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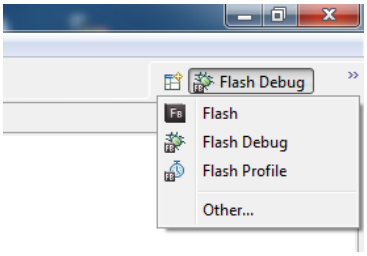
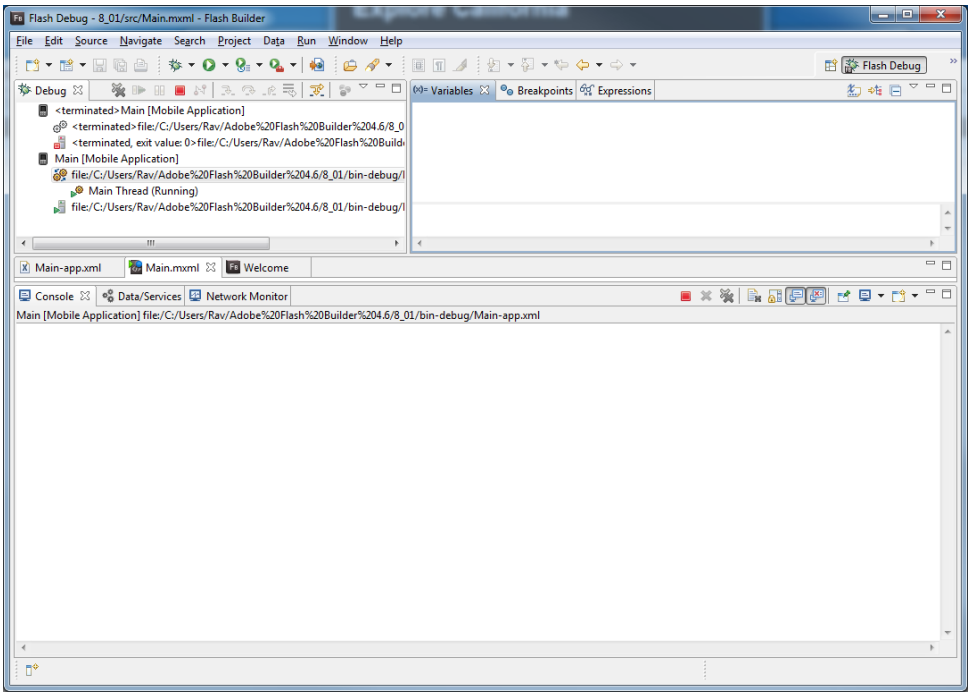
Debugging, Template Code , Testing & Security

Debugging and testing via Flash Debug

Flash Builder has a very powerful debugging tool that allows any developer to better see the process of execution, and errors being triggered. Flash Debug can be found in the top right hand side of Flash Builder's IDE. Click on the FB icon followed by Flash Debug.

