



NVIDIA DRIVE OS 6.0.10.0 Linux

Release Notes



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Introduction

The NVIDIA DRIVE® OS 6.0 Linux Release Notes are for NVIDIA DRIVE AGX Orin™ Development Kits.

Note: This DRIVE OS release may only be used for test and development.

Note: DRIVE OS Linux with Safety Extension is only available for NVONLINE developers.

NVIDIA DRIVE OS is the reference operating system and associated software stack, which includes CUDA, TensorRT, NvMedia, NvStreams, and Developer Tools, designed specifically for developing and deploying autonomous applications on DRIVE AGX-based hardware. DRIVE OS includes the NVIDIA DriveWorks SDK as a foundation for autonomous vehicle (AV) software development. The DriveWorks SDK provides an automotive-grade middleware with accelerated algorithms and versatile tools.

DRIVE OS Development Kits

NVIDIA DRIVE OS Software Development Kit (SDK) is used to develop DRIVE OS applications for deployment on NVIDIA DRIVE AGX™ based hardware platforms.

Note: The NVIDIA DRIVE OS Platform Development Kit (PDK) is only available to NVONLINE users.

NVIDIA DRIVE OS Platform Development Kit (PDK) is used to adapt NVIDIA DRIVE OS to run on custom hardware based on NVIDIA Automotive SoC (i.e., Orin).

DRIVE OS Base Operating Systems

DRIVE OS Linux “Standard”

DRIVE OS Linux “Standard” is a reference platform based on Ubuntu 20.04 LTS Linux, which is intended for prototyping and development of autonomous vehicle platforms. This release of DRIVE OS Linux may be deployed in production provided customer has acquired necessary licenses and signed

necessary agreements. If you have questions, contact your NVIDIA Representative. Note that this release is not safety assessed.

Release Highlights

Key Features in this Release

For a complete list of new features and enhancements in this release, see [New Features and Enhancements](#).

- Updated Linux kernel version from 5.15.68 to 5.15.116.
- Unified framework to log system level events, UART prints, and error codes onto persistent storage.
- New Video Anonymization feature, which can be enabled/disabled via a flag.
- Additional encode parameters for Personal Identifiable Information (PII) data.

Deprecations in this Release

The following items are deprecated in this release:

Summary	Module	Impact
The INvSIPLCamera::GetErrorGPIOEventInfo() API has been deprecated. Deprecation was already announced in the 6.0.8 Release Note.	NvMedia	Refer to the DRIVE OS 6.0.8 Linux Release Notes section "Planned Upcoming Changes" for the impact.

New Features and Enhancements

This release includes support for these new features and enhancements.

New Features for DRIVE OS

Video Anonymization Support

The video anonymization feature can now be enabled/disabled via a flag. Additional encode parameters have been added to "NvMediaEncodePicParamsH264" to provide input on the PII (Personal Identifiable Information) data.

Orin-Y Support

Orin-Y support has been added to the DRIVE OS 6.0.10.0 release. Orin-Y is supported on the P3710 platform. Bind and flash commands for Orin-Y can be found in the *NVIDIA DRIVE OS 6.0 Linux SDK Developer Guide*. For more details, contact your NVIDIA representative.

SCL Additions

6.0.10.0 adds support for:

- DDR Micron MT62F1G64D4EK-023 AAT
- UFS Micron MTFC128GBCAVTC-AAT

Refer to NVIDIA DRIVE Orin SoCs Supported Components List for exact part numbers in the family.

New Enhancements for DRIVE OS

In 6.0.10.0 release, static code analysis, unit, integration, and verification tests were run on DRIVE OS elements and fixes resulting from those were incorporated.

New Features for DriveWorks 5.20

This release includes support for these new features and enhancements.

Installation and Getting Started

- DriveWorks 5.20 is installed with DRIVE OS 6.0.10.0. No separate installation of DriveWorks libraries are needed.
- Please refer to the Getting Started section of the DriveWorks SDK Reference Documentation for information about how to verify the installation and get started developing with DriveWorks.
- DriveWorks samples and data are not installed on the target OOB RFS for DRIVE Linux, as they would occupy too much space. Refer to the Getting Started section of the DriveWorks SDK Reference Documentation for information about building and running samples on Orin.

