



# DGX OS 4 Desktop Software

## Release Notes

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# Chapter 1. DGX OS Desktop Releases and Versioning

This information helps you understand the DGX OS Desktop release numbering convention and your options to upgrade your DGX OS Desktop software.

## DGX OS Desktop Releases

DGX OS is a customized Linux distribution that is based on Ubuntu Linux. It includes platform-specific configurations, diagnostic and monitoring tools, and the drivers that are required to provide the stable, tested, and supported OS to run AI, machine learning, and analytics applications on DGX systems.

DGX OS is released twice a year, typically around February and August, for two years after the first release. Updates are provided between releases and thereafter for the entire support duration.

### Release Versions

The DGX OS release numbering convention is MAJOR.MINOR, and it defines the following types of releases:

- ▶ **Major releases** are typically based on Ubuntu releases, which include new kernel versions and new features that are not always backwards compatible.

For example:

- ▶ DGX OS 5.x releases are based on Ubuntu 20.04.
- ▶ DGX OS 4.x is based on Ubuntu 18.04.
- ▶ **Minor releases** include mostly new NVIDIA features and accumulated bug fixes and security updates.

These releases are incremental and always include all previous software changes.

- ▶ In DGX OS 4 and earlier, minor releases were also typically aligned with NVIDIA Graphics Drivers for Linux releases.
- ▶ In DGX OS 5, you now have the option to install newer NVIDIA Graphic Drivers independently of the DGX OS release.

## DGX OS Release Mechanisms

This section provides information about the DGX OS release mechanisms that are available to install or upgrade to the latest version of the DGX OS.

### The ISO Image

DGX OS is released as an ISO image that includes the necessary packages and an autonomous installer. Updated versions of the ISO image are also released that:

- ▶ Provide bug fixes and security mitigations.
- ▶ Improve the installation experience.
- ▶ Provide hardware configuration support.

You should always use the latest ISO image, except when you need to restore the system to an earlier version.



**WARNING:** This image allows you to install or reimage a DGX system to restore the system to a default state, but the process erases all of the changes that you applied to the OS.

### The Linux Software Repositories

Upgrades to DGX OS are provided through the software repositories. Software repositories are storage locations from which your system retrieves and installs OS updates and applications. The repositories used by DGX OS are hosted by Canonical for the Ubuntu OS and NVIDIA for DGX specific software and other NVIDIA software. Each repository is a collection of software packages that are intended to install additional software and to update the software on DGX systems.

New versions of these packages, which contain bug fixes and security updates, provide an update to DGX OS releases. The repositories are also updated to include hardware enablement, which might add support for a new system or a new hardware component, such as a network card or disk drive. This update does not affect existing hardware configurations.

System upgrades are cumulative, which means that your systems will **always** receive the **latest version** of all of the updated software components. You cannot select which upgrades to make or limit upgrades to the non-latest DGX OS 5.x release.



**Important:** We recommend that you **do not** update **only** individual components.

**Before** you update a system, refer to the [DGX OS Software Release Notes](#) for a list of the available updates. For more information on displaying available updates and upgrade instructions, refer to the [DGX OS 5 User Guide](#).

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## Chapter 2. DGX OS Desktop 4 Releases

### 2.1. Configuration File Conflicts in Upgrades to DGX OS Desktop 4 Releases

During an upgrade to a DGX OS Desktop 4 release from an earlier release, you are prompted to resolve conflicts in configuration files. When prompted, evaluate the changes before accepting the maintainer's version, keeping the local version, or manually resolving the difference.

Conflicts in `/etc/apt/sources.list.d/dgxstation.list` arise because the upgrade process edits the file to specify the `bionic` repositories for future updates. To avoid losing any customizations that users might have made to this file, keep the local version.

Conflicts in the following configuration files are the result of customizations to the Ubuntu Desktop OS made for DGX OS Desktop:

- ▶ `/etc/grub.d/10_linux`. You can accept the package maintainer's version because the customizations are no longer required.
- ▶ `/etc/ssh/sshd_config`. Keep the local version to preserve the customizations, which are still required.

### 2.2. Upgrading to DGX OS Desktop Release 4.13.0 from a 4.0 Release

Perform this task to upgrade to DGX OS Desktop release 4.13.0 from a DGX OS Desktop 4.0 release, for example, 4.0.4, 4.0.5, or 4.0.6. DGX OS Desktop Release 4.13.0 contains NVIDIA Graphics Drivers and NVIDIA CUDA Toolkit software from later release branches than the branches for DGX OS Desktop 4.0 releases. The upgrade process updates your package sources to obtain future updates from repositories for the new release.



**Note:** For information about upgrading from other releases, see the following topics:

- ▶ [Upgrading Within the Same DGX OS Desktop Major Release in DGX Station User Guide](#)

► [Upgrading to a New DGX OS Desktop Major Release in DGX Station User Guide](#)

Ensure that the following prerequisites are met:

- You are logged in to your Ubuntu desktop on the DGX Station as an administrator user.
- Your DGX Station is running a DGX OS Desktop 4.0 release, for example, 4.0.4, 4.0.5, or 4.0.6.

1. Download information from all configured sources about the latest versions of the packages.

```
$ sudo apt update
```

2. Install the `dgxstation-bionic-r418+cuda10.1-repo` package.

```
$ sudo apt install -y dgxstation-bionic-r418+cuda10.1-repo
```

This step installs the R418 repository.

3. **Optional:** To move to the R450 package, after the R418 repository is installed, issue the following command:

```
$ sudo apt install -y dgxstation-bionic-r450+cuda11.0-repo
```

4. After installing the `dgxstation-bionic-r418+cuda10.1-repo` package, download information from all configured sources about the latest versions of the packages again.

```
$ sudo apt update
```

5. Review the available updates by simulating an upgrade of the packages.

```
$ sudo apt -s full-upgrade
```

6. Install all available updates for your current DGX OS Desktop release.

```
$ sudo apt -y full-upgrade
```



**Note:** Even if the R450 repository is enabled, CUDA 11.0 is **not** automatically installed. To manually install CUDA 11.0, issue the following command:

```
$ sudo apt install -y cuda-toolkit-11-0
```

7. When the update is complete, restart your DGX Station.

Any update to the NVIDIA Graphics Drivers for Linux requires a restart.

If you update the NVIDIA Graphics Drivers for Linux without restarting the DGX Station, running the `nvidia-smi` command displays an error message.

```
$ nvidia-smi
Failed to initialize NVML: Driver/library version mismatch
```

8. Confirm the NVIDIA Graphics Drivers for Linux and NVIDIA CUDA Toolkit software versions.

```
$ nvidia-smi
Fri Mar 13 18:03:56 2020
+-----+
| NVIDIA-SMI 418.126.02 Driver Version: 418.126.02 CUDA Version: 10.1 |
+-----+
...
```



## 2.3. Changes to Distribution Methods for DGX OS Desktop Software Updates

To deliver security updates and critical bug fixes quickly, NVIDIA is changing how DGX OS Desktop software updates are distributed.

Starting with DGX OS Desktop 4.1.1, NVIDIA is introducing patch updates to DGX OS Desktop software in addition to the existing full DGX OS Desktop releases.

Patch updates are package upgrades to individual components in DGX OS Desktop software that are delivered through the DGX OS Desktop update repository. You must opt in to receive patch updates. If you don't opt in to patch updates, you will get these updates in the next full release, which aggregates the changes in all patch updates since the previous full release. Therefore, you can choose between always having the latest updates or reducing the frequency of software updates to your system by updating only when NVIDIA issues a full DGX OS Desktop release.

Previously, all DGX OS Desktop software updates were full releases and were available to all users without the need to opt in.

For more information about full DGX OS Desktop releases and patch updates, and how they are identified, see [DGX OS Desktop Releases and Versioning](#).

## 2.4. DGX OS Desktop 4 Release History

### 2.4.1. DGX OS Desktop 4 Updates

#### Updates in Release 4.13.0

- ▶ New software releases:
  - ▶ Linux Kernel: [4.15.0-176](#)
  - ▶ NVIDIA Graphics Drivers for Linux: [450.191.01](#)
  - ▶ cuDNN Library: [8.3.3](#)
  - ▶ NCCL: [2.12.12](#)
  - ▶ NVSM: 20.09.35
  - ▶ NVIDIA Container Runtime for Docker: 3.7.0-1
  - ▶ Docker CE: [20.10.14](#)



#### Note:

When starting the DCGM service, a version mismatch error message similar to the following will appear:

```
[78075.772392] nvidia-nvswitch: Version mismatch, kernel version 450.80.00
user version 450.51.06
```

This occurs with GPU driver versions later than 450.51.06. The version check occurs on all DGX systems, but applies only to NVSwitch systems, so the message can be ignored on the DGX Station/DGX-1 system.

## Updates in Release 4.11.0

- ▶ New software releases:
  - ▶ Linux Kernel: [4.15.0-156-generic \(or later\)](#)
  - ▶ NVIDIA Graphics Drivers for Linux: [450.172.01](#)
  - ▶ cuDNN Library: [8.3.2](#)
  - ▶ NCCL: [2.11.4](#)
  - ▶ NVSM: 20.09.35
  - ▶ NVIDIA Container Runtime for Docker: 3.7.0-1
  - ▶ Docker CE: [20.10.11](#)



### Note:

When starting the DCGM service, a version mismatch error message similar to the following will appear:

```
[78075.772392] nvidia-nvswitch: Version mismatch, kernel version 450.80.00
user version 450.51.06
```

This occurs with GPU driver versions later than 450.51.06. The version check occurs on all DGX systems, but applies only to NVSwitch systems, so the message can be ignored on the DGX Station/DGX-1 system.

## Updates in Release 4.10.0

- ▶ New software releases:
  - ▶ Linux Kernel:
    - ▶ R418: [4.15.0-156-generic \(or later\)](#)
    - ▶ R450: [4.15.0-156-generic \(or later\)](#)
  - ▶ NVIDIA Graphics Drivers for Linux:
    - ▶ R418: [418.226.00](#)
    - ▶ R450: [450.156.00](#)
  - ▶ cuDNN Library:
    - ▶ R418: [8.0.5](#)

- ▶ R450: [8.2.2](#)
- ▶ NCCL:
  - ▶ R418: [2.8.3](#)
  - ▶ R450: [2.11.4](#)
- ▶ NVSM:
  - ▶ R418: 20.03.06
  - ▶ R450: 20.09.34
- ▶ NVIDIA Container Runtime for Docker: 3.5.0-1
- ▶ Docker CE: [20.10.8](#)

**Note:**

When starting the DCGM service, a version mismatch error message similar to the following will appear:

```
[78075.772392] nvidia-nvswitch: Version mismatch, kernel version 450.80.00
user version 450.51.06
```

This occurs with GPU driver versions later than 450.51.06. The version check occurs on all DGX systems, but applies only to NVSwitch systems, so the message can be ignored on the DGX Station/DGX-1 system.

## Updates in Release 4.9.0

- ▶ New software releases:
  - ▶ Linux Kernel:
    - ▶ R418: [4.15.0-151](#)
    - ▶ R450: [4.15.0-151](#)
  - ▶ NVIDIA Graphics Drivers for Linux:
    - ▶ R418: [418.211.00](#)
    - ▶ R450: [450.142.00](#)
  - ▶ cuDNN Library:
    - ▶ R418: [8.0.5](#)
    - ▶ R450: [8.2.1](#)
  - ▶ NCCL:
    - ▶ R418: [2.8.3](#)
    - ▶ R450: [2.9.9](#)
  - ▶ NVSM:
    - ▶ R418: 20.03.06

- ▶ R450: 20.09.33
- ▶ NVIDIA Container Runtime for Docker: 3.3.0
- ▶ Docker CE: [19.03.15](#)

**Note:**

When starting the DCGM service, a version mismatch error message similar to the following will appear:

```
[78075.772392] nvidia-nvswitch: Version mismatch, kernel version 450.80.00
user version 450.51.06
```

This occurs with GPU driver versions later than 450.51.06. The version check occurs on all DGX systems, but applies only to NVSwitch systems, so the message can be ignored on the DGX Station/DGX-1 system.

## Updates in Release 4.8.0

- ▶ New software releases:
  - ▶ Linux Kernel:
    - ▶ R418: [4.15.0-137](#)
    - ▶ R450: [4.15.0-137](#)
  - ▶ NVIDIA Graphics Drivers for Linux:
    - ▶ R418: [418.197.02](#)
    - ▶ R450: [450.119.03](#)
  - ▶ cuDNN Library:
    - ▶ R418: [8.0.5](#)
    - ▶ R450: [8.0.5](#)
  - ▶ NCCL:
    - ▶ R418: [2.8.3](#)
    - ▶ R450: [2.9.9](#)
  - ▶ NVSM:
    - ▶ R418: 20.03.06
    - ▶ R450: 20.09.21
  - ▶ NVIDIA Container Runtime for Docker: 3.3.0
  - ▶ Docker CE: [19.03.15](#)

**Note:**

When starting the DCGM service, a version mismatch error message similar to the following will appear:

```
[78075.772392] nvidia-nvswitch: Version mismatch, kernel version 450.80.00
user version 450.51.06
```

This occurs with GPU driver versions later than 450.51.06. The version check occurs on all DGX systems, but applies only to NVSwitch systems, so the message can be ignored on the DGX Station/DGX-1 system.