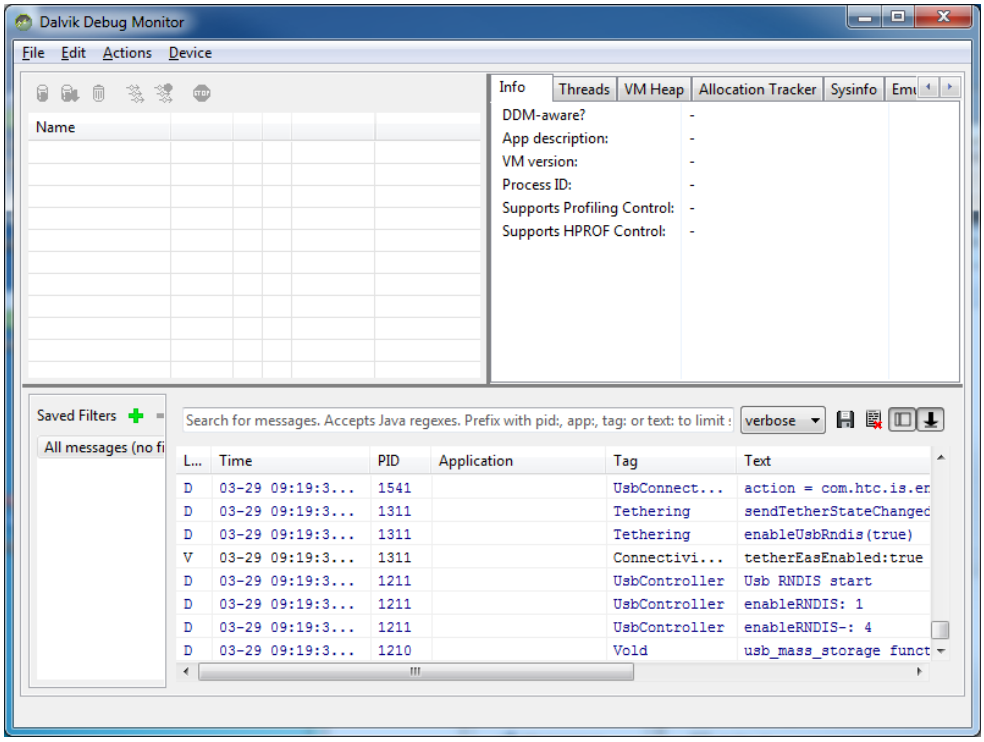


This will provide you a better interface when debugging and locating errors. The screen should look similar to that shown below :



The Flash Builder debugger allows you to look at variables, break points, expressions and the real time activity happening during the execution of the application.

You may also want to try the Android Dalvik Debug Monitor (ddms) to debug Android Apps. This is located in the Android-sdk/tools/ folder.



Testing your app on a Apple device requires much more work, but wait! There is an easier option available *testflightapp.com*, that allows you to test your iOS apps on the fly.

Overall there is no alternative to testing any app besides the actual device, remember devices have the built in hardware such as the camera, mic, accelerometer, gestures etc, so emulators can only assist in the initial testing, but not the final!