Fixed Issues

The following DRIVE OS and DriveWorks issues from the previous release are resolved in this release:

Reference ID	Module	Description
4398792	System Software	<p>What was the issue?</p> <p>SOR FMON violation- Errors with ReporterId-0xe04c such as "ErrReport: ErrorCode-0x28da ReporterId-0xe04c" could come on the MCU console during boot. These were violations reported by FMON function due to setting of SOR clocks without notifying BPMP module about the clock change. Display driver did not disable Monitoring clocks for SOR while updating SOR clocks. This caused these FMON violations.</p> <p>How did it impact the customer?</p> <p>This issue would occur when splash screen app is launched as part of boot-up process</p> <p>This would not have impacted customer functionality.</p> <p>Is it for SDK/PDK?</p> <p>SDK and PDK</p>
4404291	Memory	<p>What was the issue?</p> <p>IOMMU map/unmap sequence in DRIVE OS Linux SMMU driver has intermittent TLB invalidation issue under some rare conditions.</p> <p>How did it impact the customer?</p> <p>The issue affected all memory clients using stage-1 SMMU such as UFS. For instance, wrong block data could have been written to UFS media because a stale IOPTe in TLB was used and the wrong memory location was accessed by DMA. Customers were required to run a full system re-flash to get back functionality in some cases.</p> <p>Was it for SDK/PDK?</p> <p>Both</p>
4445005	System Software	<p>What was the issue:</p> <p>Pre-built chain-c initramfs did not match the filesystem built by yocto. To fix this (to make yocto-built initramfs the same as prebuilt one), the recipe has been changed to include missing software modules.</p> <p>How did it impact the customer:</p> <p>Customers that rebuilt the initramfs using yocto could face unexpected issues, like access to DRIVE Update from chain-c no longer being available.</p>

		Was it for SDK/PDK? Both
4553019	Virtualization	What was the issue? Driver was waiting on the request coming from the FileSystem Layer instead of actual read and write operation, due to which the IO wait time got increased. How did it impact the customer? It did not impacted any functionality. It was just the system stat showing wrong IO wait percentage. Was it for SDK/PDK? Both
4566172	Tegra Core Firmware	What was the issue: During boot time calibration of the FSI SCPM circuit, a race condition caused an unintended glitch which triggered a false positive condition even when there was no external attack. A software workaround in MB2 masks the susceptible FSI SCPM paths by programming the SCPM mask timing registers as part of SCPM calibration. How did it impact the customer: Customer may observe false resets. Was it for SDK/PDK? Both
4573357	Comms	What was the issue? Customer has a use case where RPS is used to offload MGBE traffic to multiple cores. Similarly, an attempt to trigger MGBE IRQs at multiple cores was made by assigning IRQ affinity to different cores. But this configuration failed with a kernel panic when iperf3 stress testing was performed between host and target Orin board. Since by default all MGBE IRQs are handled at one single core, the existing implementation uses a single page_pool for all Rx DMA channels. Routing IRQs to different cores caused a race condition during page allocation from this pool. This led to memory corruption and kernel panic. How did it impact the customer? Because of the above stated issue, dynamic/static MGBE IRQ balancing using interrupt affinity assignment was not possible. Was it for SDK/PDK? Both
4379000	System Software	What was the issue? DRIVE OS Linux got hung on running the cfg demo after starting x11vnc. How does it impact the customer? Customer could not run CGF demo with x11vnc. Is it for SDK/PDK? PDK
4064784	DriveWorks CGF	What was the issue? sample_feature_descriptor failed with raw video input and a DriveWorks exception was thrown: Bad access of safety result (underflow error) How did it impact the customer? This issue affected the functionality of the <code>sample_feature_descriptor</code>

