

NVIDIA DEBUG MANAGER FOR ANDROID NDK

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Installation Guide

DOCUMENT CHANGE HISTORY

Document Number

Version	Date	Authors	Description of Change
01			Initial release

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SOFTWARE REQUIREMENTS

SOFTWARE COMPONENTS

The NVIDIA Debug Manager for Android NDK Eclipse plugin expects very specific components to be installed – in order to operate as expected. Please make sure that your Android application development environment is conformant with the following components versions:

- Android SDK r07
- Android NDK r4b
- Eclipse Classic 3.6.1 (Helios)
- ► Eclipse C/C++ Development Tools 7.0.1
- Android Development Tools (ADT) 0.9.9

PRE-INSTALLATION REQUIREMENTS

Before you install the NVIDIA Debug Manager for Android NDK Eclipse plugin, please make sure that the following components and environment variables are properly installed and configured:

- Install the Android SDK r07 and the Android NDK r4b. See <u>http://developer.android.com/sdk/installing.html</u> and <u>http://developer.android.com/sdk/ndk/index.html</u> for installation instructions.
- Download SDK and NDK from <u>http://dl.google.com/android/android-sdk_r07-</u> windows.zip and <u>http://dl.google.com/android/ndk/android-ndk-r4b-windows.zip</u>
- The NDKROOT environment variable should be set to the location of the Android NDK.

You should have a Tegra 2 board connected and available to adb. This can be verified by running two commands:

adb devices - this command should output at least one available device. adb shell ps - this command should output the list of processes running on the Tegra 2 board.

To run adb your PATH environment variable should contain the tools subdirectory from the Android SDK.

INSTALLATION

INSTALLING ECLIPSE SDK

- 1. Download Eclipse Classic 3.6.1 (Helios) from http://eclipse.org/downloads/
- 2. Unpack the downloaded archive by 7zip or any other compress tool.
- **3.** Start Eclipse, for instance by double-clicking eclipse.exe in the "eclipse" directory which is unpacked above.
- 4. Select a workspace location.
- **5.** Verify the Eclipse version number by opening Help / About Eclipse SDK. Close the dialog.

INSTALLING C/C++ DEVELOPMENT TOOLS

- 6. Open Help / Install New Software. This shows the "Install" dialog.
- In the "Work with" dropdown list choose "Helios http://download.eclipse.org/releases/helios" and wait while the list of available software is loaded.
- **8.** From the list of available software select "Programming Languages" / "C/C++ Development Tools 7.0.1".

🖶 Install						
Available Software						
Check the items that you wish to install.						
Work with: Helios - http://download.edipse.org/releas	es/helios	<u> </u>	<u>A</u> dd			
Find more sof	tware by working wit	h the <u>"Available Software Site</u>	s" preferences.			
type filter text						
Name		Version				
🖃 🗹 💷 Programming Languages						
Autotools support for CDT (Incubation)		2.0.0.201009101021				
🗌 🖓 C/C++ Call Graph Visualization (Incubation	on)	0.0.2.201009101021				
C/C++ Development Tools		7.0.1.201009141542				
C/C++ Library API Documentation Hove	r Help (Incubation)	0.3.0.201009101021				
🔲 🖗 Dynamic Languages Toolkit - iTd Develop	oment Tools	2.0.0.v20100603-49oA57	D5F9H29			
Dynamic Languages Toolkit - Ruby Devel	opment Tools	2.0.0.v20100505-1154-7G	E_EKMU 🚽			
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Select All Deselect All 1 item selected						
- Details						
Details						
Show only the latest versions of available software	Hide items t	that are already installed				
✓ Group items by category What is <u>already installed</u> ?						
Contact all update sites during install to find required software						
3	< <u>B</u> ack	Next > Einish	Cancel			

- **9.** Press the "Next >" button. Then press the "Next >" button again and then accept the license agreement and press the "Finish" button.
- **10.** Wait while the software is installed and then agree to restart Eclipse by pressing "Restart Now".

Verify that C/C++ Development Tools 7.0.1 is installed by opening Help / About Eclipse SDK / Installation Details. You should see C/C++ Development Tools 7.0.1 in the list of installed software. Close the "Eclipse SDK Installation Details" dialog and then the "About Eclipse SDK" dialog.

