



TEGRA LINUX DRIVER PACKAGE R21.1

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Advance Information | Subject to Change

Release Notes



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1.0 ABOUT THIS RELEASE

The NVIDIA® Tegra® Linux Driver Package supports development of platforms running:

- ▶ NVIDIA® Tegra® K1 32 Bit series computer-on-a-chip
- ▶ Linux kernel 3.10.40



Note: This release of Tegra Linux Driver Package R21.1 is a release for: Tegra K1 32 Bit device code-named “Jetson TK1”

1.1 LOGIN CREDENTIALS

The default Jetson TK1 login credentials are:

- ▶ Username: ubuntu
- ▶ Password: ubuntu



Note: A debug console is available via female-to-female NULL modem cable. The console is not password protected.

1.2 WHAT’S NEW

This release fixes some issues that were found during continued testing and adds/enhances the following feature(s).

- ▶ U-Boot as default boot loader for Jetson TK1.
- ▶ Reduced flashing time with sparse image.
- ▶ Default CPU performance governor switched from on-demand to interactive.
- ▶ Supports CUDA driver version 6.5
- ▶ Graphic stack update:

- Open GL 4.4
- OpenGL ES 3.1
- OpenGL ES path extensions
- EGL 1.4 with EGLImage

1.3 JETSON TK1-SPECIFIC RELEASES

For the latest releases and errata for the Jetson TK1 platform, visit (Registered Developer Program membership required):

<http://developer.nvidia.com/jetson-tk1>

1.4 SOURCES FOR INCLUDED LINUX DISTRIBUTION PACKAGES

Source files for open-source licensed Linux distribution packages included in the release flashed on Jetson TK 1 as shipped are located in the following directory:

```
./usr/src/
```

You can download updated sources, when available at the following Web site:

<https://developer.nvidia.com/linux-tegra>

1.5 UPDATING AN EXISTING L4T INSTALLATION TO THE R21.1 RELEASE

If your Jetson TK1 system has come pre-installed with the R19.2 release and you need instructions for updating to R21.1, refer to “Updating Drivers on an Existing Target System” in *NVIDIA Tegra Linux Driver Package Development Guide*.

2.0 KNOWN ISSUES

This section provides details about issues that were discovered during development and QA but not resolved prior to this release of the Tegra Linux Driver Package.

2.1 HDMI RENDERING NOT CONSISTENT WHEN HOT-PLUGGING HDMI DISPLAY

HDMI rendering is intermittent after plugging in and plugging out an HDMI display.

2.2 VIDEO PLAYBACK CORRUPTION IN FIREFOX

Black and white playback and other corruption display during video playback in the Firefox browser.

2.3 ONBOARD ETHERNET OCASIONALLY REACHES TIMEOUT HIT NETDEV WATCHDOG TIMEOUT IN R8169 DRIVER

Onboard Ethernet occasionally reaches the NetDev watchdog timeout duration in the R8169 driver. This is a known issue in the Linux network stack. Reaching the NetDev watchdog timeout might occur under heavy I/O traffic.

To workaround

- ▶ Use a slower Ethernet hub, for example, 100 Mbps.

2.4 INTERNET CONNECTIVITY LOST AFTER EXTENDED CONNECTION TIME

The Jetson TK1 device intermittently loses network connectivity after approximately 18 hours of connection time.

2.5 X WINDOW MANAGER CRASHES AFTER APPROXIMATELY 5 MINUTES

After approximately 5 minutes of use, the X window manager crashes, displaying HDMI parent clock information. The system returns to the GUI login prompt.

2.6 ERRORS DISPLAY AT SYSTEM IDLE TIMEOUT

When the system is allowed to switch to idle state after a timeout duration is reached (5 minutes is the default) occasionally `gk20a_fecs_dump_falcon_stats` displays errors over UART.

2.7 YOUTUBE WEBAPP UNITY APPLICATION CAUSES SYSTEM TO HANG

The YouTube webapp Unity application causes the system to hang during video playback.

2.8 USB DEVICE FAILS TO MOUNT AFTER SYSTEM RESUMES FROM LOW POWER STATE

USB flash drive connected to the device via a USB 3.0 hub enumerates but fails to mount after the device resumes from an LP state.

