The CCIE Routing and Switching Lab Exam version 5.0 is an eight-hour, hands-on exam which requires you to configure and troubleshoot a series of complex networks to given specifications. Knowledge of troubleshooting is an important skill and candidates are expected to diagnose and solve issues as part of the CCIE lab exam. You will not configure end-user systems, but are responsible for all devices residing in the network.

CCIE Routing and Switching certifies the expert-level skills required to plan, prepare, operate, monitor and troubleshoot complex converged networks. Professionals who achieve CCIE have demonstrated their technical skills at the highest level.

CCIE training is designed and delivered in different patterns according to candidate’s requirements, knowledge and professional experience.
Overview

The Cisco Certified Internetwork Expert Security (CCIE Security) program recognizes security experts who have the knowledge and skills to architect, engineer, implement, troubleshoot, and support the full suite of Cisco security technologies and solutions using the latest industry best practices to secure systems and environments against modern security risks, threats, vulnerabilities, and requirements. CCIE training is designed and delivered in different patterns according to candidate’s requirements, knowledge and professional experience.

- Entry to Expert Level (CCNA to CCIE)
- Professional to Expert level (CCNP to CCIE)
- One to One Instructor Led Training
- 10 Days Bootcamp
- Lab Preparation Workshop

Different Type Of Training

- Entry to Expert Level (CCNA to CCIE)

People taking first step to achieve their goals and targets are always welcomed and encouraged in Sanisoft so accordingly the course curriculum is outlined. On this track, candidate having even no experience in Cisco platform can join with no-fear attitude since they will be passed though a steady learning process covering Cisco Core Concepts, CCNA topics, CCNP syllabus and CCIE’s recommended theoretical and practical lab exposures along with exam preparation sessions as well.
• **Professional to Expert level (CCNP to CCIE)**

Candidates having professional experience on this track specially holding CCNP certifications can expedite their journey to get the CCIE joining this training track. Here training is delivered focusing on mainstream topics of CCIE’s theoretical, Lab Concepts, Lab Practical and Exam Preparation.

• **One to One Instructor Led Training**

Sanisoft offers the instructor-led training to the personals looking for individual training as per their preferred timings rather than joining any batch.

• **10 Days Bootcamp**

Boot Camps for CCIE trainings are also launched to deliver the training on fast track. Candidate looking for crash course can join this training pattern to finish the course rapidly.

• **Lab Preparation Workshop**

Sanisoft offers the CCIE Lab preparation workshops to the professionals’ already carrying written exam passed or having work experience same field and they are quite confident to directly jump into lab preparation sessions. They are directly designated to their lab seats to get the practical exposure form the DAY 1.

**Prerequisites**

There are no formal prerequisites for CCIE certification. Other professional certifications or training courses are not required. Instead, candidates must first pass a written qualification exam and then the corresponding hands-on lab exam. You are expected to have an in-depth understanding of the topics in the exam blueprints and strongly encouraged to have three to five years of job experience before attempting certification.
Description

- Designed specifically to prepare students to pass the CCIE R&S V5.0 Lab Exam
- CCIE R&S Certified Instructor guided CCIE Labs
- 50% hands-on and 50% lecture.
- Unlimited CCIE R&S Rack access till the time you pass your Lab exam.
- Choice of on-site instructor-led training at any of location UAE
- CCIE R&S Lab bootcamp will have a maximum of 8 students
- Dedicated instructor mentoring to ensure all concepts are completely understood
- Sanisoft workbook is updated to reflect the current content of the CCIE R&S v5 Lab Exam.
- Student receives dedicated instructor mentoring to ensure all concepts are completely understood
- Each student has their own rack. The CCIE Lab Exam is not a team effort, so your preparation should not be either!
- Courseware and rack hardware have been updated to reflect the current content of the CCIE R&S Lab Exam Version 5.0
- 10 Days Advanced Technology Boot Camp Available
- One-on-one instruction as your trainer walks you through various CCIE lab scenarios
- All our content is based on the most current actual lab
How To Obtain The Certification?

Certification is obtained by passing two exams.

