The Android NDK

What is the Android NDK?

- The Android Native Development Kit (NDK) is a set of tools that complement the Android SDK and allow us to embed native code compiled from C\C++ into the APK file.
- You can download the Android NDK for free at www.android.com.

The Cgywin Environment

- The CygWin software emulates a Linux environment on a windows based platform.
- Using the Android NDK is feasible either on a Linux based platform or on Windows based platform on which the CygWin was installed.
- Cygwin includes the cygwin1.dll that emulates the Linux API layer and a set of tools.
- The Cygwin software is available for free at www.cygwin.com.

The Java Native Interface API

- The Java code should include the native code implemented as a native method that works with a native library that includes the native code itself.
- The android VM allows our Java code to use JNI in order to call native methods.

```
...
public native String getDataFromJNI();
...
```

The Native Code Library

- We should pack the native code within a library named with the 'so' or the 'lib' suffix. These are the possible suffix on the Linux platform.
- Our Java code should load that library. It is common to load it within a static block the class includes.

```
...
static
{
  System.loadLibrary("myappjni");
}
...
```

The Stable Native APIs

- The Android platform includes a set of headers that match the stable APIs the Android platform supports.
- The STABLE_APIS.TXT document you can find within the NDK lists these headers.

Future Changes

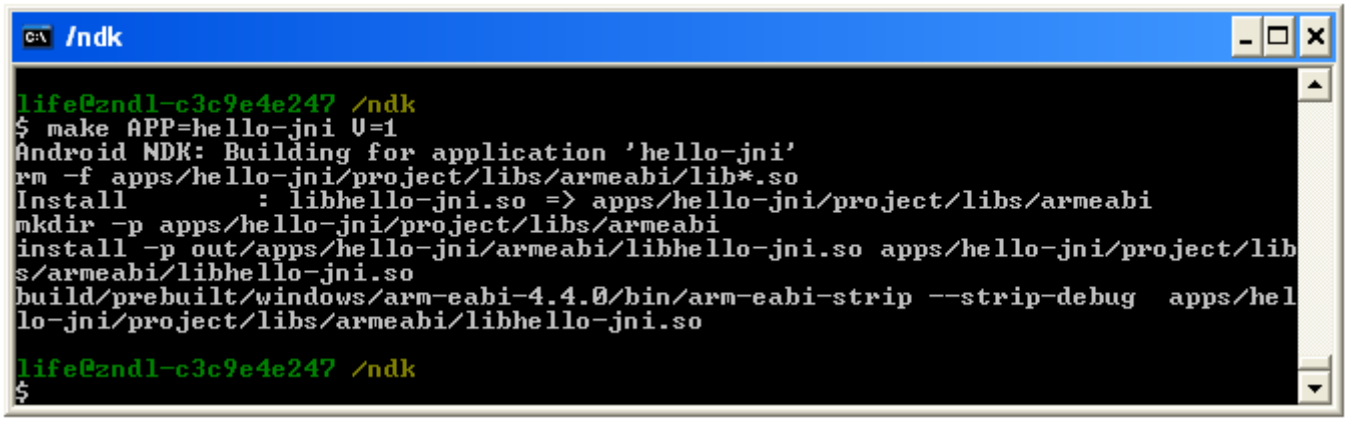
- “Keep in mind that most of the native system libraries in Android system images are not frozen and might changed drastically, or even deleted, in later updates and releases of the platform.” (NDK Overview, The Android Team)

Undocumented API

- It is possible to access non documented native libraries the Android platform includes. Nevertheless, there is no guarantee those libraries won't change in the future.

The NDK Build System

- Within the top-level NDK directory we should invoke the build system by calling the 'make' utility.



- Doing so will build the shared libraries the Application.mk lists and copy them to our application project path.

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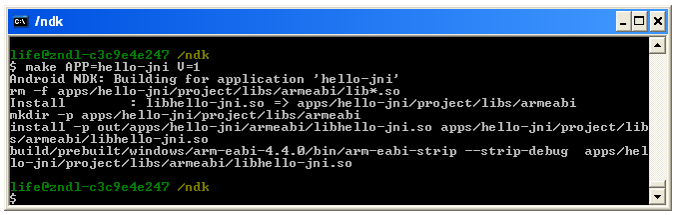

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