## Updates in Release 4.7.0

- ▶ New software releases:
  - ▶ Linux Kernel:
    - ▶ R418: [4.15.0-124](#)
    - ▶ R450: [4.15.0-124](#)
  - ▶ NVIDIA Graphics Drivers for Linux:
    - ▶ R418: [418.181.07](#)
    - ▶ R450: [450.102.04](#)
  - ▶ cuDNN Library:
    - ▶ R418: [8.0.5](#)
    - ▶ R450: [8.0.5](#)
  - ▶ NCCL:
    - ▶ R418: [2.8.3](#)
    - ▶ R450: [2.8.3](#)
  - ▶ NVSM:
    - ▶ R418: 20.03.6
    - ▶ R450: 20.05.19
  - ▶ NVIDIA Container Runtime for Docker 3.3.0
  - ▶ Docker CE [19.03.14](#)



### Note:

When starting the DCGM service, a version mismatch error message similar to the following will appear:

```
[78075.772392] nvidia-nvswitch: Version mismatch, kernel version 450.80.00
user version 450.51.06
```

This occurs with GPU driver versions later than 450.51.06. The version check occurs on all DGX systems, but applies only to NVSwitch systems, so the message can be ignored on the DGX Station/DGX-1 system.

## Updates in Release 4.6.0

- ▶ New software releases:
  - ▶ Linux Kernel:
    - ▶ R418: [4.15.0-112-generic](#)
    - ▶ R450: [4.15.0-112-generic](#)
  - ▶ NVIDIA Graphics Drivers for Linux:
    - ▶ R418: [418.165.02](#)
    - ▶ R450: [450.80.02](#)
  - ▶ cuDNN Library:
    - ▶ R418: [8.0.2.39+CUDA 11.0](#)
    - ▶ R450: [8.0.4.8+CUDA 11.0](#)
  - ▶ NCCL:
    - ▶ R418: [2.7.8-1+CUDA 10.1](#)
    - ▶ R450: [2.7.8-1+CUDA 11.0](#)
  - ▶ NVSM:
    - ▶ R418: 20.03.6
    - ▶ R450: 20.05.19
  - ▶ NVIDIA Container Runtime for Docker 3.3.0-1
  - ▶ Docker CE [19.03.12](#)



### Note:

When starting the DCGM service, a version mismatch error message similar to the following will appear:

```
[78075.772392] nvidia-nvswitch: Version mismatch, kernel version 450.80.00
user version 450.51.06
```

This occurs with GPU driver versions later than 450.51.06. The version check occurs on all DGX systems, but applies only to NVSwitch systems, so the message can be ignored on the DGX Station/DGX-1 system.

## Updates in Release 4.5.0

- ▶ New software releases:
  - ▶ Linux Kernel:
    - ▶ R418: [4.15.0-106-generic](#)
    - ▶ R450: [4.15.0-106-generic](#)

- ▶ NVIDIA Graphics Drivers for Linux:
  - ▶ R418: [418.152.00](#)
  - ▶ R450: [450.51.05](#)
- ▶ cuDNN Library:
  - ▶ R418: [7.6.5](#)
  - ▶ R450: [8.0.0](#)
- ▶ NCCL:
  - ▶ R418: [2.6.4](#)
  - ▶ R450: [2.7.3](#)
- ▶ NVSM:
  - ▶ R418: 20.03.6
  - ▶ R450: 20.05.09
- ▶ NVIDIA Container Runtime for Docker 3.1.4
- ▶ Docker CE [19.03.8](#)
- ▶ Support for the NVSM commands `nvsm show health` and `nvsm dump health` on the DGX Station, which replaces the `nvhealth` and `nvsysinfo` commands
- ▶ Support for disabling and restoring CPU mitigations

### Updates in Release 4.4.0

- ▶ New software releases:
  - ▶ Linux Kernel [4.15.0-76-generic](#)
  - ▶ NVIDIA Graphics Drivers for Linux [418.126.02](#)
  - ▶ cuDNN Library [7.6.5](#)
  - ▶ NCCL [2.4.7](#)
  - ▶ NVSM 20.01.15
  - ▶ NVIDIA Container Runtime for Docker 3.1.4
  - ▶ Docker CE [19.03.5](#)
- ▶ Support for the NVSM commands `nvsm show health` and `nvsm dump health` on the DGX Station, which replaces the `nvhealth` and `nvsysinfo` commands
- ▶ Support for disabling and restoring CPU mitigations

### Updates in Release 4.3.0

- ▶ NVIDIA Graphics Drivers for Linux [418.116.00](#)
- ▶ Docker CE [19.03.4](#)

## Updates in Release 4.2.0

This DGX OS Desktop release introduces new software releases since patch update 4.1.1 and accumulates the new software releases previously distributed through patch update 4.1.1.

- ▶ New software releases since patch update 4.1.1:
  - ▶ Ubuntu Desktop Operating System 18.04.3
  - ▶ NVIDIA Graphics Drivers for Linux [418.87.01](#)
  - ▶ NVIDIA Container Runtime for Docker 3.1.1
  - ▶ Docker CE [19.03](#)
- ▶ New software releases previously distributed through patch update 4.1.1:
  - ▶ NVIDIA CUDA Toolkit [10.1.243](#)
  - ▶ NVIDIA cuDNN Library [7.6.2](#)
  - ▶ NCCL [2.4.7](#)

## Updates in Patch Update 4.1.1

- ▶ New software releases:
  - ▶ NVIDIA Graphics Drivers for Linux [418.87.00](#)
  - ▶ NVIDIA CUDA Toolkit [10.1.243](#)
  - ▶ NVIDIA cuDNN Library [7.6.2](#)
  - ▶ NCCL [2.4.7](#)
  - ▶ NVIDIA Container Runtime for Docker 3.0.0
  - ▶ Docker CE [18.09.8](#)

## Updates in Release 4.1.0

- ▶ New software releases:
  - ▶ NVIDIA CUDA Toolkit [10.1.168](#)
  - ▶ NVIDIA Graphics Drivers for Linux [418.67](#)
  - ▶ NVIDIA cuDNN Library [7.5.0](#)
  - ▶ Docker CE [18.09.4](#)

## Updates in Release 4.0.7

- ▶ New software releases: NVIDIA Graphics Drivers for Linux [410.129](#)

## Updates in Release 4.0.6

- ▶ New software releases:



- ▶ NVIDIA cuDNN Library [7.5.0](#)
- ▶ Docker CE [18.09.4](#)

## Updates in Release 4.0.5

- ▶ New software releases:
  - ▶ NVIDIA Graphics Drivers for Linux [410.104](#)

The new release of the NVIDIA Graphics Drivers for Linux includes security updates. For more information, see:

    - ▶ [Security Bulletin: NVIDIA GPU Display Driver - February 2019](#)
    - ▶ *Restricting Access to GPU Performance Counters* in the README file for the NVIDIA Graphics Drivers for Linux
  - ▶ NVIDIA cuDNN Library [7.4.2](#)
  - ▶ NCCL [2.4.2](#)
  - ▶ Docker CE [18.09.2](#)

The new release of Docker CE includes security updates. For more information, see [Security Bulletin: NVIDIA DGX Systems - CVE-2019-5736](#) (requires login to [NVIDIA Enterprise Support](#) (<http://nvid.nvidia.com/dashboard/>)).

## Updates in Release 4.0.4

- ▶ New software releases:
  - ▶ Ubuntu Desktop Operating System 18.04 LTS
 

In Ubuntu 18.04, the GNOME desktop environment replaces the Unity desktop environment. For help getting started with the GNOME desktop environment, see [Introduction to GNOME \(https://help.ubuntu.com/18.04/ubuntu-help/shell-introduction.html\)](https://help.ubuntu.com/18.04/ubuntu-help/shell-introduction.html) in the Ubuntu 18.04 Official Documentation.
  - ▶ NVIDIA Graphics Drivers for Linux 410.79
  - ▶ NVIDIA CUDA Toolkit 10.0.130
  - ▶ NVIDIA cuDNN Library 7.3.1
  - ▶ NCCL 2.3.5-4
  - ▶ Docker CE 18.06.1
- ▶ Introduction of NVIDIA Container Runtime for Docker to replace Docker Engine Utility for NVIDIA GPUs

## 2.4.2. DGX OS Desktop 4 Resolved Issues

### Issues Resolved in Release 4.4.0

- ▶ [NVIDIA Visual Profiler and Nsight Eclipse Edition Start Failures](#)
- ▶ [Incorrect Serial Number in nvhealth Output](#)
- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)

## 2.4.3. DGX OS Desktop 4 Obsolete Packages

### Packages Made Obsolete in Release 4-13-0

None.

### Packages Made Obsolete in Release 4.12.0

None.

### Packages Made Obsolete in Release 4.11.0

None.

### Packages Made Obsolete in Release 4.10.0

None.

### Packages Made Obsolete in Release 4.9.0

None.

### Packages Made Obsolete in Release 4.8.0

None.

### Packages Made Obsolete in Release 4.7.0

None.

### Packages Made Obsolete in Release 4.6.0

None.

### Packages Made Obsolete in Release 4.5.0

None.

### Packages Made Obsolete in Release 4.4.0

- ▶ `nvhealth`
- ▶ `nvsysinfo`

### Packages Made Obsolete in Release 4.3.0

None.

### Packages Made Obsolete in Release 4.2.0

None.

### Packages Made Obsolete in Patch Update 4.1.1

`libnvidia-diagnostic-418`

### Packages Made Obsolete in Release 4.1.0

None.

### Packages Made Obsolete in Release 4.0.7

None.

### Packages Made Obsolete in Release 4.0.6

None.

### Packages Made Obsolete in Release 4.0.5

None.

### Packages Made Obsolete in Release 4.0.4

`nvidia-docker`



**Note:** As a result of the update to a new release of the Ubuntu Desktop Operating System, many packages from Canonical are also made obsolete in this release of DGX OS Desktop.

## 2.5. DGX OS Desktop 4.13 Releases

### 2.5.1. DGX OS Desktop Software Release 4.13.0

#### Software Releases in DGX OS Desktop Release 4.13.0

The following table shows the software releases that are installed on the DGX Station after you install this release.



**ATTENTION:** If your system is running a version **earlier** than DGX OS 4.12, you need to update the keys on the system. Refer to [Rotating the GPG Key](#) for more information about how to rotate the keys

Software	Release with R450	Additional Information
Ubuntu Desktop Operating System	18.04 See also note (1).	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-176</a> See also note (1).	
NVIDIA Graphics Drivers for Linux	<a href="#">450.191.01</a>	
NVIDIA CUDA Toolkit	<a href="#">11.0.3</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">8.3.3</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.12.12</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA System Management (NVSM)	20.09.37	<a href="https://docs.nvidia.com/datacenter/nvsm/latest/">NVIDIA System Management Documentation (https://docs.nvidia.com/datacenter/nvsm/latest/)</a>
OpenGL	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>

Software	Release with R450	Additional Information
NVIDIA Container Runtime for Docker	3.7.0-1 See note (2).	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	<a href="#">20.10.14</a> See also note (3).	

**Note:**

1. DGX OS Desktop 4.13.0 was tested with this release. If subsequent upgrades to the Linux kernel were made available before you upgraded to DGX OS Desktop 4.13.0, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 4.13.0

- New software releases:
  - Linux Kernel: [4.15.0-176](#)
  - NVIDIA Graphics Drivers for Linux: [450.191.01](#)
  - cuDNN Library: [8.3.3](#)
  - NCCL: [2.12.12](#)
  - NVSM: 20.09.35
  - NVIDIA Container Runtime for Docker: 3.7.0-1
  - Docker CE: [20.10.14](#)

**Note:**

When starting the DCGM service, a version mismatch error message similar to the following will appear:

```
[78075.772392] nvidia-nvswitch: Version mismatch, kernel version 450.80.00
user version 450.51.06
```

This occurs with GPU driver versions later than 450.51.06. The version check occurs on all DGX systems, but applies only to NVSwitch systems, so the message can be ignored on the DGX Station/DGX-1 system.

## Distribution Methods

- ▶ Online upgrade
- ▶ ISO image file

## Supported Upgrade Paths

- ▶ 4.1.0 through 4.1.1 to 4-13-0. For instructions, refer to [Upgrading Within the Same DGX OS Desktop Major Release in DGX Station User Guide](#).
- ▶ 4.0.4 through 4.12.0. For instructions, see [Upgrading to DGX OS Desktop Release 4.13.0 from a 4.0 Release](#).
- ▶ 3.1.1 through 3.1.8 to 4-13-0. For instructions, see [Upgrading to a New DGX OS Desktop Major Release in DGX Station User Guide](#).

## Packages Made Obsolete in Release 4-13-0

None.

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

## 2.6. DGX OS Desktop 4.12 Releases

### 2.6.1. DGX OS Desktop Software Release 4.12.0

#### Software Releases in DGX OS Desktop Release 4.12.0

The following table shows the software releases that are installed on the DGX Station after you install this release.



**Important:** In DGX OS 4.12, the GPG keys that are used to sign the packages and metadata in those repositories need to be rotated. Refer to [Rotating the GPG Key](#) for more information.

The component versions in DGX OS 4.12.0 are identical to the versions in DGX OS 4.11.0.

