

The background of the slide features a grid of colorful, glossy app icons. The icons include symbols for text (Aa), a padlock, a telephone, a calculator, a person, a house, a checkmark, a calendar with the number 1, a line graph, a clock, a cloud, a speech bubble, an information icon (i), a printer, and a globe. The icons are arranged in a staggered, 3D-like pattern.

App distribution via Google Play

Ngu Phuc Huy

Agenda

- Google Play
- Prepare application for release
- Publishing application via GooglePlay
- Q&A

Course Audiences and Prerequisite

- The course is for programmers who are interested in Android development.
- The following are prerequisites to this course:
 - Android programming basic
 - Asymmetric cryptology
 - Certificate-based security

Assessment Disciplines

- Class Participation: 40%
- Assignment: 60%
- Final Exam: 0%
- Passing Scores: 70%

Course Administration

In order to complete the course you must:

- Sign in the Class Attendance List
- Participate in the course
- Provide your feedback in the End of Course Evaluation

Google Play

Introduction to Google Play



Where are we?



Google Play

- Android market place
 - Digital application distribution platform
 - Google Play client installed on Android devices
- Developer console
 - Upload apps
 - Build product page
 - Configure price
 - Publish



A 3D graphic of colorful blocks with various icons (lock, Aa, phone, calculator, etc.) arranged in a grid-like structure, representing app components or features.

How to...

- Configuring application for release.
- Building and signing a release version of your application.
- Testing the release version of your application.
- Updating application resources for release.

Configuring application for release

From your manifest file

- Remove the [android:debuggable](#) attribute

```
<application
    android:allowBackup="true"
    android:icon="@drawable/ic_launcher"
    android:label="@string/app_name"
    android:theme="@style/AppTheme"
    android:debuggable="true" >
</application>
```

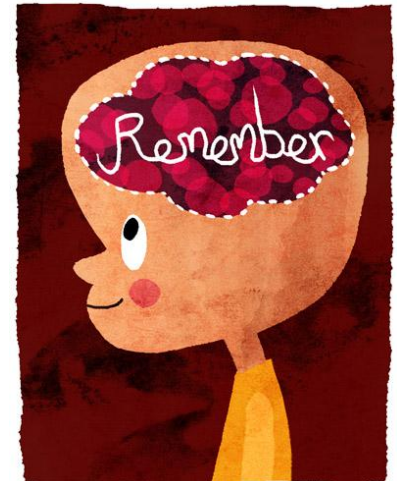
- Add android:versionCode and android:versionName attributes

```
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.map"
    android:versionCode="1"
    android:versionName="1.0" >
```

Building and signing release app

Points to remember:

- All applications *must* be signed
- Sign application with a released private key generated by SDK tool
- Self-sign certificate to sign the app is possible
- Steps:
 - Obtain private key
 - Compile application in release mode
 - Sign the app with private key
 - Align .apk package
 - Secure the private key



Obtaining private key

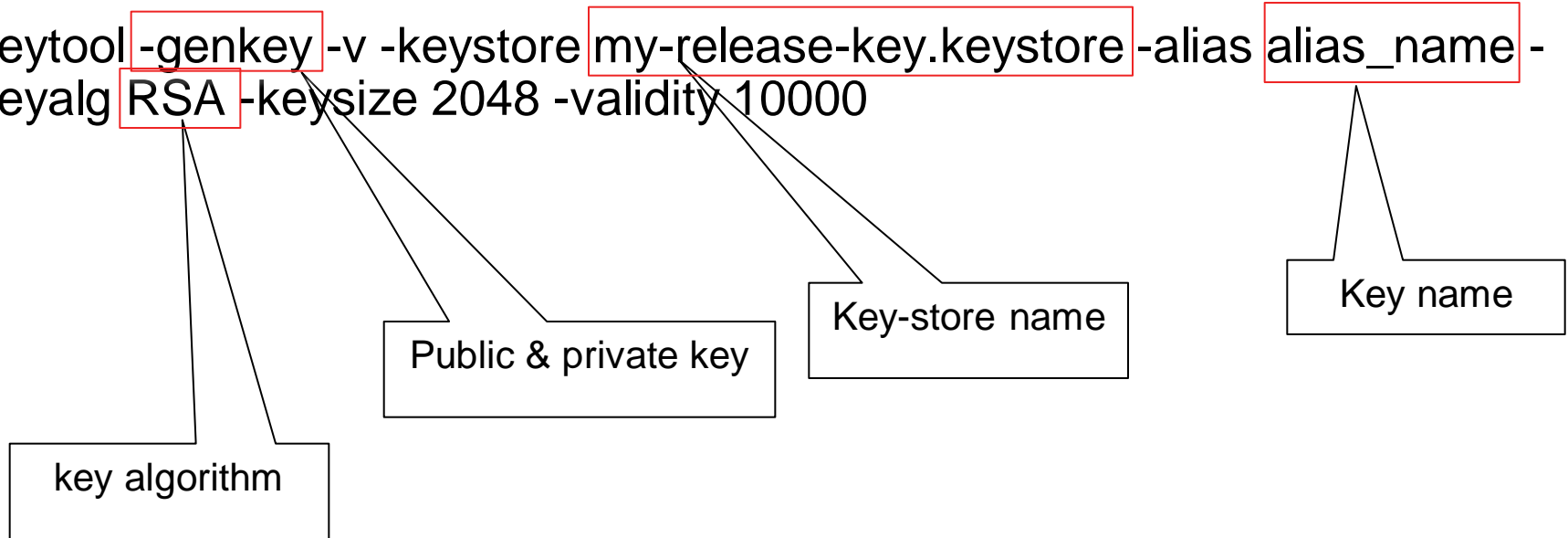
A suitable key must be

- Is in your possession
- Represents the personal, corporate, or organizational entity to be identified with the apps
- Has a validity period that exceeds the expected lifespan of the application or application suite.
- Using key tool to generate the release key



