAN or SAN/direct-connect)[2]<br>Max 5 target HBAs per node | 2048(for 2 nodes)<br>4096(for 4nodes)<br>8192(for 8 nodes) |
| Host Connectivity (iSCSI) | |
| Fan-Out (max iSCSI initiators per HPE 3PAR Storage System port over IP network; each<br>Linux iSCSI initiator counts as two iSCSI initiators on the HPE 3PAR Storage System) Note: This limit is an aggregate of the total iSCSI and/or FC initiators | 64 |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator) | 8 |
| MTU Sizes | 1500 to 9000 bytes |
| Max iSCSI initiators per HPE 3PAR Storage System | 512 (for 2 nodes),<br>1,024 (for 4 nodes or more) |
| Security | CHAP |
| IPv6 Support | No |
| Max distance from host to storage (tested and supported) | 100 meters |
| Host Connectivity (FCoE) | |
| Max HPE 3PAR Storage System host facing FCoE HBAs per node | 6 |
| Max HPE 3PAR Storage System host facing FCoE ports per node | 12 |
| Max FCOE initiators per port | 64 |
| Max FCOE initiators per HPE 3PAR Storage System | 256 (for 2 nodes)<br>512 (for 4 nodes or more) |

Notes

1. Direct Connect supported on 16Gb HBA from 3.2.2 MU2
2. A single FC host initiator WWN would count as multiple initiators if it has logins to multiple host facing FC ports on a HPE 3PAR Storage System.

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

## 3PAR StoreServ 10400

| Connectivity | 3PAR StoreServ 10400 Limits |
|---|---|
| Host Connectivity Total (Fibre Channel, iSCSI, and/or mixed) | |
| Fan-out (max initiators per HPE  3PAR Storage System host facing port) | 128 |
| Max initiators per HPE  3PAR Storage System | 4096(for 4 nodes) |
| Host Connectivity (Fibre Channel) | |
| Fan-Out (max initiators (host HBA ports) per HPE  3PAR Storage System port over SAN) NOTE: This limit is an aggregate of the total iSCSI and/or FC initiators | 128 |
| Fan-In (number of HPE  3PAR Storage System ports visible to a single initiator (host HBA port)) | 8 |
| Max initiators per HPE  3PAR Storage System (direct-connect only) [1] <br> Max 6 target HBAs per node | 48(for 2 nodes) <br> 96(for 4 nodes) |
| Max initiators per HPE  3PAR Storage System (SAN or SAN/direct-connect)[2] <br> Max 5 target HBAs per node | 2048(for 2 nodes) <br> 4096(for 4 nodes) |
| Host Connectivity (iSCSI) | |
| Fan-Out (max iSCSI initiators per HPE  3PAR Storage System port over IP network; each <br> Linux iSCSI initiator counts as two iSCSI initiators on the HPE  3PAR Storage System) Note: This limit is an aggregate of the total iSCSI and/or FC initiators | 64 |
| Fan-In (number of HPE  3PAR Storage System ports visible to a single initiator) | 8 |
| MTU Sizes | 1500 to 9000 bytes |
| Max iSCSI initiators per HPE  3PAR Storage System | 512 (for 2 nodes), <br> 1,024 (for 4 nodes) |
| Security | CHAP |
| IPv6 Support | No |
| Max distance from host to storage (tested and supported) | 100 meters |
| Host Connectivity (FCoE) | |
| Max HPE  3PAR Storage System host facing FCoE HBAs per node | 6 |
| Max HPE  3PAR Storage System host facing FCoE ports per node | 12 |
| Max FCOE initiators per port | 64 |
| Max FCOE initiators per HPE  3PAR Storage System | 256(for 2 nodes) <br> 512(for 4 nodes) |

Notes

1. Direct Connect supported on 16Gb HBA from 3.2.2 MU2
2. A single FC host initiator WWN would count as multiple initiators if it has logins to multiple host facing FC ports on a HPE 3PAR Storage System.

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

## 3PAR StoreServ 7450

| Connectivity | 3PAR StoreServ 7450 Limits |
|---|---|
| Host Connectivity Total (Fibre Channel, iSCSI, and/or mixed) | |
| Max initiators per HPE 3PAR Storage System | 1024 (for 2 nodes)<br>2048 (for 4 nodes) |
| Host Connectivity (Fibre Channel) | |
| Fan-Out (max initiators (host HBA ports) per HPE 3PAR Storage System port over SAN) NOTE: This limit is an aggregate of the total iSCSI and/or FC initiators | 128 (8Gb FC)<br>256 (16Gb FC) |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator (host HBA port)) | 8 |
| Max initiators per HPE 3PAR Storage System (direct-connect only) [1]<br>Max 1 target HBAs per node | 12 (for 2 nodes),<br>24 (for 4 nodes) |
| Max initiators per HPE 3PAR Storage System (SAN or SAN/direct-connect)[2]<br>Max 1 target HBAs per node | 1,024 (for 2 nodes),<br>( for 4 nodes) |
| Host Connectivity (iSCSI) | |
| Fan-Out (max iSCSI initiators per HPE 3PAR Storage System port over IP network; each<br>Linux iSCSI initiator counts as two iSCSI initiators on the HPE 3PAR Storage System) Note: This limit is an aggregate of the total iSCSI and/or FC initiators | 64 |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator) | 8 |
| MTU Sizes | 1500 through 9000 bytes |
| Max iSCSI initiators per HPE 3PAR Storage System | 256(for 2 nodes),<br>512(for 4 nodes) |
| Security | CHAP |
| IPv6 | No |
| Max distance from host to storage (tested and supported) | 100 meters |
| Host Connectivity (FCoE) | |
| Max HPE 3PAR Storage System host facing FCoE HBAs per node | 1 |
| Max HPE 3PAR Storage System host facing FCoE ports per node | 2 |
| Max FCOE initiators per port | 64 |
| Max FCOE initiators per HPE 3PAR Storage System | 256(for 2 nodes),<br>512(for 4 nodes) |

Notes

1. Direct Connect supported on 16Gb HBA from 3.2.2 MU2
2. A single FC host initiator WWN would count as multiple initiators if it has logins to multiple host facing FC ports on a HPE 3PAR Storage System.

