



# Android Security Essentials

## Course Outline:

### **Lesson 1: Introduction and Android Security Architecture**

- Android Security Program Overview and Architecture.
- Kernel level security (Linux), and rooting Android.
- Android Application Components.
- The Application Sandbox.
- Managers and Services
  - Activity Manager Service.
  - Package Manager Service.
  - Notification Manager Service.
  - Search Manager Service.
  - Connectivity, Telephony, and Wi-Fi Manager Services.
  - Download and Storage Manager Services.
  - Window Manager Service.

### **Lesson 2: Android Permission Model and third party applications**

- Android Application Framework Layer.
- Third party application permissions.
- Using Protected APIs.
- Custom Permissions.
- Android Malware: Prevention, Detection, and Removal.
- Security Enhanced Android (SE Android).

### **Lesson 3: Component Security and Protecting data storage**

- How Android achieves Inter-process communication.
- Restricting access to Android components.
- Vulnerabilities of Stored Data.
- Cryptography and Encryption.
- Signing your application.

### **Lesson 4: Client-Server communication security.**

- Threats Facing Devices Transferring Data.
- Protecting web transferred data.
- Input Validation.
- Prevent Command Injection.