Software	Release with R450	Additional Information
Ubuntu Desktop Operating System	18.04 See also note [1].	Ubuntu 18.04 Desktop Guide ( <a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">https://help.ubuntu.com/18.04/ubuntu-help/index.html</a> )
Linux kernel	<a href="#">4.15.0-156-generic</a> (or later) See also note [1].	
NVIDIA Graphics Drivers for Linux	<a href="#">450.172.01</a>	
NVIDIA CUDA Toolkit	<a href="#">11.0.3</a>	CUDA Toolkit Documentation ( <a href="https://docs.nvidia.com/cuda/">https://docs.nvidia.com/cuda/</a> )
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">8.3.2</a>	NVIDIA Deep Learning SDK Documentation ( <a href="https://docs.nvidia.com/deeplearning/sdk/">https://docs.nvidia.com/deeplearning/sdk/</a> )
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.11.4</a>	NVIDIA Deep Learning SDK Documentation ( <a href="https://docs.nvidia.com/deeplearning/sdk/">https://docs.nvidia.com/deeplearning/sdk/</a> )
NVIDIA System Management (NVSM)	20.09.35	NVIDIA System Management Documentation ( <a href="https://docs.nvidia.com/datacenter/nvsm/latest/">https://docs.nvidia.com/datacenter/nvsm/latest/</a> )
OpenGL	4.6	OpenGL API Documentation Overview ( <a href="https://www.opengl.org/documentation/">https://www.opengl.org/documentation/</a> )

Software	Release with R450	Additional Information
NVIDIA Container Runtime for Docker	3.7.0-1 See note (2).	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	<a href="#">20.10.11</a> See also note (3).	

**Note:**

1. DGX OS Desktop 4.12.0 was tested with this release. If subsequent upgrades to the Linux kernel were made available before you upgraded to DGX OS Desktop 4.12.0, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

**Note:**

When starting the DCGM service, a version mismatch error message similar to the following will appear:

```
[78075.772392] nvidia-nvswitch: Version mismatch, kernel version 450.80.00
user version 450.51.06
```

This occurs with GPU driver versions later than 450.51.06. The version check occurs on all DGX systems, but applies only to NVSwitch systems, so the message can be ignored on the DGX Station/DGX-1 system.

## Distribution Methods

- ▶ Online upgrade
- ▶ ISO image file

## Supported Upgrade Paths

- ▶ 4.1.0 through 4.1.1 to 4.12.0. For instructions, refer to [Upgrading Within the Same DGX OS Desktop Major Release in DGX Station User Guide](#).



- ▶ 4.0.4 through 4.12.0. For instructions, see [Upgrading to DGX OS Desktop Release 4.13.0 from a 4.0 Release](#).
- ▶ 3.1.1 through 3.1.8 to 4.12.0. For instructions, see [Upgrading to a New DGX OS Desktop Major Release in DGX Station User Guide](#).

## Packages Made Obsolete in Release 4.12.0

None.

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

## 2.6.2. Rotating the GPG Key

NVIDIA constantly evaluates and improves security implementations. As part of these improvements, we are rolling out changes to harden the security and reliability of our repositories. These changes require rotating the GPG keys that are used to sign the metadata and packages in those repositories. This section provides information about how to rotate the GPG keys on your system.

1. Download the new repository setup packages.

```
$ wget https://international.download.nvidia.com/dgxstation/repos/bionic/pool/multiverse/d/dgxstation-repo/dgxstation-repo_1.0-5_amd64.deb
$ wget https://international.download.nvidia.com/dgxstation/repos/bionic/pool/multiverse/n/nvidia-repo-keys/nvidia-repo-keys_22.04-1_all.deb
```

2. Directly install the .deb packages, which skips the GPG check performed in apt.



**Note:** If prompted, ensure that you accept the maintainer's version for all files.

```
$ $ sudo dpkg --force-confnew -i ./nvidia-repo-keys_22.04-1_all.deb ./dgxstation-repo_1.0-5_amd64.deb
```

3. Manually revoke the previous DGX and CUDA GPG keys.

```
$ sudo apt-key del 629C85F2
$ sudo apt-key del 7FA2AF80
```

4. Update the optional repositories that were previously enabled.

```
for x in $(find /etc/apt/sources.list.d -name "dgx*.list"); do if ! grep -q "signed-by" $x; then sudo sed -i 's|^deb |deb [arch=amd64 signed-by=/usr/share/keyrings/dgx_debian_prod.gpg] |' $x; fi; done
```

OTA updates can now occur as normal.

## 2.7. DGX OS Desktop 4.11 Releases

### 2.7.1. DGX OS Desktop Software Release 4.11.0

#### Software Releases in DGX OS Desktop Release 4.11.0

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release with R450	Additional Information
Ubuntu Desktop Operating System	18.04 See also note [1].	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-156-generic (or later)</a> See also note [1].	
NVIDIA Graphics Drivers for Linux	<a href="#">450.172.01</a>	
NVIDIA CUDA Toolkit	<a href="#">11.0.3</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">8.3.2</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.11.4</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA System Management (NVSM)	20.09.35	<a href="https://docs.nvidia.com/datacenter/nvsm/latest/">NVIDIA System Management Documentation (https://docs.nvidia.com/datacenter/nvsm/latest/)</a>
OpenGL	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
NVIDIA Container Runtime for Docker	3.7.0-1 See note [2].	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	<a href="#">20.10.11</a>	

Software	Release with R450	Additional Information
	See also note <a href="#">[3]</a> .	

**Note:**

1. DGX OS Desktop 4.11.0 was tested with this release. If subsequent upgrades to the Linux kernel were made available before you upgraded to DGX OS Desktop 4.11.0, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 4.11.0

- ▶ New software releases:
  - ▶ Linux Kernel: [4.15.0-156-generic \(or later\)](#)
  - ▶ NVIDIA Graphics Drivers for Linux: [450.172.01](#)
  - ▶ cuDNN Library: [8.3.2](#)
  - ▶ NCCL: [2.11.4](#)
  - ▶ NVSM: 20.09.35
  - ▶ NVIDIA Container Runtime for Docker: 3.7.0-1
  - ▶ Docker CE: [20.10.11](#)

**Note:**

When starting the DCGM service, a version mismatch error message similar to the following will appear:

```
[78075.772392] nvidia-nvswitch: Version mismatch, kernel version 450.80.00
user version 450.51.06
```

This occurs with GPU driver versions later than 450.51.06. The version check occurs on all DGX systems, but applies only to NVSwitch systems, so the message can be ignored on the DGX Station/DGX-1 system.

## Distribution Methods

- ▶ Online upgrade
- ▶ ISO image file

## Supported Upgrade Paths

- ▶ 4.1.0 through 4.1.1 to 4.11.0. For instructions, refer to [Upgrading Within the Same DGX OS Desktop Major Release in DGX Station User Guide](#).
- ▶ 4.0.4 through 4.12.0. For instructions, see [Upgrading to DGX OS Desktop Release 4.13.0 from a 4.0 Release](#).
- ▶ 3.1.1 through 3.1.8 to 4.11.0. For instructions, see [Upgrading to a New DGX OS Desktop Major Release in DGX Station User Guide](#).

## Packages Made Obsolete in Release 4.11.0

None.

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

# 2.8. DGX OS Desktop 4.10 Releases

## 2.8.1. DGX OS Desktop Software Release 4.10.0

### Software Releases in DGX OS Desktop Release 4.10.0

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release with R418	Release with R450	Additional Information
Ubuntu Desktop Operating System	18.04 See also note [1].	18.04 See also note [1].	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-156-generic (or later)</a> See also note [1].	<a href="#">4.15.0-156-generic (or later)</a> See also note [1].	
NVIDIA Graphics Drivers for Linux	<a href="#">418.226.00</a>	<a href="#">450.156.00</a>	
NVIDIA CUDA Toolkit	<a href="#">10.1 Update 2</a>	<a href="#">11.0.3</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">8.0.5</a>	<a href="#">8.2.2</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.8.3</a>	<a href="#">2.11.4</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA System Management (NVSM)	20.03.6	20.09.34	<a href="https://docs.nvidia.com/datacenter/nvsm/latest/">NVIDIA System Management Documentation (https://docs.nvidia.com/datacenter/nvsm/latest/)</a>
OpenGL	4.6	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
NVIDIA Container Runtime for Docker	3.5.0-1 See note [2].	3.5.0-1 See note [2].	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	<a href="#">20.10.8</a> See also note [3].	<a href="#">20.10.8</a> See also note [3].	

**Note:**

1. DGX OS Desktop 4.10.0 was tested with this release. If subsequent upgrades to the Linux kernel were made available before you upgraded to DGX OS Desktop 4.10.0, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 4.10.0

- ▶ New software releases:
  - ▶ Linux Kernel:
    - ▶ R418: [4.15.0-156-generic \(or later\)](#)
    - ▶ R450: [4.15.0-156-generic \(or later\)](#)
  - ▶ NVIDIA Graphics Drivers for Linux:
    - ▶ R418: [418.226.00](#)
    - ▶ R450: [450.156.00](#)
  - ▶ cuDNN Library:
    - ▶ R418: [8.0.5](#)
    - ▶ R450: [8.2.2](#)
  - ▶ NCCL:
    - ▶ R418: [2.8.3](#)
    - ▶ R450: [2.11.4](#)
  - ▶ NVSM:
    - ▶ R418: 20.03.06
    - ▶ R450: 20.09.34
  - ▶ NVIDIA Container Runtime for Docker: 3.5.0-1
  - ▶ Docker CE: [20.10.8](#)



### Note:

When starting the DCGM service, a version mismatch error message similar to the following will appear:

```
[78075.772392] nvidia-nvswitch: Version mismatch, kernel version 450.80.00
user version 450.51.06
```

This occurs with GPU driver versions later than 450.51.06. The version check occurs on all DGX systems, but applies only to NVSwitch systems, so the message can be ignored on the DGX Station/DGX-1 system.

## Distribution Methods

- ▶ Online upgrade
- ▶ ISO image file

## Supported Upgrade Paths

- ▶ 4.1.0 through 4.1.1. For instructions, refer to [Upgrading Within the Same DGX OS Desktop Major Release in DGX Station User Guide](#).
- ▶ 4.0.4 through 4.12.0. For instructions, see [Upgrading to DGX OS Desktop Release 4.13.0 from a 4.0 Release](#).
- ▶ 3.1.1 through 3.1.8 to 4.10.0. For instructions, see [Upgrading to a New DGX OS Desktop Major Release in DGX Station User Guide](#).

## Packages Made Obsolete in Release 4.10.0

None.

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

## 2.9. DGX OS Desktop 4.9 Releases

### 2.9.1. DGX OS Desktop Software Release 4.9.0

#### Software Releases in DGX OS Desktop Release 4.9.0

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release with R418	Release with R450	Additional Information
Ubuntu Desktop Operating System	18.04 See also note [1].	18.04 See also note [1].	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-151</a> See also note [1].	<a href="#">4.15.0-151</a> See also note [1].	
NVIDIA Graphics Drivers for Linux	<a href="#">418.211.00</a>	<a href="#">450.142.00</a>	
NVIDIA CUDA Toolkit	<a href="#">10.1 Update 2</a>	<a href="#">11.0.3</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">8.0.5</a>	<a href="#">8.2.1</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.8.3</a>	<a href="#">2.9.9</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA System Management (NVSM)	20.03.6	20.09.33	<a href="https://docs.nvidia.com/datacenter/nvsm/latest/">NVIDIA System Management Documentation (https://docs.nvidia.com/datacenter/nvsm/latest/)</a>
OpenGL	4.6	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>



Software	Release with R418	Release with R450	Additional Information
NVIDIA Container Runtime for Docker	3.3.0 See note [2].	3.3.0 See note [2].	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	<a href="#">19.03.15</a> See also note [3].	<a href="#">19.03.15</a> See also note [3].	

**Note:**

1. DGX OS Desktop 4.9.0 was tested with this release. If subsequent upgrades to the Linux kernel were made available before you upgraded to DGX OS Desktop 4.9.0, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 4.9.0

- ▶ New software releases:
  - ▶ Linux Kernel:
    - ▶ R418: [4.15.0-151](#)
    - ▶ R450: [4.15.0-151](#)
  - ▶ NVIDIA Graphics Drivers for Linux:
    - ▶ R418: [418.211.00](#)
    - ▶ R450: [450.142.00](#)
  - ▶ cuDNN Library:
    - ▶ R418: [8.0.5](#)
    - ▶ R450: [8.2.1](#)
  - ▶ NCCL:

- ▶ R418: [2.8.3](#)
- ▶ R450: [2.9.9](#)
- ▶ NVSM:
  - ▶ R418: 20.03.06
  - ▶ R450: 20.09.33
- ▶ NVIDIA Container Runtime for Docker: 3.3.0
- ▶ Docker CE: [19.03.15](#)

**Note:**

When starting the DCGM service, a version mismatch error message similar to the following will appear:

```
[78075.772392] nvidia-nvswitch: Version mismatch, kernel version 450.80.00
user version 450.51.06
```

This occurs with GPU driver versions later than 450.51.06. The version check occurs on all DGX systems, but applies only to NVSwitch systems, so the message can be ignored on the DGX Station/DGX-1 system.

## Distribution Methods

- ▶ Online upgrade
- ▶ ISO image file

## Supported Upgrade Paths

- ▶ 4.1.0 through 4.1.1 to 4.9.0. For instructions, refer to [Upgrading Within the Same DGX OS Desktop Major Release in DGX Station User Guide](#).
- ▶ 4.0.4 through 4.12.0. For instructions, see [Upgrading to DGX OS Desktop Release 4.13.0 from a 4.0 Release](#).
- ▶ 3.1.1 through 3.1.8 to 4.9.0. For instructions, see [Upgrading to a New DGX OS Desktop Major Release in DGX Station User Guide](#).

## Packages Made Obsolete in Release 4.9.0

None.

