

PROGRAMMING HANDHELD SYSTEMS

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THE ANDROID DEVELOPMENT ENVIRONMENT

THE ANDROID PLATFORM

A MULTI-LAYERED SOFTWARE STACK
FOR BUILDING AND RUNNING MOBILE
APPLICATIONS

THE ANDROID DEVELOPMENT ENVIRONMENT

YOUR WORKBENCH FOR WRITING
ANDROID APPLICATIONS

TODAY'S TOPICS

INSTALLING THE ANDROID DEVELOPER TOOLS
(ADT) BUNDLE

USING THE ECLIPSE IDE

USING THE ANDROID EMULATOR

DEBUGGING ANDROID APPLICATIONS

OTHER TOOLS

PREREQUISITES

SUPPORTED OPERATING SYSTEMS:

WINDOWS XP, VISTA, OR WINDOWS 7

MAC OS X 10.5.8 OR LATER (X86 ONLY)

VARIOUS LINUX DISTRIBUTIONS

SEE: [HTTP://DEVELOPER.ANDROID.COM/SDK](http://developer.android.com/sdk)

PREREQUISITES

MAKE SURE YOU HAVE THE JAVA
DEVELOPMENT KIT (JDK6) INSTALLED

SEE:

[HTTP:// WWW.ORACLE.COM/TECHNETWORK/JAVA/
JAVASE/DOWNLOADS](http://www.oracle.com/technetwork/java/javase/downloads)

GETTING STARTED

DOWNLOAD & INSTALL THE ANDROID
DEVELOPER TOOLS (ADT) BUNDLE

SEE: [HTTP://DEVELOPER.ANDROID.COM/SDK](http://developer.android.com/sdk)