1. Step One: The CCIE R&S written exam

The CCIE R&S written exam is a two-hour qualification exam with 90-110 questions taken online at a Cisco authorized Pearson VUE testing center. The questions are a combination of multiple choice and more complex, interactive items that assess technical knowledge on topics such as IP, IP routing, bridging and switch-related technologies, and some equipment commands.

2. Step Two: The CCIE R&S lab Exam

The CCIE R&S lab Exam is an eight-hour, hands-on exam which requires you to configure and troubleshoot a series of complex networks to given specifications. Knowledge of troubleshooting is an important skill and candidates are expected to diagnose and solve issues as part of the CCIE lab exam. You will not configure end-user systems, but are responsible for all devices residing in the network.

Lab Exam include three models.

Web-Based Delivery

- Troubleshooting: 2 Hours
  Virtual Devices
  Optional +30 Minutes

- Diagnostic: 1 Hours
  No Devices
  Optional +30 Minutes

- Configuration: 5 Hours
  Virtual Physical Devices

TS: TroubleShooting
DIAG: Diagnose
CFG: Configuration
Course Objective

1.0 Layer 2 Technologies

1.1 LAN switching technologies
1.1.a Implement and troubleshoot switch administration
1.1.b Implement and troubleshoot layer 2 protocols
1.1.c Implement and troubleshoot VLAN
1.1.d Implement and troubleshoot trunking
1.1.e Implement and troubleshoot etherchannel
1.1.f Implement and troubleshoot spanning-tree
1.1.g Implement and troubleshoot other LAN switching technologies
1.2 Layer 2 Multicast
1.2.a Implement and troubleshoot IGMP
1.3 Layer 2 WAN circuit technologies
1.3.a Implement and troubleshoot HDLC
1.3.b Implement and troubleshoot PPP
1.4 Troubleshooting layer 2 technologies
1.4.a Use IOS troubleshooting tools
1.4.b Apply troubleshooting methodologies

2.0 Layer 3 Technologies

2.1 Addressing technologies
2.1.a Identify, implement and troubleshoot IPv4 addressing and sub-netting
2.1.b Identify, implement and troubleshoot IPv6 addressing and sub-netting
2.2 Layer 3 Multicast
2.2.a Troubleshoot reverse path forwarding
2.2.b Implement and troubleshoot IPv4 protocol independent multicast
2.2.c Implement and troubleshoot multicast source discovery protocol
2.3 Fundamental routing concepts
2.3.a Implement and troubleshoot static routing
2.3.b Implement and troubleshoot default routing
2.3.c Compare routing protocol types
Course Objective

2.3.d Implement, optimize and troubleshoot administrative distance
2.3.e Implement and troubleshoot passive interface
2.3.f Implement and troubleshoot VRF lite
2.3.g Implement, optimize and troubleshoot filtering with any routing protocol
2.3.h Implement, optimize and troubleshoot redistribution between any routing protocol
2.3.i Implement, optimize and troubleshoot manual and auto summarization with any routing protocol
2.3.j Implement, optimize and troubleshoot policy-based routing
2.3.k Identify and troubleshoot sub-optimal routing
2.3.l Implement and troubleshoot bidirectional forwarding detection
2.3.m Implement and troubleshoot loop prevention mechanisms
2.3.n Implement and troubleshoot routing protocol authentication
2.4 RIP v2
2.4.a Implement and troubleshoot RIPv2
2.5 EIGRP (for IPv4 and IPv6)
2.5.a Describe packet types
2.5.b Implement and troubleshoot neighbor relationship
2.5.c Implement and Troubleshoot Loop free path selection
2.5.d Implement and troubleshoot operations
2.5.e Implement and troubleshoot EIGRP stub
2.5.f Implement and troubleshoot load-balancing
2.5.g Implement EIGRP (multi-address) named mode
2.5.h Implement, troubleshoot and optimize EIGRP convergence and scalability
2.6 OSPF (v2 and v3)
2.6.a Describe packet types
2.6.b Implement and troubleshoot neighbor relationship
2.6.c Implement and troubleshoot OSPFv3 address-family support
2.6.d Implement and troubleshoot network types, area types and router types
2.6.e Implement and troubleshoot path preference
2.6.f Implement and troubleshoot operations
2.6.g Implement, troubleshoot and optimize OSPF convergence and scalability
2.7 BGP
2.7.a Describe, implement and troubleshoot peer relationships
2.7.b Implement and troubleshoot IBGP and EBGP
2.7.c Explain attributes and best-path selection
2.7.d Implement, optimize and troubleshoot routing policies
2.7.e Implement and troubleshoot scalability
2.7.f Implement and troubleshoot multi-protocol BGP
2.7.g Implement and troubleshoot AS path manipulations
2.7.h Implement and Troubleshoot Other Features
2.8 Troubleshooting layer 3 technologies
2.8.a Use IOS troubleshooting tools
2.8.b Apply troubleshooting methodologies
2.8.c Interpret packet capture

