



What's New in Virtual GPU Software R470 for All Supported Hypervisors

Release Notes

Table of Contents

- Chapter 1. Updates by Release..... 1
 - 1.1. Updates in Release 13.3..... 1
 - 1.2. Updates in Release 13.2..... 1
 - 1.3. Updates in Release 13.1..... 2
 - 1.4. Updates in Release 13.0..... 3

Chapter 1. Updates by Release

Updates for each release in this release family of NVIDIA vGPU software may include new features, introduction of hardware and software support, and withdrawal of hardware and software support.

1.1. Updates in Release 13.3

New Features in Release 13.3

- ▶ Security updates - see *Security Bulletin: NVIDIA GPU Display Driver - May 2022*, which is posted shortly after the release date of this software and is listed on the [NVIDIA Product Security](#) page
- ▶ Miscellaneous bug fixes

Hardware and Software Support Introduced in Release 13.3

- ▶ Support for Red Hat Enterprise Linux with KVM hypervisor 8.6
- ▶ Support for Red Hat Enterprise Linux 8.6 as a guest OS
- ▶ Support for Citrix Virtual Apps and Desktops version 7 2203
- ▶ Support for VMware Horizon 2203 (8.5)

Feature Support Withdrawn in Release 13.3

- ▶ Red Hat Enterprise Linux with KVM hypervisor 8.5 and 8.2 are no longer supported.
- ▶ Red Hat Enterprise Linux 8.5 and 8.2 are no longer supported as a guest OS.

1.2. Updates in Release 13.2

New Features in Release 13.2

- ▶ Security updates - see *Security Bulletin: NVIDIA GPU Display Driver - February 2022*, which is posted shortly after the release date of this software and is listed on the [NVIDIA Product Security](#) page

- ▶ Miscellaneous bug fixes

Hardware and Software Support Introduced in Release 13.2

- ▶ Support for Red Hat Enterprise Linux with KVM hypervisor 8.5
- ▶ Support for Red Hat Enterprise Linux 8.5 as a guest OS
- ▶ Support for Citrix Virtual Apps and Desktops version 7 2112
- ▶ Support for VMware Horizon 2111 (8.4)

Feature Support Withdrawn in Release 13.2

- ▶ Red Hat Enterprise Linux with KVM hypervisor 8.1, 7.8, and 7.7 are no longer supported.
- ▶ Red Hat Enterprise Linux 8.1 is no longer supported as a guest OS.
- ▶ Red Hat Enterprise Linux 7.8 and 7.7 are no longer supported as a guest OS.

1.3. Updates in Release 13.1

New Features in Release 13.1

- ▶ Support for CUDA profilers on vGPUs on the following GPUs:
 - ▶ NVIDIA A40
 - ▶ NVIDIA A16
 - ▶ NVIDIA A10
 - ▶ NVIDIA RTX A6000
 - ▶ NVIDIA RTX A5000
- ▶ Support for CUDA profilers on MIG-backed vGPUs on the following GPUs on Linux with KVM and Red Hat Enterprise Linux with KVM:
 - ▶ NVIDIA A100 PCIe 80GB
 - ▶ NVIDIA A100 HGX 80GB
 - ▶ NVIDIA A100 PCIe 40GB
 - ▶ NVIDIA A100 HGX 40GB
 - ▶ NVIDIA A30
- ▶ NVIDIA Deep Learning Super Sampling (DLSS) support on NVIDIA RTX Virtual Workstation
- ▶ Support for vSphere Lifecycle Management (vLCM) on VMware vSphere ESXi
- ▶ Support for virtual PCIe topology discovery on VMware vSphere ESXi (requires VMware vSphere ESXi 7.0.3 or later)

The topology daemon generates virtual device topology mapping in Linux VMs for use by NVIDIA communication libraries.

- ▶ Security updates - see *Security Bulletin: NVIDIA GPU Display Driver - October 2021*, which is available on the release date of this software and is listed on the [NVIDIA Product Security](#) page
- ▶ Miscellaneous bug fixes

Hardware and Software Support Introduced in Release 13.1

- ▶ Support for the following releases of Ubuntu as a hypervisor:
 - ▶ Ubuntu 20.04 LTS
 - ▶ Ubuntu 18.04 LTS
- ▶ Support for Windows 11 21H2 as a guest OS
- ▶ Support for Citrix Virtual Apps and Desktops version 7 2109

1.4. Updates in Release 13.0

This release is not supported on Ubuntu.

New Features in Release 13.0

- ▶ Support for the following NVIDIA CUDA Toolkit features on NVIDIA vGPU:
 - ▶ Development tools such as IDEs, debuggers, profilers, and utilities as listed under *CUDA Toolkit Major Components* in [NVIDIA CUDA Toolkit Release Notes for CUDA 11.4](#)
 - ▶ Tracing and profiling through the CUDA Profiling Tools Interface (CUPTI)
- ▶ Compatibility with the guest VM drivers from the previous long-term support branch (11)
- ▶ Single-slice GPU instances with decoder support on Red Hat Enterprise Linux with KVM
- ▶ NVIDIA License System support
- ▶ Miscellaneous bug fixes

Hardware and Software Support Introduced in Release 13.0

- ▶ Support for the following GPUs:
 - ▶ NVIDIA A100 PCIe 80GB
 - ▶ NVIDIA A30
 - ▶ NVIDIA A16
- ▶ Support for Windows Server 2022 with Hyper-V role
- ▶ Support for Windows Server 2022 as a guest OS
- ▶ Support for Citrix Virtual Apps and Desktops version 7 2106
- ▶ Support for VMware Horizon 2106 (8.3)

Feature Support Withdrawn in Release 13.0

- ▶ The following GPUs are no longer supported on VMware vSphere:
 - ▶ NVIDIA A100 HGX 80GB
 - ▶ NVIDIA A100 PCIe 40GB
 - ▶ NVIDIA A100 HGX 40GB

Instead, these GPUs are supported on VMware vSphere with NVIDIA AI Enterprise.