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

## 3PAR StoreServ 7440c

| Connectivity | 3PAR StoreServ 7440c Limits |
|---|---|
| Host Connectivity Total (Fibre Channel, iSCSI, and/or mixed) | |
| Max initiators per HPE  3PAR Storage System | 1024 (for 2 nodes) <br> 2048 (for 4 nodes) |
| Host Connectivity (Fibre Channel) | |
| Fan-Out (max initiators (host HBA ports) per HPE  3PAR Storage System port over SAN) NOTE: This limit is an aggregate of the total iSCSI and/or FC initiators | 128  (8Gb FC) <br> 256 (16 Gb Fc) |
| Fan-In (number of HPE  3PAR Storage System ports visible to a single initiator (host HBA port)) | 8 |
| Max initiators per HPE  3PAR Storage System (direct-connect only) [1] <br> Max 1 target HBAs per node | 12 (for 2 nodes), <br> 24 (for 4 nodes) |
| Max initiators per HPE  3PAR Storage System (SAN or SAN/direct-connect)[2] <br> Max 1 target HBAs per node | 1,024 (for 2 nodes), <br> 2,048 ( for 4 nodes) |
| Host Connectivity (iSCSI) | |
| Fan-Out (max iSCSI initiators per HPE  3PAR Storage System port over IP network; each <br> Linux iSCSI initiator counts as two iSCSI initiators on the HPE  3PAR Storage System) Note: This limit is an aggregate of the total iSCSI and/or FC initiators | 64 |
| Fan-In (number of HPE  3PAR Storage System ports visible to a single initiator) | 8 |
| MTU Sizes | 1500 through 9000 bytes |
| Max iSCSI initiators per HPE  3PAR Storage System | 256(for 2 nodes), <br> 512(for 4 nodes) |
| Max distance from host to storage (tested and supported) | 100 meters |
| Host Connectivity (FCoE) | |
| Max HPE  3PAR Storage System host facing FCoE HBAs per node | 1 |
| Max HPE  3PAR Storage System host facing FCoE ports  per node | 2 |
| Max FCOE initiators per port | 64 |
| Max FCOE initiators per HPE  3PAR Storage System | 256(for 2 nodes), <br> 512(for 4 nodes) |

Notes

1. Direct Connect supported on 16Gb HBA from 3.2.2 MU2
2. A single FC host initiator WWN would count as multiple initiators if it has logins to multiple host facing FC ports on a HPE 3PAR Storage System.

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

## 3PAR StoreServ 7400c

| Connectivity | 3PAR StoreServ 7400c Limits |
|---|---|
| Host Connectivity Total (Fibre Channel, iSCSI, and/or mixed) | |
| Max initiators per HPE 3PAR Storage System | 1024 (for 2 nodes)<br>2048 (for 4 nodes) |
| Host Connectivity (Fibre Channel) | |
| Fan-Out (max initiators (host HBA ports) per HPE 3PAR Storage System port over SAN) NOTE: This limit is an aggregate of the total iSCSI and/or FC initiators | 128 (8 Gb FC)<br>256 (16 Gb FC) |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator (host HBA port)) | 8 |
| Max initiators per HPE 3PAR Storage System (direct-connect only) [1]<br>Max 1 target HBAs per node | 12 (for 2 nodes),<br>24 (for 4 nodes) |
| Max initiators per HPE 3PAR Storage System (SAN or SAN/direct-connect)[2]<br>Max 1 target HBAs per node | 1,024 (for 2 nodes)<br>2048 (for 4 nodes) |
| Host Connectivity (iSCSI) | |
| Fan-Out (max iSCSI initiators per HPE 3PAR Storage System port over IP network; each<br>Linux iSCSI initiator counts as two iSCSI initiators on the HPE 3PAR Storage System) Note: This limit is an aggregate of the total iSCSI and/or FC initiators | 64 |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator) | 8 |
| MTU Sizes | 1500 through 9000 bytes |
| Max iSCSI initiators per HPE 3PAR Storage System | 256(for 2 nodes),<br>512(for 4 nodes) |
| Security | CHAP |
| IPv6 Support | No |
| Max distance from host to storage (tested and supported) | 100 meters |
| Host Connectivity (FCoE) | |
| Max HPE 3PAR Storage System host facing FCoE HBAs per node | 1 |
| Max HPE 3PAR Storage System host facing FCoE ports per node | 2 |
| Max FCOE initiators per port | 64 |
| Max FCOE initiators per HPE 3PAR Storage System | 256(for 2 nodes)<br>512 (for 4 nodes) |

Notes:
1.      Direct Connect supported on 16Gb HBA from 3.2.2 MU2
2.      A single FC host initiator WWN would count as multiple initiators if it has logins to multiple host facing FC ports on a HPE 3PAR Storage System.

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

### 3PAR StoreServ 7400

| Connectivity | 3PAR StoreServ 7400 Limits |
|---|---|
| **Host Connectivity Total (Fibre Channel, iSCSI, and/or mixed)** | |
| Max initiators per HPE 3PAR Storage System | 1024 (for 2 nodes)<br>2048 (for 4 nodes) |
| **Host Connectivity (Fibre Channel)** | |
| Fan-Out (max initiators (host HBA ports) per HPE 3PAR Storage System port over SAN) NOTE: This limit is an aggregate of the total iSCSI and/or FC initiators | 128 (8Gb FC)<br>256 (16Gb FC) |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator (host HBA port)) | 8 |
| Max initiators per HPE 3PAR Storage System (direct-connect only) [1]<br>Max 1 target HBAs per node | 12 (for 2 nodes),<br>24 (for 4 nodes) |
| Max initiators per HPE 3PAR Storage System (SAN or SAN/direct-connect)[2]<br>Max 1 target HBAs per node | 1,024 (for 2 nodes)<br>2048 (for 4 nodes) |
| **Host Connectivity (iSCSI)** | |
| Fan-Out (max iSCSI initiators per HPE 3PAR Storage System port over IP network; each<br>Linux iSCSI initiator counts as two iSCSI initiators on the HPE 3PAR Storage System) Note: This limit is an aggregate of the total iSCSI and/or FC initiators | 64 |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator) | 8 |
| MTU Sizes | 1500 through 9000 bytes |
| Max iSCSI initiators per HPE 3PAR Storage System | 256(for 2 nodes),<br>512(for 4 nodes) |
| Security | CHAP |
| IPv6 Support | No |
| Max distance from host to storage (tested and supported) | 100 meters |
| **Host Connectivity (FCoE)** | |
| Max HPE 3PAR Storage System host facing FCoE HBAs per node | 1 |
| Max HPE 3PAR Storage System host facing FCoE ports per node | 2 |
| Max FCOE initiators per port | 64 |
| Max FCOE initiators per HPE 3PAR Storage System | 256 (for 2 nodes)<br>512/ (for 4 nodes) |

Notes
1. Direct Connect supported on 16Gb HBA from 3.2.2 MU2
2. A single FC host initiator WWN would count as multiple initiators if it has logins to multiple host facing FC ports on a HPE 3PAR Storage System.

