



Cisco | Networking Academy®  
Mind Wide Open™

## CCNA Security

### Opportunity

The Internet is changing life as we know it – bringing new economic and social opportunities to communities throughout the world, and increasing the global demand for information and communication technology (ICT) skills. Security and risk management skills are among the most highly sought after skills in networking, and demand continues to grow. Organizations around the world are experiencing a shortage of qualified ICT candidates with the specialized knowledge and skills needed to administer devices and applications in a secure infrastructure, recognize network vulnerabilities, and mitigate security threats.

### Solution

The Cisco Networking Academy® CCNA® Security course provides a next step for individuals who want to enhance their CCNA-level skill set and help meet the growing demand for network security professionals. The curriculum provides an introduction to the core security concepts and skills needed for the installation, monitoring, and troubleshooting of network security features to maintain the integrity, confidentiality, and availability of data and devices.

CCNA Security is a hands-on, career-oriented e-learning solution with an emphasis on practical experience to help students develop specialized security skills, along with critical thinking and complex problem solving skills. The curriculum helps prepare

students for entry-level security career opportunities and the globally recognized Cisco® CCNA Security certification, which helps students differentiate themselves in the marketplace with specialist skills to advance their careers.

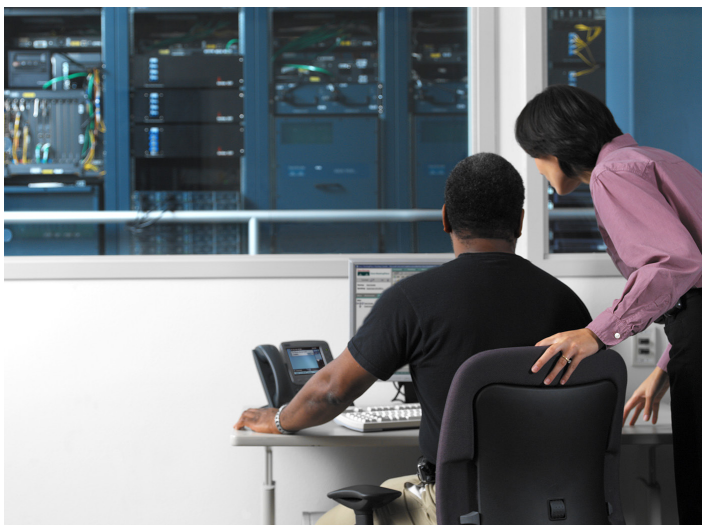
**“80 percent of the companies studied worldwide expect to have a dedicated security role by 2013”**

– Forrester Research

### Features

CCNA Security provides an in-depth, theoretical, and hands-on introduction to network security, in a logical sequence driven by technologies. CCNA Security includes the following features:

- Students develop an in-depth, theoretical understanding of network security principles as well as the tools and configurations available.
- The courses emphasize the practical application of skills needed to design, implement, and support network security.
- Hands-on labs help students develop critical thinking and complex problem-solving skills.
- Cisco Packet Tracer simulation-based learning activities promote the exploration of networking security concepts and allow students to experiment with network behavior and ask “what if” questions.
- Innovative assessments provide immediate feedback to support the evaluation of knowledge and acquired skills.
- Can be delivered in-person or in a blended distance learning (BDL) environment



| Who Should Enroll   | Prerequisites   |
|---|---|
| <ul style="list-style-type: none"> <li>• College and university-level students seeking career-oriented, entry-level security specialist skills</li> <li>• IT professionals wishing to broaden or add specialized skills to their technology expertise</li> <li>• Current CCNA certification holders who wish to build on their CCNA knowledge base</li> </ul> | <ul style="list-style-type: none"> <li>• CCNA-level networking concepts and skills</li> <li>• Basic PC and Internet navigation skills</li> <li>❖ Students can acquire the CCNA-level routing and switching skills needed for success in this course by completing CCNA Discovery or CCNA Exploration</li> </ul> |

**1 Modern Network Security Threats**  
**1.2 Viruses, Worms, and Trojan Horses**

**1.2.4 Mitigating Viruses, Worms, and Trojan Horses**

In the case of the SQL Slammer worm, malicious traffic normally is blocked by a firewall on the perimeter. However, most infections enter by way of back doors and do not pass through the firewall, therefore, to prevent the spreading of this worm it would be necessary to block this port on all devices throughout the internal network.

In some cases, the port on which the worm is spreading might be critical to business operation. For example, when SQL Slammer was propagating, some organizations could not block UDP port 1434 because it was required to access the SQL Server for legitimate business transactions. In such a situation, alternatives must be considered.

If the network devices using the service on the affected port are known, permitting selective access is an option. For example, if only a small number of clients are using SQL Server, one option is to open UDP port 1434 to critical devices only. Selective access is not guaranteed to solve the problem, but it certainly lowers the probability of infection.

The diagram shows a network topology with two ISPs (ISP A and ISP B) connected to a Core network. The Core network consists of two Layer 3 Switches and a Data Center. Two Workgroups (Workgroup 1 and Workgroup 2) are connected to the Core network. A Remote Access device is also shown. ACLs are configured on the Layer 3 Switches to block traffic on UDP port 1434. The diagram illustrates how a worm can spread through back doors that bypass the perimeter firewall.