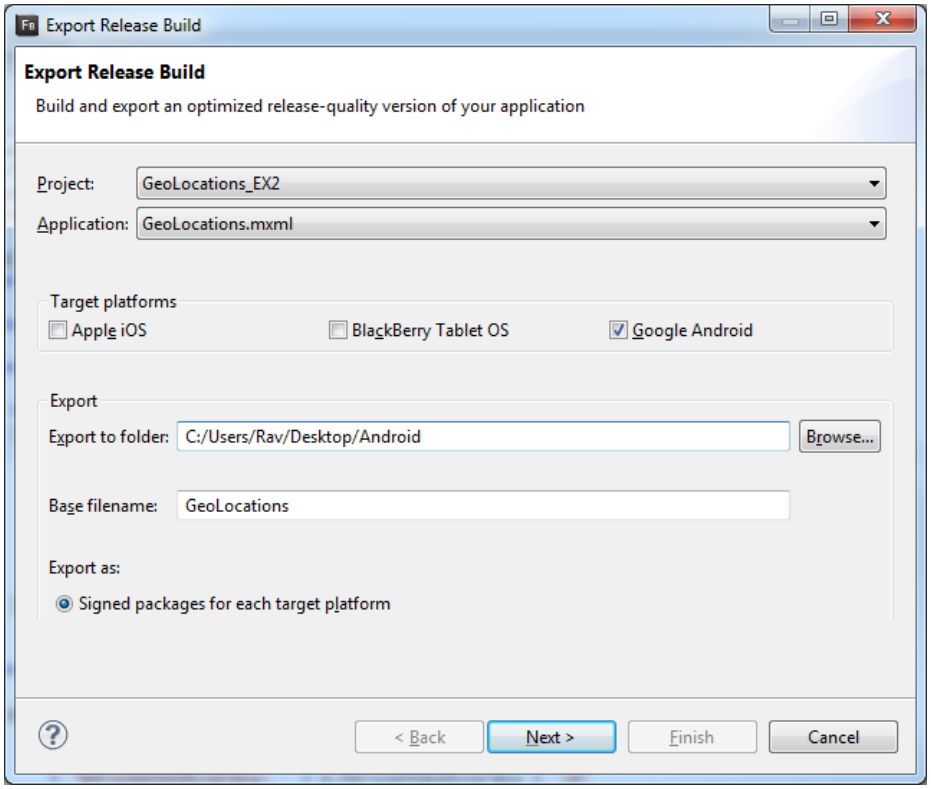
Deployment on the Device

Now that your app has been developed, and reached the beta stage, it is now time to deploy it on to a the device and further test it. It will always be a good idea to thoroughly test prior to launching it in any App Store.

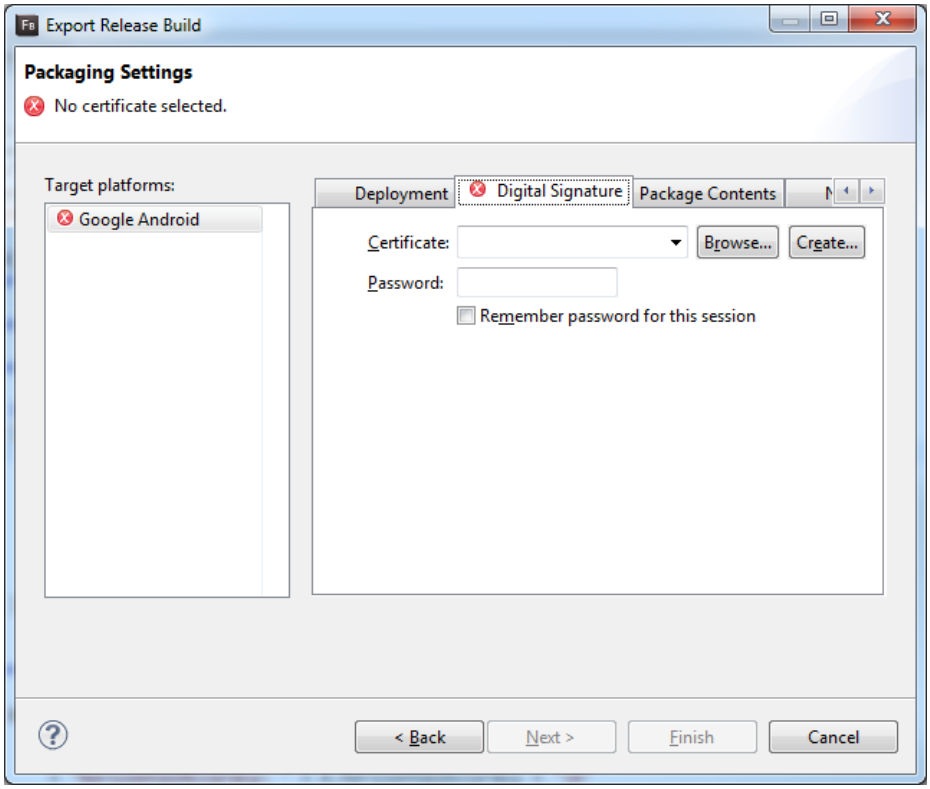
For the the purpose of this exercise, I will be using a Android device.
There are two steps in this process 1. Building the APK (Android Applictaion Package), and second a manual installation of the APK on a Android device.

