

Android : *Getting Started*



Duration: 1 day

Course Code: DG-A1 v1.0.0
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Course Prerequisites:

It is very important that the prerequisite(s) marked as Mandatory below be met by all participants intending to attend this training workshop, either by having successfully attended a training program (mentioned below), or having the equivalent knowledge / skill sets.

Mandatory

- A good understanding and hands-on usage of user-level UNIX™ or LINUX™ (includes using the editor(s), shell utilities and tools such as find, du, df, cut, redirection, awk, etc., C compiler).
- Familiarity with and programming skills using the Java™ programming language.

Optional / Advantageous

Bash Shell (and/or awk, Perl) scripting skills on any UNIX™ or LINUX™ platform will be advantageous.

Duration: 1 day

Objectives:

By the conclusion of this workshop, the participant will:

- understand exactly what the Android platform is
- understand Android's architecture and software ecosystem
- know how to download and install the Android SDK
- be able to use various powerful tools provided with the SDK
- understand the basic framework of an Android (mobile) application
- write a simple Android application (using the SDK and Eclipse IDE)
- understand the process of updating / flashing the Android (phone) firmware
- gain insight into Android Market, and industry trends.

Classroom Requirements:

LCD display projector (daily)

White board

Marker pens and white-board eraser

For lab: Suggested man:machine ratio- 1:1 is optimal, 2:1 is viable.

LAB: System Hardware Requirements:

Intel Pentium 4 PCs (or equivalent), minimum 512 MB RAM, running LINUX™ as the O.S.

Systems must have a CD drive, minimum 5 GB hard disk, ethernet (LAN connectivity), USB ports.

Internet access.

LAB: System Software Requirements:

LINUX™ O.S. - preferably Ubuntu 8.04 (or later).

The LINUX™ O.S. should be installed as a "Development System" and must include :

-the 'C' development system (C compiler & linker with the standard C library installed)

-vi / other editors.

Each participant will receive all required software on a CD / DVD.

Important:

1. Every participant (or at max 2 participants) should have a separate independent LINUX™ desktop system to use for this course. This is as a particular participant's system can crash; having them completely stand-alone prevents this from affecting others (if a single LINUX™ server system is shared via network access, one participant crashing the kernel will force all others to lose data and stop work).
 2. The systems to be used for lab sessions should be "**test**" systems - this is as during development they might crash and possibly suffer data loss.
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Detailed Coverage

Module 1 : An Introduction to the Android Platform

- Introduction
- Google and the OHA
- Android FAQs Answered
- What Makes Android Special / Different

Module 2 : Android Architecture

- Architecture Overview
- Architecture Layers
 - Kernel, Libraries, Android Runtime
 - The Dalvik VM
 - Application Framework, Applications
- Codebase Layout

Module 3 : Software Ecosystem – Installation and Tool Usage

- SDK Installation Howto
- Eclipse IDE (+ ADT) Installation Howto
- Codebase Installation
- The Toolchain

Hands-On Session – Participants will install the SDK.

Tools

- The Emulator
- The Android Debug Bridge (ADB)
- The Debug Tool (DDMS)
 - Screenshots
- Logging
- Packaging

Module 4 : Basics of Application Development

- Using Google's Documentation Resources
- Application Framework Basics
- Building an Android Application
 - The 'Hello, World' Tutorial Walkthrough
 - Using an XML UI Layout
 - Common Views
- Demo on the emulator and physical device

Hands-On Session – Participants will implement the 'Hello, World' Android application.

Module 5 : Advanced Topics

Building Android from Source

Flashing the Device

Techniques

Fastboot

Recovery Image

Demo

Potential integration of an open-source component

Android Market

Industry Trends/Buzz
