



Managing Industrial Networks with Cisco Networking Technologies (IMINS2) 1.3

Code:	2848V
Length:	5 days
URL:	View Online

This course includes Cisco Training Exclusives

In this lab-intensive course, you will learn how to implement and troubleshoot the most common industry standard protocols while leveraging best practices needed in Security and Wireless technologies for today's industrial networks. The IMINS2 course, developed in conjunction with Rockwell Automation, helps plant administrators, control system engineers, and traditional network engineers in the manufacturing, process control, and oil and gas industries, who will be involved with the convergence of IT and industrial networks. This course also helps you prepare for the Managing Industrial Networks for Manufacturing with Cisco Technologies Certification exam (exam ID 200-601) and (having completed required prerequisites) qualify for the Cisco Certified Network Associate Industrial (CCNA Industrial) certification.

This course is job-role specific and enables you to achieve competency and skills to configure, maintain, and troubleshoot industry standard network protocols as well as wireless and security technologies to ensure that current infrastructures are maximized while developing a converged platform for flexibility to support future business outcomes. Students will be exposed to multiple industrial network technologies as well as products from Cisco and other industrial suppliers including Rockwell Automation.

Skills Gained

- Functions of the OSI layers and TCP/IP model
- Difference between enterprise and industrial networks
- Troubleshoot the common issues that are found in Layers 1, 2, and 3 of the OSI model
- Functions and components of EtherNet/IP protocol
- Configure and troubleshoot EtherNet/IP on Cisco and Stratix switches
- PROFINET protocol
- Configure and troubleshoot PROFINET protocol on Cisco Industrial Ethernet devices
- Common network threats and resolutions, and configure basic security components (access lists and AAA features)
- Configure a wireless network within an industrial environment

- Troubleshoot network and control issues

Who Can Benefit

IT and OT professionals that will be involved with the implementation, operation and support of networked industrial products and solutions for the following industries:

- Manufacturing
- Process control
- Oil and gas industry
- Other industries

Course Details

1. Industrial Networking Concepts and Components

- Contrasting Enterprise and Industrial Environments
- Configuration Tools for Industrial Ethernet Switches
- Exploring Layer 2 Considerations
- Layer 2 Resiliency Using Spanning Tree Protocol
- Layer 2 Resiliency Considerations
- Layer 2 Multicast Control and Quality of Service (QoS)
- Exploring Layer 3 Considerations

2. General Troubleshooting Issues

- Troubleshooting Methodologies
- Troubleshooting Layer 1
- Troubleshooting Layer 2 Issues
- Troubleshooting Layer 3 Issues

3. Ethernet/IP

- Exploring Ethernet/IP Communications
- Exploring Hardware Capabilities
- Exploring CIP Sync, CIP Motion, and CIP Safety
- Exploring Embedded Switch Technology
- Configuring Stratix Switches

4. Troubleshooting Ethernet/IP

- Identifying Common EtherNet/IP Issues
- EtherNet/IP Troubleshooting Methods and Tools

5. PROFINET

- Describe PROFINET Functionality and Connection Method
- Describing Basic PROFINET Devices
- Understanding Ring Network Requirements

6. Configuring PROFINET

- Enabling and Prioritizing PROFINET at L2
- Integrating Cisco Industrial Ethernet Switches
- Configuring PROFINET Alarms

7. Troubleshooting PROFINET

- Identifying PROFINET Troubleshooting Methods
- Exploring PROFINET Troubleshooting Tools

8. Exploring Security Concerns

- Overview Of Defense-in-Depth Strategy
- Controlling Access and Network Traffic

9. 802.11 Industrial Ethernet Wireless Networking

- Hardware Lab 1: Connecting to the remote LAB environment
- Hardware Lab 2: Configuring 802.1q Trunks
- Hardware Lab 3: Configuring and Applying Smartports Macros
- Hardware Lab 4: Configuring and Applying Custom Smartports Macros
- Hardware Lab 5: Configuring and Applying EtherChannel
- Hardware Lab 6: Configuring Resilient Ethernet Protocol
- Hardware Lab 7: Configuring Resilient Ethernet Protocol Features
- Hardware Lab 8: Configuring and Verifying Storm Control
- Hardware Lab 9: Verify IP IGMP Snooping
- Hardware Lab 10: Configure QoS settings
- Hardware Lab 11: Using IOS Troubleshooting Tools
- Hardware Lab 12: Troubleshooting Layer 2 Endpoint Device Connectivity
- Hardware Lab 13: Troubleshooting Layer 2 Inter-Switch Connectivity
- Hardware Lab 14: Troubleshooting Broken REP Segment
- Hardware Lab 15: Troubleshooting Layer 3
- Hardware Lab 16: Perform a Packet Capture
- Hardware Lab 17: Troubleshoot Network Issues
- Hardware Lab 18: Configure CIP on Industrial Switches
- Hardware Lab 19: Troubleshooting EtherNet/IP Communication Issues

- Hardware Lab 20: Configuring PROFINET Support
 - Hardware Lab 21: Troubleshoot PROFINET Communication Issues
 - Hardware Lab 22: Configure Port Security Mechanisms
 - Hardware Lab 23: Configure AAA Authentication using Cisco ISE and 802.1x
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Generated 12