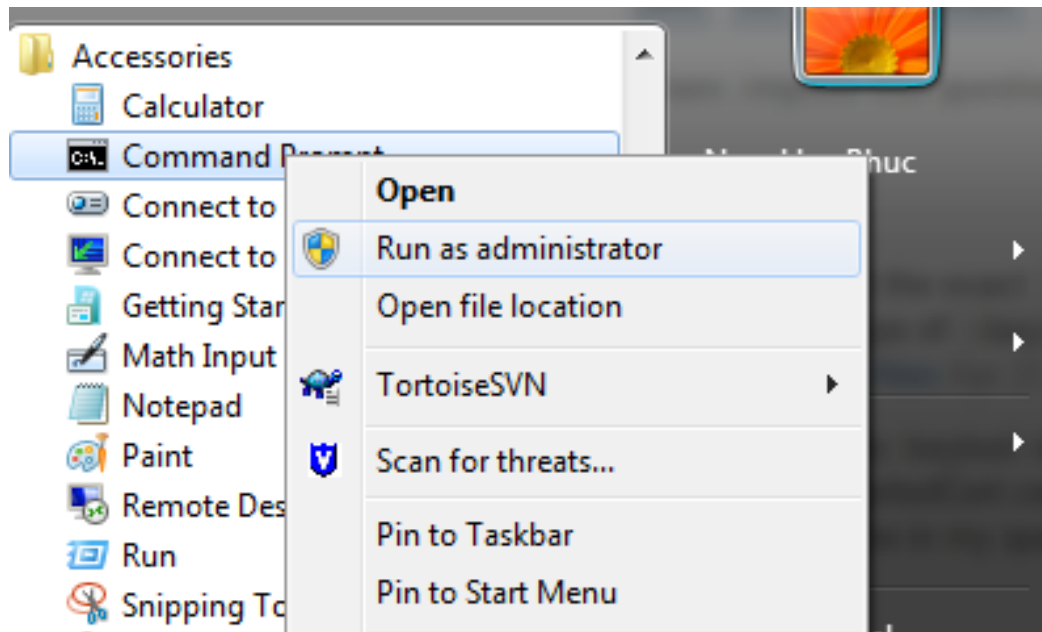
Obtaining private key

- Open cmd as administrator
- Navigate to Java\jre6\bin
- `keytool -genkey -v -keystore my-release-key.keystore -alias alias_name -keyalg RSA -keysize 2048 -validity 10000`



Obtaining private key

- Run cmd as an administrator, otherwise it throws [keytool error java.io.filenotfoundexception and access is denied]



Obtaining private key

Run keytool and provide information to create huy-release-key.keystore.

