CompTIA Mobile App Security Android Edition (3 Days / 18 Hours)

Android™ app development is a valuable skill set for a programmer today. An important part of that skill set is the ability to create apps that protect you, your users, and your users' organizations from attack. In this course, you will learn why it is critical to build security into your Android apps, how to improve your programming processes to promote security, and how to provide countermeasures for the numerous threats to which an Android app and its users are exposed.

Course Objectives:

In this course, you will harden native Android mobile apps against attack, and ensure secure network communications and backend web services.

- Explain why an organization should devote time and resources to app security, including a specific rationale for Android app development.
- Identify where and how the Android system architecture is vulnerable to security threats.
- Employ strategies to promote the security of mobile apps, including specific strategies for Android.
- Enable an Android app to communicate securely with hardware and software on the device.
- Enable an Android app to secure data through encryption.
- Enable an Android app to store data securely.
- Enable an Android app to communicate securely over networks and with web services.
- Use the WebView component securely.
- Protect credentials in storage and in transit.
- Harden an Android app against attack to levels appropriate for the risk model.

Target Student:

This course is intended for a programmer or web developer who is experienced with mobile app development in Android and wants to learn how to develop secure apps that are hardened against attack to levels that are appropriate for the risk model of the app. The student has experience developing Android apps and is familiar with the Android SDK, development tools, and processes.

Prerequisites:

To ensure your success, you should have experience developing Android apps in Java using Eclipse and the Android SDK. To meet this prerequisite, you can take the Logical Operations course*Developing Android™ Mobile Apps for Business*.

A general understanding of information technology security is also helpful, but not required. Logical Operations offers various courses on information technology security, including *CompTIA® Security+*.

Course Outline

Lesson 1: The Rationale for Android App Security
    Topic A: Identify the Need for Security
    Topic B: Identify Security Requirements and Expectations
    Topic C: Include Security in Your Development Processes
    Topic D: Identify Your Approach to Risk Management

Lesson 2: The Android Security Architecture
    Topic A: Strengths and Weaknesses of the Android Security Architecture
    Topic B: The Android Permissions Model
    Topic C: Android Vulnerabilities

Lesson 3: Employing Secure Mobile App Development Strategies
    Topic A: Follow App Security Best Practices
    Topic B: Design for Security
    Topic C: Write Secure Java Code

Lesson 4: Accessing Local Processes and Devices Securely
    Topic A: Select Countermeasures for Local Threats
    Topic B: Implement Secure Access of Local Processes and Hardware

Lesson 5: Securing Data Through Encryption
    Topic A: Select Countermeasures for Threats to Cleartext Data
    Topic B: Implement Encryption

Lesson 6: Accessing Local Storage Securely
    Topic A: Identify Countermeasures for Local Storage Threats
    Topic B: Implement Secure Access of Local Storage

Lesson 7: Communicating with Networks and Web Services Securely
    Topic A: Identify Countermeasures for Networking Threats
    Topic B: Implement Secure Network Communication

Lesson 8: Using the WebView Component Securely
    Topic A: Identify Countermeasures for WebView Component Threats
    Topic B: Implement WebView Security

Lesson 9: Protecting Credentials in Storage and Transit
    Topic A: Identify Countermeasures for Threats to Credentials
    Topic B: Implement Secure User Authentication

Lesson 10: Hardening Apps Against Attack
    Topic A: Identify Countermeasures for Reverse Engineering Threats
    Topic B: Harden an App

Appendix A: Categories of Permissions

Appendix B: CompTIA ADR-001 Exam Objectives Mapping