

1.2 DEVICE MANAGEMENT - EMBEDDED COMPUTERS



IoT Security Technician Skill Zone – CSSIA.ORG

1. Device Management

1.2 Embedded Computers

1. Describe the role of an embedded system within larger systems for IoT purposes.
2. Describe the basic components of an embedded system within an IoT infrastructure.
3. Differentiate between programmable and non-programmable embedded systems.
4. Describe the possible points of failure in embedded systems.
5. Explain the impact of embedded systems failure on the overall performance of IoT and industrial control systems.

Embedded Computers

Embedded computers are devices that have full computing power and an extremely tiny package. These systems have powerful CPU's, desktop-equivalent memory, and solid-state storage.

The Raspberry Pi was the first widely accepted embedded computer, but now the marketplace offers similar types of systems. The IoT security technician must have a working knowledge of these systems, their hardware, and operating systems.

Each of these systems has associated vulnerabilities, components that commonly fail, and integrated security tools.

These systems also provide for remote access, remote control, and remote data collection and transmission. Technicians must have a strong knowledge of configuring and managing these devices. These systems are in consumer devices, industrial control systems, and distributed process control systems.

1.2 DEVICE MANAGEMENT - EMBEDDED COMPUTERS



Existing Course Cross Reference

Cisco Networking Academy Courses

[IT Essentials](#)

[Introduction to IoT](#)

Cisco Partner Courses

[ICS and SCADA Security \(CSSIA.ORG\)](#)

Non-Cisco Partner Courses

[Internet of Things - Innovation Labs -](#)

[Wylodrin IoT Summer School](#)

[Introduction to the Internet of Things and Embedded Systems - Coursera](#)

Curriculum Resources

Videos

[YouTube.com – IoT and Cisco Systems over 200 Videos](#)

[YouTube.com – Raspberry Pi – Tutorial \(TECH-ERUDIO\) 16 Videos](#)

[YouTube.com – BeagleBoard Videos over 200 Videos](#)

[YouTube.com – Wylodrin – IoT Summer School over 40 Videos](#)

Web Links

[Network of Things – NIST Special Publications 80-183](#)

[Internet of Things – Wireless Sensor networks International Electronics Commission](#)

[Internet of Things Reference Architecture \(IoT RA\) – ISO/IEC CD 30141](#)

Textbooks

Practical Internet of Things Security
Chapter 2, 3, 5, 6

Raspberry Pi Networking Cookbook
Chapter 1, 2, 3, 4, 5, 6, 7

Assessment Resources

Labs

[IoT Innovation Labs 2, 7, 10](#)

Quizzes/Exams

[Introduction to IoT – Beginning](#)

[ICS and SCADA Security – Advanced – \(CSSIA.ORG\)](#)

Quizlet.com

[Raspberry Pi](#)

[Raspberry Pi Components](#)

[MES Raspberry Pi 2](#)

[MIST Internet of Things](#)