



# NVIDIA Android Froyo OS Support Pack for Tegra 250 Developer Kit Hardware

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Version 20101105

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# Introduction

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The NVIDIA Android Froyo OS Support Pack for Tegra 250 Development Kits provides an update to earlier Android 2.2 (Froyo) OS images for the Tegra development kits. It offers increased performance and stability, and supports flashing the device from either Windows or Linux host PCs.

The pack also includes scripts to be run on the host PC that can enable or disable NVIDIA PerfHUD support in the shipping OS. The scripts enable or disable the PerfHUD support without having to reflash the development kit, using only a USB ADB connection.

## Requirements

### Windows Host PC

- A PC running Microsoft Windows
  - o Windows XP, Windows Vista, or Windows 7 (both 32- and 64-bit versions) are tested and supported
- An available USB port
- A working installation of the Android SDK and Windows USB ADB driver tool:  
[http://dl.google.com/android/android-sdk\\_r07-windows.zip](http://dl.google.com/android/android-sdk_r07-windows.zip)
  - o Install as directed
  - o Run the SDK update app (tools/android.bat)
  - o and select "Available Packages" : USB driver package
- Configured for Tegra devkit ADB connections:
  - o See the NVIDIA Tegra Android Setup Guide at:  
<http://tegradeveloper.nvidia.com/tegra/downloads>

### Linux Host PC

- A PC running Linux
  - o Ubuntu 9.10 and 10.04 LTS are tested and supported
- An available USB port
- A working installation of the Android SDK: [http://dl.google.com/android/android-sdk\\_r07-linux\\_x86.tgz](http://dl.google.com/android/android-sdk_r07-linux_x86.tgz)

- Install as directed
- Configured for Tegra devkit ADB connections:
  - See the NVIDIA Tegra Android Setup Guide at:  
<http://tegradeveloper.nvidia.com/tegra/downloads>
  - Configure the system to run ADB without needing to prefix the adb command with "sudo". Sometimes adb isn't in the root PATH, meaning you will need to set up the adb driver for a device to run in your user group with proper permissions. You need to create and edit a new rules file that the usb driver will apply. The steps are:

1. Create and edit new file:

```
sudo gedit /etc/udev/rules.d/51-android.rules
```

2. add as new line:

```
SUBSYSTEM=="usb", SYSFS{idVendor}=="0955",  
MODE="0666", GROUP="myname"
```

- Instead of 'myname' for group, use your username, or other group your username shares permissions with.
- Instead of 0955, replace with other vendor ID if not an NVIDIA board.

3. close editing and fix permissions:

```
sudo chmod a+r /etc/udev/rules.d/51-android.rules
```

4. replug your device, and restart the server:

```
adb kill-server  
adb devices
```

Note that sudo is no longer required.

# Installing the Pack

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## Windows Host PC

To install the pack on the host PC, simply run the supplied .MSI file and follow the step-by-step wizard. Once installed, follow the instructions for Android Tegra Hardware setup from the NVIDIA Tegra developer site <http://tegradeveloper.nvidia.com/tegra/downloads>

The OS itself is flashed via the .BAT files in the platform directory, which is by default:

```
Program Files\NVIDIA Corporation\tegra_froyo_20101105\
```

## Linux Host PC

To install the pack on the host PC, simply run the supplied .RUN file and follow the text prompts. Once installed, follow the instructions for Android Tegra Hardware setup from the NVIDIA Tegra developer site <http://tegradeveloper.nvidia.com/tegra/downloads>

The OS itself is flashed via the .sh files in the platform directory, which is by default:

```
tegra_froyo_20101105
```

# Enabling and Disabling PerfHUD Support

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By default, the Froyo OS image installed by this support pack *does not support connecting to the NVIDIA PerfHUD tool*. The OS installer includes host-side tools that allow PerfHUD to be enabled or disabled on demand over an ADB connection. *Note that all of these scripts automatically and immediately reboot the devkit after enabling or disabling PerfHUD support*. However, no data should be lost, as the device is *not* reflashed by this process.