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)

- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

## 2.10. DGX OS Desktop 4.8 Releases

### 2.10.1. DGX OS Desktop Software Release 4.8.0

#### Software Releases in DGX OS Desktop Release 4.8.0

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release with R418	Release with R450	Additional Information
Ubuntu Desktop Operating System	18.04  See also note (1).	18.04  See also note (1).	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-137</a>  See also note (1).	<a href="#">4.15.0-137</a>  See also note (1).	
NVIDIA Graphics Drivers for Linux	<a href="#">418.197.02</a>	<a href="#">450.119.03</a>	
NVIDIA CUDA Toolkit	<a href="#">10.1 Update 2</a>	<a href="#">11.0.3</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">8.0.5</a>	<a href="#">8.0.5</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.8.3</a>	<a href="#">2.9.9</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA System Management (NVSM)	20.03.06	20.09.21	<a href="#">NVIDIA System Management Documentation (https://</a>

Software	Release with R418	Release with R450	Additional Information
			<a href="https://docs.nvidia.com/datacenter/nvsm/latest/">docs.nvidia.com/datacenter/nvsm/latest/</a>
OpenGL	4.6	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
NVIDIA Container Runtime for Docker	3.3.0 See note [2].	3.3.0 See note [2].	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	<a href="#">19.03.15</a> See also note [3].	<a href="#">19.03.15</a> See also note [3].	

**Note:**

1. DGX OS Desktop 4.8.0 was tested with this release. If subsequent upgrades to the Linux kernel were made available before you upgraded to DGX OS Desktop 4.8.0, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 4.8.0

- ▶ New software releases:
  - ▶ Linux Kernel:
    - ▶ R418: [4.15.0-137](#)
    - ▶ R450: [4.15.0-137](#)
  - ▶ NVIDIA Graphics Drivers for Linux:
    - ▶ R418: [418.197.02](#)

- ▶ R450: [450.119.03](#)
- ▶ cuDNN Library:
  - ▶ R418: [8.0.5](#)
  - ▶ R450: [8.0.5](#)
- ▶ NCCL:
  - ▶ R418: [2.8.3](#)
  - ▶ R450: [2.9.9](#)
- ▶ NVSM:
  - ▶ R418: 20.03.06
  - ▶ R450: 20.09.21
- ▶ NVIDIA Container Runtime for Docker: 3.3.0
- ▶ Docker CE: [19.03.15](#)

**Note:**

When starting the DCGM service, a version mismatch error message similar to the following will appear:

```
[78075.772392] nvidia-nvswitch: Version mismatch, kernel version 450.80.00
user version 450.51.06
```

This occurs with GPU driver versions later than 450.51.06. The version check occurs on all DGX systems, but applies only to NVSwitch systems, so the message can be ignored on the DGX Station/DGX-1 system.

## Distribution Methods

- ▶ Online upgrade
- ▶ ISO image file

## Supported Upgrade Paths

- ▶ 4.1.0 through 4.1.1 to 4.8.0. For instructions, refer to [Upgrading Within the Same DGX OS Desktop Major Release in DGX Station User Guide](#).
- ▶ 4.0.4 through 4.12.0. For instructions, see [Upgrading to DGX OS Desktop Release 4.13.0 from a 4.0 Release](#).
- ▶ 3.1.1 through 3.1.8 to 4.8.0. For instructions, see [Upgrading to a New DGX OS Desktop Major Release in DGX Station User Guide](#).

## Packages Made Obsolete in Release 4.8.0

None.

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

## 2.11. DGX OS Desktop 4.7 Releases

### 2.11.1. DGX OS Desktop Software Release 4.7.0

#### Software Releases in DGX OS Desktop Release 4.7.0

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release with R418	Release with R450	Additional Information
Ubuntu Desktop Operating System	18.04  See also note <a href="#">(1)</a> .	18.04  See also note <a href="#">(1)</a> .	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-124</a>  See also note <a href="#">(1)</a> .	<a href="#">4.15.0-124</a>  See also note <a href="#">(1)</a> .	
NVIDIA Graphics Drivers for Linux	<a href="#">418.181.07</a>	<a href="#">450.102.04</a>	
NVIDIA CUDA Toolkit	<a href="#">10.1 Update 2</a>	<a href="#">11.0.3</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">8.0.5</a>	<a href="#">8.0.5</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>

Software	Release with R418	Release with R450	Additional Information
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.8.3</a>	<a href="#">2.8.3</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA System Management (NVSM)	20.03.06	20.05.19	<a href="https://docs.nvidia.com/datacenter/nvsm/latest/">NVIDIA System Management Documentation (https://docs.nvidia.com/datacenter/nvsm/latest/)</a>
OpenGL	4.6	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
NVIDIA Container Runtime for Docker	3.3.0 See note [2].	3.3.0 See note [2].	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	<a href="#">19.03.14</a> See also note [3].	<a href="#">19.03.14</a> See also note [3].	

**Note:**

1. DGX OS Desktop 4.7.0 was tested with this release. If subsequent upgrades to the Linux kernel were made available before you upgraded to DGX OS Desktop 4.7.0, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 4.7.0

- New software releases:

- ▶ Linux Kernel:
  - ▶ R418: [4.15.0-124](#)
  - ▶ R450: [4.15.0-124](#)
- ▶ NVIDIA Graphics Drivers for Linux:
  - ▶ R418: [418.181.07](#)
  - ▶ R450: [450.102.04](#)
- ▶ cuDNN Library:
  - ▶ R418: [8.0.5](#)
  - ▶ R450: [8.0.5](#)
- ▶ NCCL:
  - ▶ R418: [2.8.3](#)
  - ▶ R450: [2.8.3](#)
- ▶ NVSM:
  - ▶ R418: 20.03.6
  - ▶ R450: 20.05.19
- ▶ NVIDIA Container Runtime for Docker 3.3.0
- ▶ Docker CE [19.03.14](#)

**Note:**

When starting the DCGM service, a version mismatch error message similar to the following will appear:

```
[78075.772392] nvidia-nvswitch: Version mismatch, kernel version 450.80.00
user version 450.51.06
```

This occurs with GPU driver versions later than 450.51.06. The version check occurs on all DGX systems, but applies only to NVSwitch systems, so the message can be ignored on the DGX Station/DGX-1 system.

## Distribution Methods

- ▶ Online upgrade
- ▶ ISO image file

## Supported Upgrade Paths

- ▶ 4.1.0 through 4.1.1 to 4.7.0. For instructions, refer to [Upgrading Within the Same DGX OS Desktop Major Release in DGX Station User Guide](#).



- ▶ 4.0.4 through 4.12.0. For instructions, see [Upgrading to DGX OS Desktop Release 4.13.0 from a 4.0 Release](#).
- ▶ 3.1.1 through 3.1.8 to 4.7.0. For instructions, see [Upgrading to a New DGX OS Desktop Major Release in DGX Station User Guide](#).

## Packages Made Obsolete in Release 4.7.0

None.

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

# 2.12. DGX OS Desktop 4.6 Releases

## 2.12.1. DGX OS Desktop Software Release 4.6.0

### Software Releases in DGX OS Desktop Release 4.6.0

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release with R418	Release with R450	Additional Information
Ubuntu Desktop Operating System	18.04.3 See also note (1).	18.04.3 See also note (1).	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-112-generic</a> See also note (1).	<a href="#">4.15.0-112-generic</a> See also note (1).	

Software	Release with R418	Release with R450	Additional Information
NVIDIA Graphics Drivers for Linux	<a href="#">418.165.02</a>	<a href="#">450.80.02</a>	
NVIDIA CUDA Toolkit	<a href="#">10.1</a>	<a href="#">11.0</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">8.0.2.39+CUDA 11.0</a>	<a href="#">8.0.4.8+CUDA 11.0</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.7.8-1+CUDA 10.1</a>	<a href="#">2.7.8-1+CUDA 11.0</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA System Management (NVSM)	20.03.06	20.05.19	<a href="https://docs.nvidia.com/datacenter/nvsm/latest/">NVIDIA System Management Documentation (https://docs.nvidia.com/datacenter/nvsm/latest/)</a>
OpenGL	4.6	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
NVIDIA Container Runtime for Docker	3.3.0-1 See note [2].	3.3.0-1 See note [2].	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	<a href="#">19.03.12</a>  See also note [3].	<a href="#">19.03.12</a>  See also note [3].	

**Note:**

1. DGX OS Desktop 4.6.0 was tested with this release. If subsequent upgrades to the Linux kernel were made available before you upgraded to DGX OS Desktop 4.6.0, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX

Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 4.6.0

- ▶ New software releases:
  - ▶ Linux Kernel:
    - ▶ R418: [4.15.0-112-generic](#)
    - ▶ R450: [4.15.0-112-generic](#)
  - ▶ NVIDIA Graphics Drivers for Linux:
    - ▶ R418: [418.165.02](#)
    - ▶ R450: [450.80.02](#)
  - ▶ cuDNN Library:
    - ▶ R418: [8.0.2.39+CUDA 11.0](#)
    - ▶ R450: [8.0.4.8+CUDA 11.0](#)
  - ▶ NCCL:
    - ▶ R418: [2.7.8-1+CUDA 10.1](#)
    - ▶ R450: [2.7.8-1+CUDA 11.0](#)
  - ▶ NVSM:
    - ▶ R418: 20.03.6
    - ▶ R450: 20.05.19
  - ▶ NVIDIA Container Runtime for Docker 3.3.0-1
  - ▶ Docker CE [19.03.12](#)



### Note:

When starting the DCGM service, a version mismatch error message similar to the following will appear:

```
[78075.772392] nvidia-nvswitch: Version mismatch, kernel version 450.80.00
user version 450.51.06
```

This occurs with GPU driver versions later than 450.51.06. The version check occurs on all DGX systems, but applies only to NVSwitch systems, so the message can be ignored on the DGX Station/DGX-1 system.

## Distribution Methods

- ▶ Online upgrade
- ▶ ISO image file

## Supported Upgrade Paths

- ▶ 4.1.0 through 4.1.1 to 4.6.0. For instructions, refer to [Upgrading Within the Same DGX OS Desktop Major Release in DGX Station User Guide](#).
- ▶ 4.0.4 through 4.12.0. For instructions, see [Upgrading to DGX OS Desktop Release 4.13.0 from a 4.0 Release](#).
- ▶ 3.1.1 through 3.1.8 to 4.6.0. For instructions, see [Upgrading to a New DGX OS Desktop Major Release in DGX Station User Guide](#).

## Packages Made Obsolete in Release 4.6.0

None.

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

# 2.13. DGX OS Desktop 4.5 Releases

## 2.13.1. DGX OS Desktop Software Release 4.5.0

### Software Releases in DGX OS Desktop Release 4.5.0

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release with R418	Release with R450	Additional Information
Ubuntu Desktop Operating System	18.04.3 See also note (1).	18.04.3 See also note (1).	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-106-generic</a> See also note (1).	<a href="#">4.15.0-106-generic</a> See also note (1).	
NVIDIA Graphics Drivers for Linux	<a href="#">418.152.00</a>	<a href="#">450.51.05</a>	
NVIDIA CUDA Toolkit	<a href="#">10.1.243</a>	<a href="#">11.0</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">7.6.5</a>	<a href="#">8.0.0</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.6.4</a>	<a href="#">2.7.3</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA System Management (NVSM)	20.03.06	20.05.09	<a href="https://docs.nvidia.com/datacenter/nvsm/latest/">NVIDIA System Management Documentation (https://docs.nvidia.com/datacenter/nvsm/latest/)</a>
OpenGL	4.6	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
NVIDIA Container Runtime for Docker	3.1.4 See note (2).	3.1.4 See note (2).	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	<a href="#">19.03.8</a> See also note (3).	<a href="#">19.03.8</a> See also note (3).	

**Note:**

1. DGX OS Desktop 4.5.0 was tested with this release. If subsequent upgrades to the Linux kernel were made available before you upgraded to DGX OS Desktop 4.5.0, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).

3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 4.5.0

- ▶ New software releases:
  - ▶ Linux Kernel:
    - ▶ R418: [4.15.0-106-generic](#)
    - ▶ R450: [4.15.0-106-generic](#)
  - ▶ NVIDIA Graphics Drivers for Linux:
    - ▶ R418: [418.152.00](#)
    - ▶ R450: [450.51.05](#)
  - ▶ cuDNN Library:
    - ▶ R418: [7.6.5](#)
    - ▶ R450: [8.0.0](#)
  - ▶ NCCL:
    - ▶ R418: [2.6.4](#)
    - ▶ R450: [2.7.3](#)
  - ▶ NVSM:
    - ▶ R418: 20.03.6
    - ▶ R450: 20.05.09
  - ▶ NVIDIA Container Runtime for Docker 3.1.4
  - ▶ Docker CE [19.03.8](#)
- ▶ Support for the NVSM commands `nvsm show health` and `nvsm dump health` on the DGX Station, which replaces the `nvhealth` and `nvsysinfo` commands
- ▶ Support for disabling and restoring CPU mitigations

## Distribution Methods

- ▶ Online upgrade
- ▶ ISO image file

## Supported Upgrade Paths

- ▶ 4.1.0 through 4.1.1 to 4.5.0. For instructions, refer to [Upgrading Within the Same DGX OS Desktop Major Release in DGX Station User Guide](#).
- ▶ 4.0.4 through 4.12.0. For instructions, see [Upgrading to DGX OS Desktop Release 4.13.0 from a 4.0 Release](#).
- ▶ 3.1.1 through 3.1.8 to 4.5.0. For instructions, see [Upgrading to a New DGX OS Desktop Major Release in DGX Station User Guide](#).

## Packages Made Obsolete in Release 4.5.0

None.