		<p>application when using raw video input.</p> <p>Was it for SDK/PDK? SDK</p>
4079771	NvDisplay	<p>What was the issue? HDMI was not enabled by default in AV+L build for any of devkit reference boards.</p> <p>How did it impact the customer? Platforms with HDMI connector output did not work by default.</p> <p>Is it for SDK/PDK? Both</p>
4256558	Bootburn	<p>What was the issue? Logic error prevented storage resize operation at device physical offset zero from working correctly.</p> <p>How did it impact the customer? There was no impact as the start of physical storage devices use NVIDIA partitions, which do not use resize.</p> <p>Was it for both SDK/PDK? Both</p>
4384503	MCU Firmware	<p>What was the issue? Occasional Orin boot failure on P3710 board during poweroff- poweron stress. This issue was due to VRS10 init failure during MCU bootup, which lead to preventing the release of Orin from the reset state. This issue was observed once in 700+ cycles on multiple runs.</p> <p>How did it impact the customer? Bootup of Orin occasionally could fail under stress test.</p> <p>Was it for SDK/PDK? Both</p>
4404632	System Software	<p>What was the issue? Support of default power profile for p3710-10-a01-ct04 platform under Linux and PCT was missing.</p> <p>How did it impact the customer? Unsupported power and thermal profile is selected when power profile is not passed as part of bind command on the p3710-10-a01-ct04 platform, resulting in failure to boot the system.</p> <p>Was it for SDK/PDK? Both</p>
4370056	DRIVE Update	<p>What was the issue? In DUPKG generation, if the input images path contained an argument's name (e.g., TEGRA_A_SRC, CHAIN etc.), the generation failed to parse the input's value. To view all arguments for DUPKG generation with individual template, execute the <code>dupkg lsin --template \$TEMPLATE</code> command. For example: <code>~\$ dupkg lsin --template dupkg_single_tegra_template</code></p> <p>How did it impact the customer? DUPKG generation might have failed.</p> <p>Was it for SDK/PDK? Both; it is a tool on the host side.</p>

4190302	System Software	<p>What was the issue? Although SC7_DRAM_AUTHENTICATION is not enabled by default for DRIVE OS Linux builds, SC7_DRAM_Authentication disabled caused SC7 entry failure on P3898.</p> <p>How did it impact the customer? Customers using P3898 were unable to enter SC7.</p> <p>Is it for SDK/PDK? Both</p>
3961157	Camera Core	<p>What was the issue? Demosaic of RGB-IR sensors in nvsipl_camera was not supported. When <code>--enableRawOutput</code> is used with Display in nvsipl_camera, the app failed.</p> <p>How did it impact the customer? Customers could not display raw output of RGB-IR sensors.</p> <p>Was it for SDK/PDK? Both</p>
4087839	System Software	<p>What was the issue? In bind phase of the build, storage configuration sometimes threw the warning message: "WARNING: Uniqueness failure: Reuse of SID value:".</p> <p>How did it impact the customer? The Warning "WARNING: Uniqueness failure: Reuse of SID value:" could be ignored for Linux and boot chain C builds.</p> <p>Is it for SDK/PDK? Both</p>
4070042	Kernel	<p>What was the issue? sestatus tool was not available in the Linux RFSes for Linux K5.15.</p> <p>How does it impact the customer? Customers were not able to use sestatus in K5.15 DRIVE OS package.</p> <p>Is it for SDK/PDK? Both</p>
4573107	DriveWorks: SAL	<p>What was the issue? Camera recording playback using sample camera with mp4 format failed to replay with error: DW Error DW_NOT_IMPLEMENTED executing DW function.</p> <p>How did it impact the customer? Camera recording playback using sample camera with mp4 format failed to replay.</p> <p>Was it for SDK/PDK? SDK</p>
4473772	DriveWorks: SAL	<p>What was the issue? Many samples dumped error prints on console window.</p> <p>How did it impact the customer? Too many false error prints confused sample users.</p> <p>Was it for SDK/PDK? SDK</p>
4464232	DriveWorks: SAL	<p>What was the issue? Few samples with IMX728 lraw/raw video files dumped error on stderr log files:</p>

		<p>NvTegraPrivGetChipIdLimited: Could not read Tegra chip id rev.</p> <p>How did it impact the customer? Sample dumped a few prints in stderr log files.</p> <p>Was it for SDK/PDK? SDK</p>
4271643	DriveWorks: SAL	<p>What was the issue? Sample sensor record dumped error for GPS sensor file: DW_FILE_INVALID: GPS: parsed file has unsupported file format.</p> <p>How did it impact the customer? Sample dumped a few prints in stderr log files.</p> <p>Was it for SDK/PDK? PDK</p>