## Enabling PerfHUD Support from a Windows Host

- 1) Connect your devkit to the host PC via ADB
- 2) Open a command prompt in the install target (platform) directory. By default, this is "Program Files\NVIDIA Corporation\tegra\_froyo\_20101105\perfhud\_switch\"
- 3) Run the script: enable\_perfhud.bat
- 4) On success the output should be:

```
\perfhud_switch>enable_perfhud.bat
```

```
\perfhud_switch>pushd "C:\Program Files\NVIDIA Corporation\tegra_froyo_20101105\perfhud_switch\"
```

```

\perfhud_switch>adb remount
remount succeeded

C:\Program Files\NVIDIA Corporation\tegra_froyo_20101105\perfhud_switch>adb push en_perf.txt
/system/lib/egl/egl.cfg
1 KB/s (0 bytes in 24.000s)

\perfhud_switch>adb push libs/libEGL_perfhud.so /system/lib/egl/libEGL_perfhud.so
419 KB/s (0 bytes in 13440.000s)

\perfhud_switch>adb push libs/libGLv2_perfhud.so /system/lib/egl/libGLv2_perfhud.so
1653 KB/s (0 bytes in 582092.000s)

\perfhud_switch>adb push libs/libGLv1_CM_perfhud.so /system/lib/egl/libGLv1_CM_perfhud.so
1182 KB/s (0 bytes in 113476.000s)

\perfhud_switch>adb reboot

```

## Disabling PerfHUD Support from a Windows Host

- 1) Connect your devkit to the host PC via ADB
- 2) Open a command prompt in the install target (platform) directory. By default, this is "Program Files\NVIDIA Corporation\tegra\_froyo\_20101105\perfhud\_switch\"
- 3) Run the script: disable\_perf.bat
- 4) On success the output should be:

```

\perfhud_switch>disable_perf.bat

\perfhud_switch>pushd "C:\Program Files\NVIDIA Corporation\tegra_froyo_20101105\perfhud_switch\"

\perfhud_switch>adb remount
remount succeeded

\perfhud_switch>adb push dis_perf.txt /system/lib/egl/egl.cfg
1 KB/s (0 bytes in 22.000s)

\perfhud_switch>adb reboot

\perfhud_switch>

```

## Enabling PerfHUD Support from a Linux Host

- 1) Connect your devkit to the host PC via ADB
- 2) Open a shell in the install target (platform) directory. By default, this is "tegra\_froyo\_20101105/perfhud\_switch"
- 3) Run the script: ./enable\_perfhud.sh
- 4) On success the output should be:

```

me@ubuntu:~/20101105/tegra_froyo_20101105/perfhud_switch$ ./enable_perfhud.sh
~/20101105/tegra_froyo_20101105/perfhud_switch ~/20101105/tegra_froyo_20101105/perfhud_switch
* daemon not running. starting it now on port 5037 *
* daemon started successfully *
remount succeeded
0 KB/s (24 bytes in 0.077s)
47 KB/s (13440 bytes in 0.278s)
121 KB/s (582092 bytes in 4.666s)
448 KB/s (113476 bytes in 0.247s)
~/20101105/tegra_froyo_20101105/perfhud_switch

```

## Disabling PerfHUD Support from a Linux Host

- 1) Connect your devkit to the host PC via ADB
- 2) Open a shell in the install target (platform) directory. By default, this is "tegra\_froyo\_20101105/perfhud\_switch"
- 3) Run the script: `./disable_perfhud.sh`
- 4) On success the output should be:

```
me@ubuntu:~/20101105/tegra_froyo_20101105/perfhud_switch$ ./disable_perfhud.sh
~/20101105/tegra_froyo_20101105/perfhud_switch ~/20101105/tegra_froyo_20101105/perfhud_switch
remount succeeded
0 KB/s (22 bytes in 0.081s)
~/20101105/tegra_froyo_20101105/perfhud_switch
```

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