- ▶ NVIDIA Virtual Compute Server (vCS) is no longer supported on VMware vSphere and C-series vGPU types are no longer available. Instead, vCS is supported on VMware vSphere with NVIDIA AI Enterprise.
- ▶ The base VMware vSphere 7.0 release and VMware vSphere 7.0 Update 1 are no longer supported.

Notice

This document is provided for information purposes only and shall not be regarded as a warranty of a certain functionality, condition, or quality of a product. NVIDIA Corporation ("NVIDIA") makes no representations or warranties, expressed or implied, as to the accuracy or completeness of the information contained in this document and assumes no responsibility for any errors contained herein. NVIDIA shall have no liability for the consequences or use of such information or for any infringement of patents or other rights of third parties that may result from its use. This document is not a commitment to develop, release, or deliver any Material (defined below), code, or functionality.

NVIDIA reserves the right to make corrections, modifications, enhancements, improvements, and any other changes to this document, at any time without notice.

Customer should obtain the latest relevant information before placing orders and should verify that such information is current and complete.

NVIDIA products are sold subject to the NVIDIA standard terms and conditions of sale supplied at the time of order acknowledgement, unless otherwise agreed in an individual sales agreement signed by authorized representatives of NVIDIA and customer ("Terms of Sale"). NVIDIA hereby expressly objects to applying any customer general terms and conditions with regards to the purchase of the NVIDIA product referenced in this document. No contractual obligations are formed either directly or indirectly by this document.

NVIDIA products are not designed, authorized, or warranted to be suitable for use in medical, military, aircraft, space, or life support equipment, nor in applications where failure or malfunction of the NVIDIA product can reasonably be expected to result in personal injury, death, or property or environmental damage. NVIDIA accepts no liability for inclusion and/or use of NVIDIA products in such equipment or applications and therefore such inclusion and/or use is at customer's own risk.

NVIDIA makes no representation or warranty that products based on this document will be suitable for any specified use. Testing of all parameters of each product is not necessarily performed by NVIDIA. It is customer's sole responsibility to evaluate and determine the applicability of any information contained in this document, ensure the product is suitable and fit for the application planned by customer, and perform the necessary testing for the application in order to avoid a default of the application or the product. Weaknesses in customer's product designs may affect the quality and reliability of the NVIDIA product and may result in additional or different conditions and/or requirements beyond those contained in this document. NVIDIA accepts no liability related to any default, damage, costs, or problem which may be based on or attributable to: (i) the use of the NVIDIA product in any manner that is contrary to this document or (ii) customer product designs.

No license, either expressed or implied, is granted under any NVIDIA patent right, copyright, or other NVIDIA intellectual property right under this document. Information published by NVIDIA regarding third-party products or services does not constitute a license from NVIDIA to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property rights of the third party, or a license from NVIDIA under the patents or other intellectual property rights of NVIDIA.

Reproduction of information in this document is permissible only if approved in advance by NVIDIA in writing, reproduced without alteration and in full compliance with all applicable export laws and regulations, and accompanied by all associated conditions, limitations, and notices.

THIS DOCUMENT AND ALL NVIDIA DESIGN SPECIFICATIONS, REFERENCE BOARDS, FILES, DRAWINGS, DIAGNOSTICS, LISTS, AND OTHER DOCUMENTS (TOGETHER AND SEPARATELY, "MATERIALS") ARE BEING PROVIDED "AS IS." NVIDIA MAKES NO WARRANTIES, EXPRESSED, IMPLIED, STATUTORY, OR OTHERWISE WITH RESPECT TO THE MATERIALS, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE. TO THE EXTENT NOT PROHIBITED BY LAW, IN NO EVENT WILL NVIDIA BE LIABLE FOR ANY DAMAGES, INCLUDING WITHOUT LIMITATION ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE, OR CONSEQUENTIAL DAMAGES, HOWEVER CAUSED AND REGARDLESS OF THE THEORY OF LIABILITY, ARISING OUT OF ANY USE OF THIS DOCUMENT, EVEN IF NVIDIA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Notwithstanding any damages that customer might incur for any reason whatsoever, NVIDIA's aggregate and cumulative liability towards customer for the products described herein shall be limited in accordance with the Terms of Sale for the product.

VESA DisplayPort

DisplayPort and DisplayPort Compliance Logo, DisplayPort Compliance Logo for Dual-mode Sources, and DisplayPort Compliance Logo for Active Cables are trademarks owned by the Video Electronics Standards Association in the United States and other countries.

HDMI

HDMI, the HDMI logo, and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

OpenCL

OpenCL is a trademark of Apple Inc. used under license to the Khronos Group Inc.

Trademarks

NVIDIA, the NVIDIA logo, NVIDIA GRID, NVIDIA GRID vGPU, NVIDIA Maxwell, NVIDIA Pascal, NVIDIA Turing, NVIDIA Volta, GPUDirect, Quadro, and Tesla are trademarks or registered trademarks of NVIDIA Corporation in the U.S. and other countries. Other company and product names may be trademarks of the respective companies with which they are associated.

Copyright

© 2013-2022 NVIDIA Corporation & affiliates. All rights reserved.