NVIDIA Software Security Updates

This release of NVIDIA DRIVE OS 6.0 QNX includes updates that address the following issue[s]:

CVE ID	NVIDIA Issue Number	Description
Not assigned	4333676	NVIDIA DRIVE OS contains a vulnerability in the Security Engine where a user may leak information about a cryptographic key. A successful exploit of this vulnerability may lead to information disclosure about the cryptographic key.

For more information about NVIDIA's vulnerability management, refer to the [NVIDIA Product Security](#) page.

Third-Party Software Security Updates

This release of NVIDIA DRIVE OS 6.0 Linux includes updates that address the following issue(s):

CVE ID	Description
CVE-2023-27535	An authentication bypass vulnerability exists in libcurl <8.0.0 in the FTP connection reuse feature that can result in wrong credentials being used during subsequent transfers. Previously created connections are kept in a connection pool for reuse if they match the current setup. However, certain FTP settings such as CURLOPT_FTP_ACCOUNT, CURLOPT_FTP_ALTERNATIVE_TO_USER, CURLOPT_FTP_SSL_CCC, and CURLOPT_USE_SSL were not included in the configuration match checks, causing them to match too easily. This could lead to libcurl using the wrong credentials when performing a transfer,

	potentially allowing unauthorized access to sensitive information.
CVE-2023-4863	Heap buffer overflow in libwebp in Google Chrome prior to 116.0.5845.187 and libwebp 1.3.2 allowed a remote attacker to perform an out of bounds memory write via a crafted HTML page. (Chromium security severity: Critical)
CVE-2023-5217	Heap buffer overflow in vp8 encoding in libvpx in Google Chrome prior to 117.0.5938.132 and libvpx 1.13.1 allowed a remote attacker to potentially exploit heap corruption via a crafted HTML page. (Chromium security severity: High)
CVE-2023-3863	A use-after-free flaw was found in nfc_llcp_find_local in net/nfc/llcp_core.c in NFC in the Linux kernel. This flaw allows a local user with special privileges to impact a kernel information leak issue.
CVE-2023-3863	A use-after-free flaw was found in net/sched/cls_fw.c in classifiers (cls_fw, cls_u32, and cls_route) in the Linux Kernel. This flaw allows a local attacker to perform a local privilege escalation due to incorrect handling of the existing filter, leading to a kernel information leak issue.
CVE-2023-40283	An issue was discovered in l2cap_sock_release in net/bluetooth/l2cap_sock.c in the Linux kernel before 6.4.10. There is a use-after-free because the children of an sk are mishandled.

Known Limitations

The following sections describe known limitations in 6.0.

Feature	Module	Description
4285401	Camera	<p>Camera software does not support configuration of CSI tuning values per board. Instead, the tuning values are hard-coded per SoC generation in RCE firmware code.</p> <p>How does it impact the customer?</p> <p>You cannot modify CSI tuning values on their own to apply their characterized board specific tuning values when the generic SoC generation specific values are not suitable. Untuned values may lead to loss of signal and failure to capture sensor data.</p> <p>If there is a workaround, what is it?</p> <p>If you have TSE support established:</p> <p>Request a custom RCE FW binary from your TSE to apply your characterized board specific tuning values when the generic SoC generation specific values are not suitable.</p> <p>Another possible workaround:</p> <p>Stick to reference board design on CSI parts and line layout from NVIDIA.</p> <p>When do we expect a resolution?</p> <p>6.5</p>
3599251	Storage	<p>Linux Guest VM Virtual Storage Client Driver (VSCD) I/O thread is pinned to LCPU2 for fixing Storage priority scheduling issues. In VSCD, all requests and responses are processed on LCPU2.</p> <p>With the above change, Storage throughput (MB/s) impact is evaluated by running FIO tool with various request sizes (bs): 4M, 2M, 1M,</p>

