

# Workshop: Android and NFC

# **Preparatory Guide**

by Michael Roland

# **Required Software**

- Java SE JDK 7
- Android SDK
- NetBeans IDE 7.2

### Software Installation and Configuration

#### 1. Java SE / Java Platform (JDK) 7

- Download from <u>http://www.oracle.com/technetwork/java/javase/downloads/index.html</u>
  - Java Platform (JDK) 7u\*
  - Windows x86 jdk-7u\*-windows-i586.exe
  - Use the 32-bit version (even if you have a 64-bit system!)
- Install with default options



#### 2. Android SDK

- Download from
   <u>http://developer.android.com/sdk/</u>
- Install with default options

#### 3. Start Android SDK Manager

• Run Start 0  $\rightarrow$  All Programs  $\rightarrow$  Android SDK Tools  $\rightarrow$  SDK Manager

Android SDK Manager				
Packages Tools				
SDK Path: C:\Program Files\Android\android-sdk				
Packages				
🛉 Name	API	Rev.	Status	
🔺 🔲 🛅 Tools				
Tools		20.0.1	🎒 Installed	
🔲 🙀 Android SDK Platform-tools		14	🎒 Installed	
a 🔲 🚔 Android 4.1 (API 16)				
🔲 🔛 Documentation for Android SDK	16	2	🎒 Installed	
🔲 🖷 SDK Platform	16	2	arriant and the second	
a 🔄 🔚 Android 2.3.3 (API 10)			<b>20.</b>	
SDK Platform	10	2	Installed	
Extras		6	🎒 Installed	
Google OSB Driver		0	mstalled	
Show: Updates/New VInstalled Obsolete Select	vew or Up	<u>dates</u>		Install packages
Sort by:  API level  Repository Deselect	<u>t All</u>			Delete packages
Done loading packages.				

- Install packages
  - Tools
    - ☑ Android SDK Tools
    - ☑ Android SDK Platform-tools
  - Android 4.1 (API 16)
    - ☑ Documentation for Android SDK
  - Android 2.3.3 (API 10)
    - ☑ SDK Platform<sup>1</sup>
  - Extras
    - ☑ Google USB Driver

<sup>&</sup>lt;sup>1</sup> Instead of *SDK Platform* for *Android 2.3.3 (API 10)* you can also use *SDK Platform* for *Android 4.1 (API 16)* or *SDK Platform* for *Android 4.0.3 (API 15)*; the app will still be compatible to earier versions.



- 4. NetBeans IDE 7.2
  - Download from
     <u>http://netbeans.org/downloads/</u>
    - You need at least the *Java SE* download bundle.
  - Install with default options

#### 5. Start NetBeans IDE 7.2

• Goto  $Tools \rightarrow Plugins$ 

Plugins	
Updates Available Plugins (69) Downloaded Installed (29) Settings Configuration of Update Centers:	
Active     Name       Image: Certified Plugins       Image: Certified Plugins       Image: NBAndroid       Image: Certified Plugins       Image: Cering Plugin Portal	NBAndroid         Edit         Remove           Last Check: 01.08.12 15:55         URL: http://nbandroid.org/release72/updates/updates.xml         Image: Check C
	Add
<u>O</u> heck Interval: Every Week	▼ Proxy Settings
Advanced Plugin Install Location: Default	
	<u>C</u> lose <u>H</u> elp

- On Settings tab
  - Add a new update center:
    - Name: NBAndroid
    - URL: <a href="http://nbandroid.org/release72/updates/updates.xml">http://nbandroid.org/release72/updates/updates.xml</a>

🕥 Upda	ite Center Customizer
<u>N</u> ame:	NBAndroid
	Check for updates automatically
URL:	http://nbandroid.org/release72/updates/updates.xml
	OK Cancel



- On Available Plugins tab
  - Install plugin JUnit (Category Java SE)
  - Install plugin Android (Category Mobility)
- Goto *Tools* → *Options* → *Miscellaneous*
- On Android tab
  - Select the location where you installed the Android SDK<sup>2</sup>

Options								<b>X</b>
<b>O</b> S				Java	100			
General	Editor	Fonts & Colors	Keymap	Java	Miscellaneous			
Action Items	Android Diff	Files Issue Trac	king JavaScr	ipt Terminal \	/ersioning Windo	WS		
SDK Loca	tion: C:\Progra	am Files\Android\an	droid-sdk					Browse
Location	of Android SDK	has to be specified	before you ca	an start Android	application develor	oment.		
Download	d Android SDK	nuo to oc opeened	berore you co					
							Visit NBA	odroid website
							VISICINDA	
Export	Import						OK Car	ncel <u>H</u> elp