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

# 2.14. DGX OS Desktop 4.4 Releases

## 2.14.1. DGX OS Desktop Software Release 4.4.0

### Software Releases in DGX OS Desktop Release 4.4.0

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release	Additional Information
Ubuntu Desktop Operating System	18.04.3  See also note (1).	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-76-generic</a>	

Software	Release	Additional Information
	See also note <a href="#">(1)</a> .	
NVIDIA Graphics Drivers for Linux	<a href="#">418.126.02</a>	
NVIDIA CUDA Toolkit	<a href="#">10.1.243</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">7.6.5</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.4.7</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA System Management (NVSM)	20.01.15	<a href="https://docs.nvidia.com/datacenter/nvsm/latest/">NVIDIA System Management Documentation (https://docs.nvidia.com/datacenter/nvsm/latest/)</a>
OpenGL	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
NVIDIA Container Runtime for Docker	3.1.4 See note <a href="#">(2)</a> .	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	<a href="#">19.03.5</a> See also note <a href="#">(3)</a> .	

**Note:**

1. DGX OS Desktop 4.4.0 was tested with this release. If subsequent upgrades to the Linux kernel were made available before you upgraded to DGX OS Desktop 4.4.0, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```



## Updates in Release 4.4.0

- ▶ New software releases:
  - ▶ Linux Kernel [4.15.0-76-generic](#)
  - ▶ NVIDIA Graphics Drivers for Linux [418.126.02](#)
  - ▶ cuDNN Library [7.6.5](#)
  - ▶ NCCL [2.4.7](#)
  - ▶ NVSM 20.01.15
  - ▶ NVIDIA Container Runtime for Docker 3.1.4
  - ▶ Docker CE [19.03.5](#)
- ▶ Support for the NVSM commands `nvsm show health` and `nvsm dump health` on the DGX Station, which replaces the `nvhealth` and `nvsysinfo` commands
- ▶ Support for disabling and restoring CPU mitigations

## Distribution Methods

- ▶ Online upgrade
- ▶ ISO image file

## Supported Upgrade Paths

Upgrades to this release are no longer available. Upgrading DGX OS Desktop software replaces the installed packages with the latest versions available from the NVIDIA and Canonical repositories.

## Issues Resolved in Release 4.4.0

- ▶ [NVIDIA Visual Profiler and Nsight Eclipse Edition Start Failures](#)
- ▶ [Incorrect Serial Number in nvhealth Output](#)
- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)

## Packages Made Obsolete in Release 4.4.0

- ▶ `nvhealth`
- ▶ `nvsysinfo`

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)

- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

## 2.15. DGX OS Desktop 4.3 Releases

### 2.15.1. DGX OS Desktop Software Release 4.3.0

#### Software Releases in DGX OS Desktop Release 4.3.0

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release	Additional Information
Ubuntu Desktop Operating System	18.04.3 See also note (1).	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-55-generic</a> See also note (1).	
NVIDIA Graphics Drivers for Linux	<a href="#">418.116.00</a>	
NVIDIA CUDA Toolkit	<a href="#">10.1.243</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">7.6.2</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.4.7</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
OpenGL	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
NVIDIA Container Runtime for Docker	3.1.1 See note (2).	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>

Software	Release	Additional Information
Docker CE	<a href="#">19.03.4</a>  See also note <a href="#">(3)</a> .	

**Note:**

1. DGX OS Desktop 4.3.0 was tested with this release. As a result of upgrades to DGX OS Desktop, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 4.3.0

- ▶ NVIDIA Graphics Drivers for Linux [418.116.00](#)
- ▶ Docker CE [19.03.4](#)

## Distribution Methods

- ▶ Online upgrade
- ▶ ISO image file

## Supported Upgrade Paths

Upgrades to this release are no longer available. Upgrading DGX OS Desktop software replaces the installed packages with the latest versions available from the NVIDIA and Canonical repositories.

## Packages Made Obsolete in Release 4.3.0

None.

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)

- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Visual Profiler and Nsight Eclipse Edition Start Failures](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Incorrect Serial Number in nvhealth Output](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

## 2.16. DGX OS Desktop 4.2 Releases

### 2.16.1. DGX OS Desktop Software Release 4.2.0

#### Software Releases in DGX OS Desktop Release 4.2.0

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release	Additional Information
Ubuntu Desktop Operating System	18.04.3 See also note (1).	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-55-generic</a> See also note (1).	
NVIDIA Graphics Drivers for Linux	<a href="#">418.87.01</a>	
NVIDIA CUDA Toolkit	<a href="#">10.1.243</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">7.6.2</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>

Software	Release	Additional Information
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.4.7</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
OpenGL	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
NVIDIA Container Runtime for Docker	3.1.1 See note [2].	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	<a href="#">19.03</a>  See also note [3].	

**Note:**

1. DGX OS Desktop 4.2.0 was tested with this release. As a result of upgrades to DGX OS Desktop, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 4.2.0

This DGX OS Desktop release introduces new software releases since patch update 4.1.1 and accumulates the new software releases previously distributed through patch update 4.1.1.

- ▶ New software releases since patch update 4.1.1:
  - ▶ Ubuntu Desktop Operating System 18.04.3
  - ▶ NVIDIA Graphics Drivers for Linux [418.87.01](#)
  - ▶ NVIDIA Container Runtime for Docker 3.1.1
  - ▶ Docker CE [19.03](#)
- ▶ New software releases previously distributed through patch update 4.1.1:
  - ▶ NVIDIA CUDA Toolkit [10.1.243](#)
  - ▶ NVIDIA cuDNN Library [7.6.2](#)

- ▶ [NCCL 2.4.7](#)

## Distribution Methods

- ▶ Online upgrade
- ▶ ISO image file

## Supported Upgrade Paths

Upgrades to this release are no longer available. Upgrading DGX OS Desktop software replaces the installed packages with the latest versions available from the NVIDIA and Canonical repositories.

## Packages Made Obsolete in Release 4.2.0

None.

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Visual Profiler and Nsight Eclipse Edition Start Failures](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Incorrect Serial Number in nvhealth Output](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

# 2.17. DGX OS Desktop 4.1 Releases

## 2.17.1. DGX OS Desktop Software Patch Update 4.1.1

### Software Releases in DGX OS Desktop Patch Update 4.1.1

The following table shows the software releases installed on the DGX Station after upgrading to this patch update.

Software	Release	Additional Information
Ubuntu Desktop Operating System	18.04 LTS See also note (1).	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-55-generic</a> See also note (1).	
NVIDIA Graphics Drivers for Linux	<a href="#">418.87.00</a>	
NVIDIA CUDA Toolkit	<a href="#">10.1.243</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">7.6.2</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.4.7</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
OpenGL	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
NVIDIA Container Runtime for Docker	3.0.0 See note (2).	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	<a href="#">18.09.8</a> See also note (3).	

**Note:**

1. DGX OS Desktop 4.1.1 was tested with this release. As a result of upgrades to DGX OS Desktop, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Patch Update 4.1.1

- ▶ New software releases:
  - ▶ NVIDIA Graphics Drivers for Linux [418.87.00](#)
  - ▶ NVIDIA CUDA Toolkit [10.1.243](#)
  - ▶ NVIDIA cuDNN Library [7.6.2](#)
  - ▶ NCCL [2.4.7](#)
  - ▶ NVIDIA Container Runtime for Docker 3.0.0
  - ▶ Docker CE [18.09.8](#)

## Distribution Methods

Online upgrade **only**.

## Supported Upgrade Paths

Upgrades to this release are no longer available. Upgrading DGX OS Desktop software replaces the installed packages with the latest versions available from the NVIDIA and Canonical repositories.

## Packages Made Obsolete in Patch Update 4.1.1

libnvidia-diagnostic-418

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Visual Profiler and Nsight Eclipse Edition Start Failures](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Incorrect Serial Number in nvhealth Output](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)



## 2.17.2. DGX OS Desktop Software Release 4.1.0

### Software Releases in DGX OS Desktop Release 4.1.0

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release	Additional Information
Ubuntu Desktop Operating System	18.04 LTS See also note (1).	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-47-generic</a> See also note (1).	
NVIDIA Graphics Drivers for Linux	<a href="#">418.67</a>	
NVIDIA CUDA Toolkit	<a href="#">10.1.168</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">7.5.0</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.4.2</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
OpenGL	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
NVIDIA Container Runtime for Docker	2.0 See note (2).	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	<a href="#">18.09.4</a> See also note (3).	



#### Note:

1. DGX OS Desktop 4.1.0 was tested with this release. As a result of upgrades to DGX OS Desktop, your system might be running a later release.

2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 4.1.0

- ▶ New software releases:
  - ▶ NVIDIA CUDA Toolkit [10.1.168](#)
  - ▶ NVIDIA Graphics Drivers for Linux [418.67](#)
  - ▶ NVIDIA cuDNN Library [7.5.0](#)
  - ▶ Docker CE [18.09.4](#)

## Distribution Methods

- ▶ Online upgrade
- ▶ ISO image file

## Supported Upgrade Paths

Upgrades to this release are no longer available. Upgrading DGX OS Desktop software replaces the installed packages with the latest versions available from the NVIDIA and Canonical repositories.

## Packages Made Obsolete in Release 4.1.0

None.

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Visual Profiler and Nsight Eclipse Edition Start Failures](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)

- ▶ [Incorrect Serial Number in nvhealth Output](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

## 2.18. DGX OS Desktop 4.0 Releases

### 2.18.1. DGX OS Desktop Software Release 4.0.7

#### Software Releases in DGX OS Desktop Release 4.0.7

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release	Additional Information
Ubuntu Desktop Operating System	18.04 LTS See also note (1).	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-47-generic</a> See also note (1).	
NVIDIA Graphics Drivers for Linux	<a href="#">410.129</a>	
NVIDIA CUDA Toolkit	<a href="#">10.0.130</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">7.5.0</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.4.2</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
OpenGL	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
NVIDIA Container Runtime for Docker	2.0 See note (2).	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>

Software	Release	Additional Information
Docker CE	<a href="#">18.09.4</a>  See also note <a href="#">(3)</a> .	

**Note:**

1. DGX OS Desktop 4.0.7 was tested with this release. As a result of upgrades to DGX OS Desktop, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 4.0.7

- New software releases: NVIDIA Graphics Drivers for Linux [410.129](#)

## Distribution Methods

- Online upgrade
- ISO image file

## Supported Upgrade Paths

4.0.4 through 4.0.6 to 4.12.0. For instructions, refer to [Upgrading Within the Same DGX OS Desktop Major Release in DGX Station User Guide](#).



**Note:** Upgrades from 3.1.1 through 3.1.8 to 4.12.0 are no longer available. Following the instructions in [Upgrading to a New DGX OS Desktop Major Release in DGX Station User Guide](#) upgrades your DGX OS Desktop software to release 4.13.0.

## Packages Made Obsolete in Release 4.0.7

None.

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Visual Profiler and Nsight Eclipse Edition Start Failures](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Incorrect Serial Number in nvhealth Output](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

## 2.18.2. DGX OS Desktop Software Release 4.0.6

### Software Releases in DGX OS Desktop Release 4.0.6

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release	Additional Information
Ubuntu Desktop Operating System	18.04 LTS See also note (1).	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-47-generic</a> See also note (1).	
NVIDIA Graphics Drivers for Linux	<a href="#">410.104</a>	
NVIDIA CUDA Toolkit	<a href="#">10.0.130</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">7.5.0</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>

Software	Release	Additional Information
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.4.2</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
OpenGL	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
NVIDIA Container Runtime for Docker	2.0 See note [2].	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	<a href="#">18.09.4</a>  See also note [3].	

**Note:**

1. DGX OS Desktop 4.0.6 was tested with this release. As a result of upgrades to DGX OS Desktop, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 4.0.6

- New software releases:
  - NVIDIA cuDNN Library [7.5.0](#)
  - Docker CE [18.09.4](#)

## Distribution Methods

- Online upgrade
- ISO image file

## Supported Upgrade Paths

Upgrades to this release are no longer available. Upgrading DGX OS Desktop software replaces the installed packages with the latest versions available from the NVIDIA and Canonical repositories.

## Packages Made Obsolete in Release 4.0.6

None.

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Number of Logical CPU Cores Unknown in nvhealth Output for Non-English Locales](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Visual Profiler and Nsight Eclipse Edition Start Failures](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Incorrect Serial Number in nvhealth Output](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

## 2.18.3. DGX OS Desktop Software Release 4.0.5

### Software Releases in DGX OS Desktop Release 4.0.5

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release	Additional Information
Ubuntu Desktop Operating System	18.04 LTS  See also note (1).	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	<a href="#">4.15.0-36-generic</a>	

Software	Release	Additional Information
	See also note (1).	
NVIDIA Graphics Drivers for Linux	<a href="#">410.104</a>	
NVIDIA CUDA Toolkit	<a href="#">10.0.130</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">7.4.2</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.4.2</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
OpenGL	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
NVIDIA Container Runtime for Docker	2.0 See note (2).	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	<a href="#">18.09.2</a> See also note (3).	

## Distribution Methods

- Online upgrade
- ISO image file



### Note:

1. DGX OS Desktop 4.0.5 was tested with this release. As a result of upgrades to DGX OS Desktop, your system might be running a later release.
2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```



## Updates in Release 4.0.5

### ► New software releases:

#### ► NVIDIA Graphics Drivers for Linux [410.104](#)

The new release of the NVIDIA Graphics Drivers for Linux includes security updates. For more information, see:

- [Security Bulletin: NVIDIA GPU Display Driver - February 2019](#)
- *Restricting Access to GPU Performance Counters* in the README file for the NVIDIA Graphics Drivers for Linux

#### ► NVIDIA cuDNN Library [7.4.2](#)

#### ► NCCL [2.4.2](#)

#### ► Docker CE [18.09.2](#)

The new release of Docker CE includes security updates. For more information, see [Security Bulletin: NVIDIA DGX Systems - CVE-2019-5736](#) (requires login to [NVIDIA Enterprise Support](#) (<http://nvid.nvidia.com/dashboard/>)).