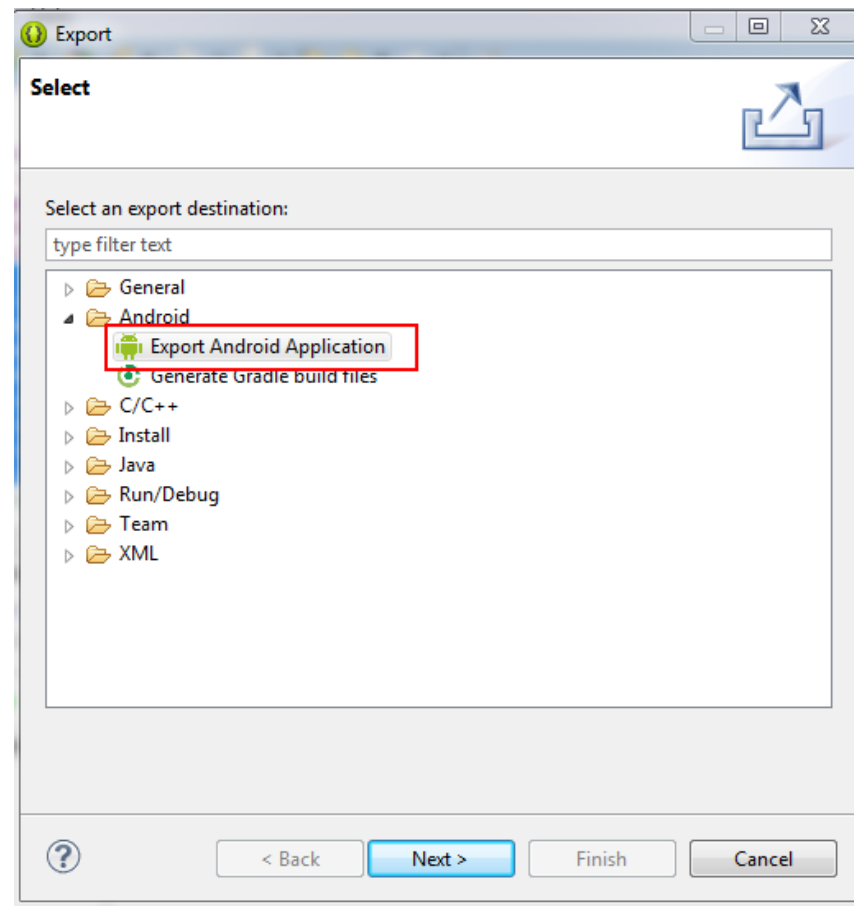
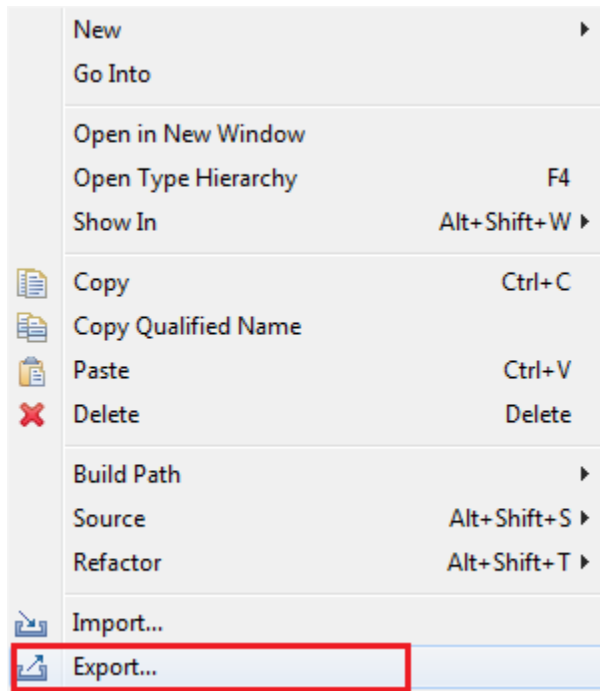
```
C:\Windows\system32>cd C:\Program Files (x86)\Java\jre6\bin
C:\Program Files (x86)\Java\jre6\bin>keytool -genkey -v -keystore huy-release-key.keystore -alias huykey -keyalg RSA -keysize 2048 -validity 10000
Enter keystore password:
Re-enter new password:
What is your first and last name?
[Unknown]: Huy Ngu
What is the name of your organizational unit?
[Unknown]: Mobility
What is the name of your organization?
[Unknown]: CSC Viet Nam
What is the name of your City or Locality?
[Unknown]: Ho Chi Minh
What is the name of your State or Province?
[Unknown]: Tan Binh
What is the two-letter country code for this unit?
[Unknown]: CS
Is CN=Huy Ngu, OU=Mobility, O=CSC Viet Nam, L=Ho Chi Minh, ST=Tan Binh, C=CS correct?
[no]: yes
Generating 2,048 bit RSA key pair and self-signed certificate (SHA1withRSA) with a validity of 10,000 days
for: CN=Huy Ngu, OU=Mobility, O=CSC Viet Nam, L=Ho Chi Minh, ST=Tan Binh, C=CS
Enter key password for <huykey>
(RETURN if same as keystore password):
Re-enter new password:
[Storing huy-release-key.keystore]
```