INSTALLING ADT 0.9.9

ADT needs be installed according to http://developer.android.com/sdk/eclipse-adt.html

- **11.** Open Help / Install New Software and press the "Add" button.
- **12.** Type in "ADT" into the "Name" field and "https://dl-ssl.google.com/android/eclipse/" into "Location" and press "Ok".

Note: if the version 0.9.9 is not available on this site, you can download an archive zip at:

http://dl.google.com/android/ADT-0.9.9.zip

Press "Archive..." and enter the proper path of ADT-0.9.9.zip when "Add Repository"

13. Open the "Developer Tools" folder in the available software list and select "Android DDMS" and "Android Development Tools".

🖨 Install		
Available Software Check the items that you wish to install.		
Work with: ADT - jar:file:/C:/Download/android/ADT-0.9.9.zip!/	ore software by working with the <u>"Available Software Site</u>	<u>A</u> dd
type filter text		
Name	Version	
 □ Developer Tools □ ↓ Android DDMS □ ↓ Android Development Tools 	0.9.9.v201009221407-60953 0.9.9.v201009221407-60953	
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Group items by category	What is <u>already installed</u> ?	
Contact all update sites during install to find required software		
0	Z Rody Navt S Circles	Cancel
	< Back Wext > Builth	Cancel

14. Press Next, then Next again, then read and accept End User License Agreement and press the "Finish" button.

- **15.** Press the "Ok" button on the security warning claiming that you are installing unsigned content. Wait for installation to complete, then agree to restart Eclipse by pressing "Restart Now".
- **16.** After Eclipse restarts open "Window" / "Preferences", select "Android" on the left. Enter the correct Android SDK location on the right and press "Ok".

Preferences	
type filter text	Android 🗢 👻 👻
 General Android Ant C/C++ Help Install/Update Java Plug-in Development Run/Debug Team XML 	Android Preferences SDK Location: C:\software\android\android-sdk-windows_r7 Browse Note: The list of SDK Targets below is only reloaded once you hit 'Apply' or 'OK'. Target Name Vendor Platform AP Android 2.2 Android Open Source Project 2.2 8
	Restore <u>D</u> efaults
?	OK Cancel

17. Verify that ADT 0.9.9 is installed by opening Help / About Eclipse SDK / Installation Details. You should see "Android DDMS 0.9.9" and "Android Development Tools 0.9.9" in the list of installed software. Close the "Eclipse SDK Installation Details" dialog and then the "About Eclipse SDK" dialog.

Eclipse SDK Installation Details					
Installed Software Installation History Features Plug-i	ins Configuration				
Name	Version	Id			
Android DDMS	0.9.9.v2010092	com.android.ide.eclipse.ddr			
Android Development Tools	0.9.9.v2010092	com.android.ide.eclipse.adt			
E C/C++ Development Tools	7.0.1.20100914	org.eclipse.cdt.feature.gro			
🗄 🎝 Edipse SDK	3.6.1.M2010090	org.eclipse.sdk.ide			
Android Dalvik Debug Monitor Service					
	Uninstall Property	ies Close			
CPD0ate					

INSTALLING NVIDIA DEBUG MANAGER FOR ANDROID NDK ECLIPSE PLUGIN

- **18.** Open Help / Install New Software and press the "Add" button.
- **19.** Press "Archive" and enter the location of the supplied update site archive (zip file). Then press "Ok".
- **20.** Open the "Developer Tools" folder in the available software list and select "NVIDIA Debug Manager for Android NDK".

🖶 Install	
Available Software Check the items that you wish to install.	
Work with: AndroidNDK - jar:file:/C:/Download/android/NvidiaDebugManagerF	erForAndroidNDK201012132025.zip!/ Add ftware by working with the <u>"Available Software Sites</u> " preferences.
type filter text	
Name V	Version
 Output Developer Tools NVIDIA Debug Manager for Android NDK 	0.9.9.201012132021
Select All Deselect All 1 item selected	
Details	
I Show only the latest versions of available software □ Hid	ide items that are already installed
✓ Group items by category What	nat is <u>already installed</u> ?
☑ Contact all update sites during install to find required software	
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- **21.** Press Next, then Next again, then read and accept the End User License Agreement and press "Finish".
- **22.** Press "Ok" button on the security warning claiming that you are installing unsigned content. Wait for installation to complete, then agree to restart Eclipse by pressing "Restart Now".