## Supported Upgrade Paths

Upgrades to this release are no longer available. Upgrading DGX OS Desktop software replaces the installed packages with the latest versions available from the NVIDIA and Canonical repositories.

## Packages Made Obsolete in Release 4.0.5

None.

## Known Issues

- [Missing symbolic link to /usr/local/cuda](#)
- [Issues with DGX OS Desktop Release Upgrade](#)
- [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- [NVIDIA Visual Profiler and Nsight Eclipse Edition Start Failures](#)
- [Vino VNC Server Start-Up Issue with Automatic Login](#)
- [Incorrect Serial Number in nvhealth Output](#)
- [Intermittent Failures To Update the dgxstation-grub Package](#)
- [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- [Failure to Enable Networking from the Recovery Menu](#)
- [Software Image Installation Failures Caused by File Copy Errors](#)
- [Software Image Installation Failures Caused by Lack of a Root File System](#)

## 2.18.4. DGX OS Desktop Software Release 4.0.4

### Software Releases in DGX OS Desktop Release 4.0.4

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release	Additional Information
Ubuntu Desktop Operating System	18.04 LTS See also note (1).	<a href="https://help.ubuntu.com/18.04/ubuntu-help/index.html">Ubuntu 18.04 Desktop Guide (https://help.ubuntu.com/18.04/ubuntu-help/index.html)</a>
Linux kernel	4.15.0-36-generic See also note (1).	
NVIDIA Graphics Drivers for Linux	410.79	
NVIDIA CUDA Toolkit	10.0.130	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	7.3.1	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	2.3.5-4	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
OpenGL	4.6	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
NVIDIA Container Runtime for Docker	2.0 See note (2).	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	18.06.1 See also note (3).	



#### Note:

1. DGX OS Desktop 4.0.4 was tested with this release. As a result of upgrades to DGX OS Desktop, your system might be running a later release.

2. NVIDIA Container Runtime for Docker replaces Docker Engine Utility for NVIDIA GPUs. In earlier releases, NVIDIA Container Runtime for Docker was available as an optional upgrade as described in [Upgrading to the NVIDIA Container Runtime for Docker](#).
3. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 4.0.4

- ▶ New software releases:
  - ▶ Ubuntu Desktop Operating System 18.04 LTS
 

In Ubuntu 18.04, the GNOME desktop environment replaces the Unity desktop environment. For help getting started with the GNOME desktop environment, see [Introduction to GNOME \(https://help.ubuntu.com/18.04/ubuntu-help/shell-introduction.html\)](https://help.ubuntu.com/18.04/ubuntu-help/shell-introduction.html) in the Ubuntu 18.04 Official Documentation.
  - ▶ NVIDIA Graphics Drivers for Linux 410.79
  - ▶ NVIDIA CUDA Toolkit 10.0.130
  - ▶ NVIDIA cuDNN Library 7.3.1
  - ▶ NCCL 2.3.5-4
  - ▶ Docker CE 18.06.1
- ▶ Introduction of NVIDIA Container Runtime for Docker to replace Docker Engine Utility for NVIDIA GPUs

## Distribution Methods

- ▶ Online upgrade
- ▶ ISO image file

## Supported Upgrade Paths

Upgrades to this release are no longer available. Upgrading DGX OS Desktop software replaces the installed packages with the latest versions available from the NVIDIA and Canonical repositories.

## Packages Made Obsolete in Release 4.0.4

nvidia-docker



**Note:** As a result of the update to a new release of the Ubuntu Desktop Operating System, many packages from Canonical are also made obsolete in this release of DGX OS Desktop.

## Known Issues

- ▶ [Missing symbolic link to /usr/local/cuda](#)
- ▶ [Issues with DGX OS Desktop Release Upgrade](#)
- ▶ [Old SSL Version Still Used After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade](#)
- ▶ [NVIDIA Visual Profiler and Nsight Eclipse Edition Start Failures](#)
- ▶ [Vino VNC Server Start-Up Issue with Automatic Login](#)
- ▶ [Incorrect Serial Number in nvhealth Output](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

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# Chapter 3. DGX OS Desktop 3 Releases



**Note:** NVIDIA has announced End of Support for DGX OS Desktop 3, effective September 30, 2019. DGX OS Desktop 3.1.8 is the last DGX OS Desktop 3 release. For more information, see [DGX OS Server 3, DGX OS Desktop 3](http://nvid.nvidia.com/dashboard/) (requires login to [NVIDIA Enterprise Support](http://nvid.nvidia.com/dashboard/) (<http://nvid.nvidia.com/dashboard/>)).

## 3.1. DGX OS Desktop 3 Release History

### 3.1.1. DGX OS Desktop 3 Updates

#### Updates in Release 3.1.8

► New software releases:

- NVIDIA Graphics Drivers for Linux 384.183

The new release of the NVIDIA Graphics Drivers for Linux includes security updates. For more information, see:

- [Security Bulletin: NVIDIA GPU Display Driver - February 2019](#)
- *Restricting Access to GPU Performance Counters* in the README file for the NVIDIA Graphics Drivers for Linux
- NVIDIA cuDNN Library [7.4.2](#)
- NCCL [2.4.2](#)
- Docker CE 18.09.2

The new release of Docker CE includes security updates. For more information, see [Security Bulletin: NVIDIA DGX Systems - CVE-2019-5736](#) (requires login to [NVIDIA Enterprise Support](http://nvid.nvidia.com/dashboard/) (<http://nvid.nvidia.com/dashboard/>)).

#### Updates in Release 3.1.7

► New software releases:

- NVIDIA Graphics Drivers for Linux 384.145

- ▶ NVIDIA cuDNN Library 7.1.4
- ▶ NCCL 2.2.12
- ▶ Docker CE 18.03.1
- ▶ Security updates

### Updates in Release 3.1.6

- ▶ New software releases:
  - ▶ NVIDIA Graphics Drivers for Linux 384.125
  - ▶ NVIDIA cuDNN Library 7.1.1
  - ▶ NCCL 2.1.15
- ▶ Support for the 32-GB GPU
- ▶ Security updates

### Updates in Release 3.1.4

- ▶ New software releases:
  - ▶ NVIDIA Graphics Drivers for Linux 384.111
  - ▶ NVIDIA cuDNN Library 7.0.5-15
  - ▶ NCCL 2.1.2
  - ▶ Docker CE from Docker's stable repository
- ▶ New name `nvsysinfo` for the command to collect troubleshooting information
- ▶ Removal of the Docker CE startup option `--disable-legacy-registry=false` from the Docker CE service configuration file `docker-override.conf`

This option is removed for compatibility with Docker CE 17.12 and later, which does not support interacting with registries that use API version v1.

### Updates in Release 3.1.3

- ▶ New software releases:
  - ▶ NVIDIA cuDNN Library 7.0.4
  - ▶ NCCL 2.0.5
- ▶ New features:
  - ▶ Hot plugging a display after the DGX Station is booted without a display connected to it
  - ▶ Data journalling to preserve file-system metadata more robustly and to make the file system more resilient to power failures
- ▶ Resolution of Ethernet connection failure issue when the DGX Station is booted

## Updates in Release 3.1.2

- ▶ New software releases:
  - ▶ NVIDIA Graphics Drivers for Linux 384.81
  - ▶ NVIDIA CUDA Toolkit 9.0.176
  - ▶ NVIDIA cuDNN Library 7.0.1.13-1
  - ▶ NCCL 2.0.4
- ▶ Performance optimizations for NVIDIA Docker Containers Release 17.09
- ▶ Resolution of standby and resume issues with CUDA applications

## Updates in Release 3.1.1

This release is the first release of DGX OS Desktop Software.

## 3.1.2. DGX OS Desktop 3 Resolved Issues

### Issues Resolved in Release 3.1.3

- ▶ [Ethernet Connection Failures when the DGX Station Is Booted](#)

### Issues Resolved in Release 3.1.2

- ▶ [Standby and Resume Issues with CUDA Applications](#)

## 3.1.3. DGX OS Desktop 3 Obsolete Packages

### Packages Made Obsolete in Release 3.1.8

None.

### Packages Made Obsolete in Release 3.1.7

None.

### Packages Made Obsolete in Release 3.1.6

- ▶ nvhealth-doc
- ▶ nvhealth-framework
- ▶ nvhealth-module-dcgm-diag
- ▶ nvhealth-module-df
- ▶ nvhealth-module-docker-hello-world
- ▶ nvhealth-module-dpkg
- ▶ nvhealth-module-ethernet

- ▶ nvhealth-module-kernel-modules
- ▶ nvhealth-module-lscpu
- ▶ nvhealth-module-lshw
- ▶ nvhealth-module-lspci
- ▶ nvhealth-module-meminfo
- ▶ nvhealth-module-nvidia-persistenced
- ▶ nvhealth-module-nvidia-smi
- ▶ nvhealth-module-ping
- ▶ nvhealth-module-ps
- ▶ nvhealth-module-smartctl
- ▶ nvhealth-module-systemd-services
- ▶ nvhealth-module-template
- ▶ nvhealth-module-uname
- ▶ nvhealth-station

### Packages Made Obsolete in Release 3.1.4

- ▶ nvhealth-base
- ▶ nvhealth-dgx-baseos
- ▶ nvhealth-overlay-dgx
- ▶ nvhealth-overlay-dgx-station
- ▶ nvhealth-overlay-dgx-station-baseos-3.1.0
- ▶ nvhealth-overlay-dgx-station-volta
- ▶ nvidia-sysinfo

### Packages Made Obsolete in Release 3.1.3

None.

### Packages Made Obsolete in Release 3.1.2

None.

## 3.2. DGX OS Desktop Software Release 3.1.8



**Note:** NVIDIA has announced End of Support for DGX OS Desktop 3, effective September 30, 2019. DGX OS Desktop 3.1.8 is the last DGX OS Desktop 3 release. For more information, see



DGX OS Server 3, DGX OS Desktop 3 (requires login to [NVIDIA Enterprise Support \(http://nvid.nvidia.com/dashboard/\)](http://nvid.nvidia.com/dashboard/)).

## Software Releases in DGX OS Desktop Release 3.1.8

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release	Additional Information
Ubuntu Desktop Operating System	16.04 LTS	<a href="https://help.ubuntu.com/16.04/ubuntu-help/index.html">Ubuntu 16.04 Desktop Guide (https://help.ubuntu.com/16.04/ubuntu-help/index.html)</a>
NVIDIA Graphics Drivers for Linux	384.183	
NVIDIA CUDA Toolkit	<a href="#">9.0.176</a>	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	<a href="#">7.4.2</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	<a href="#">2.4.2</a>	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
OpenGL	4.5	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
Docker Engine Utility for NVIDIA GPUs	1.0.1 See also note (1).	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	18.09.2 See also note (2).	



### Note:

1. NVIDIA Container Runtime for Docker is available as an optional upgrade to replace Docker Engine Utility for NVIDIA GPUs. For more information, see [Upgrading to the NVIDIA Container Runtime for Docker](#).
2. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 3.1.8

### ► New software releases:

#### ► NVIDIA Graphics Drivers for Linux 384.183

The new release of the NVIDIA Graphics Drivers for Linux includes security updates. For more information, see:

- [Security Bulletin: NVIDIA GPU Display Driver - February 2019](#)
- *Restricting Access to GPU Performance Counters* in the README file for the NVIDIA Graphics Drivers for Linux

#### ► NVIDIA cuDNN Library [7.4.2](#)

#### ► NCCL [2.4.2](#)

#### ► Docker CE 18.09.2

The new release of Docker CE includes security updates. For more information, see [Security Bulletin: NVIDIA DGX Systems - CVE-2019-5736](#) (requires login to [NVIDIA Enterprise Support](#) (<http://nvid.nvidia.com/dashboard/>)).

## Supported Upgrade Paths

- 3.1.3 to 3.1.8
- 3.1.4 to 3.1.8
- 3.1.6 to 3.1.8
- 3.1.7 to 3.1.8

For instructions, refer to [Upgrading Within the Same DGX OS Desktop Major Release in DGX Station User Guide](#).



**Note:** If a message appears indicating that the `nvidia-docker.service` failed to start, you can disregard the message and continue with the update. The `nvidia-docker.service` service will start normally the next time that the DGX Station is restarted.

## Packages Made Obsolete in Release 3.1.8

None.

## Known Issues

- [Display Wake-Up Failure with Three Displays Connected](#)
- [Incorrect Failed to finalize file systems Error After DGX OS Desktop Installation](#)
- [Incorrect Serial Number in nvhealth Output](#)
- [Intermittent Failures To Update the dgxstation-grub Package](#)

- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

## 3.3. DGX OS Desktop Software Release 3.1.7

### Software Releases in DGX OS Desktop Release 3.1.7

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release	Additional Information
Ubuntu Desktop Operating System	16.04 LTS	<a href="https://help.ubuntu.com/16.04/ubuntu-help/index.html">Ubuntu 16.04 Desktop Guide (https://help.ubuntu.com/16.04/ubuntu-help/index.html)</a>
NVIDIA Graphics Drivers for Linux	384.145	
NVIDIA CUDA Toolkit	9.0.176	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	7.1.4	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	2.2.12	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
OpenGL	4.5	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
Docker Engine Utility for NVIDIA GPUs	1.0.1 See also note (1).	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	18.03.1 See also note (2).	