Building an APK File

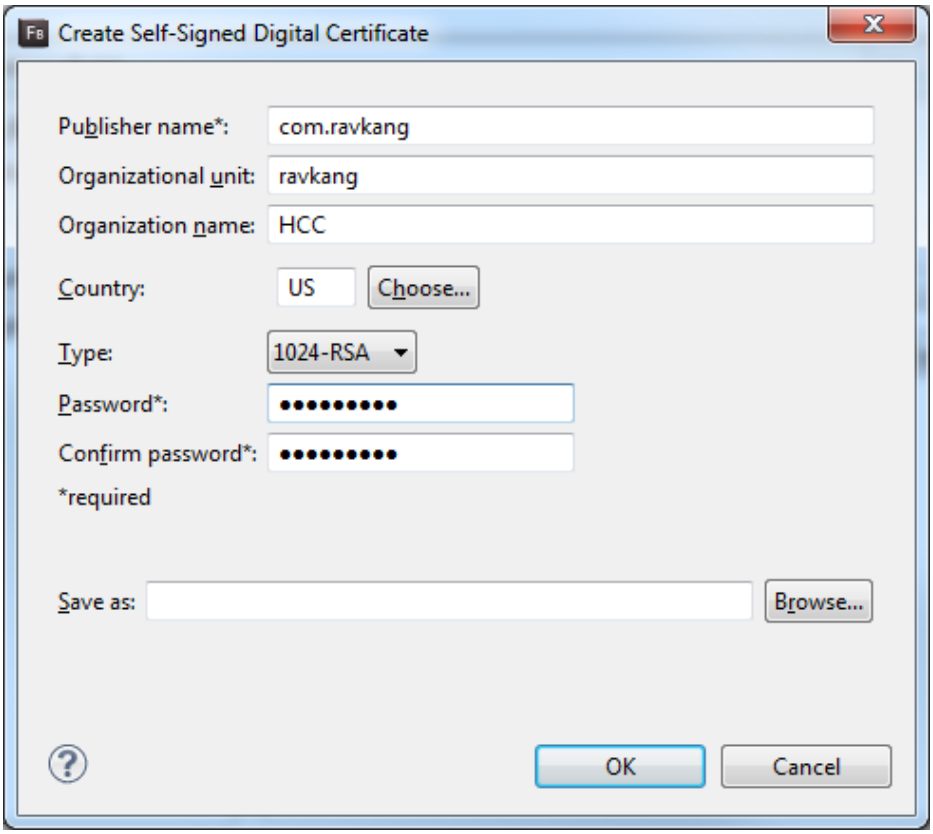
Click on Project > Export Release Build

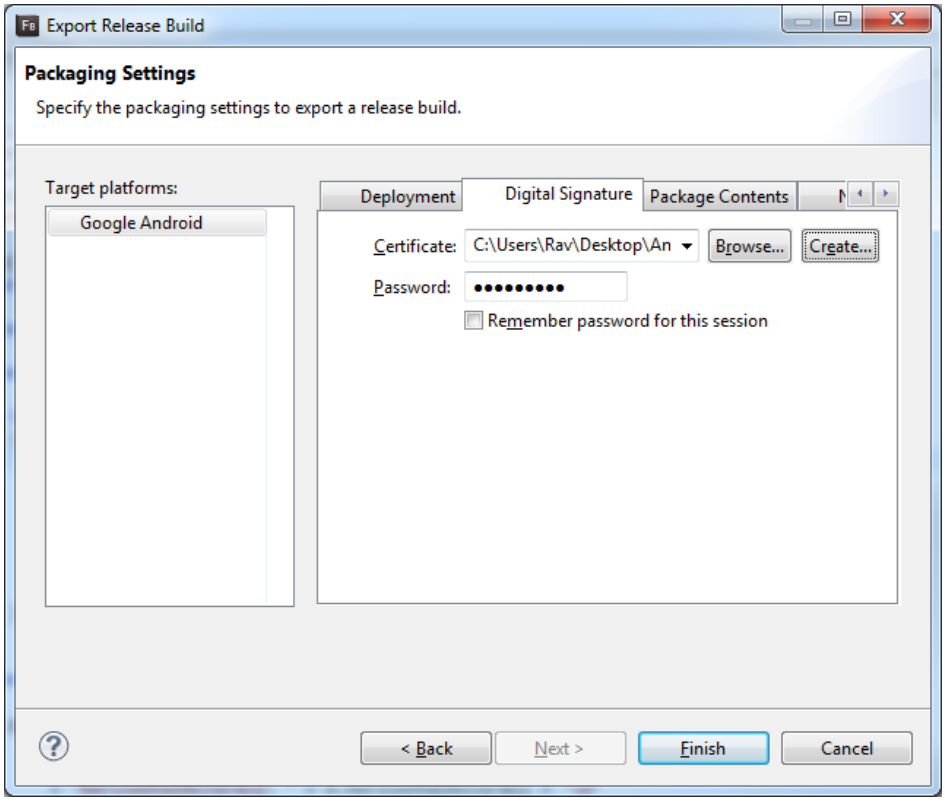


Select Digital Certificate and create a Certificate



If no certificate exists, create a new one.





Following this you should have an APK (Android Applictaion Package) file generated.

Manual Installation of the APK onto an Android Device

I will be using the Astro File Manager that is obtainable from the Android Market.

1. Get Astro File Manager from the Market, launch this app