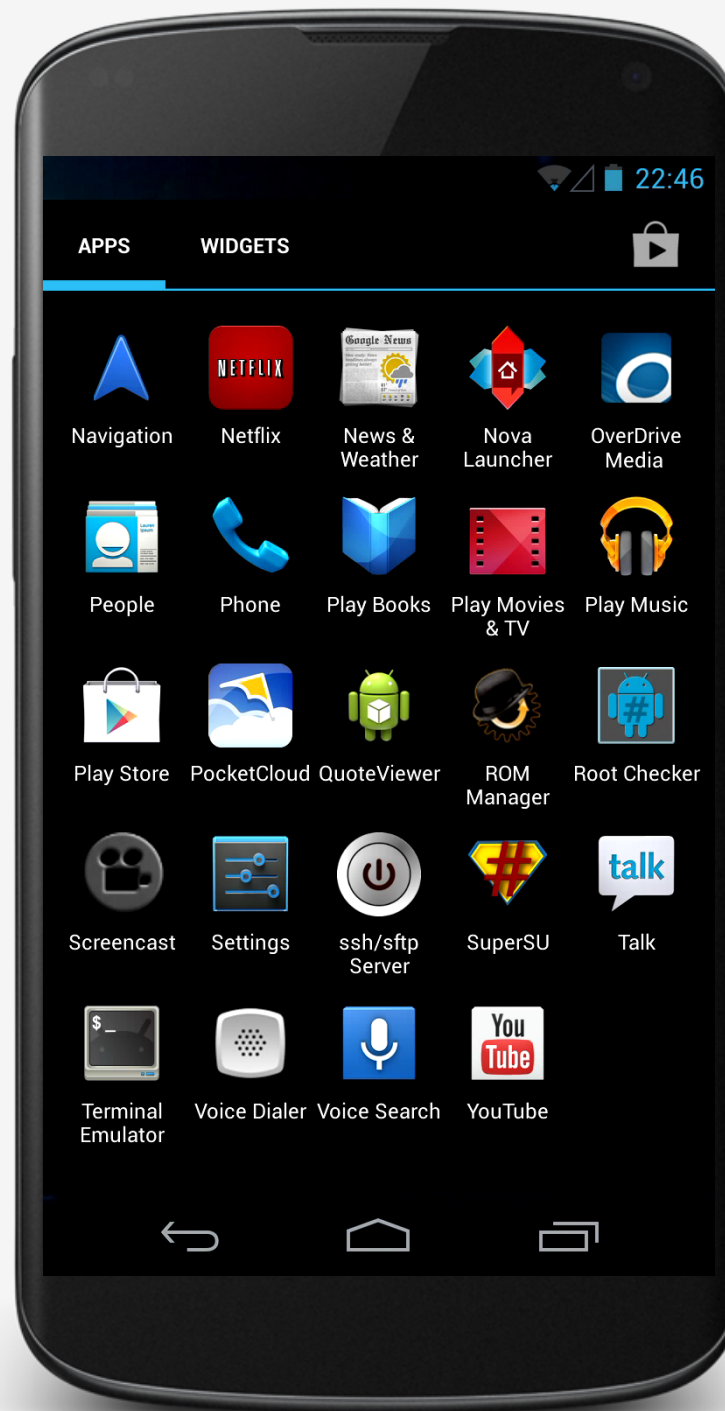
ADT BUNDLE

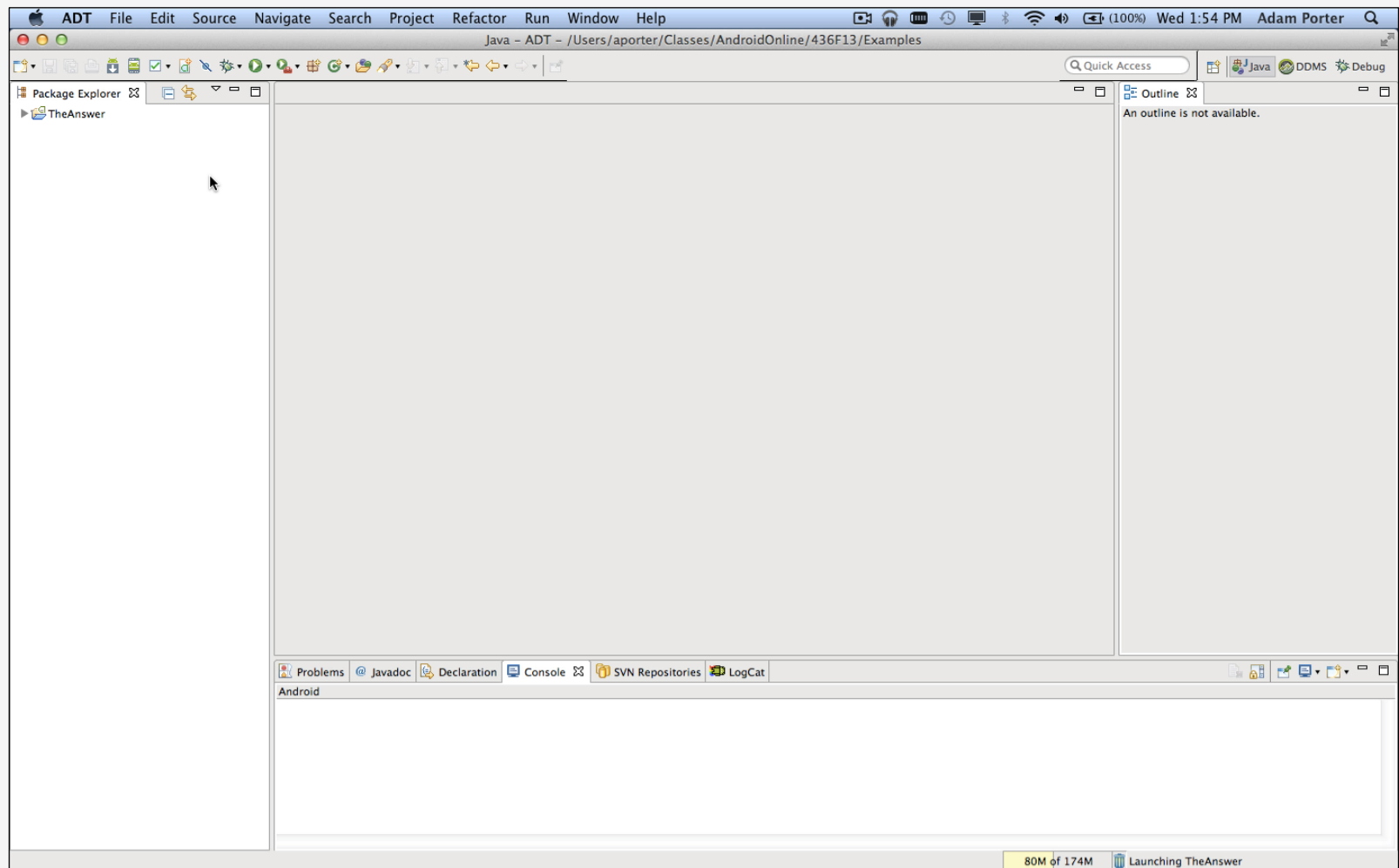
LATEST ANDROID PLATFORM

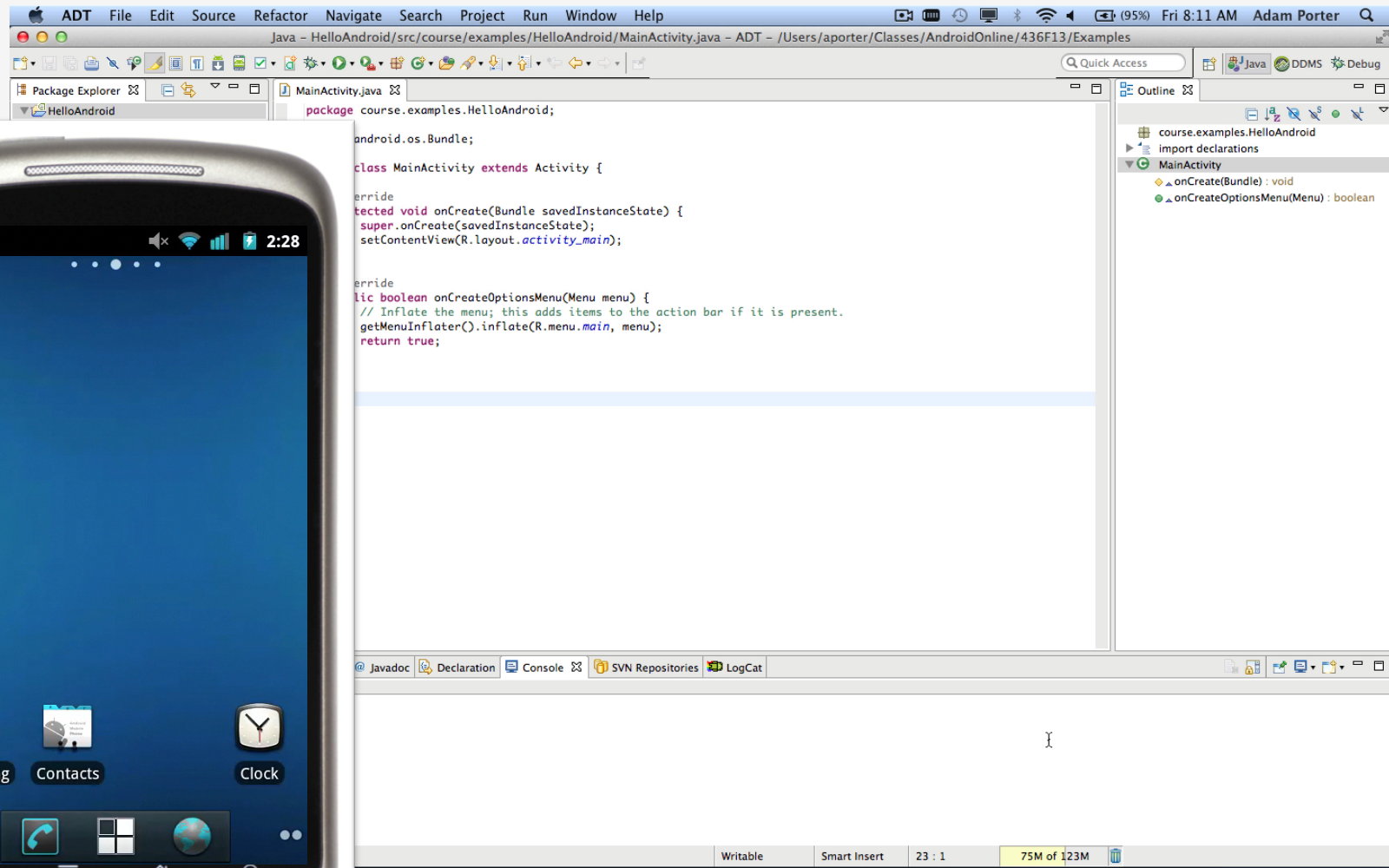
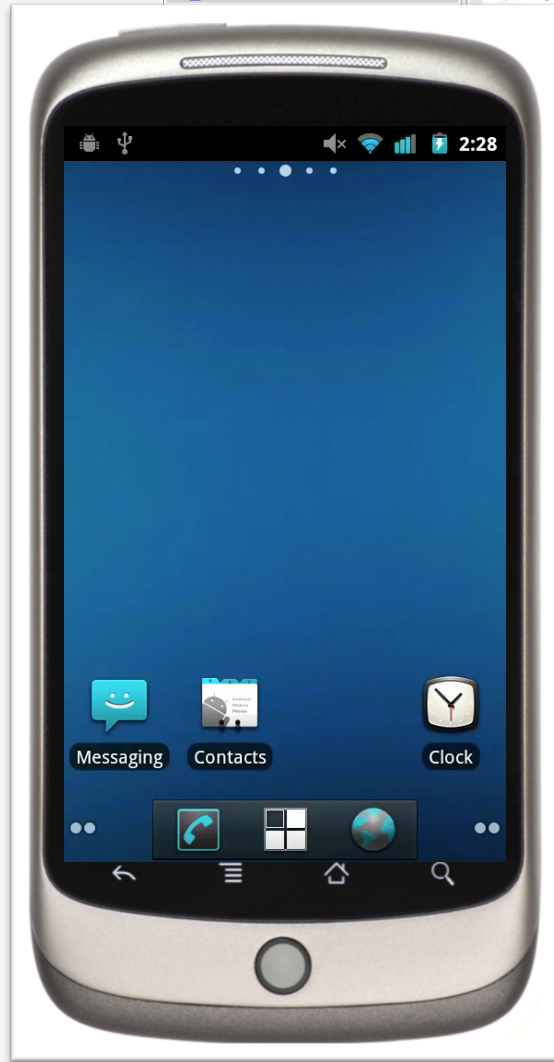
ECLIPSE + ADT PLUGIN