Compiling, signing and aligning apps

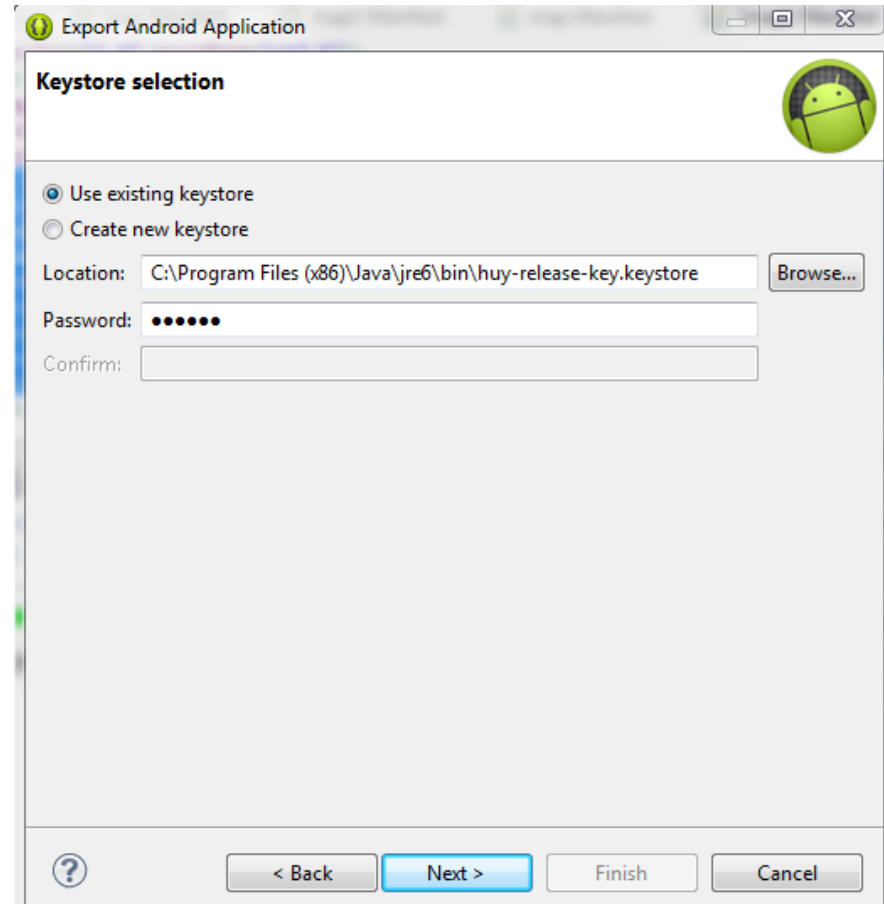
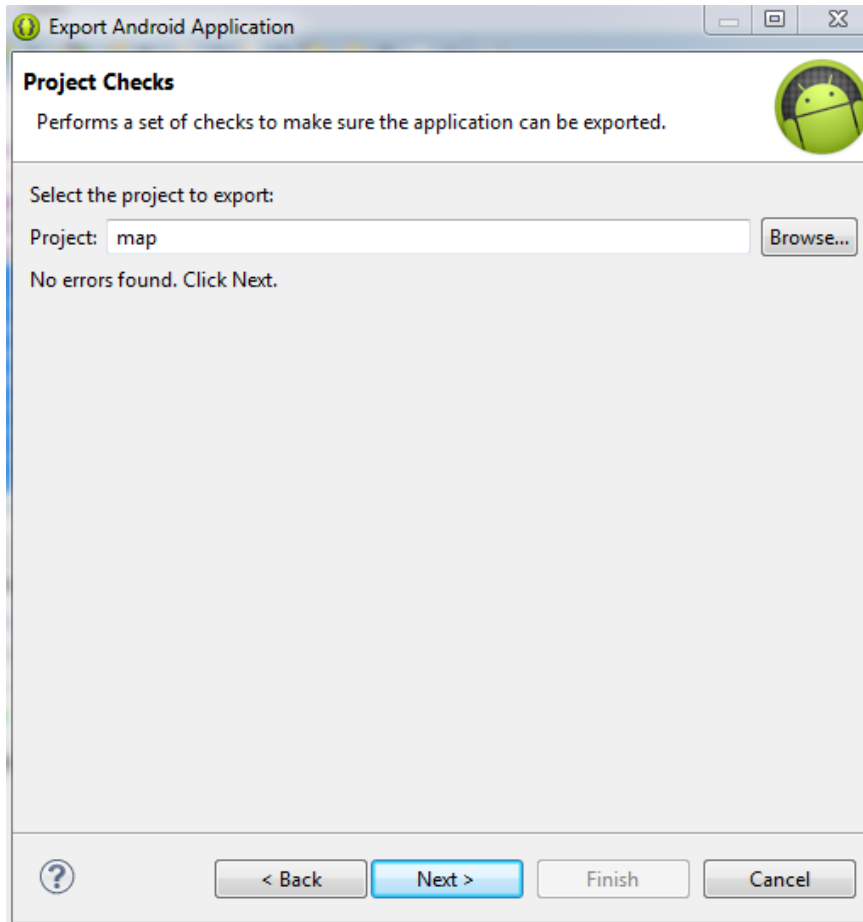
ADT Eclipse leverages the compiling, signing and aligning the release apps

- Select the project in the Package Explorer and select **File > Export**.
- Open the Android folder, select Export Android Application, and click **Next**.
- Complete the Export Wizard and app will be compiled, signed, aligned, and ready for distribution.