INSTALLING CYGWIN

23. Install Cygwin and make sure Python 2.5 and Ncurses are selected to be installed.

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2.5.5-1	\boxtimes		4,121k	python: Python language interpreter	
Skip	n/a	nía	46k	python-cairo: Python bindings to libcairo	
Skip	n/a	n/a	182k	python-crypto: Cryptographic algorithms and protocols for Python	
Skip	n/a	n/a	3,785k	python-doc: Python HTML documentation	
Skip	n/a	n/a	102k	python-feedparser: Universal Feed Parser for Python	
Ay Skip	n/a	n/a	12k	python-gamin: File and directory monitoring system (Python bindings)	;)
€ Skip	n/a	n/a	884k	python-gdata: Python bindings for Google Data APIs	
AT SKIP	n/a	n/a	2/4K	python-gobject2.0: Python GLib/GObject/GIO bindings (runtime)	
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су Скір	nja s/s	nja - /-	1.411	python-gst: Gnome Structured File Library (Python bindings)	
ку Skip	ηa	ηία	1,411K	python-gtk2.0: Python bindings for G I K2 and libglade (runtime)	_
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24. Add $CYGWIN_INSTALL_DIR\bin to your PATH environment variable.$

	VOIUC
path	C:\software\cygwin\bin;C:\Java\jdk1.6
QTDIR	C: \software \android \qt
TEMP	%USERPROFILE%\AppData\Local\Temp
TMP	%USERPROFILE%\AppData\Local\Temp
	New Edit Delete
ystem variables —	
ystem variables — Variable	Value
ystem variables – Variable ComSpec	Value C:\Windows\system32\cmd.exe
ystem variables	Value C:\Windows\system32\cmd.exe NO
variables	Value C:\Windows\system32\cmd.exe NO C:\Program Files\PuTTY\plink.exe
vstem variables	Value C:\Windows\system32\cmd.exe NO C:\Program Files\PuTTY\plink.exe u:\
vstem variables	Value C:\Windows\system32\cmd.exe NO C:\Program Files\PuTTY\plink.exe u:\

25. In Eclipse, select the menu item "Window->Preferences", select "C/C++ -> Debug -> Common Source Lookup Path", click "Add" and select "Path Mapping".



Under "Compilation path", type "\cygdrive\c" and under "Local file system path",select "C:". This ensures that gdb and Eclipse are on the same page with regards to source code. If your source code resides on other drives than C:, please add those

drives too in a similar manner.

🖉 Path Mappings	<u>_ D ×</u>
Specify the mapping paths	
Name: NDK mapping	
Compilation path: Local file system path:	Add
C:\	Remove
	Up
	Down
	-
ОК ОК	Cancel

26. The installation now is complete. To verify installation import event_lorenz from the Tegra sample projects, build the project, right click the project->Debug as->Android NDK application.

TROUBLESHOOTING

LIMITATIONS

Missing Breakpoints

The current version of the plugin may be missing breakpoint in native code executed before GDB is attached. We recommend that the developer wanting to debug native code that could be executed during this transient period add a while(i) with int i would be initialized to a non-zero value, and changing the i to zero once GDB is attached, in order to resume the debugging session and hit the breakpoint.

REPORTING ISSUES

In case of problems working with the NVIDIA Debug Manager for Android NDK plugin the following information might be helpful to provide with a bug report:

- Exact versions of Android SDK and Android NDK.
- Exact versions of installed Eclipse software (From Eclipse it is easy to obtain this information from "Help" / "About Eclipse SDK" / "Installation Details" / "Configuration".
- Eclipse error log which resides in \$workspace_location/.metadata/.log, where \$workspace_location is the location of your Eclipse workspace.
- Android console output.
- General description what the problem is and how to reproduce the problem.

and post the issue to the following Tegra Android Development support forum with a subject line referring to the Debug Manager plugin:

http://developer.nvidia.com/tegra/forums/tegra-forums/android-development

Troubleshooting

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