#### Note:

1. NVIDIA Container Runtime for Docker is available as an optional upgrade to replace Docker Engine Utility for NVIDIA GPUs. For more information, see [Upgrading to the NVIDIA Container Runtime for Docker](#).

2. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 3.1.7

- ▶ New software releases:
  - ▶ NVIDIA Graphics Drivers for Linux 384.145
  - ▶ NVIDIA cuDNN Library 7.1.4
  - ▶ NCCL 2.2.12
  - ▶ Docker CE 18.03.1
- ▶ Security updates

## Supported Upgrade Paths

Upgrades to this release are no longer available. Upgrading DGX OS Desktop software replaces the installed packages with the latest versions available from the NVIDIA and Canonical repositories.

## Packages Made Obsolete in Release 3.1.7

None.

## Known Issues

- ▶ [Incorrect Serial Number in nvhealth Output](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

## 3.4. DGX OS Desktop Software Release 3.1.6

### Software Releases in DGX OS Desktop Release 3.1.6

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release	Additional Information
Ubuntu Desktop Operating System	16.04 LTS	<a href="https://help.ubuntu.com/16.04/ubuntu-help/index.html">Ubuntu 16.04 Desktop Guide (https://help.ubuntu.com/16.04/ubuntu-help/index.html)</a>
NVIDIA Graphics Drivers for Linux	384.125	
NVIDIA CUDA Toolkit	9.0.176	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	7.1.1	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	2.1.15	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
OpenGL	4.5	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
Docker Engine Utility for NVIDIA GPUs	1.0.1 See also note (1).	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	17.12.1 See also note (2).	



#### Note:

1. NVIDIA Container Runtime for Docker is available as an optional upgrade to replace Docker Engine Utility for NVIDIA GPUs. For more information, see [Upgrading to the NVIDIA Container Runtime for Docker](#).
2. Updates to Docker CE are no longer provided from Docker's stable repository, but instead from a repository that is maintained by NVIDIA. The release of Docker CE on your DGX Station is the release that is available from this NVIDIA repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 3.1.6

- ▶ New software releases:
  - ▶ NVIDIA Graphics Drivers for Linux 384.125
  - ▶ NVIDIA cuDNN Library 7.1.1
  - ▶ NCCL 2.1.15
- ▶ Support for the 32-GB GPU
- ▶ Security updates

## Supported Upgrade Paths

Upgrades to this release are no longer available. Upgrading DGX OS Desktop software replaces the installed packages with the latest versions available from the NVIDIA and Canonical repositories.

## Packages Made Obsolete in Release 3.1.6

- ▶ nvhealth-doc
- ▶ nvhealth-framework
- ▶ nvhealth-module-dcgm-diag
- ▶ nvhealth-module-df
- ▶ nvhealth-module-docker-hello-world
- ▶ nvhealth-module-dpkg
- ▶ nvhealth-module-ethernet
- ▶ nvhealth-module-kernel-modules
- ▶ nvhealth-module-lscpu
- ▶ nvhealth-module-lshw
- ▶ nvhealth-module-lspci
- ▶ nvhealth-module-meminfo
- ▶ nvhealth-module-nvidia-persistenced
- ▶ nvhealth-module-nvidia-smi
- ▶ nvhealth-module-ping
- ▶ nvhealth-module-ps
- ▶ nvhealth-module-smartctl
- ▶ nvhealth-module-systemd-services

- ▶ `nvhealth-module-template`
- ▶ `nvhealth-module-uname`
- ▶ `nvhealth-station`

## Known Issues

- ▶ [Incorrect Serial Number in nvhealth Output](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

# 3.5. DGX OS Desktop Software Release 3.1.4

## Software Releases in DGX OS Desktop Release 3.1.4

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release	Additional Information
Ubuntu Desktop Operating System	16.04 LTS	<a href="https://help.ubuntu.com/16.04/ubuntu-help/index.html">Ubuntu 16.04 Desktop Guide (https://help.ubuntu.com/16.04/ubuntu-help/index.html)</a>
NVIDIA Graphics Drivers for Linux	384.111	
NVIDIA CUDA Toolkit	9.0.176	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	7.0.5-15	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	2.1.2	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
OpenGL	4.5	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
Docker Engine Utility for NVIDIA GPUs	1.0.1	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	See note	



**Note:**

The release of Docker CE on your DGX Station is the release that is available from Docker's stable repository when you update your DGX OS Desktop software over the network.

To determine the release of Docker CE that is installed on your DGX Station, run the following command:

```
# dpkg -l docker-ce
```

## Updates in Release 3.1.4

- ▶ New software releases:
  - ▶ NVIDIA Graphics Drivers for Linux 384.111
  - ▶ NVIDIA cuDNN Library 7.0.5-15
  - ▶ NCCL 2.1.2
  - ▶ Docker CE from Docker's stable repository
- ▶ New name `nvsysinfo` for the command to collect troubleshooting information
- ▶ Removal of the Docker CE startup option `--disable-legacy-registry=false` from the Docker CE service configuration file `docker-override.conf`

This option is removed for compatibility with Docker CE 17.12 and later, which does not support interacting with registries that use API version v1.

## Supported Upgrade Paths

Upgrades to this release are no longer available. Upgrading DGX OS Desktop software replaces the installed packages with the latest versions available from the NVIDIA and Canonical repositories.

## Packages Made Obsolete in Release 3.1.4

- ▶ `nvhealth-base`
- ▶ `nvhealth-dgx-baseos`
- ▶ `nvhealth-overlay-dgx`
- ▶ `nvhealth-overlay-dgx-station`
- ▶ `nvhealth-overlay-dgx-station-baseos-3.1.0`
- ▶ `nvhealth-overlay-dgx-station-volta`
- ▶ `nvidia-sysinfo`

## Known Issues

- ▶ [Incorrect Serial Number in nvhealth Output](#)
- ▶ [Intermittent Failures To Update the dgxstation-grub Package](#)
- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)



- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

## 3.6. DGX OS Desktop Software Release 3.1.3

### Software Releases in DGX OS Desktop Release 3.1.3

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release	Additional Information
Ubuntu Desktop Operating System	16.04 LTS	<a href="https://help.ubuntu.com/16.04/ubuntu-help/index.html">Ubuntu 16.04 Desktop Guide (https://help.ubuntu.com/16.04/ubuntu-help/index.html)</a>
NVIDIA Graphics Drivers for Linux	384.81	
NVIDIA CUDA Toolkit	9.0.176	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	7.0.4	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	2.0.5	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
OpenGL	4.5	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
Docker Engine Utility for NVIDIA GPUs	1.0.1	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	17.06	

### Updates in Release 3.1.3

- ▶ New software releases:
  - ▶ NVIDIA cuDNN Library 7.0.4
  - ▶ NCCL 2.0.5
- ▶ New features:
  - ▶ Hot plugging a display after the DGX Station is booted without a display connected to it
  - ▶ Data journalling to preserve file-system metadata more robustly and to make the file system more resilient to power failures
- ▶ Resolution of Ethernet connection failure issue when the DGX Station is booted

## Supported Upgrade Paths

Upgrades to this release are no longer available. Upgrading DGX OS Desktop software replaces the installed packages with the latest versions available from the NVIDIA and Canonical repositories.

## Issues Resolved in Release 3.1.3

- ▶ [Ethernet Connection Failures when the DGX Station Is Booted](#)

## Packages Made Obsolete in Release 3.1.3

None.

## Known Issues

- ▶ [Incorrect Serial Number in nvhealth Output](#)
- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

# 3.7. DGX OS Desktop Software Release 3.1.2

## Software Releases in DGX OS Desktop Release 3.1.2

The following table shows the software releases that are installed on the DGX Station after you install this release.

Software	Release	Additional Information
Ubuntu Desktop Operating System	16.04 LTS	<a href="https://help.ubuntu.com/16.04/ubuntu-help/index.html">Ubuntu 16.04 Desktop Guide (https://help.ubuntu.com/16.04/ubuntu-help/index.html)</a>
NVIDIA Graphics Drivers for Linux	384.81	
NVIDIA CUDA Toolkit	9.0.176	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	7.0.1.13-1	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	2.0.4	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>

Software	Release	Additional Information
OpenGL	4.5	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
Docker Engine Utility for NVIDIA GPUs	1.0.1	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	17.06	

## Updates in Release 3.1.2

- ▶ New software releases:
  - ▶ NVIDIA Graphics Drivers for Linux 384.81
  - ▶ NVIDIA CUDA Toolkit 9.0.176
  - ▶ NVIDIA cuDNN Library 7.0.1.13-1
  - ▶ NCCL 2.0.4
- ▶ Performance optimizations for NVIDIA Docker Containers Release 17.09
- ▶ Resolution of standby and resume issues with CUDA applications

## Supported Upgrade Paths

Upgrades to this release are no longer available. Upgrading DGX OS Desktop software replaces the installed packages with the latest versions available from the NVIDIA and Canonical repositories.

## Issues Resolved in Release 3.1.2

- ▶ [Standby and Resume Issues with CUDA Applications](#)

## Packages Made Obsolete in Release 3.1.2

None.

## Known Issues

- ▶ [Incorrect Serial Number in nvhealth Output](#)
- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)
- ▶ [Ethernet Connection Failures when the DGX Station Is Booted](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)

## 3.8. DGX OS Desktop Software Release 3.1.1

### Software Releases in DGX OS Desktop Release 3.1.1

The following table shows the software releases installed on the DGX Station after installing this release.

Software	Release	Additional Information
Ubuntu Desktop Operating System	16.04 LTS	<a href="https://help.ubuntu.com/16.04/ubuntu-help/index.html">Ubuntu 16.04 Desktop Guide (https://help.ubuntu.com/16.04/ubuntu-help/index.html)</a>
NVIDIA Graphics Drivers for Linux	384.80	
NVIDIA CUDA Toolkit	9.0.103	<a href="https://docs.nvidia.com/cuda/">CUDA Toolkit Documentation (https://docs.nvidia.com/cuda/)</a>
NVIDIA CUDA Deep Neural Network (cuDNN) Library	7.0.1	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
NVIDIA Collective Communication Library (NCCL)	2.0.4	<a href="https://docs.nvidia.com/deeplearning/sdk/">NVIDIA Deep Learning SDK Documentation (https://docs.nvidia.com/deeplearning/sdk/)</a>
OpenGL	4.5	<a href="https://www.opengl.org/documentation/">OpenGL API Documentation Overview (https://www.opengl.org/documentation/)</a>
Docker Engine Utility for NVIDIA GPUs	1.0.1	<a href="https://docs.nvidia.com/deeplearning/dgx/">NVIDIA Deep Learning Frameworks Documentation (https://docs.nvidia.com/deeplearning/dgx/)</a>
Docker CE	17.06	

### Updates in Release 3.1.1

This release is the first release of DGX OS Desktop Software.

### Known Issues

- ▶ [Incorrect Serial Number in nvhealth Output](#)
- ▶ [Reduced UDP Networking Performance After Update to the Linux Kernel](#)
- ▶ [Failure to Enable Networking from the Recovery Menu](#)
- ▶ [Ethernet Connection Failures when the DGX Station Is Booted](#)
- ▶ [Software Image Installation Failures Caused by File Copy Errors](#)
- ▶ [Software Image Installation Failures Caused by Lack of a Root File System](#)
- ▶ [Standby and Resume Issues with CUDA Applications](#)

---

## Chapter 4. Known Issues

### 4.1. Applications that call the cuCTXCreate API Might Experience a Performance Drop

#### Description

In DGX Station, when some applications call `cuCtxCreate`, `cuGLCtxCreate`, or `cuCtxDestroy`, there might be a drop in performance.

#### Affects Versions

5.0.0

#### Workaround

This issue occurs with Ubuntu 20.04, but not with previous versions. The issue affects applications that perform graphics/compute interoperations or have a plugin mechanism for CUDA, where every plugin creates its own context, or video streaming applications where computations are needed. Examples include `ffmpeg`, `Blender`, `simpleDrvRuntime`, and `cuSolverSp_LinearSolver`.

This issue is not expected to impact deep learning training.

### 4.2. NVSM Platform Displays as Unsupported

#### Description

In DGX Station, when you run

```
$ nvsm show version
```

instead of displaying **DGX Station**, the **platform** field displays **Unsupported**.

### Affects Versions

5.0.0

### Workaround

You can ignore this message.

## 4.3. Missing symbolic link to `/usr/local/cuda`

### Description

Removing the NVIDIA CUDA Toolkit can cause the symbolic link to `/usr/local/cuda` to be removed even if multiple versions of the NVIDIA CUDA Toolkit are installed.

This issue occurs during an upgrade from a DGX OS Desktop 3 release to a DGX OS Desktop 4 release because NVIDIA CUDA Toolkit 9.0 is removed after NVIDIA CUDA Toolkit 10.1 is installed.

This issue can also occur if you remove the NVIDIA CUDA Toolkit yourself by, for example, running the `apt remove cuda-toolkit-10-0` command or a similar command.

### Affects Versions

4.0.4 through 4.13.0.

### Workaround

This workaround requires `sudo` privileges.