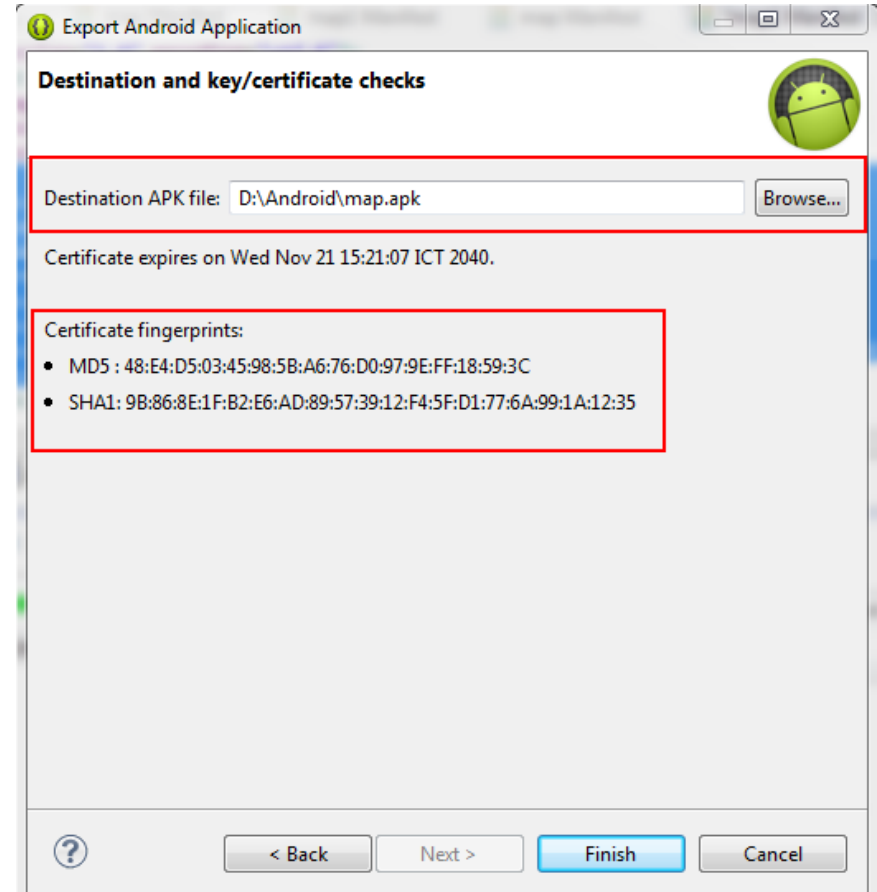
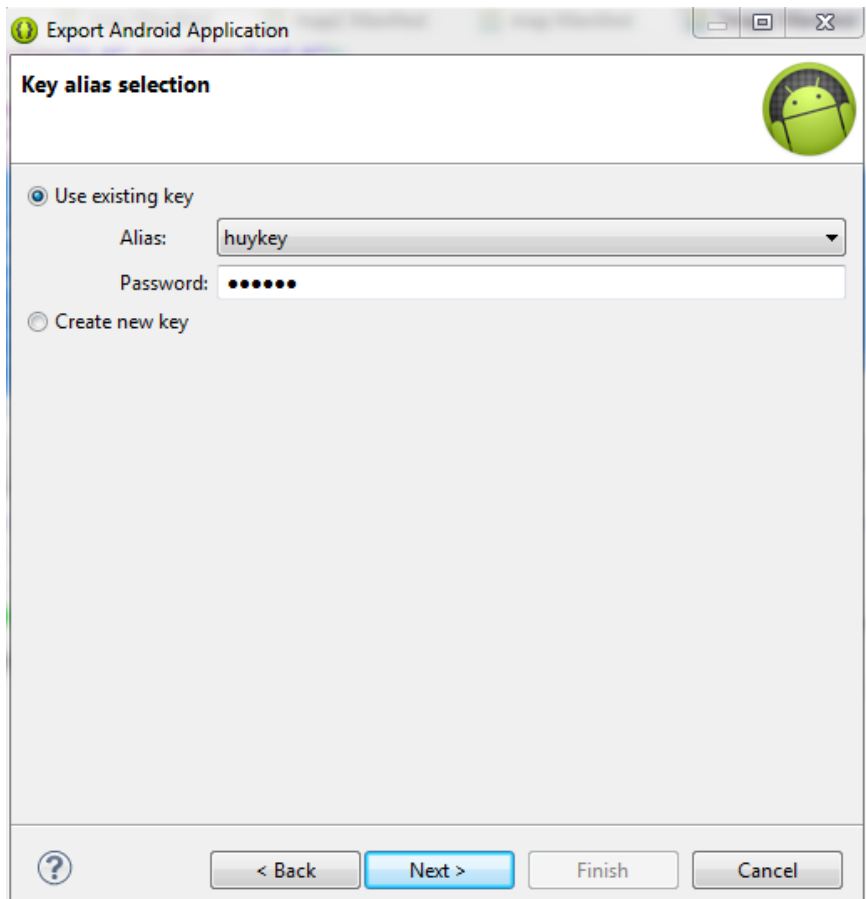
Compiling, signing and aligning release app



Compiling, signing and aligning release app



Compiling, signing and aligning release app



Securing private key-Why's it so important?

- Select strong passwords for the keystore and key.
- Generate your key with Keytool, **do not** supply the -storepass and -keypass options
- Do not give or lend anyone your private key, and do not let unauthorized persons know your keystore and key passwords.
- Keep the keystore file in a safe and secure place



Testing application before release

- Ensure the apps run properly under realistic devices and network condition
- Test the apps at least with a handset-size device and a tablet-size device



What to test

- Change in orientation
 - Portrait
 - Landscape
- Change in configuration
 - Language
 - Network setting (e.g. 3G and Wifi)
- Battery life
- Dependence on external resources
 - GPS, Bluetooth, Google Map API



Updating application resources for release

- Multimedia files and graphic included into the app
- External servers and services must be ready for use



Publish apps via Google Play



What should be considered?