2.9 "GK20A_FIFO_HANDLE_MMU_FAULT" OBSERVED WHEN PLAYING ANY VIDEO USING XVIMAGESINK

Intermittent MMU fault occurs during `NvXVImageSink` video playback. This is difficult to reproduce.

2.10 USB SUPPORT

USB device mode is not supported. USB 3.0 is supported in this release, but is turned off by default.

To enable USB 3.0

1. Modify odmdata settings in `jetson-tk1.conf`.
2. Flash and boot the system.

The `jetson-tk1.conf` file includes information on correct odmdata settings for USB 3.0 and USB 2.0.

2.11 DISPLAY SUPPORT

Display support in this release has the following issues:

- ▶ Some DVI/HDMI displays show truncated output during boot.
- ▶ Hot plugging HDMI display may result in resolution change.
- ▶ Desktop resolution higher than 1080p might result in temporary corruption.
- ▶ You must connect HDMI prior to booting for subsequent hot plug detection to function
- ▶ DVI displays connected via HDMI-DVI cable might not synchronize correctly

Continuous graphical corruption occurs on 4K displays when set to 3096 x 2160 resolution.

To avoid the 4K corruption

- ▶ Disable EMC scaling with the following command:

```
$ echo 0 > /sys/module/tegra12_emc/parameters/emc_enable
```

2.12 SYSTEM SETTINGS DETAILS SECTION HANGS

The system settings Details section causes the system to hang.

2.13 LIBGLX.SO OVERWRITTEN BY RELEASE

The `libglx.so` file located at

```
/usr/lib/xorg/modules/extensions/libglx.so
```

Included in the `xserver-xorg-core` package is overwritten in this release by the NVIDIA-provided `libglx.so` library. If you update the `xserver`, the NVIDIA `libglx.so` might be overwritten. Save the `libglx.so` file to a separate location prior to updating the system.

2.14 GPU DRIVER ERROR MIGHT OCCUR UNDER HEAVY WORKLOAD

The following error is observed under heavy multi-application GPU workload:

```
gk20a_fifo_set_ctx_mmu_error: channel 0 with hwctx generated a mmu fault
```

2.15 DESKTOP BACKGROUND REMAINS VISIBLE AFTER STOPPING LIGHTDM SERVICE

After stopping the `lightdm` service the desktop background image might remain visible.

2.16 TEMPORARY GRAPHICAL CORRUPTION DISPLAYS MIGHT OCCUR AFTER UI LOGIN

After booting the device temporary graphical corruption of the UI might occur. This graphical corruption will resolve itself.

2.17 MONO AUDIO FORMATS NOT AUDIBLE VIA AUDIO OUTPUT JACK

Mono audio may not be audible when the audio output jack is used for output to a connected 3.5 mm headset. The same files result in audible output when routed to HDMI.

2.18 VIDEO RESUME COMMAND DOES NOT FUNCTION WITH NVGSTPLAYER

Video playback does not resume from pause when using run-time commands of `nvgstplayer`. The `gststreamer` application exits with an error.

2.19 USB HEADSET NOT LISTED AS AUDIO OUTPUT DEVICE IN SOUND SETTINGS

A connected USB headset does not automatically list in Sound Settings as an available audio output device. The following command enables a USB headset device:

```
# pactl load-module module-alsa-sink device=hw:2,0
```

3.0 IMPLEMENTATION NOTES

3.1 GSTREAMER 1.0 SUPPORT

This release includes gstreamer 1.0 support. The nvgstplayer application defaults to gstreamer 0.1. To run the 1.0 version, use the full path to the binary.

3.2 REBOOT REQUIRED AFTER FLASHING NEW JETSON TK1 SYSTEMS

When flashing a new Jetson TK1 system for the first time, you must hard reboot the Jetson TK1 device after flashing by pressing the RESET button. The system soft reboots immediately after a successful installation, displaying a black screen with a warning message. You must hard reboot the device when the black screen with the warning message is displayed. The GUI starts normally after the hard reboot. This hard reboot is only required after the first time re-flashing the system with the root file system provided with the R19.x and R21.1 L4T releases.

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