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

## 3PAR StoreServ 7200c

| Connectivity | 3PAR StoreServ 7200c Limits |
|---|---|
| Host Connectivity Total (Fibre Channel, iSCSI, and/or mixed) | |
| Max initiators per HPE 3PAR Storage System | 1024 |
| Host Connectivity (Fibre Channel) | |
| Fan-Out (max initiators (host HBA ports) per HPE 3PAR Storage System port over SAN) NOTE: This limit is an aggregate of the total iSCSI and/or FC initiators | 128 (8Gb FC)<br>256 (16Gb FC) |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator (host HBA port)) | 8 |
| Max initiators per HPE 3PAR Storage System (direct-connect only) [1]<br>Max 1 target HBAs per node | 12 |
| Max initiators per HPE 3PAR Storage System (SAN or SAN/direct-connect)[2]<br>Max 1 target HBAs per node | 1024 |
| Host Connectivity (iSCSI) | |
| Fan-Out (max iSCSI initiators per HPE 3PAR Storage System port over IP network; each<br>Linux iSCSI initiator counts as two iSCSI initiators on the HPE 3PAR Storage System) Note: This limit is an aggregate of the total iSCSI and/or FC initiators | 64 |
| Fan-In (number of HPE 3PAR Storage System ports visible to a single initiator) | 8 |
| MTU Sizes | 1500 through 9000 bytes |
| Max iSCSI initiators per HPE 3PAR Storage System | 256 |
| Max dual-path iSCSI Linux hosts per HPE 3PAR Storage System (each iSCSI Linux initiator visible to a single HPE 3PAR Storage System port = 1 initiators; Linux host with 1 iSCSI initiator that is visible to two HPE 3PAR Storage System ports via IP network is equivalent to dual-path Linux host and counts as 2 initiators) | 128 |
| Max dual-path iSCSI Windows hosts per HPE 3PAR Storage System (each iSCSI Windows initiator visible to a single HPE 3PAR Storage System port = 1 initiator; Windows host with 1 iSCSI initiator that is visible to two HPE 3PAR Storage System ports via IP network is equivalent to a dual-path host and counts as 2 initiators) | 128 |
| Security | CHAP |
| IPv6 Support | No |
| Max distance from host to storage (tested and supported) | 100 meters |
| Host Connectivity (FCoE) | |
| Max HPE 3PAR Storage System host facing FCoE HBAs | 2 |
| Max HPE 3PAR Storage System host facing FCoE ports | 4 |
| Max FCOE initiators per port | 64 |
| Max FCOE initiators per HPE 3PAR Storage System | 256 |

Notes
1. Direct Connect supported on 16Gb HBA from 3.2.2 MU2
2. A single FC host initiator WWN would count as multiple initiators if it has logins to multiple host facing FC ports on a HPE 3PAR Storage System.

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

## 3PAR StoreServ 7200

| Connectivity | 3PAR StoreServ 7200 Limits |
|---|---|
| Host Connectivity Total (Fibre Channel, iSCSI, and/or mixed) | |
| Max initiators per HPE  3PAR Storage System | 1024 (for 2 nodes) |
| Host Connectivity (Fibre Channel) | |
| Fan-Out (max initiators (host HBA ports) per HPE  3PAR Storage System port over SAN) NOTE: This limit is an aggregate of the total iSCSI and/or FC initiators | 128  (8Gb FC)<br>256 (16 Gb FC) |
| Fan-In (number of HPE  3PAR Storage System ports visible to a single initiator (host HBA port)) | 8 |
| Max initiators per HPE  3PAR Storage System (direct-connect only) [1]<br>Max 1 target HBAs per node | 12 (for 2 nodes) |
| Max initiators per HPE  3PAR Storage System (SAN or SAN/direct-connect)[2]<br>Max 1 target HBAs per node | 1024 (for 2 nodes) |
| Host Connectivity (iSCSI) | |
| Fan-Out (max iSCSI initiators per HPE  3PAR Storage System port over IP network; each Linux iSCSI initiator counts as two iSCSI initiators on the HPE 3PAR Storage System) Note: This limit is an aggregate of the total iSCSI and/or FC initiators | 64 |
| Fan-In (number of HPE  3PAR Storage System ports visible to a single initiator) | 8 |
| MTU Sizes | 1500 through 9000 bytes |
| Max iSCSI initiators per HPE  3PAR Storage System | 256 (for 2 nodes) |
| Security | CHAP |
| IPv6 Support | No |
| Max distance from host to storage (tested and supported) | 100 meters |
| Host Connectivity (FCoE) | |
| Max HPE  3PAR Storage System host facing FCoE HBAs  per node | 1 |
| Max HPE  3PAR Storage System host facing FCoE ports  per node | 2 |
| Max FCOE initiators per port | 64 |
| Max FCOE initiators per HPE  3PAR Storage System | 256 (for 2 nodes) |

Notes
1. Direct Connect supported on 16Gb HBA from 3.2.2 MU2
2. A single FC host initiator WWN would count as multiple initiators if it has logins to multiple host facing FC ports on a HPE 3PAR Storage System.