- Understand the publishing process
- Understand Google Play policies and agreements
- Test for Core App Quality
- Determine your app's content rating
- Determine country distribution
- Confirm the app's overall size
- Confirm the app's platform and screen compatibility ranges
- Decide whether your app will be free or priced
- Consider using In-app Billing
- Set prices for your products
- Start localization
- Prepare promotional graphics, screenshots, and videos
- Build and upload the release-ready APK
- Final checks and publishing
- Support users after launch



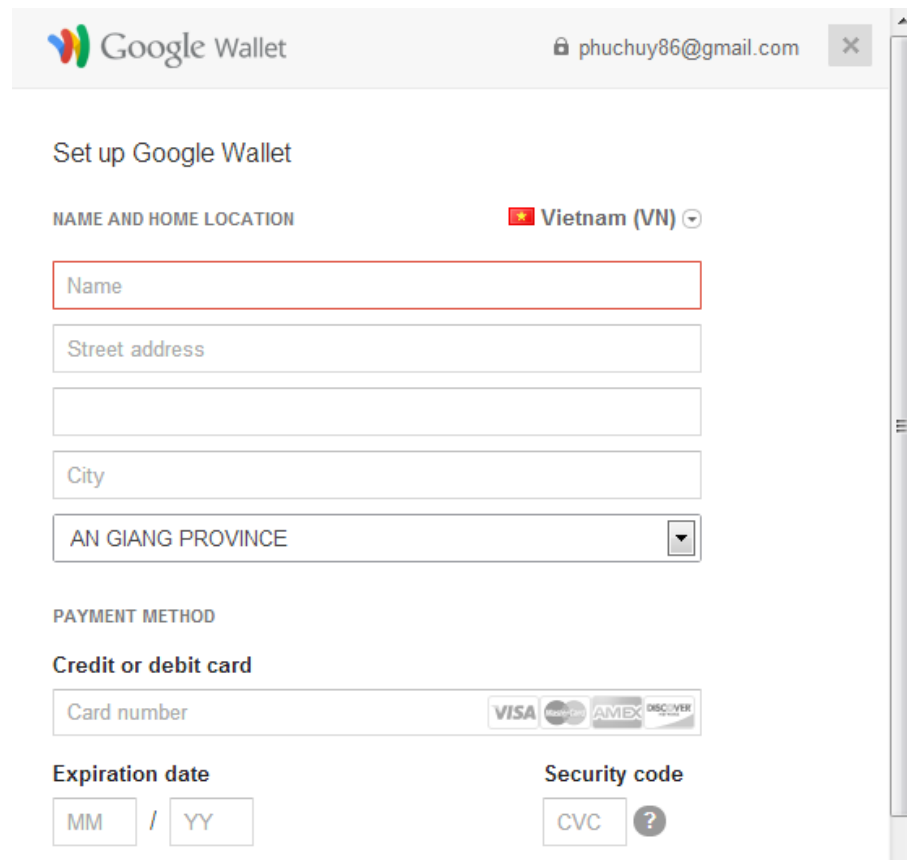
Developer console

- Sign on with Google account and register an account to publish app on Google Play
- Fee: \$25. Pay with credit card

The screenshot shows the Google Play Developer console registration process. At the top, a progress bar has four steps: 'Sign-in with your Google account', 'Accept Developer Agreement' (highlighted in blue), 'Pay Registration Fee', and 'Complete your Account details'. Below the progress bar, the text 'YOU ARE SIGNED IN AS...' is followed by a profile picture and a blurred name. To the right, a message states: 'This is the Google account that will be associated with your Developer Console. If you would like to use a different account, you can choose from the following options below. If you are an organization, consider registering a new Google account rather than using a personal account.' Below this message are two links: 'Sign in with a different account' and 'Create a new Google account'. A horizontal line separates this section from the 'BEFORE YOU CONTINUE...' section. This section contains three items: 1. A document icon with the text 'Read and agree to the Google Play Developer distribution agreement.' Below this is a checkbox labeled 'I agree and I am willing to associate my account registration with the Google Play Developer distribution agreement.', which is highlighted with a red box. 2. A globe and dollar sign icon with the text 'Review the distribution countries where you can distribute and sell applications. If you are planning to sell apps or in-app products, check if you can have a merchant account in your country.' 3. A dollar sign icon with the text '\$25 Make sure you have your credit card handy to pay the \$25 registration fee in the next step.'