LATEST SYSTEM IMAGE FOR EMULATOR

ADDITIONAL DEVELOPMENT TOOLS

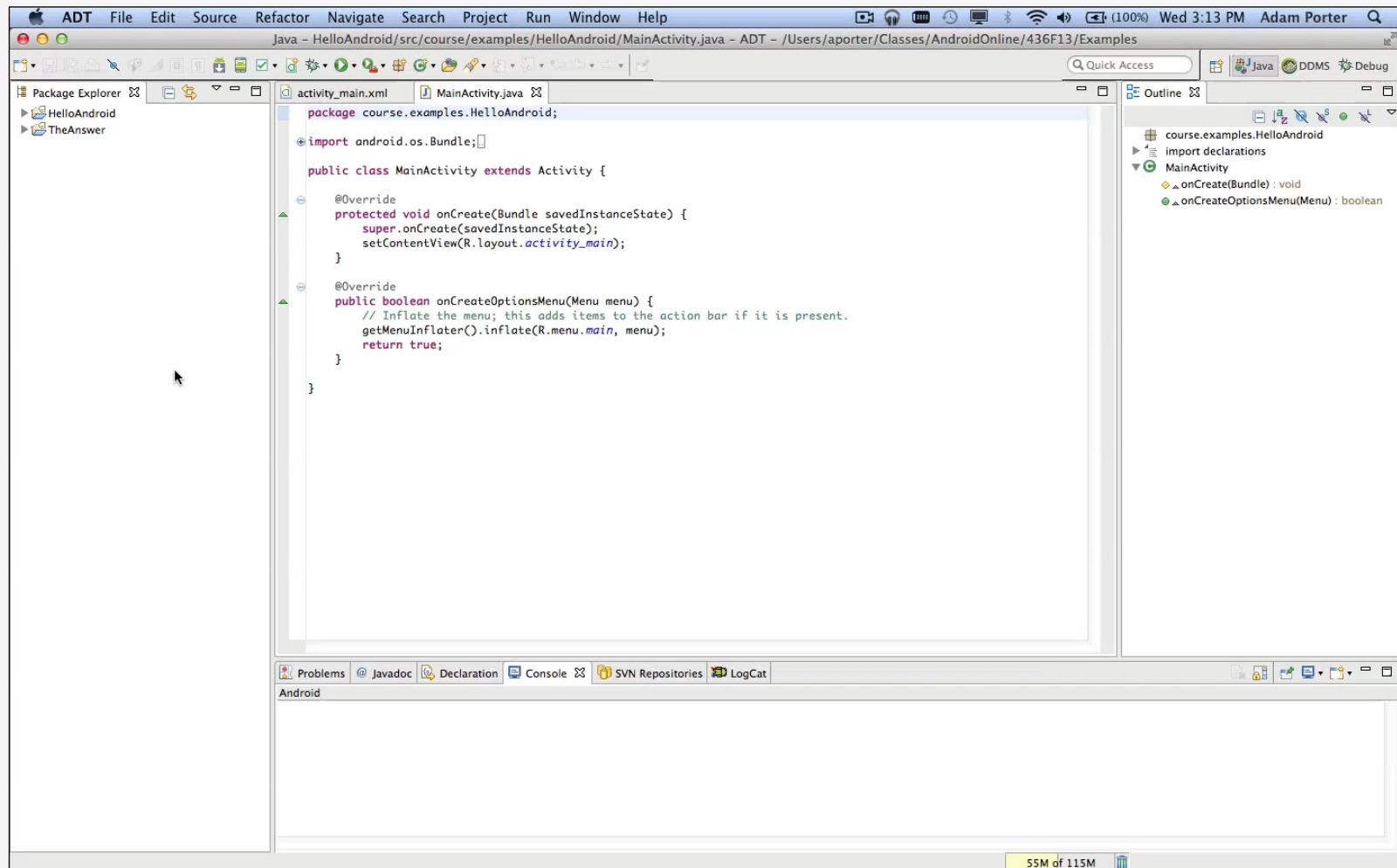


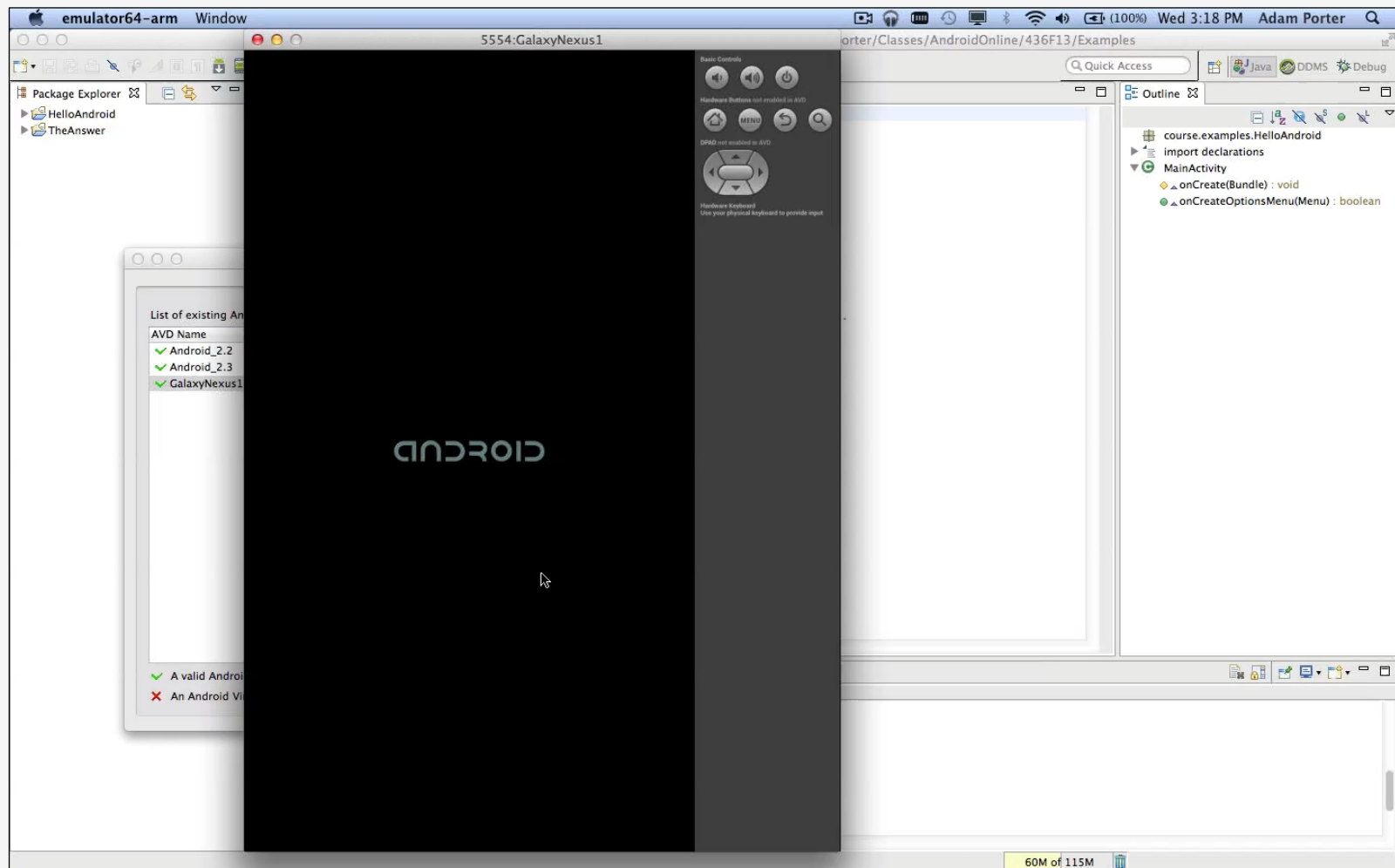


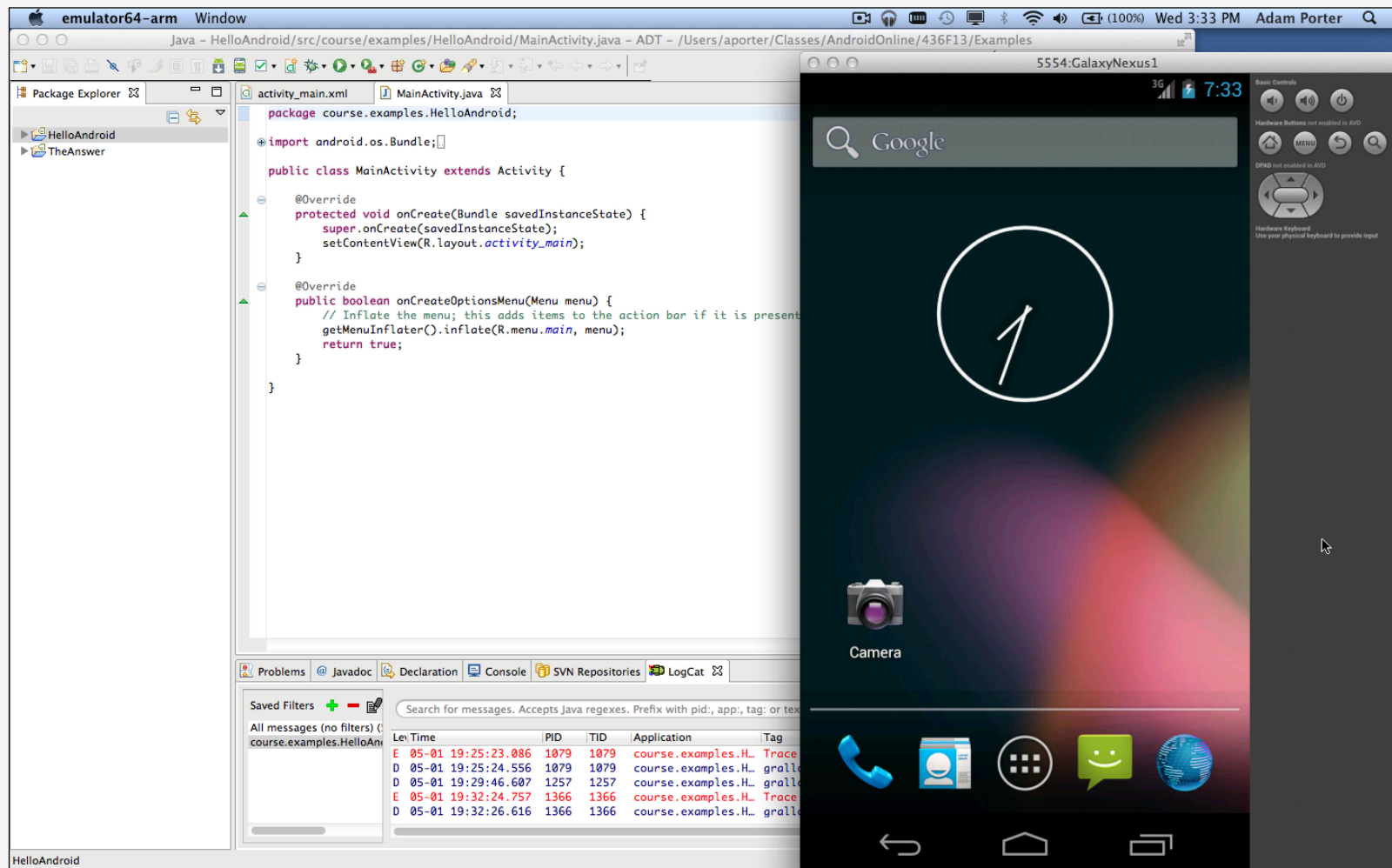


THE ANDROID EMULATOR

RUNS VIRTUAL DEVICES







THE ANDROID EMULATOR

PROS

DOESN'T REQUIRE AN ACTUAL PHONE

HARDWARE IS RECONFIGURABLE