3.0 VPN Technologies

3.1 Tunneling
3.1.a Implement and troubleshoot MPLS operations
3.1.b Implement and troubleshoot basic MPLS L3VPN
3.1.c Implement and troubleshoot encapsulation
3.1.d Implement and troubleshoot DMVPN (single hub)
3.2 Encryption
3.2.a Implement and troubleshoot IPsec with preshared key
3.3 Troubleshooting VPN technologies
3.3.a Use IOS troubleshooting tools
3.3.b Apply troubleshooting methodologies
3.3.c Interpret packet capture
Course Objective

4.0 Infrastructure Security

4.1 Device security
4.1.a Implement and troubleshoot IOS AAA using local database
4.1.b Implement and troubleshoot device access control
4.1.c Implement and troubleshoot control plane policing

4.2 Network security
4.2.a Implement and troubleshoot switch security features
4.2.b Implement and troubleshoot router security features
4.2.c Implement and troubleshoot IPv6 first hop security

4.3 Troubleshooting infrastructure security
4.3.a Use IOS troubleshooting tools
4.3.b Apply troubleshooting methodologies
4.3.c Interpret packet capture

5.0 Infrastructure Services

5.1 System management
5.1.a Implement and troubleshoot device management
5.1.b Implement and troubleshoot SNMP
5.1.c Implement and troubleshoot logging

5.2 Quality of service
5.2.a Implement and troubleshoot end to end QoS
5.2.b Implement, optimize and troubleshoot QoS using MQC

5.3 Network services
5.3.a Implement and troubleshoot first-hop redundancy protocols
5.3.b Implement and troubleshoot network time protocol
5.3.c Implement and troubleshoot IPv4 and IPv6 DHCP
5.3.d Implement and troubleshoot IPv4 network address translation

5.4 Network optimization
5.4.a Implement and troubleshoot IP SLA
5.4.b Implement and troubleshoot tracking object
5.4.c Implement and troubleshoot netflow
5.4.d Implement and troubleshoot embedded event manager

5.5 Troubleshooting infrastructure services
5.5.a Use IOS troubleshooting tools
5.5.b Apply troubleshooting methodologies
5.5.c Interpret packet capture
Lab Equipment And IOS Software

CCIE Routing and Switching assesses knowledge of platform-independent concepts that are applicable across the portfolio of routers and switches and that are based on functionalities available in Cisco IOS Software Release 15 running within a 100% virtual environment.

In order to practice, prepare and become familiar with the virtualized Cisco IOS lab environment, Cisco Expert-Level Training for CCIE Routing and Switching is available through our center.

Candidates who want to prepare using their own hardware-based labs can use the following equipment and Cisco IOS Software Releases:

- Cisco ISR 2900 Series routers running IOS version 15.3T Universal Software release
- Catalyst 3560X Series switches running IOS version 15.0SE Universal (IP Services) Software release.

Any other hardware platform that can run equivalent Cisco IOS Software Release 15.3T or 15.0SE may be used as well.
Targeted Audience

CCIE Security certification is designed for Security professionals, senior Security engineers, architects and hold CCNP Security who are responsible for implementing and troubleshooting today’s complex converged security in enterprise networking environments.