Developer console

Fill in your payment information and pay via Google Wallet

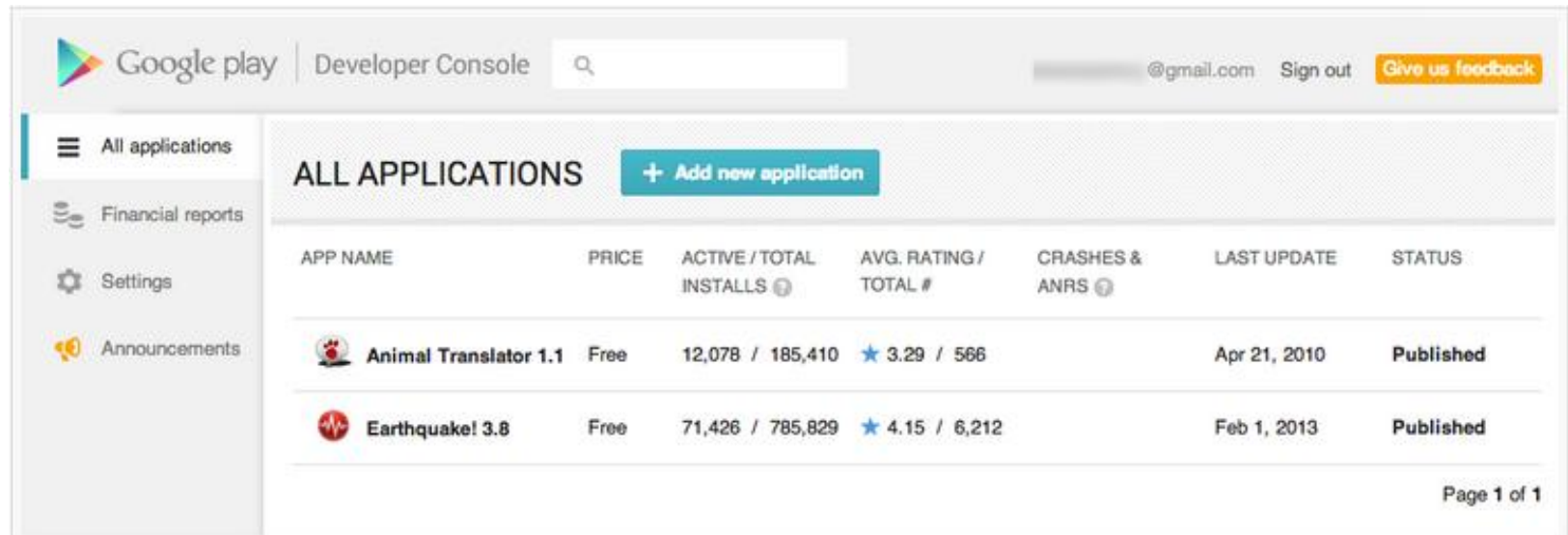


The screenshot shows a web browser window with the Google Wallet logo and the email address phuchuy86@gmail.com. The page title is "Set up Google Wallet". Under the heading "NAME AND HOME LOCATION", there is a dropdown menu for "Vietnam (VN)". Below this are input fields for "Name", "Street address", a blank address line, and "City". A dropdown menu for "AN GIANG PROVINCE" is also present. Under the heading "PAYMENT METHOD", there is a section for "Credit or debit card". This section includes a "Card number" field with logos for VISA, MasterCard, AMEX, and DISCOVER. Below the card number field are two rows of input fields: "Expiration date" (with sub-fields for MM and YY) and "Security code" (with a sub-field for CVC and a question mark icon).



What does Developer Console give you?

- Application page

Gives you a quick overview of your apps, lets you jump to stats, reviews, and product details, or upload a new app.



The screenshot shows the Google Play Developer Console interface. At the top, there's a header with the Google Play logo, 'Developer Console', a search bar, and user information like '@gmail.com', 'Sign out', and a 'Give us feedback' button. On the left, a sidebar contains navigation links: 'All applications' (selected), 'Financial reports', 'Settings', and 'Announcements'. The main content area is titled 'ALL APPLICATIONS' with a '+ Add new application' button. Below this is a table listing applications.

APP NAME	PRICE	ACTIVE / TOTAL INSTALLS ⓘ	AVG. RATING / TOTAL #	CRASHES & ANRS ⓘ	LAST UPDATE	STATUS
 Animal Translator 1.1	Free	12,078 / 185,410	★ 3.29 / 566		Apr 21, 2010	Published
 Earthquake! 3.8	Free	71,426 / 785,829	★ 4.15 / 6,212		Feb 1, 2013	Published

Page 1 of 1

What does Developer Console give you?

- Developer profile

Manage developer profile, including identity, contact information and Website URL

ACCOUNT DETAILS Saved

DEVELOPER PROFILE

Developer name *
The developer name will appear to users under the name of your application.

Email address *

Website

Phone Number *
Include plus sign, country code and area code.
For example, +1-650-253-0000.

Email updates ☐ I'd like to get occasional emails about development and Google Play opportunities.

What does Developer Console give you?


- Multiple user accounts

- Set up and manage different user accounts to access different part of developer console.
- The first account registered is considered as account owner who can grant access to other accounts

Example: An account can publish app but cannot see the financial report

What does Developer Console give you?

- Store listing detail
 - Set up colorful storefront page for apps
 - The page is home for the app on Google play
 - upload custom brand assets, screen shots, and videos to highlight the app features
 - Localized description
 - Latest version
 - Publishing status

 **EARTHQUAKE!** – com.radioactiveyak.earthquake Published

STORE LISTING Saved Fields marked with * need to be filled before publishing.

PRODUCT DETAILS

English (United States) Add translations

Title *
English (United States)
11 of 30 characters

Description *
English (United States)

Get a head start on the apocalypse with Earthquake!
Last 24hrs of earthquakes, with damage and rumble areas shown on an interactive map. Features notifications and vibration to indicate quake magnitude, and a dynamic widget.
Now optimized for tablets!

Promo text
English (United States)



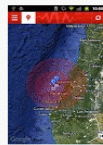
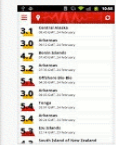
Recent changes
English (United States)

Fixed force close on refresh bug introduced in last update (sorry!)


GRAPHIC ASSETS

If you haven't added localized graphics for each language, graphics for your default language will be used.
[Learn more about graphic assets.](#)


Screenshots *
Default – English (United States)
320 x 480 or 480 x 800 or 480 x 854 or 1280 x 720 or 1280 x 800. JPG or 24-bit PNG (no alpha)
Drag to reorder. At least two are required.



High-res icon *
Default – English (United States)
512 x 512
32-bit PNG (with alpha)



Feature Graphic
Default – English (United States)
1024 w x 500 h
JPG or 24-bit PNG (no alpha)



What does Developer Console give you?