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

## 3PAR OS Software 3.3.1

**3PAR StoreServ 20800 R2, 20840 R2, 20850 R2**

| 3PAR OS Software Resource | 3PAR StoreServ 20850  R2 | 3PAR StoreServ 20840  R2 | 3PAR StoreServ 20800  R2 |
|---|---|---|---|
| Console/User Interface | | | |
| Max CLI Connections | 256 | 256 | 256 |
| Max UI sessions (includes SSH, SSMC, CLI, System Reporter, RM) | 256 | 256 | 256 |
| Max SSH sessions (Local connections) | 64 | 64 | 64 |
| Max number of HPE 3PAR Storage Systems that can be simultaneously managed by HPE 3PAR Management Console. | 32 (With  SSMC 3.x) | 32 (With  SSMC 3.x) | 32 (With  SSMC 3.x) |
| Volume Management | | | |
| Max VV per system (Base VVs + VCs + FCs) | 131,072 | 131,072 | 131,072 |
| Max Base VVs (Normal VV or TPVV) | 65536 | 65536 | 65536 |
| Max VLUNs | 262144 | 262144 | 262144 |
| Minimum - Maximum Volume Size (Full and Thin Provisioned Volumes) | 256MiB – 64 TiB | 256MiB – 64TiB | 256MiB – 64TiB |
| Minimum - Maximum Volume Size (Thin Deduplication Volumes, Compressed Volumes, Thin Deduplication + Compressed Volumes) | 16GiB – 16TiB | 16GiB – 16TiB | 16GiB – 16TiB |
| Compression Supported Drives | SSD only | SSD only | SSD only |
| Maximum Compressed Volumes per node-pair | 2048 | 2048 | 2048 |
| Expand normal Volume Online - manually, and with Snapshots associated with base | Yes | Yes | Yes |
| Max VLUN ID | 16,384 | 16,384 | 16,384 |

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

## 3PAR StoreServ 20450, 20800, 20840, 20850

| 3PAR OS Software Resource | 3PAR StoreServ 20850 | 3PAR StoreServ 20840 | 3PAR StoreServ 20800 | 3PAR StoreServ 20450 |
|---|---|---|---|---|
| Console/User Interface | | | | |
| Max CLI Connections | 256 | 256 | 256 | 256 |
| Max UI sessions (includes SSH, SSMC, CLI, System Reporter, RM) | 256 | 256 | 256 | 256 |
| Max SSH sessions (Local connections) | 64 | 64 | 64 | 64 |
| Max number of HPE 3PAR Storage Systems that can be simultaneously managed by HPE 3PAR Management Console. | 16 (With SSMC 2.1) 32 (With SSMC 2.2) | 16 (With SSMC 2.1) 32 (With SSMC 2.2) | 16 (With SSMC 2.1) 32 (With SSMC 2.2) | 16 (With SSMC 2.1) 32 (With SSMC 2.2) |
| Volume Management | | | | |
| Max VV per system (Base VVs + VCs + FCs) | 131,072 | 131,072 | 131,072 | 131,072 |
| Max Base VVs (Normal VV or TPVV) | 65536 | 65536 | 65536 | 65536 |
| Max VLUNs | 262144 | 262144 | 262144 | 262144 |
| Minimum - Maximum Volume Size (Full and Thin Provisioned Volumes) | 256MiB – 64 TiB | 256MiB – 64TiB | 256MiB – 64TiB | 256MiB – 64TiB |
| Minimum - Maximum Volume Size (Thin Deduplication Volumes, Compressed Volumes, Thin Deduplication + Compressed Volumes) | 16GiB – 16TiB | 16GiB – 16TiB | 16GiB – 16TiB | 16GiB – 16TiB |
| Compression Supported Drives | SSD only | SSD only | SSD only | SSD only |
| Maximum Compressed Volumes per node-pair | 2048 | 2048 | 2048 | 2048 |
| Expand normal Volume Online - manually, and with Snapshots associated with base | Yes | Yes | Yes | Yes |
| Max VLUN ID | 16,384 | 16,384 | 16,384 | 16,384 |

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

## 3PAR StoreServ 9450 Series

| 3PAR OS Software Resource | 3PAR StoreServ 9450 |
|---|---|
| Console/User Interface | |
| Max CLI Connections | 224 |
| Max UI sessions (includes SSH, SSMC, CLI, System Reporter, RM) | 224 |
| Max SSH sessions (Local connections) | 64 |
| Max number of HPE 3PAR Storage Systems that can be simultaneously managed by HPE 3PAR Management Console | 32 (With SSMC 3.1) |
| Volume Management | |
| Max VV per system (Base VVs + VCs + FCs) | 131,072 |
| Max Base VVs (Normal VV or TPVV) | 65536 |
| Max VLUNs | 262144 |
| Minimum - Maximum Volume Size (Full and Thin Provisioned Volumes) | 256MiB – 64 TiB |
| Minimum - Maximum Volume Size (Thin Deduplication Volumes, Compressed Volumes, Thin Deduplication + Compressed Volumes) | 16GiB – 16TiB |
| Compression Supported Drives | SSD only |
| Maximum Compressed Volumes per node-pair | 2048 |
| Expand normal Volume Online - manually, and with Snapshots associated with base | Yes |
| Max VLUN ID | 16,384 |

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

**3PAR StoreServ 8000 Series**

| 3PAR OS Software Resource | 3PAR StoreServ 8450 | 3PAR StoreServ 8440 | 3PAR StoreServ 8400 | 3PAR StoreServ 8200 |
|---|---|---|---|---|
| Console/User Interface | | | | |
| Max CLI Connections | 224 | 224 | 96 | 96 |
| Max UI sessions (includes SSH, SSMC, CLI, System Reporter, RM) | 224 | 224 | 96 | 96 |
| Max SSH sessions (Local connections) | 64 | 64 | 24 | 24 |
| Max number of HPE 3PAR Storage Systems that can be simultaneously managed by HPE 3PAR Management Console | 32 (With SSMC 3.1) | 32 (With SSMC 3.1) | 32 (With SSMC 3.1) | 32 (With SSMC 3.1) |
| Volume Management | | | | |
| Max VV per system (Base VVs + VCs + FCs) | 131,072 | 131,072 | 16384 without File Person 8192 with File Persona | 16384 without File Person 8192 with File Persona |
| Max Base VVs (Normal VV or TPVV) | 65536 | 65536 | 16384 without File Person 8192 with File Persona | 16384 without File Person 8192 with File Persona |
| Max VLUNs | 262144 | 262144 | 131,072 | 131072 |
| Minimum - Maximum Volume Size (Full and Thin Provisioned Volumes) | 256MiB – 64 TiB | 256MiB – 64TiB | 256MiB – 64TiB | 256MiB – 64TiB |
| Minimum - Maximum Volume Size (Thin Deduplication Volumes, Compressed Volumes, Thin Deduplication + Compressed Volumes) | 16GiB – 16TiB | 16GiB – 16TiB | 16GiB – 16TiB | 16GiB – 16TiB |
| Compression Supported Drives | SSD only | SSD only | SSD only | SSD only |
| Maximum Compressed Volumes per node-pair | 2048 | 2048 | 2048 | 2048 |
| Expand normal Volume Online - manually, and with Snapshots associated with base | Yes | Yes | Yes | Yes |
| Max VLUN ID | 16,384 | 16,384 | 16,384 | 16,384 |

