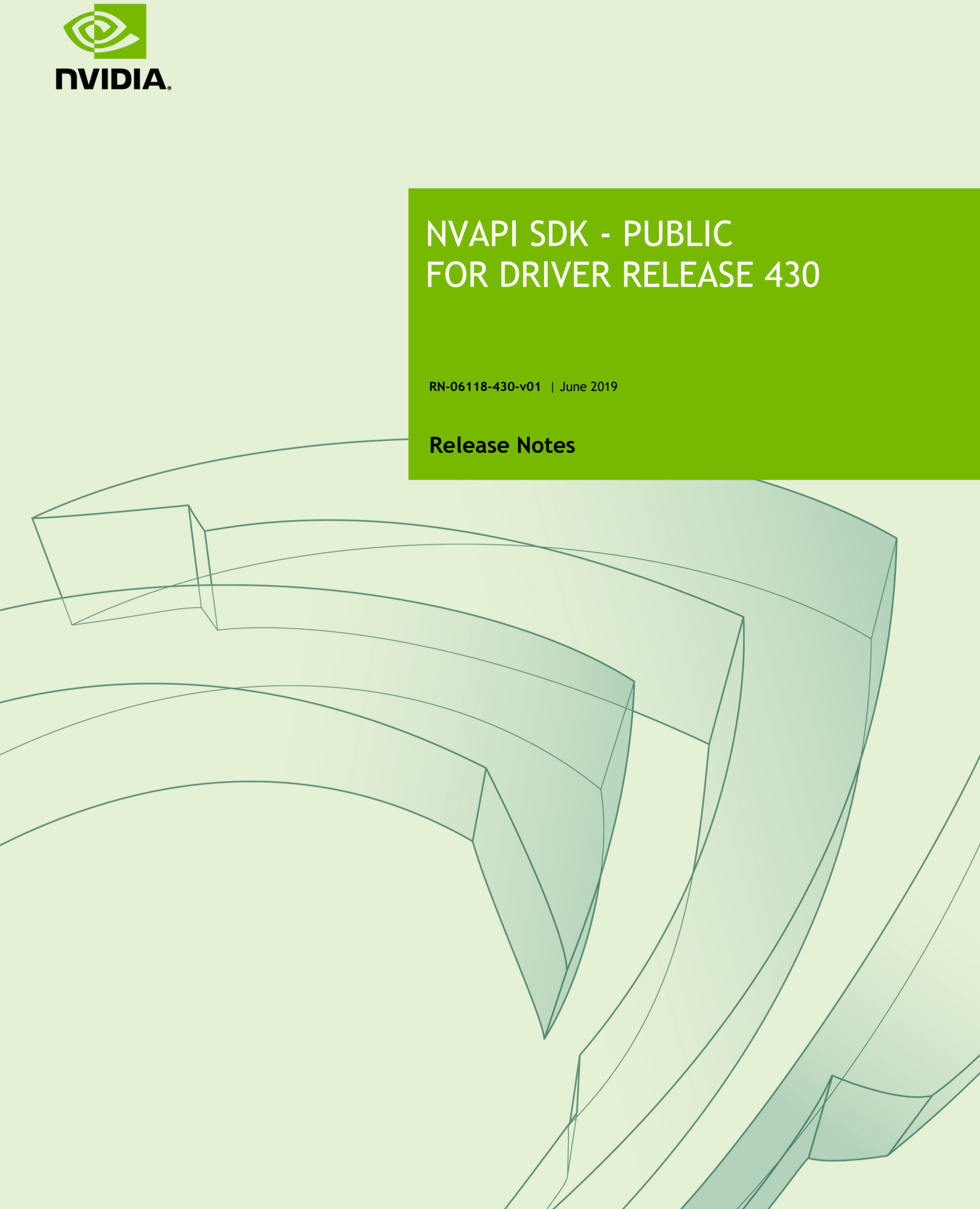

NVAPI SDK - PUBLIC FOR DRIVER RELEASE 430

RN-06118-430-v01 | June 2019

Release Notes

DOCUMENT CHANGE HISTORY

RN-06118-430-v01

Version	Date	Authors	Description of Change
01	06/12/2019	AP/CC	Initial release

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NVAPI RELEASE NOTES

INTRODUCTION

NVAPI is NVIDIA's core software development kit that allows direct access to NVIDIA GPUs and drivers on all windows platforms. NVAPI provides support for categories of operations that range beyond the scope of those found in familiar graphics APIs such as DirectX and OpenGL. These release notes describe the changes made in the NVAPI public SDK for the Release 430 driver. The following are the provided files:

- nvapi.h
- nvapi_lite_common.h
- nvapi_lite_d3dext.h
- nvapi_lite_salend.h
- nvapi_lite_salstart.h
- nvapi_lite_sli.h
- nvapi_lite_stereo.h
- nvapi_lite_surround.h
- NvApiDriverSettings.c
- NvApiDriverSettings.h
- nvHLSLExtns.h
- nvHLSLExtnsInternal.h
- nvShaderExtnEnums.h
- \x86\nvapi.lib
- \amd64\nvapi64.lib
- \doc\NVAPI_Reference_Developer.chm
- \doc\NVAPI SDKs Samples and Tools License Agreement (Public).pdf

CHANGES IN NVAPI FOR DRIVER RELEASE 430

Functions

- NvAPI_GPU_GetLogicalGpuInfo
- NvAPI_D3D11_CheckFeatureSupport
- NvAPI_D3D11_CreateImplicitMSAATexture2D
- NvAPI_D3D11_ResolveSubresourceRegion
- NvAPI_D3D11_CheckFeatureSupport
- NvAPI_D3D11_CreateImplicitMSAATexture2D
- NvAPI_D3D11_ResolveSubresourceRegion
- NvAPI_D3D11_DecompressView
- NvAPI_D3D11_EnumerateMetaCommands
- NvAPI_D3D11_CreateMetaCommand
- NvAPI_D3D11_InitializeMetaCommand
- NvAPI_D3D11_ExecuteMetaCommand
- NvAPI_D3D12_EnumerateMetaCommands
- NvAPI_D3D12_CreateMetaCommand
- NvAPI_D3D12_InitializeMetaCommand
- NvAPI_D3D12_ExecuteMetaCommand
- NvAPI_D3D_InitializeVRSHelper
- NvAPI_D3D_InitializeNvGazeHandler

TCC support added to the following functions:

- NvAPI_GPU_GetHDCPSupportStatus
- NvAPI_GPU_QueryIlluminationSupport
- NvAPI_GPU_SetIllumination
- NvAPI_GPU_ClientIllumDevicesGetInfo
- NvAPI_GPU_ClientIllumDevicesGetControl
- NvAPI_GPU_ClientIllumDevicesSetControl
- NvAPI_GPU_ClientIllumZonesGetInfo
- NvAPI_GPU_ClientIllumZonesGetControl
- NvAPI_GPU_ClientIllumZonesSetControl

Structures

- NV_LOGICAL_GPU_DATA_V1
- NV_COLOR_DATA_V5
- TargetIndepentRasterWithDepth added to NvAPI_D3D11_RASTERIZER_DESC_EX