2. Copy apk file to sd card
3. Locate the apk file via Astro > File Manager (make sure that the pc is not connect to the device)
4. Select the apk file and install it. You should now be able to test the app any where you like!

IOS PROCESS

Deployment on an iOS device requires a different set of steps, and can be found on http://devgirl.org/2011/06/20/flexair-for-ios-development-process-explained

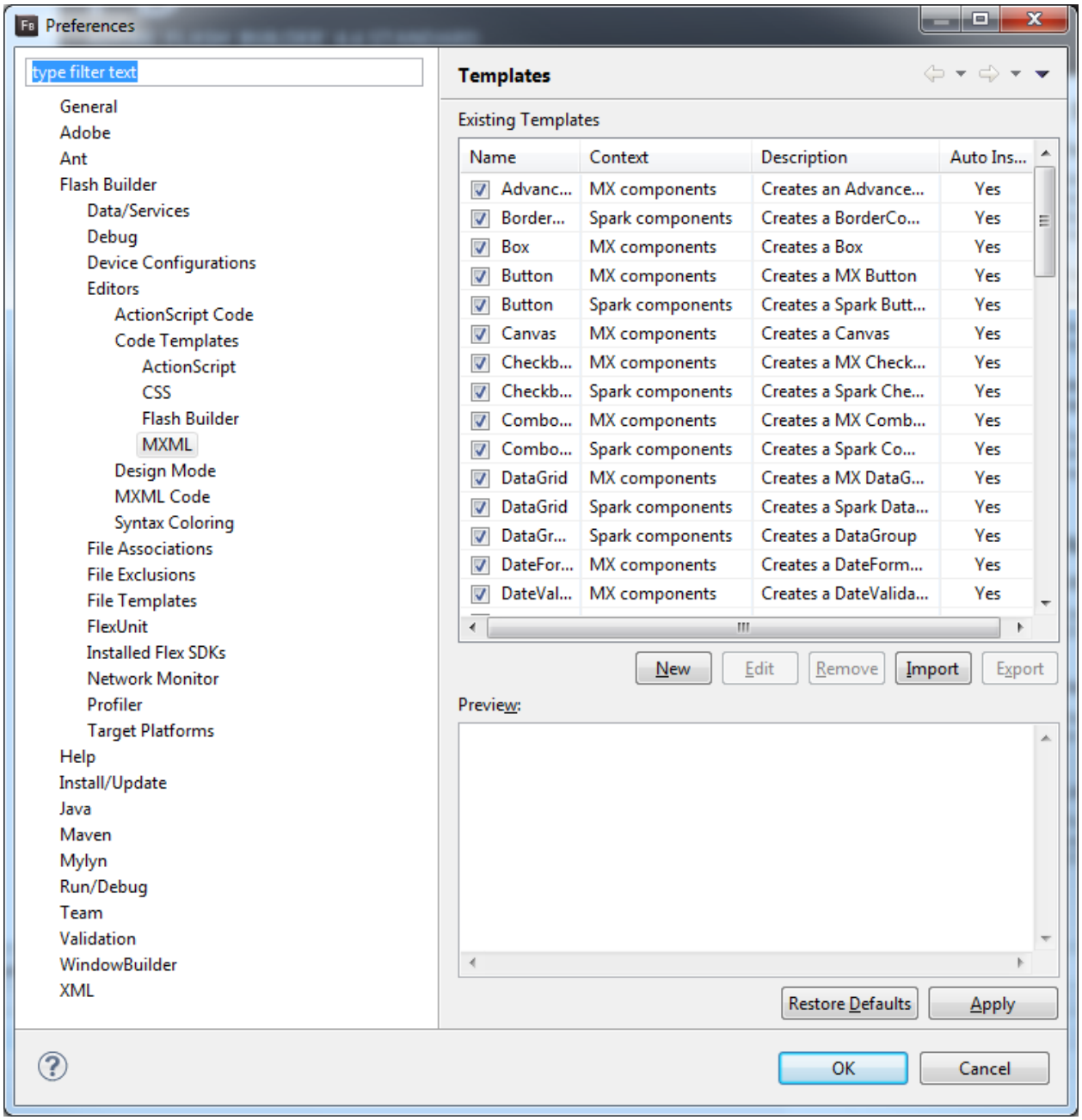
You may also try https://testflightapp.com/ which is a free testing service for mobile developers.