## 3PAR StoreServ 10000 Series

| 3PAR OS Software Resource | 3PAR StoreServ 10800 | 3PAR StoreServ 10400 |
|---|---|---|
| Console/User Interface | | |
| Max CLI Connections | 192 | 128 |
| Max UI sessions (includes SSH, SSMC, CLI, System Reporter, RM) | 192 | 128 |
| Max SSH sessions (Local connections) | 48 | 32 |
| Max number of HPE 3PAR Storage Systems that can be simultaneously managed by HPE 3PAR Management Console | 32 (With SSMC 3.1) | 32 (With SSMC 3.1) |
| Volume Management | | |
| Max VV per system (Base VVs + VCs + FCs) | 65536 | 65536 |
| Max Base VVs (Normal VV or TPVV) | 32,768 | 32,768 |
| Max VLUNs | 131,072 | 131,072 |
| Minimum - Maximum Volume Size (Full and Thin Provisioned Volumes) | 256MiB – 64 TiB | 256MiB – 64TiB |
| Minimum - Maximum Volume Size (Thin Deduplication Volumes) | 16GiB – 16TiB | 16GiB – 16TiB |
| Expand normal Volume Online - manually, and with Snapshots associated with base | Yes | Yes |
| Max VV per Common Provision Group (CPG) | 65536 | 65536 |
| Max TDVVs per Common Provision Group (CPG) | 1024 | 1024 |
| Max TPVVs per Common Provision Group (CPG) | 32,766 | 32,766 |
| Max VLUN ID | 16384 | 16384 |

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

**3PAR StoreServ 7000 Series**

| 3PAR OS Software Resource | 3PAR StoreServ 7450c | 3PAR StoreServ 7450 | 3PAR StoreServ 7440c | 3PAR StoreServ 7400c | 3PAR StoreServ 7400 | 3PAR StoreServ 7200c | 3PAR StoreServ 7200 |
|---|---|---|---|---|---|---|---|
| Console/User Interface | | | | | | | |
| Max CLI Connections | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Max UI sessions (includes SSH, SSMC, CLI, System Reporter, RM) | 96 | 96 | 96 | 96 | 96 | 96 | 96 |
| Max SSH sessions (Local connections) | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Max number of HPE 3PAR Storage Systems that can be simultaneously managed by HPE 3PAR Management Console | 32 (With SSMC 3.1) | 32 (With SSMC 3.1) | 32 (With SSMC 3.1) | 32 (With SSMC 3.1) | 32 (With SSMC 3.1) | 32 (With SSMC 3.1) | 32 (With SSMC 3.1) |
| Volume Management | | | | | | | |
| Max VV per system (Base VVs + VCs + FCs) | 65,536 | 16,384 | 65,536 | 16,384 without File Persona<br><br>8192 with File Persona | 8192 | 8192 without File Persona<br><br>4096 with File Persona | 4096 |
| Max Base VVs (Normal VV or TPVV) | 32768 | 8192 | 32768 | 8192 | 8192 | 4096 | 4096 |
| Max VLUNs | 65,536 | 262144 | 65,536 | 65,536 | 65,536 | 32,768 | 32,768 |
| Minimum - Maximum Volume Size (Full and Thin Provisioned Volumes) | 256MiB – 64 TiB | 256MiB – 64TiB | 256MiB – 64TiB | 256MiB – 64TiB | 256MiB – 64TiB | 256MiB – 64TiB | 256MiB – 64TiB |
| Minimum - Maximum Volume Size (Thin Deduplication Volumes) | 16GiB – 16TiB | 16GiB – 16TiB | 16GiB – 16TiB | 16GiB – 16TiB | 16GiB – 16TiB | 16GiB – 16TiB | 16GiB – 16TiB |
| Expand normal Volume Online - manually, and with Snapshots associated with base | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Max VLUN ID | 16384 | 16384 | 16384 | 16384 | 16384 | 16384 | 16384 |

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

## Software

| 3PAR OS Software Resource | 3.3.1 |
|---|---|
| Virtual Copy | |
| Max Snapshots (SS) per VV: RO | 500 recommended / 2,048 max |
| Max Snapshots (SS) per VV: RW | 2048 |
| Max RW Snapshots per RO Snapshot | 2048 |
| Max VVs per Consistency Group for group snapshots (VC or FC) | 100 |
| Domains[1] | |
| Max number of domains | 1024 |
| Max number of domains a given user can belong to | Up to 32 |
| Max number users per domain | 500 |
| Max User Accounts | 500 |
| Scheduler | |
| Max Scheduled tasks | 250 (Memory Size <= 4 GiB) 375 (Memory Size > 4GiB but Memory Size <= 8GiB) 500 (Memory Size > 8GiB ) |
| LDAP | |
| Max concurrently logged in LDAP users | 32 |
| Max length of the LDAP string | None |
| Object Sets (Autonomic Groups) | |
| Max volumes in a set | 8192 |
| Max hosts in a set | 8000 |
| Max domains in a set | 1024 |

Notes:
1: There are no additional limits placed on the number of VVs, VLUNs, hosts, CPGs, CLI/GUI connections per domain beyond the system limits.