		<p>512KB, 256KB, 128KB, 64KB, 4KB.</p> <p>As per the test run results, compared to previous release, NVIDIA is seeing the 4K perf drop mentioned below, but for other BS sizes, not much throughput drop is observed.</p> <ul style="list-style-type: none"> • For sequential write 4K operation on UFS, we are seeing drop of 15% • For random write 4K operation on UFS, we are seeing drop of 10% • For random read 4K operation on UFS, we are seeing drop of 15% • For sequential read 4K operation on eMMC, we are seeing drop of 13% • For random write 4K operation on eMMC, we are seeing drop of 23% • For sequential read 4K operation on eMMC, we are seeing drop of 12% <p>If the request sizes are of 4K, then throughput drop is expected.</p> <p>Use cases that send smaller request sizes in range 4K and that expect high throughput may get impacted.</p>
DriveWorks	DriveWorks	Building the NVIDIA DriveWorks SDK as a Yocto Project® based component is not supported.
Docker	DriveWorks	Sample execution within Docker containers on target is not supported.
CUDA	cuDLA	cuDLA does not handle duplicate NvSciSync objects which are not imported using <code>cudaImportExternalSemaphore</code> API in standard. This is handled in safety.

Known Issues

Note:

Due to the introduction of enhanced persistent partition workflow, if you are upgrading from DRIVE OS 6.0.4 to the current DRIVE OS version and using `-init` persistent partitions, follow all the steps mentioned under the Data Migration for Persistent Partitions chapter in the *DRIVE OS 6.0 Linux SDK Developer Guide*.

These are issues discovered during development and QA and are scheduled to be resolved in a future release.

Reference ID	Module	Description
4565851	MCU	<p>What is the issue? Multiple clients are communicating with Aurix over socket port 5001. One client is the MCC daemon using local IP address 0.0.0.0; there can be other clients linking with <code>libmcu_common_if.so</code> to communicate with Aurix via socket APIs. The clients linking with <code>libmcu_common_if.so</code> and communicating directly over socket port 5001 may see a conflict and timeout error if they are launched using root user.</p> <p>How does it impact the customer? The clients linking with <code>libmcu_common_if.so</code> may see conflict with MCC daemon for the port 5001 if they are launched as root user.</p> <p>If there is a workaround, what is it? The clients linking with <code>libmcu_common_if.so</code> should be launched as non-root user.</p> <p>When can we expect the fix? N/A</p> <p>Is it for SDK/PDK? Both</p>
4399182	DRIVE Update	<p>What is the issue? Update Service VM needs time to initialize after the system is booted up. There is a chance that suspend fails if triggered immediately after <code>INIT_DONE</code> is reported as Update Service VM is not yet fully initialized.</p> <p>How does it impact the customer? Suspend may fail if you trigger suspend immediately after DVMS state becomes <code>INIT_DONE</code>.</p> <p>If there is a workaround, what is it? Add a delay of 2 seconds from user-space init or ensure suspend is triggered 10 seconds after boot.</p> <p>When can we expect the fix? In a future 6.0 release.</p> <p>Is it for SDK/PDK? Both</p>

