

Hands-on course , 5  
day(s)  
Ref : CCE

### Participants

Engineers/administrators and  
network technicians.

### Pre-requisites

Basic computing knowledge.

### Next sessions

# Cisco ICND1, CCENT Routing & Switching, certification preparation

*This course will allow you to learn all the techniques and methodologies needed to take the ICND1 test to obtain CCENT certification. You'll learn the fundamentals of enterprise networks and how to manage their security.*

## OBJECTIVES

Balanced mix of presentations, workshops on a simulator, and scenarios under similar conditions to the certification test.

### [1\) How to build a simple network](#)

#### [2\) IP addressing \(IPv4/IPv6\)](#)

#### [3\) Ethernet local area networks](#)

#### [4\) IP routing](#)

### [5\) IP services](#)

#### [6\) Equipment security](#)

#### [7\) Final preparation for the test](#)

## 1) How to build a simple network

- Network concepts. Models. TCP/IP vs OSI-RM.
- Components of a computer network, hubs, bridges, switches, routers.
- Basic operations of TCP/IP protocols.

## 2) IP addressing (IPv4/IPv6)

- IPv4 address, mask, public/private addresses.
- Concepts of variable-length subnet masks (VLSM) and network aggregation (summarization).
- IPv6 link local, global unicast, and multicast addresses.
- Interface identifiers, auto-configuration.

## 3) Ethernet local area networks

- Switching; collision and broadcast domains
- Switches, the CAM table. Configuration.
- Know how to implement VLANs and Trunk links.
- Wireless local area networks.

### Exercise

*Configure a switch. iOS commands. Verifying that the switched packet network is working properly using utilities: ping, telnet, ssh.*

## 4) IP routing

- Notions of subnets.
- Route, administrative distance, metrics, next hop.
- Static vs dynamic route.
- Link states vs distance vector.
- Operation and configuration of the OSPF v2, v3 routing protocol in a single areas.
- Troubleshooting IP routing.

### Exercise

*Configuring a router. iOS commands. Setting up a dual stack network with hosts and routers. Configuring inter-VLAN routing.*

## 5) IP services

- Configuration of a DHCP server on a router.
- Standard, extended, and named access lists (ACL).
- NAT address translation, NAT overload (PAT).
- Activate the Internet connection.

### Exercise

*Configuring address translation.*

## 6) Equipment security

- Introduction to network security. The firewall.
- Configuration and protection of local and remote access
- Traffic filtering with ACLs (access-control-lists).
- Security configuration.

### Exercise

*Configure SSH access, disable Telnet.*

## 7) Final preparation for the test

- Analysis of the test's topics.
- Build troubleshooting skills by drawing on scenarios.

### **Jeu de rôle**

*Intensive testing session under conditions close to the test.*