## File Persona

| 3PAR File Persona | 3.3.1 |
|---|---|
| **Client Access Protocols** | |
| SMB 3.1.1, 3.0, 2.1, 2.0, and 1.0 | Yes  (SMB 3.1.1 requires MU1 patch 07 or above) |
| NFSv4 and v3 | Yes |
| Object Access API (REST over HTTP) | Yes |
| FTP/FTPS | Yes |
| **Other Protocols** | |
| NDMP v4, v3, and v2 over iSCSI | Yes |
| ICAP | Yes |
| **Authentication  Services** | |
| Microsoft Active Directory | Yes |
| LDAP | Yes |
| Local User/Groups | Yes |
| **File Data Services** | |
| User Authentication Services | Yes |
| Cross protocol r/w access with locking | Yes |
| RFC2307 external user mapping | Yes |
| Static/dynamic user mapping on 3PAR | Yes |
| Quota Management Services | Yes |
| Antivirus Scan Services | Yes |
| File Store Snapshots | Yes |
| Backup/Restore Services | Yes |
| File Lock Enterprise mode (Retention and WORM) | Yes |
| File Access Auditing framework integrated with ISV applications | Yes (requires MU1 patch 07 or above) |
| **Microsoft Windows Integration** | |
| Access Based Enumeration | Yes |
| DFS Namespace as a leaf node | Yes |
| Folder Redirection | Yes |
| Microsoft Management Console | Yes |
| Offline Files | Yes |
| Offloaded Data Transfer | Yes |
| Previous Versions | Yes |
| Roaming User Profiles | Yes |
| **Block Data Services supported by File Persona** | |
| Thin Provisioning (TPVVs) | Yes |
| Thin Persistence | Yes |
| Thin Conversion | Yes |
| Thin Copy Reclamation | Yes |
| Thin Deduplication (TDVVs) | Yes |
| Compressed volumes | No |

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

| | |
|---|---|
| Adaptive Optimization | Yes |
| Dynamic Optimization | Yes |
| Priority Optimization | No |
| Adaptive Flash Cache | Yes |
| Virtual Domains | No |
| Virtual Lock | No (File Lock is equivalent feature) |
| Virtual Copy | Yes |
| Remote Copy | Yes |
| Peer Persistence | No |
| Peer Motion | No |
| DAR Encryption | Yes |
| **Management** | |
| StoreServ Management Console | Yes |
| InForm Management Console | No |
| 3PAR CLI | Yes |
| 3PAR WSAPI | Yes |
| Events/alerts and call home via Service Processor | Yes |
| On-node System Reporter for file statistics | Yes |
| **Scalability** | |
| Max aggr capacity of all FPGs per node pair | 256TiB (requires MU1 patch 07 or above) |
| Max FPG size | 64TiB |
| Max File Provisioning Groups (FPGs) per node pair | 16 |
| Max Virtual File Servers (VFS) per FPG | 1 |
| Max virtual IP addresses per VFS | 4 |
| Max VLANs per VFS | 4 |
| Max File Stores per VFS | 16 |
| Max File Store Snapshots per File Store | 1,024 |
| Max Active Directory domains per system | 1 |
| Max LDAP authentication domain per system | 1 |
| SMB Shares per node pair | 4,000 |
| NFS Shares per node pair | 1,024 |
| Object Shares per node pair | 1200 |
| FTP Shares per node pair | 64 |
| Max user/group quota rules per FPG | 2000 |
| Max capacity quotas per FPG | 16 |
| Max local users per system | 200 |
| Max local groups per system | 200 |
| **Licensing** | |
| | Included in All-inclusive single-system Base OS LTU, no 1TiB LTU for |

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

| | 8000, 9000, 20000 (R2) systems |
|---|---|
| Per 1TiB LTU | 256 TiB per node pair only for 7000c, 8000, 20000 systems with 'A' SKUs |

## Remote Copy

| Remote Copy | 3.3.1 |
|---|---|
| Failover | Automated and manual failover |
| Max Size of Mirrored Volume | 64 TiB |
| MTU Sizes | 1000 through 9000 bytes |
| **Synchronous** | |
| Max Mirrored Volumes per HPE 3PAR StoreServ Storage | 800 - 2 Nodes<br>3000- 4 Nodes<br>4000 – 8 Nodes |
| Maximum Latency over IP (RTT) | 10 ms |
| Maximum Latency over FC (RTT) | 10 ms |
| Maximum Latency over FCIP (RTT) | 10 ms |
| **Asynchronous Periodic** | |
| Max Mirrored Volumes per HPE 3PAR StoreServ Storage | 6,000 - 4 Node and greater configuration<br>2,400 - 2 Node configuration |
| Maximum synchronous targets per system | 4 – 4 nodes and greater<br>2 - 2 nodes |
| Min. Interval for Asynchronous Periodic Resyncs | 5min |
| Maximum Latency over IP (RTT) | 150 ms |
| Maximum Latency over FC (RTT) | 10 ms |
| Maximum Latency over FCIP (RTT) | 120 ms |
| **Asynchronous Streaming** | |
| Supported Platforms | 8000, 9450, 20000, 20000 R2 |
| Max Mirrored Volumes per HPE 3PAR StoreServ Storage<br>Note : Max groups is 512 | 512<br>331MU3 onwards :2048 for 4-8 nodes; 512 for 2 nodes |
| Max Groups per HPE 3PAR StoreServ Storage | 512 |
| Maximum Latency over IP (RTT) | 30 ms |
| Supported Array Ports for RCIP | 10GbE only (1GbE not supported) |
| Maximum Latency over FC (RTT) | 10 ms |
| Maximum Latency over FCIP (RTT) | 30 ms |
| Source Target Pairing Rules | 1. Requires same number of nodes at source and target<br>2. Every node must have at least 1 connection to a node on the other array |
| Support for Compressed Volumes | Yes (3.3.1 MU2 onwards) |
| **Synchronous Long Distance (SLD)** | |
| Max Replicated Volumes per HPE 3PAR StoreServ Storage (Synchronous Long Distance) | 3000 |
| Minimum number of nodes in a Synchronous Long Distance (SLD) configuration | 2 |

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

| Consistency Groups | |
|---|---|
| Max Consistency Groups | 6000 Periodic or 3000 Sync (for 4 nodes and greater configuration)<br>2400 Periodic and 800 Sync (for 2 nodes)<br>512 Asynchronous Streaming |
| Max Mirrored Volumes per Consistency Group | 300 |

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

## Remote Copy Link Configuration Notes

For Maximum RC Links:

A storage system can use all available RC links (FC and IP). e.g., a 2-node system can use 8 RCFC or FCIP links and 2 RCIP links for replication, and an 8-node system can use 32 RCFC or FCIP links and8 RCIP links for replication (subject to other configuration limits)

For Maximum RC targets

A minimum of two RC links of the same type (either RCIP or RCFC) is required for each target. You can include more than two links per target, up to the maximim RC links supported for the array, if desired

- Remote copy Groups sharing a particular target must run in the same RC mode.