3928416	HSI	<p>What is the issue?</p> <p>You may see error spews on MCU console during boot, with the following error code. This indicates an HSI EQOS RX FMON error while enabling FMON clock: MCU_FOH: ErrReport: ErrorCode-0x28de ReporterId-0xe04c Error_Attribute-0x0 Timestamp-0xa4fc08e.</p> <p>How does it impact the customer?</p> <p>There is no impact on the data transfers. The EQOS FMON monitoring for RX CLK may not work.</p> <p>If there is a workaround, what is it?</p> <p>No workaround.</p> <p>When can we expect the fix?</p> <p>In a future 6.0 release.</p> <p>Is it for SDK/PDK?</p> <p>SDK</p>
4169204	Camera Core	<p>What is the issue?</p> <p>Sample camera application crashes when running with Test Pattern Generator (TPG) from DS90UB971 FPD-Link serializer.</p> <p>How does it impact the customer?</p> <p>The impact is minimal since the issue is only observed with TPG, not actual FPD-Link sensors.</p> <p>If there is a workaround, what is it?</p> <p>No workaround.</p> <p>When can we expect the fix?</p> <p>TBD</p> <p>Is it for SDK/PDK?</p> <p>PDK</p>
4184360	Nsight	When remote profiling from the host x86_64, accelerator workload events are not collected.
4115578	Nsight	When localhost profiling on the target arm64 using nsys-ui GUI, accelerator workload events are not collected.
4190938	Nsight	Accelerator workload events for PVA in specific scenarios might not be displayed correctly.
4193687	Nsight	Tegra accelerator workload events in specific scenarios might disappear when zooming in on the timeline.
3950134	Safety MCU Firmware	<p>What is the issue?</p> <p>On the P3663-TS3 board, SAFETY_NIRQ is low during SC7 exit, which leads to the error print "ERROR: MCU_PLTFPWRMGR: Request Orin SC7 Exit failed!". As this is a safety check, it has no functional impact.</p> <p>How does it impact the customer?</p> <p>You see error print "ERROR: MCU_PLTFPWRMGR: Request Orin SC7 Exit failed!" though SC7 exit is successful. As this is a safety check, it has no functional impact.</p> <p>If there is a workaround, what is it?</p> <p>N/A</p> <p>When can we expect the fix?</p> <p>As the issue is seen on only a particular board, analysis/fix will take more time and</p>

		<p>it is planned to be completed by 6.0.10.</p> <p>Is it for Standard/Safety, SDK/PDK</p> <p>All</p>
3644537	Virtualization	<p>What is the issue?</p> <p>Host initiated Refresh (HIR) operation on Micron eMMC device takes around 7 seconds to complete</p> <p>How does it impact the customer?</p> <p>If initiated refresh on Micron eMMC from SW, then EMMC becomes busy and no other requests (such as read/write/erase etc.,) are sent to EMMC for that busy period.</p> <p>If there is a workaround, what is it?</p> <p>There is no workaround available. Micron is going to provide the eMMC firmware update to reduce the HIR time to 400ms (projected time from Micron). Please check with Micron for more details on this.</p> <p>When can we expect the fix?</p> <p>This fix is expected from Micron as an eMMC firmware update. After the new eMMC firmware provided from Micron, it must be flashed to eMMC. For more details, check with Micron.</p> <p>Is it for SDK/PDK?</p> <p>All</p>
3793667	DriveWorks Camera	<p>What is the issue?</p> <p>When isGroupInitProg flag in DeviceBlockInfo structure is set, the links must be initialized in incremental order.</p> <p>How does it impact the customer?</p> <p>If the link order is not incremental, some cameras are not initialized correctly so the application cannot receive the frames from the uninitialized cameras.</p> <p>If there is a workaround, what is it?</p> <p>The user initializes the cameras in the incremental link order when isGroupInitProg flag is set.</p> <p>When can we expect the fix?</p> <p>In a future 6.0 release.</p> <p>Is it for SDK/PDK?</p> <p>Both</p>
200775377	DriveWorks System Software	<p>What is the issue?</p> <p>PTP client connected to DRIVE Orin AGX Developer Kit 88Q6113 (Spruce) ethernet switch port P7 fails to sync with PTP server due to known bug from Marvell switch firmware.</p> <p>How does it impact the customer?</p> <p>Any sensor/device connected to spruce port P7 is not able to sync with PTP server.</p> <p>If there is a workaround, what is it?</p> <p>N/A</p> <p>When can we expect the fix?</p> <p>The issue is being addressed with the vendor; resolution date is TBD.</p> <p>Is it for SDK/PDK?</p> <p>All.</p>