## Course Description

CCNA Security equips students with the knowledge and skills needed to prepare for entry-level security specialist careers. This course is a hands-on, career-oriented e-learning solution that emphasizes practical experience. Various types of hands-on labs provide practical experience, including procedural and troubleshooting labs, skills integration challenges, and model building.

| Course Outline   |   |
|--|---|
| Chapter  | Goals   |
| 1. Modern Network Security Threats                           | Explain network threats, mitigation techniques, and the basics of securing a network            |
| 2. Securing Network Devices                                  | Secure administrative access on Cisco routers   |
| 3. Authentication, Authorization and Accounting              | Secure administrative access with AAA   |
| 4. Implementing Firewall Technologies                        | Implement firewall technologies to secure the network perimeter                                 |
| 5. Implementing Intrusion Prevention                         | Configure IPS to mitigate attacks on the network  |
| 6. Securing the Local Area Network                           | Describe LAN security considerations and implement endpoint and Layer 2 security features       |
| 7. Cryptography  | Describe methods for implementing data confidentiality and integrity                            |
| 8. Implementing Virtual Private Networks                     | Implement secure virtual private networks   |
| 9. Managing a Secure Network                                 | Given the security needs of an enterprise, create and implement a comprehensive security policy |
| 10. Implementing the Cisco Adaptive Security Appliance (ASA) | Implement firewall technologies using the ASA to secure the network perimeter                   |

## 21st Century Skills

CCNA Security integrates practical skills into the technical curriculum to create a learning experience for success in future educational, entrepreneurial, and occupational endeavors.

In addition to learning the fundamentals of designing, building, and operating secure networks, students also develop problem solving, critical thinking, collaboration, teamwork, negotiation, and entrepreneurship skills to help them succeed in the 21st century global workplace.

## Assessments

Innovative formative and summative assessments are integrated into the CCNA Security curriculum and supported by an advanced online delivery system. Immediate, rich feedback supports instructor and student evaluation of acquired knowledge and skills. Assessments can be as simple as a multiple choice question or as complex as troubleshooting a simulated network.

## Packet Tracer

Packet Tracer is a powerful network simulation program developed by Networking Academy that allows students to experiment with network behavior and ask “what if” questions. As an integral part of the CCNA Security curriculum, Packet Tracer provides simulation, visualization, authoring, assessment, and collaboration capabilities and makes teaching and learning complex security technology concepts easier.

Packet Tracer supplements physical equipment by allowing students to create a network with an almost unlimited number of devices; encouraging open practice, discovery, and troubleshooting. The simulation-based learning environment helps students develop 21st century skills such as decision making, creative and critical thinking, and problem solving.

Upon completion of the CCNA Security course, students will be able to perform the following tasks:

- Describe the security threats facing modern network infrastructures
- Secure network device access
- Implement AAA on network devices
- Mitigate threats to networks using ACLs
- Implement secure network management and reporting
- Mitigate common Layer 2 attacks
- Implement the Cisco IOS firewall feature set
- Implement an ASA
- Implement the Cisco IOS IPS feature set
- Implement site-to-site IPSec VPNs
- Administer effective security policies

## Learning Environment

CCNA Security can be delivered as an independent curriculum or integrated into a broader course of study, such as technology or continuing education programs. The curriculum can be offered in an in-person or a blended distance learning (BDL) environment.

All hands-on labs in the course can be completed on actual physical equipment or in conjunction with the NDG NETLAB solution, which provides remote access to equipment over the Internet.

## CCNA Security Certification

CCNA Security helps prepare students for the Implementing Cisco IOS® Network Security (IINS) certification exam (640-554) leading to the Cisco CCNA Security certification. With a CCNA Security certification, an individual demonstrates the skills required to develop a security infrastructure, recognize network threats and vulnerabilities, and mitigate security threats.

## Careers

CCNA Security supports students who plan to start a career, build a career, or switch focus in an IT networking career to security technologies. The curriculum emphasizes practical experience to help students develop the skills needed for job roles such as network security specialists, security administrators, and network security support engineers. The CCNA Security curriculum is designed to meet the needs of today's IT professionals.

## Cisco Networking Academy

In partnership with schools and organizations around the world, the Cisco Networking Academy program delivers a comprehensive learning experience to help students develop information and communication technology (ICT) skills for entry-level career opportunities, continuing education, and globally recognized career certifications. The curricula also help students build 21st

CCNA Security encourages students to explore networking concepts using tools such as Packet Tracer. Packet Tracer is a powerful network simulation tool developed by Cisco that allows students to experiment with network behavior and develop critical thinking, collaboration, and problem solving skills, while gaining practical knowledge.

century skills such as collaboration and problem solving by encouraging practical application of knowledge through hands-on activities and network simulations.

Networking Academy teaches ICT skills to students from virtually every socioeconomic background and region of the world. Students gain the skills needed to pursue networking careers in a variety of industries such as technology, healthcare, financial services, fashion, entertainment, and more. Students also gain access to a global support group, career developments tools, and social networking resources to help them become architects of the human network.

## For More Information

Cisco Networking Academy  
[www.cisco.com/go/netacad](http://www.cisco.com/go/netacad)

Course Catalog  
[www.cisco.com/go/netacadcourses](http://www.cisco.com/go/netacadcourses)

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