  -So, RC over IP links and in Sync mode would use one target.  RC over IP links but in Async Periodic mode would have to be a different (second) target. This does not necessarily mean a separate array

  -So a 2-node system can be a target for up to 2 other arrays, where:

     -Both of the RC relationships can be Sync, or both can be Async Periodic, or one can be Sync while the other Async Periodic

     -Both of the above RC relationships can come from a single source array, or from two different source arrays (one each)

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

## Peer Persistence and 3DC Peer Persistence

| Peer Persistence  and 3DC Peer Persistence | 3.3.1 |
|---|---|
| Failover[1] | Automated(ATF)  and Manual failover (MTF) |
| Max. No. of Volumes | 3000 |
| Max. No. of Groups | 300 |
| Max. No. of Groups in a single failover relationship | 300 |
| Max. Vols/Group | 200 |
| Link Support[2] | RCFC, RCIP[3] |
| Supported Link Latency | Same as Sync Mode Remote Copy |
| 3DC Peer Persistence Supported Tertiary Replication Modes | Periodic Async |

Notes:

1. For ATF and MTF, the values shown are the total number for an array pair in a Peer Persistence configuration
2. Listed Remote Copy Link connectivity represents the supported link endpoint connectivity at the array.  Connectivity and transport infrastructure between switches (FC, FCIP, IP) is supported by the switch vendors and associated infrastructure owners
3. 3DC Peer Persistence with 331 MU2 supports all 10Gbe interfaces

### Peer Persistence Quorum Witness

| Quorum Witness | Hypervisors | HPE 3PAR OS 3.1.3 | HPE 3PAR OS 3.2.1 | HPE 3PAR OS 3.2.2 | HPE 3PAR OS 3.3.1 |
|---|---|---|---|---|---|
| 1.0.0.004 | | | | | |
| | VMware 5.5 | Supported[1] | | | |
| 1.0.0.005 | | | | | |
| | VMware 5.5 | Supported[1] | Supported[1] | | |
| 2.0.001 | | | | | |
| | VMware 5.5 | Supported[1] | Supported[1] | Supported[1] | |
| | HyperV for Windows Server 2012 R2 | | Supported[1] | Supported[1] | |
| 2.1.000 | | | | | |
| | VMware 5.5, 6.0, 6.5 | Supported | Supported | Supported | Supported |
| | HyperV for Windows Server 2012 R2, 2016 | | Supported | Supported | Supported |

Notes

1. QW Version 2.1.000 is the recommended replacement for previous versions of QW running with Peer Persistence software on 3PAR 3.1.3 and 3.2.x versions of software for both ESX and HyperV versions

### Peer Persistence Quorum Witness Configuration

- Quorum Witness Version 2.1.000 supports IPv6 with 3PAR OS 3.3.1 MU1 and above
- Quorum Witness Software version 2.0.001 and above can be deployed in VMware ESXi (minimum required version 5.5) or Hyper-V Windows Server 2012 R2 and used in a Peer Persistence configuration with any supported OS type.

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

- Only one Quorum Witness VM can be assigned to a 3PAR array in a Peer Persistence configuration.
- HPE recommends when upgrading from 3.1.3 to 3.2.1 that you perform the HPE 3PAR array update prior to your Quorum Witness upgrade.

## Quorum Witness node support configurations

A Quorum Witness (QW) can support a maximum of 16 3PAR StoreServ array nodes. The formula for computing how many QWs are required is:

Number of QWs required = ROUNDUP(Total nodes in all PP configurations/16)

This means for example:
- Two eight-node arrays in a Peer Persistence configuration is a total of 16 nodes and requires a full QW for support
  ROUNDUP(16/16) = ROUNDUP(1/1) = ROUNDUP(1) = 1QW

- An eight node and a four node array in a Peer Persistence configuration is a total of 12 nodes. The QW could support this configuration and a second PP configuration consisting of two two-node arrays (four nodes total) for a total of 16 3PAR nodes being supported by a single QW.
  ROUNDUP((8 + 4)/16) = ROUNDUP(12/16) = 1QW

- An eight node array and a four node array in one PP configuration and a pair of four node arrays in a second PP configuration.

  ROUNDUP((8 + 4 +4 +4)/16) = ROUNDUP(20/16) = 2QW

See SPOCK 3PAR Peer Persistence Host OS Support Matrix for host configuration details

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

## Federation

| Federation | 3.2.1 | 3.2.2 | 3.3.1 |
|---|---|---|---|
| Max concurrent active moves | 9 | 9 | 9 |
| Granular host migration (online) | Yes | Yes | Yes |
| Granular host migration (offline) | Yes | Yes | Yes |
| Bi-directional Migration | No | Yes<br>3.2.2 to 3.2.2. only | Yes<br>3.3.1 to 3.3.1<br>3.3.1 to 3.2.2<br>3.2.2 to 3.3.1 |
| Max HPE 3PAR Storage System's in a PM relationship in Bi-directional configuration | No | 4 systems are supported for bidirectional. | 4 systems are supported for bidirectional. |
| Max number of source systems per destination 3PAR system | 1 source systems per destination 3PAR system with IMC, Peer Motion Utility, Online Import Utility | 4 source systems per destination 3PAR system with SSMC 2.x and 3.0<br><br>8 source systems per destination 3PAR system with SSMC 3.1 | 8 source systems per destination 3PAR system with SSMC 3.1 |
| Supported Topologies for uni-directional migration | 3PAR to 3PAR<br>1-to-1<br><br>XP, HDS, EMC to 3PAR<br>1-to-1<br><br>EVA to 3PAR<br>1-to-1 | 3PAR to 3PAR<br>N-to-N<br>N-to-1<br>1-to-N<br>1-to-1<br><br>XP, HDS, EMC, IBM to 3PAR<br>N-to-N<br>N-to-1<br>1-to-N<br>1-to-1<br><br>EVA to 3PAR<br>1-to-1 | 3PAR to 3PAR<br>N-to-N<br>N-to-1<br>1-to-N<br>1-to-1<br><br>XP, HDS, EMC, IBM to 3PAR<br>N-to-N<br>N-to-1<br>1-to-N<br>1-to-1<br><br>EVA to 3PAR<br>1-to-1 |
| Direct Connect Peer Link | No | No | No |
| Fabric Attached Peer Link | Yes | Yes | Yes |
| Max number of Peer ports per node | 1 | 1 | 1 |
| Max number of Peer ports per HPE 3PAR StoreServ Storage | 2 | 2 | 2 |
| Import a volume into a CPG that is part of an Adaptive Optimization configuration on the destination | No | No | No |
| Can use System Tuner while using Peer Motion | No | No | No |

