Configuring Cisco Nexus 7000 Switches (DCNX7K) v3.1

Configuring Cisco Nexus 7000 Switches (DCNX7K) v3.1 course is a 5-day ILT training program that is designed for systems and field engineers who install and implement Cisco Nexus 7000 Series Switches. This course covers the key components and procedures you need to know to configure, manage, and troubleshoot the Cisco Nexus 7000 Series Switch platform.

Prerequisites

Students planning to enroll in DCNX7K certification course should be able to demonstrate firm knowledge of networking routing, switching and related protocols.

Course Objectives

- Management and understanding of Cisco Nexus 7000 Switch
- Nexus switch management tools
- Configuration of Nexus 7000 switch security and Quality of Service features
- Additional functionality and features including: FCoE, FabricPath, OTV, MPLS and security
- Troubleshooting key features of Cisco Nexus 7000 Switch

Outline:

Module 1: Cisco Nexus 7000 Series Switches

- Cisco unified fabric trends
- Nexus 7000 series switch
- Deployment models

Module 2: Cisco Nexus 7000 Series Switch Hardware

- Nexus 7000 series switch chassis family
- Chassis components
- I/O module families
- Nexus 7000 and 7700 I/O module scalability
- Network analysis module
- High-availability features
- Packet flow and arbitration

- Layer 2 and Layer 3 forwarding

Module 3: Cisco Nexus 2000 Series Fabric Extender

- Cisco FEX technology
- Fabric extender models
- 7000 series switch and 2000 series switch fabric extender topologies and features

Module 4: Cisco NX-OS Software

- NX-OS software architecture and key features
- NX-OS high-availability infrastructure components
- IOS to NX-OS conversion tool
- Licensing for Nexus 7000 series

Module 5: Cisco Nexus 7000 Series Switch Administration, Management and Troubleshooting

- CLI and GUI management interfaces
- NX-OS setup utility
- NX-OS user management
- AAA configuration with RADIUS, TACACS+, and LDAP
- System management features
- Cisco Fabric services
- ISSU
- NX-OS image recovery
- EPLD image upgrade
- Troubleshooting process
- Configure online diagnostics
- OBFL feature
- Configure RMON and Cisco EEM
- Evaluate memory
- Troubleshoot packet flow issues
- Cisco network analysis module

Module 6: Virtual Device Contexts (VDC) on Cisco Nexus 7000 Series Switches

- VDC communication
- VDC types, resources and management
- Configuring and verifying VDCs

- Managing VDC configurations

Module 7: Layer 2 Switching Features on Cisco nexus 7000 Series Switches

- Basic interface parameters configuration
- FEX layer 2 and 3 interfaces configuration
- VLAN configuration
- STP configuration
- Q-in-Q VLAN tunnels configuration

Module 8 Port Channels and Virtual Port Channels on Cisco Nexus 7000 Series Switches

- Port channel operation
- Port channel load balancing
- vPC
  - Concepts
  - Benefits
  - Architecture
  - Control and data plane operation
  - Peer link failure
  - Peer switch
  - Layer 3 interactions
  - Multicast
  - Configure and verify
  - Optimize
  - Troubleshooting checklist

Module 9: Cisco FabricPath on Cisco Nexus 7000 Series Switches

- FabricPath
  - Architecture
  - MAC address learning
  - Data plane operation
  - Spanning Tree interaction
  - IP multicast routing
- FabricPath con Nexus 7000 series switches configuration
- Troubleshooting
- FabricPath pong
- DFA architecture and features
- Fabric management
- DFA deployment requirements

- Prime DCNM 7.0 and DFA

Module 10: Layer 3 Switching Features on Cisco Nexus 7000 Series Switches

- Cisco NX-OS routing and forwarding
- Routing protocol configuration
  - Static route
  - OSPF
  - EIGRP
  - IS-IS
  - BGP
- Route policy manager
- FHRP protocol configurations
  - HSRP
  - VRRP
  - GLBP
- BFD configuration on Nexus 7000 switches
- Multicast configuration

Module 11: MPLS on Cisco Nexus 7000 Series Switches

- Layer 2 and 3 VPN
- Traffic engineering
- MPLS feature set configuration
- Layer 3 VPNs configuration
- Layer 2 VPNs configuration
- MPLS TE configuration

Module 12: Cisco OTV on Cisco Nexus 7000 Series Switches

- Cisco OTV
  - Terminology
  - Control plane
  - Data plane
  - Unicast-only transport infrastructure
  - Data plane encapsulation
  - Spanning tree
  - Unknown unicast
  - QOS
  - Fast convergence
- OTV verification and configuration

- Advanced OTV features

Module 13: VXLAN on Cisco Nexus 7000 Series Switches

- Data center overlay technologies
- VXLAN
- Data plane learning and packet flow
- MP-BGP EVPN control plane
- MP-BGP EVPN gateway functions
- VXLAN configuration verification

Module 14: LISP on Cisco Nexus 7000 Series Switches

- LISP
  - Features
  - Configuration steps
  - Infrastructure
  - Site devices
  - Internetworking devices
  - VM mobility

Module 15: FCoE on Cisco Nexus 7000 Series Switches

- Fiber Channel over Ethernet (FCoE)
  - Requirements
  - Address scheme
  - Initialization protocol
  - Port types
  - Design
- Supported FCoE ports
- Configuration steps
- Licensing
- Enable FCoE
- Multihop FCoE configuration

Module 16: Security Features on Cisco Nexus 7000 Series Switches

- Security features
- Configurations
  - ACLs
  - Port security

- ○ DHCP snooping
- ○ DAI
- ○ IP source guard
- ○ uRPF
- ○ Traffic storm control
- ○ CoPP
- ● Cisco TrustSec configuration

Module 17: QoS on Cisco Nexus 7000 Series Switches

- ● Diversity of data center application flows
- ● Data center QoS requirements
- ● Priority flow control
- ● Priority-based bandwidth management
- ● DCBX protocol
- ● QOS on Nexus 7000 configuration

Module 18: Cisco ITD and RISE on Cisco Nexus 7000 Series Switches

- ● ITD deployment models
- ● ITD configuration and verification
- ● RISE overview
  - ○ With Citrix NetScaler appliances
  - ○ With Cisco Prime NAM

Module 19: Cisco NX-API and Python on Cisco Nexus 7000 Series Switches

- ● Network programmability
- ● NX-API overview
- ● Python extensions and scripting

Labs:

- ● Cisco Nexus 7000 Platform Discovery
- ● Configuring User Management
- ● Configuring System Management
- ● Configuring Troubleshooting Features
- ● Configuring Layer 2 Switching
- ● Configuring vPC
- ● Configuring Cisco FabricPath
- ● Troubleshooting vPCs and Cisco FabricPath

- Configuring Layer 3 Switching
- Configuring FHRP (Optional)
- Configuring MPLS
- Configuring Cisco OTV
- Implementing VXLAN Bridging on the Nexus 7000
- Configuring LISP
- Configuring FCoE
- Configuring Security Features (Optional)
- Configuring QoS (Optional)
- Using Cisco Nexus 7000 Series Switch NX-API