Template Code

Flex provides a series of code examples that developers can fully use.

Access to these are obtained from

Window > Preferences > Flash Builder > Editors



Security Issues

For mobile applications most of the application code and a lot of the data resides on the device and these devices can no doubt be compromised by hackers. The situation of mobile applications is that they do not have the additional security buffers of firewalls and security software that are available on the traditional website services we use.

When developing any application there are a number of security needs that need to be addressed thoroughly:

1. What type of data will be stored on the device?
2. What data will be retrieved from the server, and how?
3. Will data have a life span, if any?
4. Will 3rd Party services are OK for you App? i.e. little or no sharing of confidential data?

Other areas to take into account include:

- Overview of Application Development
- Overview of Secure Development
- Defeating Platform Environment Restrictions
- Installing Applications
- Application Permissions Model
- Local Storage
- Encryption APIs
- Network Communications
- Protecting Network Communications
- Native Code Execution
- Application Licensing and Payments
- Browser URL Handling

Ref : http://blog.denimgroup.com/denim_group/2010/09/smart-phones-dumb-apps-slides-and-code-online.html

Android vs iOS

The one big distinctions between iOS and Google Android is that the iOS applications effectively don't communicate with each other, whereas Android apps are permitted to communicate with each other, but encouraged to do so.

Ref : http://www.bitdefender.com/security/mobile-security-mistakes-point-to-android-developer-negligence.html
http://mobile.eweek.com/c/a/Security/Mobile-Application-Developers-Face-Security-Challenges-822505

There can be other forms of malicious attacks on mobile devices, and this is on the increase especially if the number of apps as well as devices hit the market. Currently as of 2012 there are no standardized tests for antivirus mobile software. Android-based threats do exist, and as they occur with more frequency, it's highly likely that standards for testing security apps will emerge.

The Lookout Android security app provides a necessary security wall to any Android phone. Even if you disable the antivirus protection, its other features make it more than worthwhile by providing essential features not otherwise available in one package. Either the free version or the premium upgrade is worth having, since both contribute significantly to keeping your phone and your data on it safe.

Ref : http://blog.mylookout.com/blog/2010/12/29/geinimi_trojan

Exercise

You are required to write a 500 – 1000 word report on which mobile applications could be compromised and why? What measures would you take to avoid such issues?