CHANGES ARE NON-DESTRUCTIVE

THE ANDROID EMULATOR

CONS

CAN BE VERY SLOW

SOME FEATURES UNAVAILABLE

E.G., NO SUPPORT FOR BLUETOOTH OR USB
CONNECTIONS

PERFORMANCE / USER EXPERIENCE CAN BE
MISLEADING

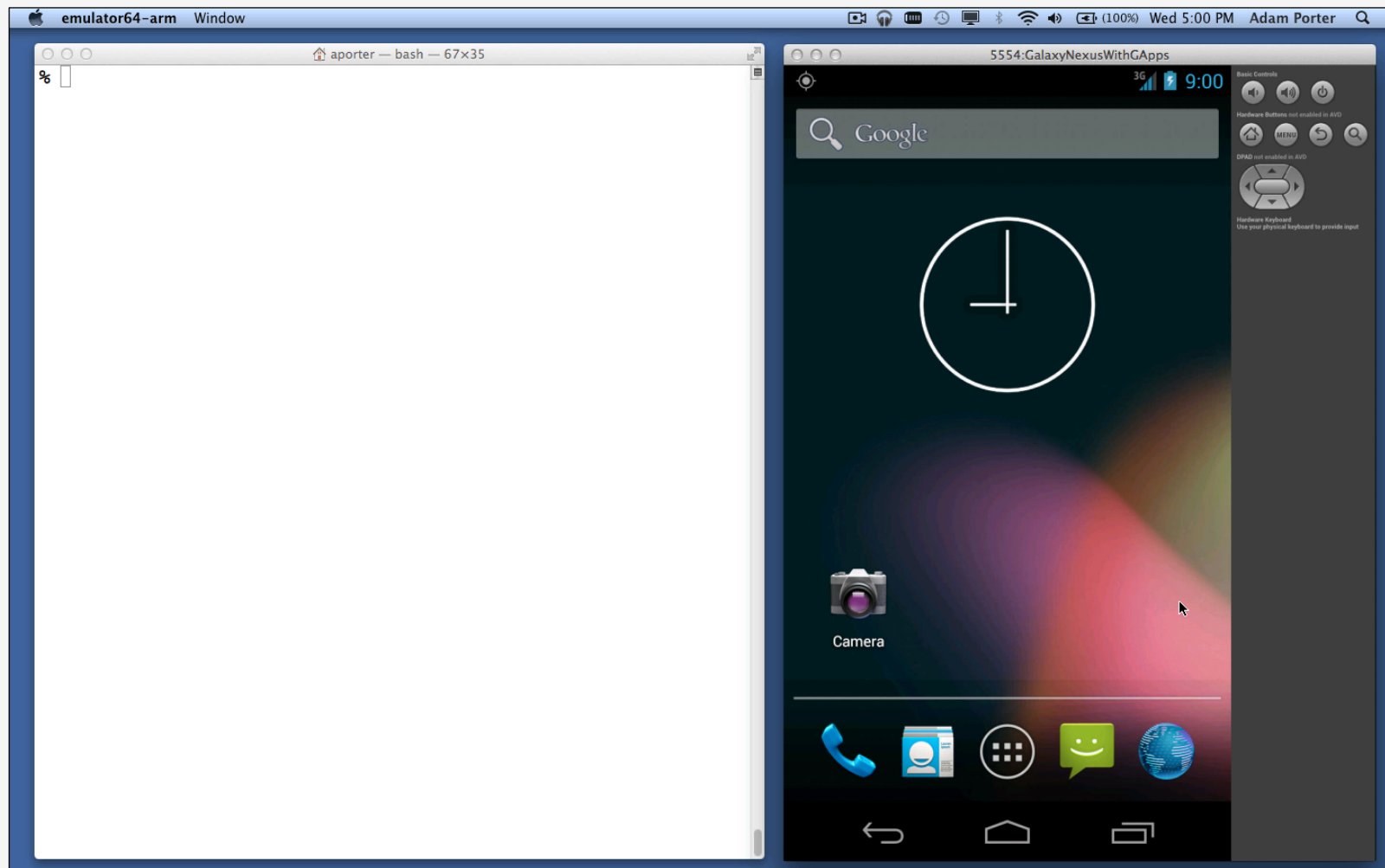
ADVANCED FEATURES

CAN EMULATE MANY DIFFERENT DEVICE/
USER CHARACTERISTICS, SUCH AS:

NETWORK SPEED/LATENCIES

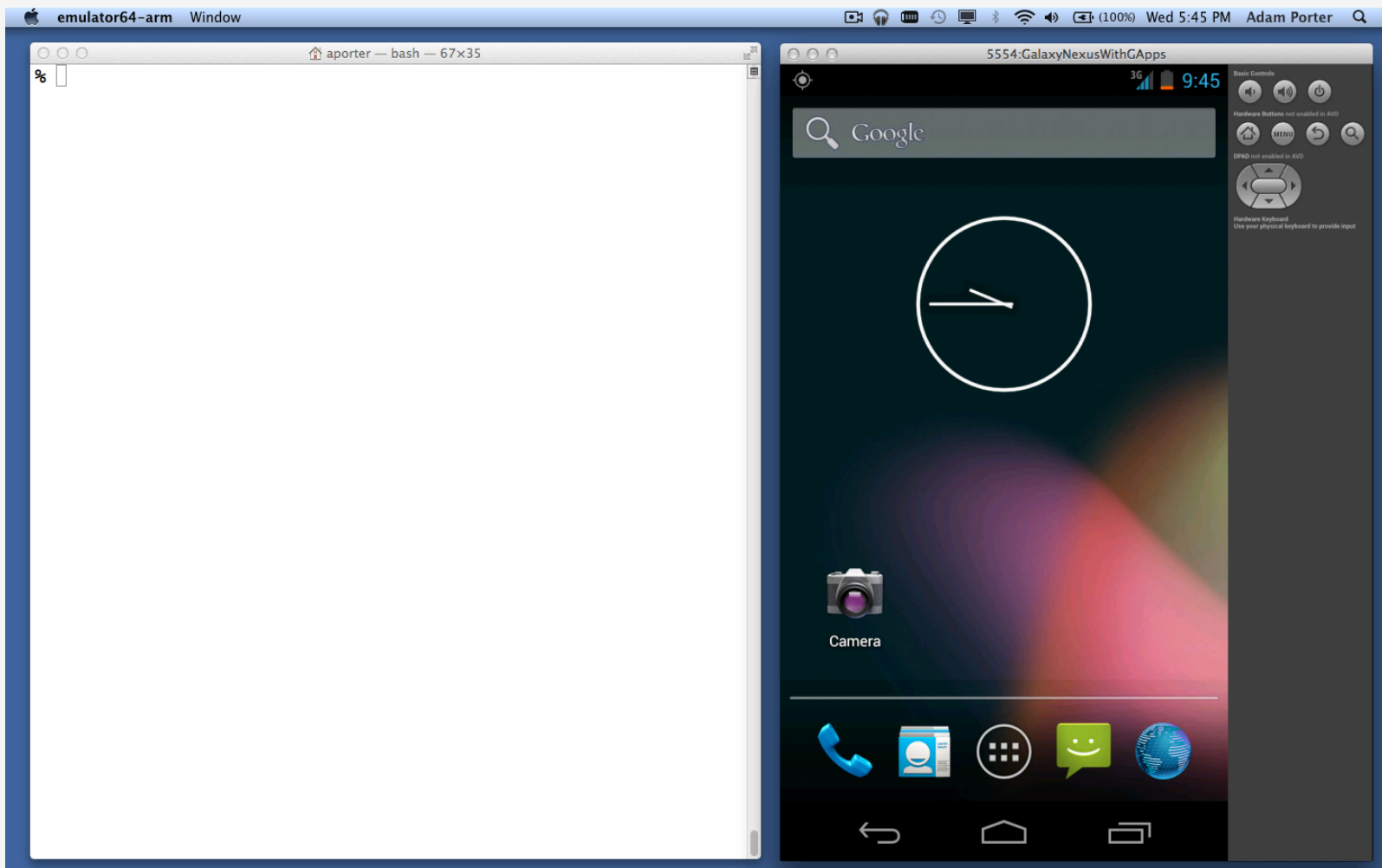
BATTERY POWER

LOCATION COORDINATES



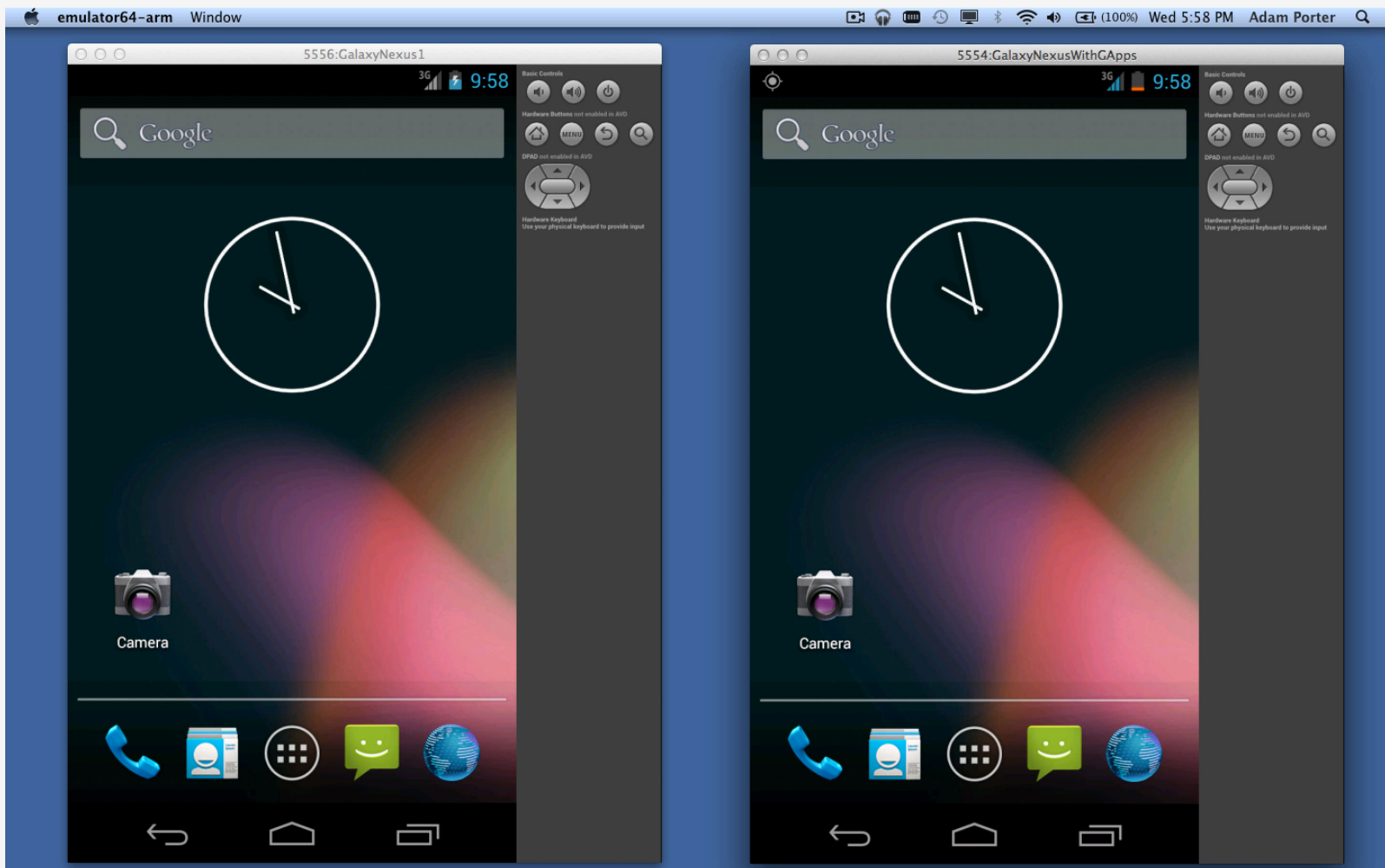
ADVANCED FEATURES

EMULATE INCOMING PHONE CALLS &