Reconfigure the `cuda-toolkit-major-minor` package for the version of NVIDIA CUDA Toolkit that you want to continue to use. For example, after an upgrade from a DGX OS Desktop 3 release to a DGX OS Desktop 4 release, reconfigure the `cuda-toolkit-10-1` package:

```
# sudo dpkg-reconfigure cuda-toolkit-10-1
```

## 4.4. Number of Logical CPU Cores Unknown in `nvhealth` Output for Non-English Locales

### Description

If the locale is other than English, the `nvhealth` command lists the number of logical CPU cores as Unknown.

```
$ sudo nvhealth
...
Number of logical CPU cores [None]..... Unknown
...
```

### Affects Versions

4.1.0 through 4.13.0.

## 4.5. Issues with DGX OS Desktop Release Upgrade

### Description

After a DGX OS Desktop release upgrade, the following issues might occur:

- ▶ The desktop layout is not updated from the Unity desktop environment to the GNOME desktop environment.
- ▶ This display manger is `lightdm` instead of `gdm3`.

### Affects Versions

4.0.4 through 4.13.0

### Workaround

This workaround requires administrator privileges.

1. Press **Ctrl+Alt+F5** to switch to `tty5`.
2. Start the `gdm3` service.
 

```
# sudo systemctl start gdm3
```
3. Press **Ctrl+Alt+F6** to switch to `tty6`.
4. Reconfigure your system to use the `gdm3` display manger instead of `lightdm`.

a). Reconfigure the `gdm3` package.

```
# sudo dpkg-reconfigure gdm3
```

b). In response to the prompt, select **gdm3**.

5. Reboot the system.

```
# sudo reboot
```

6. In the login window that appears after the system is rebooted, click the gear icon and choose **Ubuntu**.

7. Log in to your Ubuntu desktop.

## 4.6. Old SSL Version Still Used After DGX OS Desktop Release Upgrade

### Description



**Note:** This issue affects only systems that have been upgraded from a DGX OS Desktop 3 release. It does not affect systems on which a DGX OS Desktop 4 release was preinstalled at the factory or installed from an ISO image.

After a DGX OS Desktop release upgrade, the version of Secure Sockets Layer (SSL) for DGX OS Desktop 3 releases continues to be used.

This issue occurs because, for DGX OS Desktop 3 releases, two versions of SSL are installed:

- ▶ A custom version of LibreSSL is installed in `/usr/local/bin/openssl`.
- ▶ The standard Ubuntu version of OpenSSL is installed in `/usr/bin/openssl`.

The custom version of LibreSSL is not removed during a DGX OS Desktop release upgrade. However, because of the way the `$PATH` variable is defined for DGX OS Desktop, the version in `/usr/local/bin` takes precedence.

In DGX OS Desktop 4 releases, the customizations to LibreSSL that were made for DGX OS Desktop 3 releases are no longer required. To ensure that you are using a version of SSL that is actively being maintained, use the standard Ubuntu version of OpenSSL.

### Affects Versions

Any DGX OS Desktop 4 release upgraded to from a DGX OS Desktop 3 release.

### Workaround

This workaround requires administrator privileges.

1. Confirm that you are still using LibreSSL.

```
# openssl version
```



```
LibreSSL 2.5.4
```

2. Remove LibreSSL.

```
# sudo rm -f /usr/local/bin/openssl
```

3. In a new shell window, confirm that you're now using OpenSSL.

```
# openssl version
OpenSSL 1.1.0g  2 Nov 2017
```

## 4.7. NVIDIA Desktop Shortcuts Not Updated After DGX OS Desktop Release Upgrade

### Description

In DGX OS Desktop 4 releases, the NVIDIA desktop shortcuts have been updated to reflect current information about NVIDIA DGX systems and containers for deep learning frameworks. These desktop shortcuts are also organized in a single folder on the desktop.

After a DGX OS Desktop release upgrade, the NVIDIA desktop shortcuts for existing users are not updated. However, the desktop for a user added after the upgrade will have the current desktop shortcuts in a single folder.

### Affects Versions

4.0.4 through 4.13.0

### Workaround

If you want quick access to current information about NVIDIA DGX systems and containers from your desktop, replace the old desktop shortcuts with the new desktop shortcuts.

1. Change to your desktop directory.

```
$ cd /home/your-user-login-id/Desktop
```

2. Remove the existing NVIDIA desktop shortcuts.

```
$ rm dgx-container-registry.desktop \
  dgxstation-userguide.desktop \
  dgx-container-registry-userguide.desktop \
  nvidia-customer-support.desktop
```

3. Copy the folder that contains the new NVIDIA desktop shortcuts and its contents to your desktop directory.

```
$ cp -rf /etc/skel/Desktop/Getting\ Started/ .
```

## 4.8. Display Wake-Up Failure with Three Displays Connected

### Description

In a DGX Station to which three displays are connected, the displays fail to wake up after sleeping when the system is idle. When you log in after waking up the displays by pressing a key on the keyboard, an error dialog box appears displaying the following message:

```
Could not switch the monitor configuration
```

### Affects Versions

3.1.8

### Workaround

This workaround requires `sudo` privileges and remote access to the DGX Station over secure shell (SSH) from another computer.

1. From another computer, log in to the DGX Station through SSH as a user with `sudo` privileges.
2. From the computer where you logged in, stop and restart the X Window System display manager.
  - a). Stop the X Window System display manager.
 

```
# sudo pkill X
```
  - b). Restart the X Window System display manager.
 

```
# sudo service lightdm start
```
3. From the DGX Station, prevent the displays from sleeping when the system is idle.
  - a). From the **Ubuntu system menu** at the right of the desktop menu bar, choose **System Settings** and in the **System Settings** window that opens, click **Brightness & Lock**.
  - b). In the **Brightness & Lock** window that opens, set **Turn screen off when inactive** to **Never** and click **Apply**.

## 4.9. Vino VNC Server Start-Up Issue with Automatic Login

### Description

If you have used default Ubuntu Desktop OS features to enable screen sharing and your account is set up to log you in automatically, you cannot access your desktop session on the

DGX Station remotely through a VNC client. If you try to access your desktop session remotely after you have been logged in automatically, the display on the VNC client is blank.

This issue occurs because the Vino VNC server is not started automatically when the DGX Station is booted. The Vino VNC server process `vino-server` runs only when you have logged in manually through the login screen. The `vino-server` process is not started if you are logged in automatically when the DGX Station is booted.

### Affects Versions

4.0.4 through 4.13.0

### Resolution

Upgrade the `plymouth` package to version `0.9.3-1ubuntu7.18.04.2` or later.

## 4.10. Incorrect Failed to finalize file systems Error After DGX OS Desktop Installation

### Description

When the system is first rebooted after DGX OS Desktop is installed from an ISO image, the following message is erroneously displayed:

```
Failed to finalize file systems
```

If you see this message during the first reboot after DGX OS Desktop is installed from an ISO image, ignore the message.

### Affects Versions

3.1.8

### Workaround

None required.

## 4.11. Intermittent Failures To Update the `dgxstation-grub` Package

### Description

During an update of the DGX OS Desktop software, the EFI boot record may become unwriteable, which prevents the `dgxstation-grub` package from being updated. When this error occurs, the following error messages are displayed:

```
efibootmgr: Could not set variable Boot0008: No such file or directory
efibootmgr: Could not prepare boot variable: No such file or directory
```

### Affects Versions

4.0.4 through 4.13.0

3.1.4 through 3.1.8

### Workaround

This workaround requires administrator privileges.

1. Reboot the DGX Station.

```
$ sudo reboot
```

2. Install the `dgxstation-grub` package.

```
$ sudo apt install -y dgxstation-grub
```

## 4.12. Failure to Enable Networking from the Recovery Menu

### Description

In recovery mode, when **network** is chosen from the **Recovery** menu, the command fails with the following error:

```
/etc/resolv.conf: No such file or directory
```

### Resolved in Version

4.4.0

### Affects Versions

4.0.4 through 4.3.0

3.1.1 through 3.1.8

## Workaround

1. Boot the DGX Station in recovery mode.
2. From the **Recovery** menu, choose **root** to drop to the root shell.
3. In the root shell, reconfigure the `resolvconf` package.

```
dpkg-reconfigure resolvconf
```

Networking is now enabled.

## 4.13. Software Image Installation Failures Caused by File Copy Errors

### Description

Random errors in copying files to the OS SSD can cause installation of the DGX OS Desktop software image to fail.

### Affects Versions

4.0.4 through 4.13.0

3.1.1 through 3.1.8

### Workaround

Reboot the DGX Station and try again.

## 4.14. Software Image Installation Failures Caused by Lack of a Root File System

### Description

Installation of the DGX OS Desktop software image may fail with the error `No root file system is defined`. This error may occur if a custom software image had previously been installed on DGX Station and device `sda` had been configured as part of a RAID array. Installation of the DGX OS Desktop software image requires that device `sda` must be available for use as the OS drive.

### Affects Versions

4.0.4 through 4.13.0

3.1.1 through 3.1.8

## Workaround

Reconfigure device `sda` to be available for use as the OS drive and try again.

---

## Chapter 5. Resolved Issues

### 5.1. NVIDIA Visual Profiler and Nsight Eclipse Edition Start Failures

#### Description

NVIDIA Visual Profiler and Nsight Eclipse Edition require an earlier version of the Java Runtime Environment (JRE) than the default version in DGX OS Desktop. If you try to run NVIDIA Visual Profiler or Nsight Eclipse Edition without specifying the required JRE version, it fails to start.

These applications also require the `libcanberra-gtk-module` package, which is not included in DGX OS Desktop 4 releases. If either application is started without this package, the following error message is displayed:

```
Gtk-Message: 17:34:33.117: Failed to load module "canberra-gtk-module"
```

#### Resolved in Version

4.4.0

#### Affects Versions

4.0.4 through 4.3.0

#### Workaround

If you want to use NVIDIA Visual Profiler or Nsight Eclipse Edition, install the `libcanberra-gtk-module` package after installing or upgrading to a DGX OS Desktop 4 release such as 4.0.4.

```
# sudo apt install libcanberra-gtk-module
```

Each time you start NVIDIA Visual Profiler or Nsight Eclipse Edition, you must specify the required JRE version. Because DGX OS Desktop already includes the required JRE version, all you need do is include the `-vm /usr/lib/jvm/java-8-openjdk-amd64/jre/bin/java` option in the command to start NVIDIA Visual Profiler or Nsight Eclipse Edition:

```

▶ $ nvvp -vm /usr/lib/jvm/java-8-openjdk-amd64/jre/bin/java
▶ $ nsight -vm /usr/lib/jvm/java-8-openjdk-amd64/jre/bin/java

```

## 5.2. Reduced UDP Networking Performance After Update to the Linux Kernel

### Description

An update to DGX OS Desktop that includes an update to the Linux kernel may result in reduced network performance for workloads involving data transfer over UDP from the DGX Station to a remote system.

### Resolved in Version

4.4.0

The reduced performance is the result of mitigations to CPU speculative side-channel vulnerabilities. Resolving this issue involves disabling these mitigations as explained in .

### Affects Versions

Any DGX OS Desktop version running Linux kernel version 4.4.0-116

## 5.3. Incorrect Serial Number in `nvhealth` Output

### Description

The `nvhealth` command incorrectly lists the serial number of the motherboard in the DGX Serial Number entry under Checks. The correct serial number is listed under System Summary.

```

$ sudo nvhealth
Info
----
Timestamp: Thu Mar  7 08:54:52 2019 -0800
Version:    19.01.6

Checks
-----
DGX BaseOS Version [4.0.5].....
BIOS Version [0406].....
DGX Serial Number [160984157800056].....
...

System Summary

```



```

-----
Product Name: DGX Station
Manufacturer: NVIDIA
DGX Serial Number: 0154017000004
Uptime: up 5 days, 17 hours, 44 minutes
Motherboard:
  BIOS Version: 0406
  Serial Number: 160984157800056
...

```

## Resolved in Version

4.4.0

This issue is resolved in NVIDIA System Management (NVSM), which replaces `nvhealth` in release 4.4.0.

## Affects Versions

4.0.4 through 4.3.0

3.1.1 through 3.1.8

# 5.4. Ethernet Connection Failures when the DGX Station Is Booted

## Description

When the DGX Station is booted or rebooted, the Ethernet interfaces may not be correctly configured for the Dynamic Host Configuration Protocol (DHCP). As a result, the DGX Station cannot connect to the Internet and the status of its network ports is `unmanaged`. Docker interfaces are unaffected.

## Resolved in Version

3.1.3

## Affects Versions

3.1.2, 3.1.1

## Workaround

This workaround requires `sudo` privileges.

1. Open the file `/etc/network/interfaces` for editing in a plain-text editor such as `vi`.

```
$ sudo vi /etc/network/interfaces
```

2. Remove the following lines from the file:

```
auto enp2s0f0
iface enp2s0f0 inet manual
```

```
auto enp2s0f1  
iface enp2s0f1 inet manual
```

3. Save and close the file.
4. Configure your DGX Station Ethernet interfaces using DHCP.

```
$ sudo dhclient
```

## 5.5. Standby and Resume Issues with CUDA Applications

### Description

The NVIDIA driver has a known issue with suspend and resume when a CUDA application is running. Suspending the system when a CUDA application is running can cause application crashes. Running some CUDA applications after a suspend-resume cycle can cause system instability.

To address these issues for CUDA applications that are running in Docker containers, the system power management scripts have been updated to stop and start the `nvidia-docker` plugin during a suspend-resume cycle. The `nvidia-docker` plugin is a plugin for the Docker Container Engine that provides GPU driver and CUDA capabilities to containers.



**Note:** Do not suspend your system while it is in the middle of a DL workload and expect it to resume properly.

### Resolved in Version

3.1.2

### Affects Versions

3.1.1

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