

# ONTAP SAN Implementation & Administration



**Delivery:** ILT / vILT

**Duration:** 2 days

**Training Units:** 24

## Course Description

Learn how to implement and administer NetApp ONTAP SAN solutions by examining SAN protocols and architecture. Learn about ONTAP capabilities for iSCSI, FCP and NVMe over IP and FC fabric.

## Role

- Administrator

## Prerequisites

- *Introduction to ASA*
- *ONTAP ASA Fundamentals*

## Objectives

This course focuses on enabling you to do the following:

- Define and describe SAN environments that use iSCSI, FC, FCoE, and NVMe protocols
- Explain ONTAP block protocol features and recommendations
- Examine FC switch fabric, LUN masking, and zoning
- Configure Microsoft Windows Server, Linux, and ONTAP based SAN storage systems for IP and FC connectivity
- Illustrate SAN configuration and provisioning
- Demonstrate block storage space efficiency configurations in a SAN environment
- Discover ONTAP availability strategies and data protection for LUNs and namespaces
- Examine SAN performance considerations
- Perform SAN-specific manageability configurations

## Course Content

This course includes the following modules, lessons, and exercises:

Module	Lessons	Exercises
<b>Module 1: ONTAP SAN Configuration overview</b>	<ul style="list-style-type: none"> <li>• IP SAN configuration</li> <li>• FC SAN configuration</li> <li>• LUN provisioning</li> </ul>	<ul style="list-style-type: none"> <li>• Explore System Manager</li> <li>• Create an SVM</li> </ul>
<b>Module 2: ONTAP iSCSI configuration concepts</b>	<ul style="list-style-type: none"> <li>• iSCSI configuration recommendations</li> <li>• iSCSI feature overview</li> <li>• iSCSI configuration workflow</li> </ul>	<ul style="list-style-type: none"> <li>• Create iSCSI LUNs</li> </ul>
<b>Module 3: ONTAP FC configuration concepts</b>	<ul style="list-style-type: none"> <li>• FC configuration recommendations</li> <li>• FC and FCoE zoning</li> <li>• Cisco switches</li> <li>• Brocade switches</li> </ul>	<ul style="list-style-type: none"> <li>• Connect to a Brocade switch</li> <li>• Perform discovery</li> <li>• Create FC LUNs</li> </ul>
<b>Module 4: NVMe-oF configuration</b>	<ul style="list-style-type: none"> <li>• NVMe</li> <li>• NVMe-oF</li> <li>• NVMe integration into ONTAP software</li> </ul>	<ul style="list-style-type: none"> <li>• Create NVMe namespaces</li> </ul>
<b>Module 5: NetApp ONTAP SAN resource provisioning</b>	<ul style="list-style-type: none"> <li>• Volume and LUN provisioning</li> <li>• Additional ONTAP CLI considerations</li> </ul>	<ul style="list-style-type: none"> <li>• Examine volumes and LUNs from ONTAP CLI</li> </ul>
<b>Module 6: Host integration</b>	<ul style="list-style-type: none"> <li>• Host considerations</li> <li>• Windows hosts</li> <li>• Linux and UNIX hosts</li> <li>• LUN offset</li> </ul>	<ul style="list-style-type: none"> <li>• Install Host Utilities for Windows</li> <li>• Install Host Utilities for Linux</li> </ul>

Module	Lessons	Exercises
<b>Module 7: IP SAN connectivity</b>	<ul style="list-style-type: none"> <li>Windows iSCSI configuration</li> <li>Windows iSCSI implementation</li> <li>Linux iSCSI configuration</li> <li>Linux iSCSI implementation</li> </ul>	<ul style="list-style-type: none"> <li>Configure Windows for iSCSI SAN</li> <li>Configure NetApp ONTAP software for Windows iSCSI LUNs</li> <li>Discover iSCSI LUNs from Windows</li> <li>Configure Linux for NVMe/TCP</li> <li>Discover an NVMe namespace from Linux</li> </ul>
<b>Module 8: FC SAN connectivity</b>	<ul style="list-style-type: none"> <li>Configure a Windows host for FC</li> <li>Identify the WWNN and WWPN on a Windows host</li> <li>Implement and verify multipath FC connectivity on a Windows host</li> <li>Configure a Linux host for FC</li> <li>Identify WWPNs on a Linux host</li> <li>Implement and verify multipath FC connectivity on a Linux host</li> </ul>	<ul style="list-style-type: none"> <li>Configure a Brocade switch for a Windows FC environment</li> <li>Configure to an FC LUN from Windows</li> </ul>
<b>Module 9: SAN availability and data protection</b>	<ul style="list-style-type: none"> <li>High availability and host multipathing</li> <li>Data protection in SAN environments</li> </ul>	<ul style="list-style-type: none"> <li>Examine multipathing behavior</li> </ul>
<b>Module 10: Management of NetApp ONTAP SAN environments</b>	<ul style="list-style-type: none"> <li>LUN mobility</li> <li>Volume and LUN reconfiguration</li> <li>SAN performance recommendations</li> </ul>	<ul style="list-style-type: none"> <li>Move a LUN</li> <li>Resize a LUN and extend a volume</li> </ul>
<b>Appendix A: ONTAP SAN fundamentals</b>	<ul style="list-style-type: none"> <li>Implementing iSCSI, FCP, and NVMe in ONTAP software</li> <li>SAN architecture</li> <li>Interoperability Matrix tool</li> <li>SAN scalability and maximums</li> </ul>	

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