	DriveWorks Image and Point Cloud Processing	<p>The following algorithms are not supported on Orin's OFA and/or PVA engines in this release:</p> <ul style="list-style-type: none"> • ImageFilter (Recursive Gaussian Filter, BoxFilter, 2Dconv). • FAST9 Feature Detector, Standard Harris Corner Detector. • IC and fastIC Feature Tracker. • DenseOpticalFlow. • Stereo. • Template Tracker.
3496936		<p>What is the issue? Sample_stereo_disparity dumps "Error calling GL deleter" on console</p> <p>How does it impact the customer? The same error log may occur during DriveWorks release. But it won't impact functionality.</p> <p>If there is a workaround, what is it? N/A</p> <p>When can we expect the fix? N/A</p> <p>Is it for SDK/PDK? SDK</p>
4350235		<p>What is the issue? Sample_feature_tracker cannot obtain perf data.</p> <p>How does it impact the customer? Cannot obtain perf data with sample_feature_tracker.</p> <p>If there is a workaround, what is it? N/A</p> <p>When can we expect the fix? In a future 6.0 release.</p> <p>Is it for SDK/PDK? SDK</p>
200782352	DriveWorks SAL	LRAW Preview Extraction Tool fails.
3494734		<p>What is the issue? Some networks may suffer accuracy degradation when run on DLA with large batch sizes.</p> <p>How does it impact the customer? When running networks on DLA with batch sizes larger than 32, accuracy may degrade.</p> <p>If there is a workaround, what is it? To work around this issue, use a smaller batch size.</p> <p>When can we expect the fix? The issue will be fixed in a future DLA release.</p> <p>Is it for SDK/PDK? SDK</p>
3498326		<p>What is the issue? There is a known issue with DLA clocks that requires users to reboot the system after changing the nvpmode power mode or otherwise experience a performance</p>

		<p>drop.</p> <p>How does it impact the customer? Performance may drop significantly after changing the nvpmode power mode.</p> <p>If there is a workaround, what is it? Reboot the system after changing the nvpmode power mode.</p> <p>When can we expect the fix? In a future 6.0 release.</p> <p>Is it for SDK/PDK? SDK</p>
200618961		<p>What is the issue? Low fps observed while replaying sf3324/820 lraw/raw camera recordings with sample_camera_replay</p> <p>How does it impact the customer? Cannot replay sf3324/820 lraw/raw camera recordings smoothly via the Camera Replay Sample.</p> <p>If there is a workaround, what is it? N/A</p> <p>When can we expect the fix? N/A</p> <p>Is it for SDK/PDK? SDK</p>
3925474		<p>What is the issue? Header dump tool failed for lidar and radar with error: Could not cast to virtual sensor. [TC ID: 41643, 41645]</p> <p>How does it impact the customer? Cannot dump lidar/radar header by using header-dump</p> <p>If there is a workaround, what is it? N/A</p> <p>When can we expect the fix? In a future 6.0 release.</p> <p>Is it for SDK/PDK? SDK</p>
4064878		<p>What is the issue? Recorder tool record lraw file that is not encoded as lossless.</p> <p>How does it impact the customer? Cannot use recorder tool to record lossless lraw data.</p> <p>If there is a workaround, what is it? N/A</p> <p>When can we expect the fix? In a future 6.0 release.</p> <p>Is it for SDK/PDK? SDK</p>
4377247	DriveWorks CGF	<p>What is the issue? sample_cgf_dwchannel consumer goes to hang state after first instants of data transfer.</p> <p>How does it impact the customer?</p>

		<p>sample_cgf_dwchannel sample 1 producer and 2 consumer function does not work.</p> <p>If there is a workaround, what is it?</p> <p>N/A</p> <p>When can we expect the fix?</p> <p>In a future 6.0 release.</p> <p>Is it for SDK/PDK?</p> <p>SDK</p>
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Release Properties

The following table describes the release properties and software versions.

Release Properties	
Property	Description
Linux	Specifies the operating system.
20.04	Specifies the host Ubuntu operating system version.
Focal Fossa	Specifies the codename for the host version of Ubuntu.
20.04	Specifies the target Ubuntu root filesystem version.
3.1	Specifies the Yocto Project version of tools to build customized target root filesystem.
6.0.10	Specifies the NVIDIA release branch number.
36101120	Specifies the build ID for the Linux operating system.
drive-linux	Specifies the product name.
Linux	Specifies the platform.
234	Specifies the Tegra SoC architecture version.
5.15	Specifies the supported Linux kernel version.
Software Version	
Software	Version
GCC Cross-compiler Toolchain for user applications and libraries for Yocto root file system.	9.3
GCC Cross-compiler Toolchain for user applications and libraries for Ubuntu root file system.	9.3
OpenGL ES	3.2
OpenGL: Provided for development purposes. Production systems are expected to use OpenGL ES.	4.6
Wayland	1.18
Vulkan Provided for development purposes.	1.3