- Uploading and Publishing
 - Upload the app and keep it as draft
 - Publish the app when it's ready and the app will be visible to the world

What does Developer Console give you?

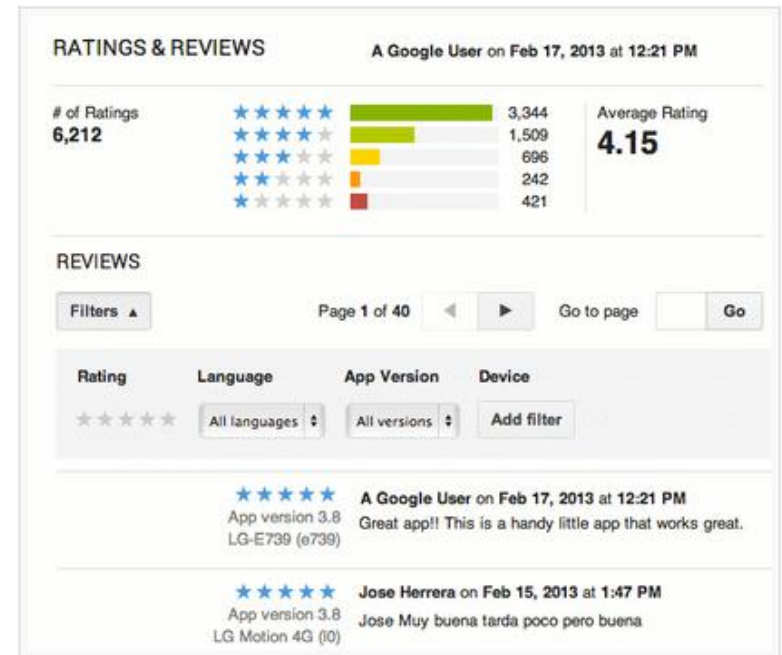
- Distribution control
 - manage what countries and territories the app is distributed to
 - for some countries, you can choose what carriers you want to target

What does Developer Console give you?

- Selling and pricing: Set price for your app products
 - If you publish your app as free, it must remain free. Free apps can be downloaded by any users in Google Play.
 - If you publish it as priced, you can later change it to free. Priced apps can be purchased and downloaded only by users who have registered a form of payment in Google Play.
 - You can set prices in a large number of different currencies. When users around the world visit your store listing, they see the price of your app in their own currency.

What does Developer Console give you?

- User reviews and crashed products:
 - Enable users to submit reviews of your app for the benefit of other users and yourself.
 - You can see crash reports, with stack trace submitted automatically from Android devices, for debugging and improving your app.



What does Developer Console give you?

- App statistics:
 - Enable you to track detailed statistics on the app installation.
 - Measured by users or devices
 - For user installations, you can view active installs, total installs, daily installs and uninstalls, and metrics about user ratings.
 - For devices, you can see active installs as well as daily installs, uninstalls, and upgrades.

STATISTICS

Daily device installs

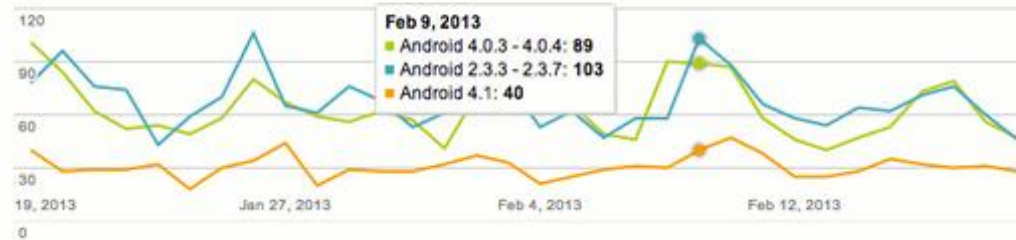
for Jan 19, 2013 - Feb 19, 2013 [Export as CSV](#)

Show: last month 3m 6m 1y all



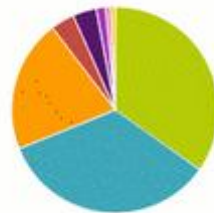
Android Version	Device	Country	Language	App Version	Carrier
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DAILY DEVICE INSTALLS BY ANDROID VERSION



DAILY DEVICE INSTALLS ON FEB 19, 2013

YOUR APP



<input checked="" type="checkbox"/>	Android 4.0.3 - 4.0.4	47	34.81%
<input checked="" type="checkbox"/>	Android 2.3.3 - 2.3.7	46	34.07%
<input checked="" type="checkbox"/>	Android 4.1	28	20.74%
<input type="checkbox"/>	Android 4.2	5	3.70%
<input type="checkbox"/>	Android 2.2	5	3.70%
<input type="checkbox"/>	Android 2.1	2	1.48%
<input type="checkbox"/>	Android 3.1	1	0.74%
<input type="checkbox"/>	Android 3.2	1	0.74%

Assignment



Q&A



Revision History

Date	Version	Description	Updated by	Reviewed and Approved By
June 28, 2013	1		Huy Ngu	



BUSINESS SOLUTIONS
TECHNOLOGY
OUTSOURCING