

Cisco Digital Network Architecture Implementation Essentials (DNAIE) v2.0

What you'll learn in this course

The **Cisco Digital Network Architecture Implementation Essentials (DNAIE) v2.0** course gives you a thorough operational understanding of the architecture, components, and capabilities of the Cisco® Digital Network Architecture (Cisco DNA™) solution, using a lab-centric learning model. The course highlights the need for digitization in networks and the guiding principles of Cisco DNA. This solution training involves a suite of related technologies, including routing and switching, security, network programmability, analytics, and wireless.

The course covers automation using the Cisco Application Policy Infrastructure Controller Enterprise Module (APIC-EM) and built-in applications such as Cisco Network Plug and Play, EasyQoS, Cisco Intelligent WAN (IWAN), and Path Trace. You will also learn about virtualization in enterprise branch networks using the Cisco Enterprise Network Functions Virtualization (NFV) solution, including a deep dive into the Cisco 5400 Enterprise Network Compute System (ENCS), internal networking, and an overview of ENCS single WAN IP deployment option scenarios. The course also covers analytics using Cisco Connected Mobile Experiences (CMX) Cloud; security using Cisco Stealthwatch®, Cisco TrustSec®, and Cisco Identity Services Engine (ISE); and the role of Cisco Software-Defined Access (SD-Access) in Cisco DNA and how to implement SD-Access in a campus network.

Course duration

- Instructor-led or virtual instructor-led training: 5 days of instruction with hands-on lab practice
- E-learning: Equivalent of 5 days of instruction with hands-on lab practice

How you'll benefit

Cisco DNA is a software-driven architecture that enables automation, network functions virtualization, analytics, and security in enterprise network operations.

This course will help you understand and practice deploying:

- Automation using Cisco APIC-EM and its built-in applications such as Network Plug and Play, EasyQoS, IWAN, and Path Trace
- Virtualization in an enterprise branch network using Cisco Enterprise NFV, including a deep dive into the Cisco 5400 ENCS
- Analytics using Cisco CMX Cloud
- Security using Cisco Stealthwatch, Cisco TrustSec, and Cisco ISE
- Enterprise network fabric
- SD-Access in a campus network, including an overview of applications such as design, policy, and provisioning on Cisco DNA Center to automate the campus fabric

Who should enroll

- Experienced network engineers, especially those who work for enterprise organizations
- Channel partner field engineers

How to enroll

- For instructor-led training, visit the [Cisco Learning Locator](#).
- For individual e-learning, visit [Cisco Learning Network Store](#).
- For e-learning volume discounts, email ask_cpil@cisco.com.
- For digital library access, visit [Cisco Platinum Learning Library](#).
- For private group training, visit [Cisco Private Group Training](#).

Technology areas

- Networking
- Software-Defined Networking (SDN)

Course details

Objectives

After completing this course, you should be able to:

- Identify the Cisco DNA solution by describing its vision, strategy, general concepts, and components
- Implement network automation using Cisco APIC-EM and built-in applications such as Network Plug and Play, Easy QoS, IWAN, and Path Trace
- Implement network virtualization using Cisco Enterprise NFV in enterprise branch networks
- Implement network analytics using Cisco CMX Cloud
- Implement network security using Cisco Stealthwatch, Cisco TrustSec, and Cisco Identity Services Engine (ISE)

Prerequisites

We recommend but do not require the following skills and knowledge before attending this course:

- Foundational understanding of network design, routing, switching, QoS, and security
- Understanding of Cisco Discovery Protocol, Link Layer Discovery Protocol (LLDP), Dynamic Host Configuration Protocol (DHCP), DNS, Network Time Protocol (NTP), and Simple Network Management Protocol (SNMP)
- Understanding of TCP protocols such as HTTP, HTTPS, and Telnet
- Understanding of routing concepts and the ability to configure routing protocols such as Enhanced Interior Gateway Routing Protocol (EIGRP) and Open Shortest Path First (OSPF)
- Understanding of enterprise WAN and Dynamic Multipoint VPN (DMVPN)
- Understanding of firewall operation (especially transparent mode)
- Basic understanding of Cisco Prime® Infrastructure, KVM virtualization, and programming concepts
- Basic understanding of SDN, northbound APIs, southbound APIs, and representational state transfer (REST) APIs
- Understanding of WLAN parameters

- Basic understanding of wireless controllers (WLCs) and access point capabilities in WLCs
- Understanding of Power over Ethernet (PoE) in Cisco switches

Outline

- Identifying Cisco Digital Network Architecture Vision
- Identifying Cisco Digital Network Architecture Solution Components
- Identifying the Role of Automation and Orchestration Controllers in Cisco DNA
- Implementing Automation in Enterprise Networks
- Implementing Cisco Network Plug and Play Solution
- Implementing Cisco EasyQoS Solution
- Implementing Cisco Intelligent WAN Solution
- Troubleshooting Using Cisco APIC-EM Path Trace Application
- Implementing Cisco Enterprise Network Functions Virtualization
- Implementing Network Programmability in a Cisco DNA Architecture
- What Is Network Analytics in Cisco DNA?
- Cisco DNA Analytics Architecture
- Cisco DNA Analytics Proof Points
- Cisco Network Data Platform Architecture
- Cisco CMX on Premises
- Context-Aware Service Architecture
- Cisco CMX Connect
- Cisco CMX Analytics
- Cisco CMX API
- Cisco CMX Configuration
- Cisco CMX Cloud
- Pervasive Security
- Introduction to NetFlow
- Introduction to Cisco Stealthwatch
- Introduction to Cisco ISE
- Integrating Security Tools
- Implementing Cisco Software-Defined Access in Campus Networks

Lab outline

- Introducing Cisco APIC-EM GUI – Network, Device, and Topology Discovery Using APIC-EM
- Implementing Cisco Network Plug and Play Solution Using Cisco APIC-EM
- Implementing EasyQoS Using Cisco APIC-EM GUI
- Site Provisioning and Monitoring Using Cisco IWAN Application
- Troubleshooting Using Cisco APIC-EM Path Trace Applications
- Site Provisioning with NFVIS on Cisco UCS® C220 M3 Server Using OAM Servers

- Initial Switch and WLC Configuration for Cisco CMX
- Adding Maps to Cisco Prime Infrastructure
- Continuing to Add Maps to Cisco Prime Infrastructure
- AP Placement and Orientation
- Exporting Maps from Cisco Prime Infrastructure
- Performing the Initial Configuration of CMX
- Using the System Settings Menu to Configure Cisco CMX
- Adding Outline Wall to CMX Floor Plan Maps
- Using Detect and Connect
- Continuing to Customize Detect and Locate in CMX
- Working with Analytics in Cisco CMX
- Working with Customized Reports in the Analytics Service
- Continuing to Add Widgets to a Customized Report in CMX
- Logging in to the CMX Portal
- Configuring an ACL in the WLC for Use with CMX Cloud
- Configuring the WLAN and Security in the WLC to Support CMX Cloud
- Creating a Presence Site in CMX Cloud
- Initial Portal Creation in Connect and Engage
- Adding and Deleting an Element and Adding a Background Image to the Portal Template
- Customizing Text and Registration Elements in the Portal Template
- Exploring the Background Image, Themes, and Languages in the Portal Template
- Connecting a Client to the Wi-Fi Network
- Working with Presence Analytics and Connect and Engage
- Using the Manage Function in CMX Cloud
- Meraki® Integration with CMX Cloud
- Configuring Northbound Notifications




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