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

| | | | |
|---|---|---|---|
| Can use Dynamic Optimization while using Peer Motion | No | No | No |
| Support for migrating Common Provisioned volumes | Yes | Yes | Yes |
| Support for migrating Thin volumes | Yes | Yes | Yes |
| Support for migrating Dedup volumes | Yes | Yes | Yes |
| **Federation** | **3.2.1** | **3.2.2** | **3.3.1** |
| Support for Compressed volumes | No | No | Yes |
| Automatically import a base volume and its snapshot tree | No | No | No |
| Import a base volume without needing to delete snapshot tree on source HPE 3PAR StoreServ Storage (snapshot data is not migrated) (RW/RO/Both) | Yes | Yes | Yes |
| Migrate a snapshot from source HPE 3PAR Storage System into a base volume on destination HPE 3PAR StoreServ Storage | Yes | Yes | Yes |
| Migrating a snapshot from source HPE 3PAR Storage System to a snapshot on destination HPE 3PAR StoreServ Storage | No | No | No |
| Source HPE 3PAR StoreServ Storage models | HPE 3PAR StoreServ 10x00<br>HPE 3PAR StoreServ 7xxx | T Class<br>F Class<br>HPE 3PAR StoreServ 10x00<br>HPE 3PAR StoreServ 7xxx<br>HPE 3PAR StoreServ 8xxx<br>HPE 3PAR StoreServ 20xx0 | T Class<br>F Class<br>HPE 3PAR StoreServ 10x00<br>HPE 3PAR StoreServ 7xxx<br>HPE 3PAR StoreServ 8xxx<br>HPE 3PAR StoreServ 20xx0<br>HPE 3PAR StoreServ 208xx R2<br>HPE 3PAR StoreServ 9450 |
| Destination HPE 3PAR StoreServ Storage models | HPE 3PAR StoreServ 10x00<br>HPE 3PAR StoreServ 7xxx | HPE 3PAR StoreServ 10x00<br>HPE 3PAR StoreServ 7xxx<br>HPE 3PAR StoreServ 8xxx<br>HPE 3PAR StoreServ 20xx0 | HPE 3PAR StoreServ 10x00<br>HPE 3PAR StoreServ 7xxx<br>HPE 3PAR StoreServ 8xxx<br>HPE 3PAR StoreServ 20xx0<br>HPE 3PAR StoreServ 208xx R2<br>HPE 3PAR StoreServ 9450 |

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

| Consistency groups | Maximum 20 VVs in a consistency group<br>Total size of volumes should not exceed 40TiB | Maximum 20 VVs in a consistency group<br>Total size of volumes should not exceed 40TiB | Maximum 20 VVs in a consistency group<br>Total size of volumes should not exceed 40TiB |
|---|---|---|---|
| Smart SAN support | No | SmartSAN 2.0 | SmartSAN 2.0 |

## Persistent Ports

| Persistent Ports | 3.3.1 |
|---|---|
| Persistent Ports for FC attached hosts | Yes[1] |
| Persistent Ports for iSCSI attached hosts | Yes[1] |
| Persistent Ports for FCoE attached hosts | Yes |

Notes:

1. Persistent Ports with FC, iSCSI also detect loss_sync (cable pull detection)

## Adaptive Flash Cache

| Adaptive Flash Cache | 3.3.1 |
|---|---|
| Read only flash cache | Yes |
| Drives Supported | |
| 7200, 7200c, 7400,7400c,7440c, 7450, 7450c | Any 3PAR SSD, except 480 GB Non-AFC SSD |
| 10400(old), 10400(new), 10800 | Any 3PAR SSD, except 480 GB Non-AFC SSD |
| 8200, 8400, 8440, 8450 | Any 3PAR SSD, except 480 GB Non-AFC SSD |
| 20800, 20840, 20450 | Any 3PAR SSD, except 480 GB Non-AFC SSD |
| 20840 R2, 20800 R2 | Any 3PAR SSD, except 480 GB Non-AFC SSD |
| Limits | |
| AFC Min size per node pair | 64GiB |
| AFC Max size and min SSD per node pair for 7200 | 768GiB, 2 SSD |
| AFC Max size and min SSD per node pair for 7200c | 768GiB, 2 SSD |
| AFC Max size and min SSD per node pair for 7400 | 768GiB, 2 SSD |
| AFC Max size and min SSD per node pair for 7400c | 768GiB, 2 SSD |
| AFC Max size and min SSD per node pair for 7440c | 1.5TiB, 2 SSD |
| AFC Max size and min SSD per node pair for 10400 (old) | 1.5TiB, 8 SSD |
| AFC Max size and min SSD per node pair for 10400 (new) | 2TiB, 8 SSD |
| AFC Max size and min SSD per node pair for 10800 | 2TiB, 8 SSD |
| AFC Max size and min SSD per node pair for 8200 | 768GiB, 2 SSD |
| AFC Max size and min SSD per node pair for 8400 | 768GiB, 2 SSD |
| AFC Max size and min SSD per node pair for 8440 | 4TiB, 2 SSD |
| AFC Max size and min SSD per node pair for 20800 | 8TiB, 4 SSD |
| AFC Max size and min SSD per node pair for 20840 | 12TiB, 4 SSD |
| AFC Max size and min SSD per node pair for 20800 R2 | 8TiB, 4 SSD |
| AFC Max size and min SSD per node pair for 20840 R2 | 12TiB, 4 SSD |

For HPE 3PAR StoreServ 20000R2, 20000, 9000, 8000, 10000, 7000/7000c

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