<sup>2</sup> Typically C:\Program Files\Android\android-sdk (for Windows 32-bit) or C:\Program Files (x86)\Android\android-sdk (for Windows 64-bit)



<sup>•</sup> Hagenberg • Linz • Steyr • Wels

- 6. Enable USB-Debugging on your Android device
  - Goto *Settings*  $\rightarrow$  *Developer options* and check *USB debugging*



#### 7. Install driver for USB-Debugging

• Open the *Device Manager* and right-click on *Other devices* → *Galaxy* (or your phone type)





Select Update Driver Software



	How do you want to search for driver software?
	Search automatically for updated driver software Windows will search your computer and the Internet for the latest driver software for your device, unless you've disabled this feature in your device installation settings.
	Browse my computer for driver software Locate and install driver software manually.
ect <i>Browse</i>	my computer for driver software
В	rowse for driver software on your computer
c	
2	earch for driver software in this location:
3	earch for driver software in this location: C:\PROGRAM FILES (X86)\ANDROID\ANDROID-SDK\EXTRAS\GOO!
5 [ [	earch for driver software in this location: C:\PROGRAM FILES (X86)\ANDROID\ANDROID-SDK\EXTRAS\GOO! Include subfolders

• Select Let me pick from a list of device drivers on my computer

🕒 👖 Update	Driver Software - Galaxy	×
Select yo	ur device's type from the list below.	
Show A Figure 61883 [ Common h	Ardware types:	•
AVC De Batterie Biomet Biomet	evices es ric Devices oth Radios	
🚷 Blueton P Compu compu Disk dr Sisplay	oth Virtual Devices iter ives adapters	
DVD/C	D-ROM drives	+ Cancel

• Select Show All Devices

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• Select Have Disk ...



• Select the path of the Android debug drivers (for Nexus devices, the drivers are located in *extras/google/usb\_driver/* in the Android SDK installation directory)

3	Update Driver Software - Galaxy	
	Select the device driver you want to install for this hardware.	wea
	disk that contains the driver you want to install, click Have Disk.	
	Model 1	
	Image: Android ADB Interface       Image: Android Composite ADB Interface	
	This driver has an Authenticode(tm) signature.     Have Disk       Tell me why driver signing is important	
	<u>N</u> ext Ca	ancel

• Select the Android ADB Interface driver

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• Accept the warning and complete the installation





# Creating a New Android Project

• Goto File → New Project...

New Project		
Steps	Choose Project	
1. Choose Project 2	Categories:	Projects: 2 Android Project Android Test Project
	Description: Creates a new Android project that us can also generate a main activity in the pro be run, and debugged in emulator or on ph	ses standard file layout supported by Android SDK. You ject. This project is built using an Ant build script and can ysical device.
	< <u>B</u> ack	Next > Einish Cancel Help

• Select Category Android and Project type Android Project

New Android Application						×	
Steps	Name and Locat	ion		A			
1. Choose Project 2. Project Data	Project <u>N</u> ame:	NFCReader	FCReaderWriterDemo				
	Project Location:	C:\Users\m	roland\Documents\N	letBeansProjects		Browse	
	Project Fol <u>d</u> er:	:rs\mroland	\Documents\NetBear	nsProjects \NFCRead	derWriterDemo		
	Set as <u>M</u> ain	Project			5		
	Package Name:	at.mrolan	id.android.apps.nfcr	eaderwriter	6		
	Activity Name:	NFCRead	erWriterDemo				
	Target Plat <u>f</u> rom:				Manage And	droid SDK	
	Target Name	Ver	ndor	Platform	API Leve	9	7
	Android 2.3.3	And	roid Open Source	2.3.3	10		
	Android 4.1	And	roid Open Source	4.1	16		
						0	
		(	< <u>B</u> ack Ne	xt > Einish	Cancel	O Help	

• Choose a project name (and location)

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- Choose a package name
- Choose a name for your main activity (i.e. your app's main window)
- Select the target platform
  - The examples in this workshop will be compatible with Android 2.3.3 (API 10) and later.

# Importing an Existing Android Project

• Goto  $File \rightarrow Import Project \rightarrow From ZIP...$ 

Impor	t Project(s) from ZIP
ZIP File:	Browse
Eolder:	s\mroland\Documents\WetBeansProjects Browse
(i) Must	select a ZIP to import from.
	Import Cancel

# Skeleton Android Project for the Hands-on Workshop

Download from

https://www.mroland.at/uploads/2012/09/NFCCongress2012\_NFCReaderWriterDemo\_full.zip

- This project already contains the most important project settings.
- This project contains some useful helper classes.
- A full version of the demo project will be available after the workshop.