SMS MESSAGES



THE ANDROID EMULATOR

CAN INTERCONNECT MULTIPLE
EMULATORS



ADVANCED FEATURES

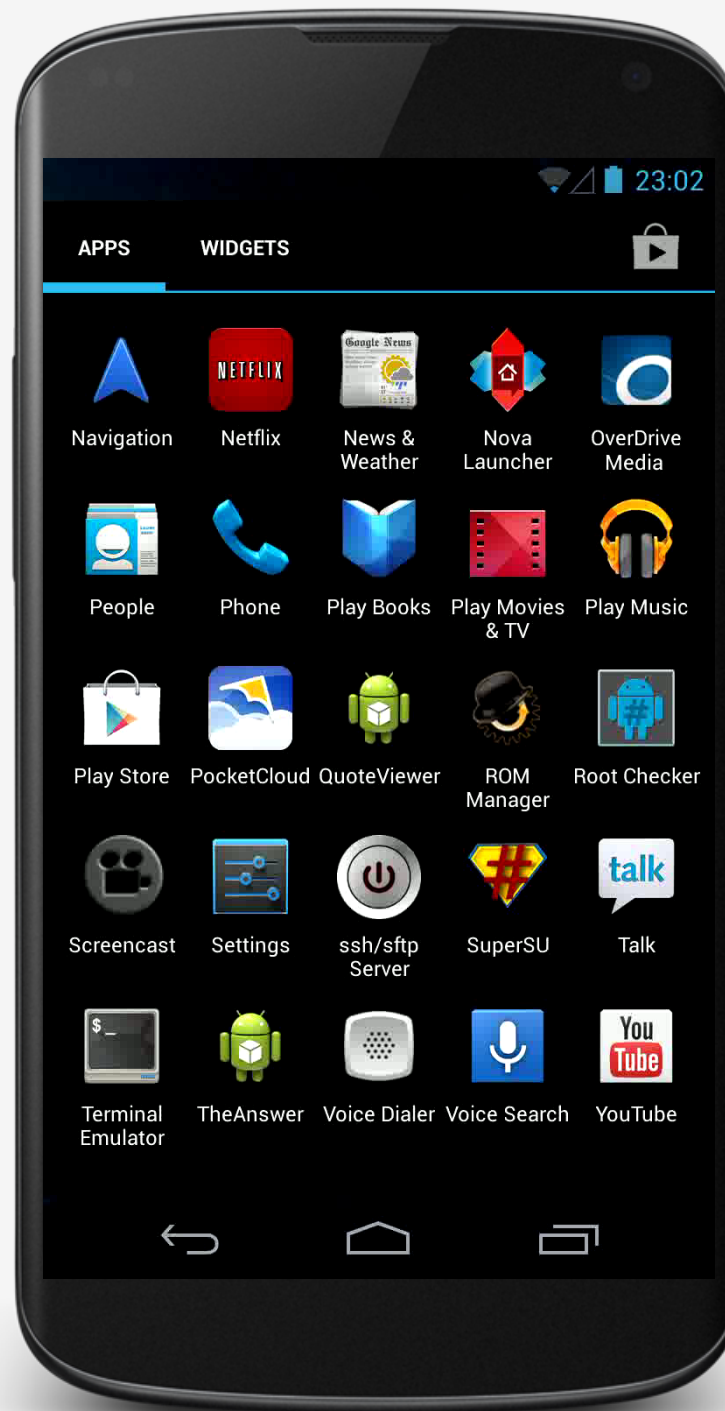
MANY MORE OPTIONS

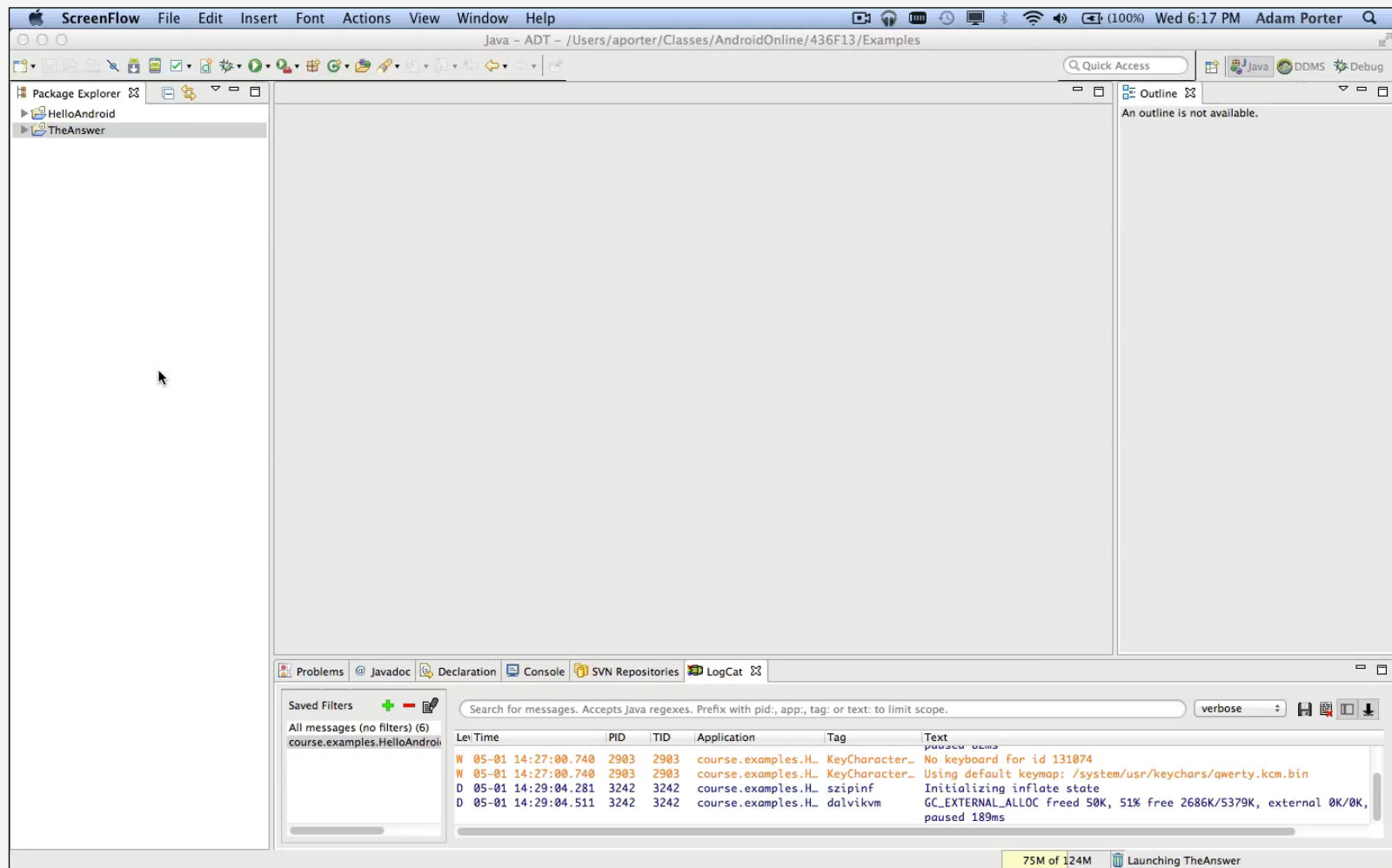
SEE:

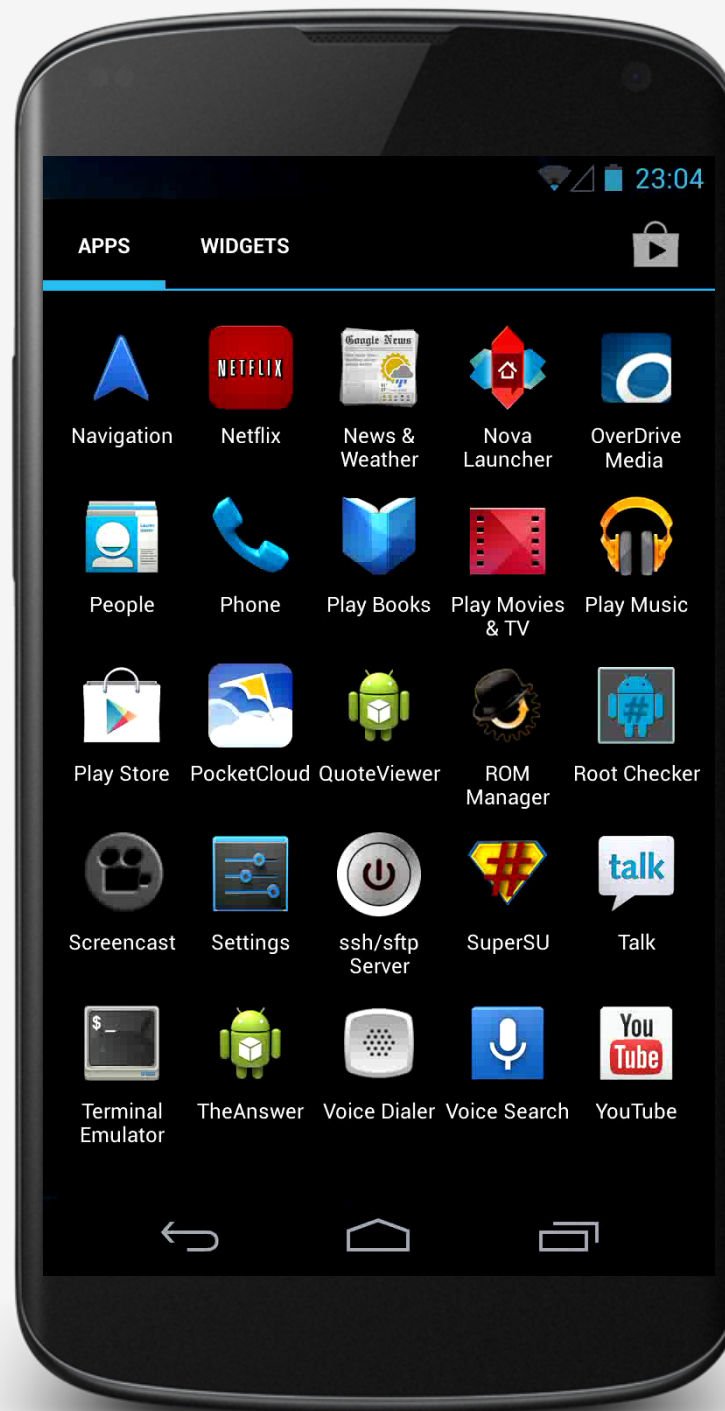
[HTTP://DEVELOPER.ANDROID.COM/GUIDE/DEVELOPING/
DEVICES/EMULATOR.HTML](http://developer.android.com/guide/developing/devices/emulator.html)

DEBUGGER

TOOL FOR EXAMINING THE INTERNAL
STATE OF A RUNNING APPLICATION







DALVIK DEBUG MONITOR SERVICE (DDMS)

GENERAL TOOLS FOR MONITORING
APPLICATION BEHAVIORS

DALVIK DEBUG MONITOR SERVICE (DDMS)