- NV_D3D11_FEATURE_DATA_RASTERIZER_SUPPORT
- NVAPI_META_COMMAND_DESC
- NV_META_COMMAND_TENSOR_DESC
- NV_META_COMMAND_ACTIVATION_DESC
- NV_META_COMMAND_OPTIONAL_TENSOR_DESC
- NV_META_COMMAND_OPTIONAL_ACTIVATION_DESC
- NV_META_COMMAND_PADDING_DESC
- NV_META_COMMAND_CREATE_CONVOLUTION_EX_DESC
- NV_META_COMMAND_CONVOLUTION_FUSE_DESC
- NV_META_COMMAND_CREATE_CONVOLUTION_EX_FUSED_DESC
- NV_META_COMMAND_CREATE_GEMM_DESC
- NV_D3D11_META_COMMAND_RESOURCE
- NV_D3D11_META_COMMAND_INITIALIZE_CONVOLUTION_EX_DESC
- NV_D3D11_META_COMMAND_EXECUTE_CONVOLUTION_EX_DESC
- NV_D3D11_META_COMMAND_INITIALIZE_GEMM_DESC
- NV_D3D11_META_COMMAND_EXECUTE_GEMM_DES
- NV_D3D12_META_COMMAND_INITIALIZE_CONVOLUTION_EX_DESC
- NV_D3D12_META_COMMAND_EXECUTE_CONVOLUTION_EX_DESC
- NV_D3D12_META_COMMAND_INITIALIZE_GEMM_DESC
- NV_D3D12_META_COMMAND_EXECUTE_GEMM_DESC
- NV_VRS_HELPER_LATCH_GAZE_PARAMS_V1
- NV_FOVEATED_RENDERING_CUSTOM_SHADING_RATE_PRESET_DESC_V1
- NV_FOVEATED_RENDERING_CUSTOM_FOVEATION_PATTERN_PRESET_DESC_V1
- NV_FOVEATED_RENDERING_DESC_V1
- NV_VRS_HELPER_ENABLE_PARAMS_V1
- NV_VRS_HELPER_DISABLE_PARAMS_V1
- NV_VRS_HELPER_GET_SHADING_RATE_RESOURCE_PARAMS_V1
- NV_VRS_HELPER_PURGE_INTERNAL_RESOURCES_PARAMS_V1
- NV_VRS_HELPER_INIT_PARAMS_V1
- NV_FOVEATED_RENDERING_GAZE_DATA_PER_EYE_V1
- NV_FOVEATED_RENDERING_UPDATE_GAZE_DATA_PARAMS_V1
- NV_GAZE_HANDLER_INIT_PARAMS_V1

Enums

- NVAPI_GPU_NOT_POWERED added to NvAPI_Status
- NVAPI_ERROR_DRIVER_RELOAD_IN_PROGRESS added to NvAPI_Status
- NVAPI_WAIT_FOR_HW_RESOURCE added to NvAPI_Status
- NVAPI_REQUIRE_FURTHER_HDCP_ACTION added to NvAPI_Status
- NVAPI_DISPLAY_MUX_TRANSITION_FAILED added to NvAPI_Status

- NV_DESKTOP_COLOR_DEPTH
- NV_PIXEL_SHIFT_TYPE_2x2_TOP_RIGHT_PIXELS added to NV_PIXEL_SHIFT_TYPE
- NV_PIXEL_SHIFT_TYPE_2x2_BOTTOM_LEFT_PIXELS added to NV_PIXEL_SHIFT_TYPE
- NV_D3D11_FEATURE
- NV_RESOLVE_MODE
- NV_D3D11_FEATURE
- NV_D3D_GRAPHICS_STATES
- NV_META_COMMAND_TENSOR_DATA_TYPE
- NV_META_COMMAND_TENSOR_DATA_TYPE
- NV_META_COMMAND_TENSOR_LAYOUT
- NV_META_COMMAND_TENSOR_FLAGS
- NV_META_COMMAND_PRECISION
- NV_META_COMMAND_ACTIVATION_FUNCTION
- NV_META_COMMAND_PADDING_MODE
- NV_META_COMMAND_RESOURCE_TYPE
- NV_META_COMMAND_CONVOLUTION_DIRECTION
- NV_META_COMMAND_CONVOLUTION_MODE
- NV_META_COMMAND_CONVOLUTION_POOL_MODE
- NV_META_COMMAND_CONVOLUTION_UPSAMPLE_MODE
- NV_META_COMMAND_CONVOLUTION_SKIP_MODE
- NV_META_COMMAND_MATRIX_TRANSFORM
- NV_VRS_CONTENT_TYPE
- NV_FOVEATED_RENDERING_SHADING_RATE_PRESET
- NV_FOVEATED_RENDERING_FOVEATION_PATTERN_PRESET
- NV_VRS_RENDER_MODE
- NV_GAZE_DATA_VALIDITY_FLAGS
- NV_GAZE_DATA_TYPE

Deprecated NVAPI Functions

The following functions will be deprecated in coming releases:

Deprecated	Replaced By
None	N/A

NVAPIDriverSettings Additions/Removals

- PS_FRAMERATE_LIMITER_2_CONTROL_DELAY_FLIP_BY_FLIPMETERING removed from EValues_PS_FRAMERATE_LIMITER_2_CONTROL
- PS_FRAMERATE_MONITOR_CTRL_FRL_OFFSET_MASK added to EValues_PS_FRAMERATE_MONITOR_CTRL
- PS_FRAMERATE_MONITOR_CTRL_FRL_OFFSET_SHIFT added to EValues_PS_FRAMERATE_MONITOR_CTRL
- PS_FRAMERATE_MONITOR_CTRL_OPTIMAL_SETTING_V2 added to EValues_PS_FRAMERATE_MONITOR_CTRL
- PS_FRAMERATE_MONITOR_CTRL_VSYNC_OPTIMAL_SETTING_V2 added to EValues_PS_FRAMERATE_MONITOR_CTRL
- SHIM_RENDERING_OPTIONS_ALLOW_DYNAMIC_DISPLAY_MUX_SWITCH added to EValues_SHIM_RENDERING_OPTIONS
- SHIM_RENDERING_OPTIONS_DISALLOW_DYNAMIC_DISPLAY_MUX_SWITCH added to EValues_SHIM_RENDERING_OPTIONS
- SHIM_RENDERING_OPTIONS_DEFAULT changed to SHIM_RENDERING_OPTIONS_DISALLOW_DYNAMIC_DISPLAY_MUX_SWITCH
- WKS_STEREO_DONGLE_SUPPORT_DEFAULT changed to WKS_STEREO_DONGLE_SUPPORT_DAC
- OGL_SLI_CFR_MODE_ID
- BATTERY_BOOST_APP_FPS_ID
- QUALITY_ENHANCEMENT_SUBSTITUTION_ID
- EValues_OGL_SLI_CFR_MODE
- EValues_BATTERY_BOOST_APP_FPS
- EValues_QUALITY_ENHANCEMENT_SUBSTITUTION

HLSL Extension Additions

- NvGetShadingRate
- NvEvaluateAttributeAtSampleForVPRS
- NvEvaluateAttributeSnappedForVPRS
- NvShfl
- NvWaveMatch
- NvFootprintFine
- NvFootprintCoarse
- NvFootprintFineBias
- NvFootprintCoarseBias
- NvFootprintFineLevel
- NvFootprintCoarseLevel
- NvFootprintFineGrad
- NvFootprintCoarseGrad

- NvFootprintExtractLOD
- NvFootprintExtractReturnGran
- NvFootprintExtractAnchorTileLoc2D
- NvFootprintExtractAnchorTileLoc3D
- NvFootprintExtractOffset2D
- NvFootprintExtractOffset3D
- NvFootprintExtractBitmask
- NvActiveThreads
- NvWaveMultiPrefixInclusiveAdd
- NvWaveMultiPrefixExclusiveAdd
- NvWaveMultiPrefixInclusiveAnd
- NvWaveMultiPrefixExclusiveAnd
- NvWaveMultiPrefixInclusiveOr
- NvWaveMultiPrefixExclusiveOr
- NvWaveMultiPrefixInclusiveXOr
- NvWaveMultiPrefixExclusiveXOr

NVAPI SECURITY INFORMATION

User administrator privilege is required to access certain driver features, as per NVIDIA's overall security vision. This helps mitigate the impact of malware.

Each API that requires the administrator access, will return NVAPI_INVALID_USER_PRIVILEGE error, when run with standard user privilege. The application will require Administrator privileges to access this API, which can be elevated to a higher permission level by selecting "Run as Administrator" in Admin approval mode.

APIs that Require Administrator Privileges:

- `NvAPI_GPU_ResetECCErrorInfo`
- `NvAPI_GPU_SetECCConfiguration`

ABOUT THE SAMPLE CODE

Sample code is provided with the SDK package that demonstrates the following features:

- Custom Timing
- Display Color Control
- Display Configuration
- I2C
- Quadro Sync_Configuration

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