Safety systems are expected to use Vulkan SC.	
Vulkan SC	1.0
OpenWF Display	1.0
DriveWorks	5.20
DLA	3.14.4
CUDA Toolkit	11.4.30 – Reference 11.4.4 documentation.
cuDNN	8.9.2
TensorRT	8.6.13
ONNX	1.12.0 and opset 17
TensorFlow	1.15.5
PyTorch	1.13.1
Elementwise	2.4.2

DRIVE OS Supported Sensors

For a list of supported sensors, see the Supported Sensors chapter under Setup and Configuration section in the *NVIDIA DRIVE OS Linux Developer Guide*. For more information, refer to the [DRIVE Hyperion 8.1 Sensors and Accessories](#) page.

CUDA

The following table describes CUDA support.

Host OS	Host OS Version	Target OS	Target OS Version	Compiler Support
Ubuntu	20.04 LTS	Ubuntu	Ubuntu 20.04	GCC 9.3

Standard

The current release label is 11.4.30. The various components in the toolkit are versioned independently. The following table shows each component and its version:

Component Name	Version Information	Supported Architectures
CUDA Runtime (cudart)	11.4. 532	Linux (aarch64), Linux (x86_64), qnx-standard_aarch64
cuobjdump	11.4. 532	Linux (aarch64), Linux (x86_64)
CUPTI	11.4. 532	Linux (aarch64), Linux (x86_64), qnx-standard_aarch64
CUDA cuxxfilt (demangler)	11.4. 532	Linux (aarch64), Linux (x86_64)
CUDA Demo Suite	11.4. 532	Linux (x86_64)
CUDA GDB	11.4. 532	Linux (aarch64), Linux (x86_64), qnx-

		standard_aarch64
CUDA NVCC	11.4. 532	Linux (aarch64), Linux (x86_64), qnx-standard_aarch64
CUDA nvdasm	11.4. 532	Linux (aarch64), Linux (x86_64)
CUDA NVML Headers	11.4. 532	Linux (aarch64), Linux (x86_64)
CUDA nvprof	11.4. 532	Linux (aarch64), Linux (x86_64), qnx-standard_aarch64
CUDA nvprune	11.4. 532	Linux (aarch64), Linux (x86_64)
CUDA NVRTC	11.4. 532	Linux (aarch64), Linux (x86_64), qnx-standard_aarch64
CUDA NVTX	11.4. 532	Linux (aarch64), Linux (x86_64), qnx-standard_aarch64
CUDA NVVP	11.4. 532	Linux (x86_64)
CUDA Samples	11.4. 532	l4t_aarch64, Linux (aarch64), Linux (x86_64)
CUDA Compute Sanitizer API	11.4. 532	Linux (aarch64), Linux (x86_64)
CUDA Thrust	11.4. 532	Linux (aarch64), Linux (x86_64), qnx-standard_aarch64
CUDA cuBLAS	11.6.6.316	Linux (aarch64), Linux (x86_64), qnx-standard_aarch64
CUDA cuDLA	11.4. 532	Linux (aarch64), qnx-standard_aarch64
CUDA cuFFT	10.6.0.436	Linux (aarch64), Linux (x86_64), qnx-standard_aarch64
CUDA cuRAND	10.2.5.531	Linux (aarch64), Linux (x86_64), qnx-standard_aarch64
CUDA cuSOLVER	11.2.0.531	Linux (aarch64), Linux (x86_64), qnx-standard_aarch64
CUDA cuSPARSE	11.6.0.531	Linux (aarch64), Linux (x86_64), qnx-standard_aarch64
CUDA NPP	11.4.0.438	Linux (aarch64), Linux (x86_64), qnx-standard_aarch64
Nsight Compute	2021.2.10.1	Linux (x86_64), qnx-standard_aarch64
NVIDIA Linux Driver	535.161.07	Linux (x86_64)

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