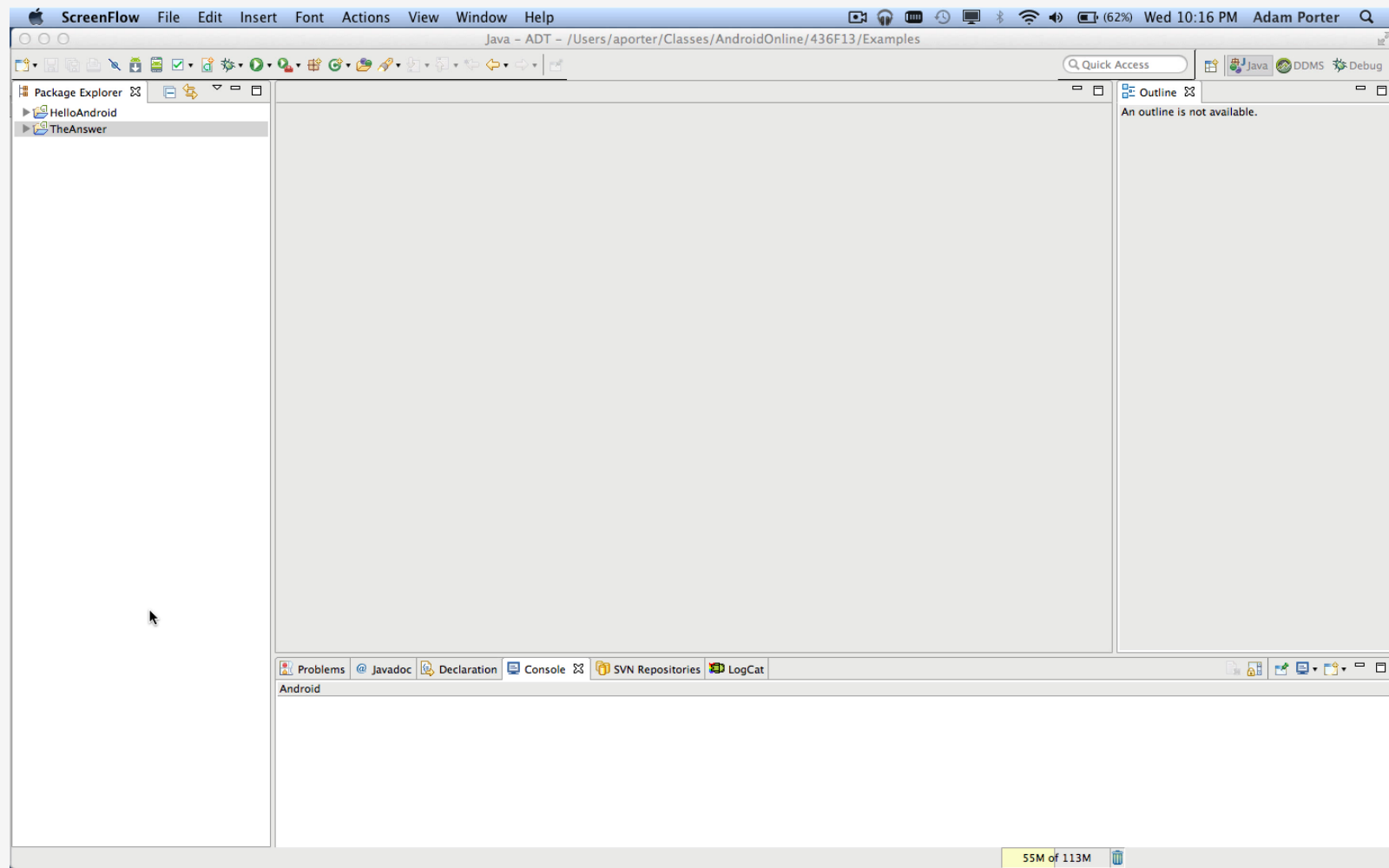
DDMS INCLUDES

FILE EXPLORER

LOGCAT

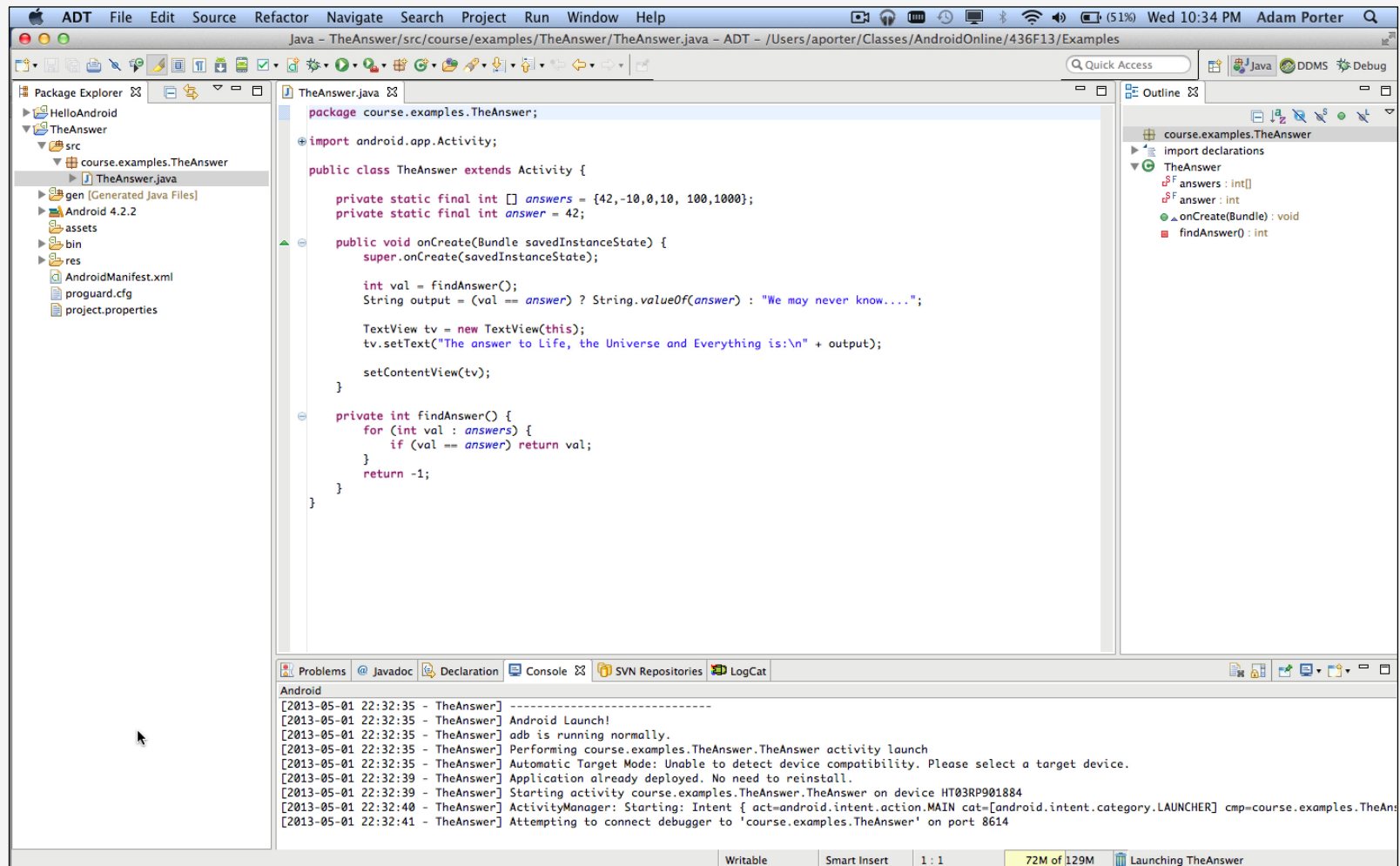
TRACEVIEW

HIERARCHYVIEW



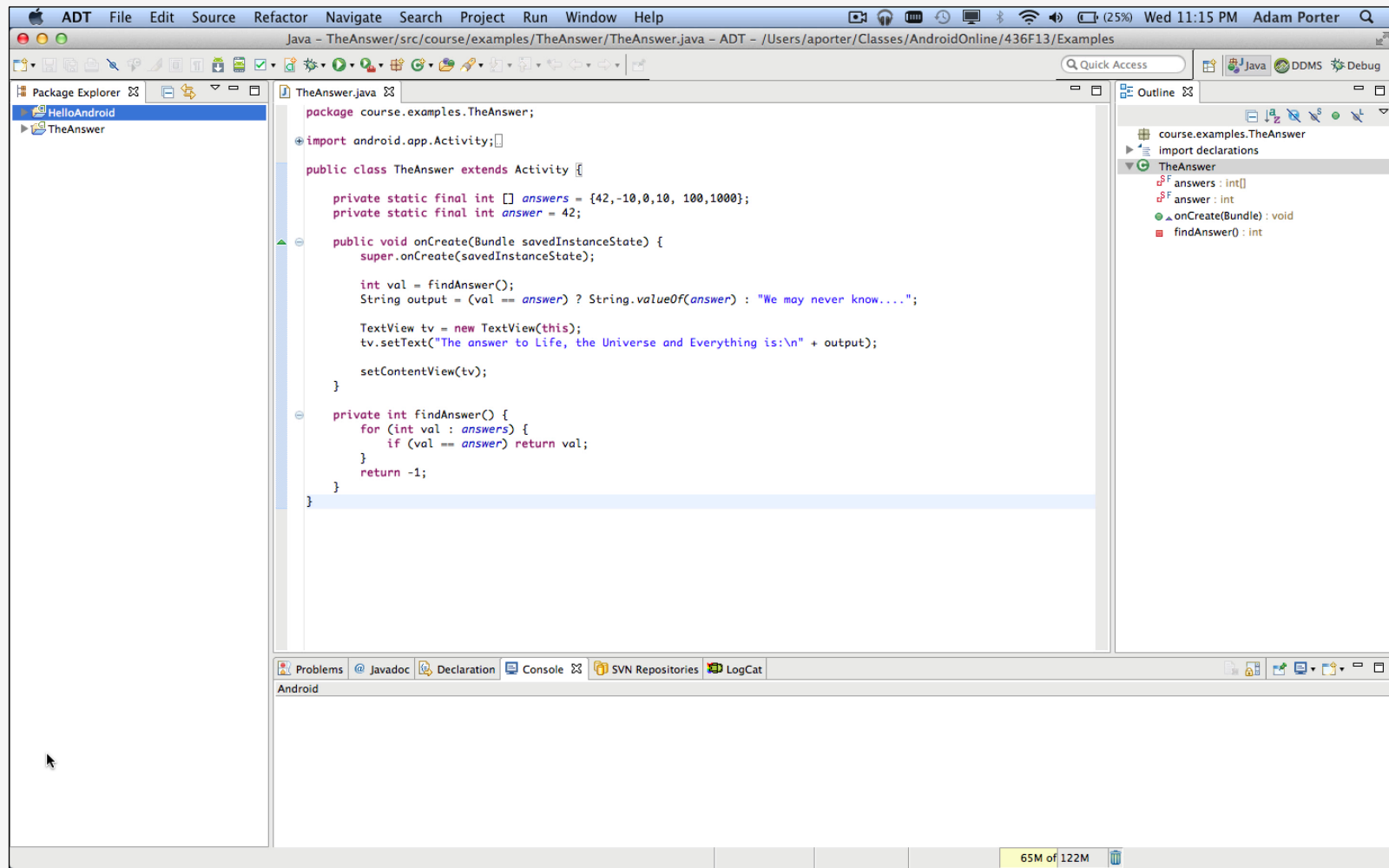
TRACEVIEW

GRAPHICALLY DISPLAY METHOD TRACES
TAKEN FROM RUNNING APPLICATION



UI HIERARCHY VIEWER

SHOWS THE RUNTIME ORGANIZATION OF
THE USER INTERFACE



NEXT TIME

APPLICATION FUNDAMENTALS