NVIDIA DGX OS Server Release 4.11

Release Notes and Update Guide

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NVIDIA DGX OS Server 4.11 Release Notes

This document describes the NVIDIA® DGX™ OS Server Release 4.11 software package.

Primary Changes in Release 4.11

The following are the primary new features of DGX OS Server Release 4.11 since Release 4.10:

▶ Updated the NVIDIA Release 450 GPU driver to [450.172.01](450.172.01)

Delivery and Update Mechanisms

Initial 4.10 Release

DGX OS Server Release 4.11, version 4.11.0, is provided as an ISO image which is available from NVIDIA Enterprise Support in the event the server needs to be re-imaged. Version 4.10.0 is also provided as an "over-the-network" update, which requires an internet connection and ability to access the NVIDIA public repositories.

Refer to the *DGX-2 User Guide* (https://docs.nvidia.com/dgx/dgx2-user-guide/index.html) and *DGX-1 User Guide* (https://docs.nvidia.com/dgx/dgx1-user-guide/index.html) for the following instructions.

▶ How to re-image the system with the ISO image
▶ How to install the software on air-gapped systems

Update Advisement

▶ NVIDIA GPU Cloud Containers

In conjunction with DGX OS Server v4.11, customers should update their NVIDIA GPU Cloud containers to the latest container release[1].

▶ Ubuntu Security Updates

Customers are responsible for keeping the DGX server up to date with the latest Ubuntu security updates using the 'apt full upgrade' procedure. See the **Ubuntu Wiki Upgrades** web page for more information. Also, the Ubuntu Security Notice site (https://usn.ubuntu.com/) lists known Common Vulnerabilities and Exposures (CVEs), including those that can be resolved by updating the DGX OS software.

Version History

This section lists the changes made in each released version of DGX OS Release 4.11. See **DGX OS Server Software Content** for the software component list and versions.

Version 4.11.0

▶ Initial Release 4.11 version.

▶ Changes since Version 4.10.0:

- Updated the NVIDIA Release 450 GPU driver to 450.172.01
- Updated NVSM (for Release 450 driver package) to 21.09.35
- Updated DCGM (for Release 450 driver package) to 2.3.2
- Updated NVIDIA Container Toolkit (nvidia-container-runtime – 3.7.0)
- Updated the Docker Engine to 20.10.11

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[1] See the *NVIDIA Deep Learning Frameworks* documentation website (http://docs.nvidia.com/deeplearning/dgx/index.htm) for information on the latest container releases as well as https://docs.nvidia.com/deeplearning/dgx/user-guide/index.html for instructions on how to access them.

DGX OS Server Software Content

The following tables provides version information for software included in the DGX OS Server ISO image as well as software installed on the system after getting subsequent updates.

Package Versions in Version 4.11.0

The following table shows the version information for software included in the DGX OS Server version 4.11.0.

Component	Version (R418 package)	Version (R450 package)
GPU Driver	418.226.00 (includes CUDA update to 10.1, if previously installed separately)	450.172.01 (includes CUDA update to 11.0.3, if previously installed separately)
Fabric Manager	N/A	450.172.01
NVIDIA System Health Monitor (NVSM)	20.03.6	21.09.35
Data Center GPU Management (DCGM)	1.7.4	2.3.2
NVIDIA Container Toolkit	nvidia-container-runtime 3.7.0 nvidia-container-toolkit 1.7.0-1 libnvidia-container-tools 1.7.0-1 libnvidia-container1 1.7.0-1 nvidia-docker2 2.8.0-1 containerd.io 1.4.9-1	
Ubuntu	18.04.4 LTS	
Ubuntu kernel	4.15.0-156[2]	
Docker Engine	20.10.11	
Mellanox OFED	MLNX 4.9-2.2.6.0	
KVM Package Components (DGX-2 only)	**Version**	
dgx-kvm-sw	19.07.0	
dgx-kvm-host-utils	21.10.1	
dgx-kvm-host-conf	20.12.0	
dgx-kvm-image	dgx-kvm-image-4-10-0_4.10.0~210909-56d937.0_amd64.deb	

[2] If updating over-the-network, your kernel version may be a later version depending on when the update is performed.

DGX Server Firmware Version Reference

The Mellanox firmware is updated as part of the DGX OS update. The following are the updated versions for each product:

Product	Network Card	Version
NVIDIA DGX-1	ConnectX-4	12.28.2006
	ConnectX-5	16.28.2006
NVIDIA DGX-2	ConnectX-5	16.28.2006
	ConnectX-6	20.28.2006

For other firmware. see the DGX-2 System Firmware Update Container Version 21.06.7 and DGX-1 System Firmware Update Container Version 21.06.8 release notes for the corresponding firmware versions available at the time of this DGX OS release.

Updating the Software

These instructions explain how to update the DGX OS server software through an internet connection to the NVIDIA public repository. The process updates a DGX system image to the latest versions of the entire DGX software stack, including the drivers.

Perform the updates using commands on the DGX server console.

Preparing for Updating the Software

Connecting to the DGX server Console

Connect to the DGX server console using either a direct connection or a remote connection through the BMC.

> **NOTE**: SSH can be used to perform the update. However, if the Ethernet port is configured for DHCP, there is the potential that the IP address can change after the DGX server is rebooted during the update, resulting in loss of connection. If this happens, connect using either a direct connection or through the BMC to continue the update process.
>
> **WARNING: Connect directly to the DGX server console if the DGX is connected to a 172.17.xx.xx subnet.**
>
> DGX OS Server software installs Docker CE which uses the 172.17.xx.xx subnet by default for Docker containers. If the DGX server is on the same subnet, you will not be able to establish a network connection to the DGX server.
>
> Refer to the appropriate DGX-1 or DGX-2 User Guide for instructions on how to change the default Docker network settings after performing the update.

Direct Connection

1. Connect a display to the VGA connector and a keyboard to any one of the USB ports.
2. Power on the DGX server.

Remote Connection through the BMC

Refer to the appropriate user guide (DGX-1 or DGX-2) for instructions on establishing a remote connection to the BMC.

Verifying the DGX Server Connection to the Repositories

Before attempting to perform the update, verify that the DGX server network connection can access the public repositories and that the connection is not blocked by a firewall or proxy.

On DGX-1 Systems if Upgrading from Version 2.x.

Enter the following on the DGX-1 system.

```
$ wget -O f1-changelogs http://changelogs.ubuntu.com/meta-release-lts
$ wget -O f2-archive \
http://archive.ubuntu.com/ubuntu/dists/xenial/Release
$ wget -O f3-usarchive \
http://us.archive.ubuntu.com/ubuntu/dists/xenial/Release
$ wget -O f4-security \
http://security.ubuntu.com/ubuntu/dists/xenial/Release
$ wget -O f5-download \
https://download.docker.com/linux/ubuntu/dists/xenial/Release
$ wget -O f6-international \
http://international.download.nvidia.com/dgx/repos/dists/xenial/Release
```

All the **wget** commands should be successful and there should be six files in the directory with non-zero content.

On DGX-2 and DGX-1 Systems

Enter the following on the DGX system

```
$ wget -O f1-changelogs http://changelogs.ubuntu.com/meta-release-lts
$ wget -O f2-archive http://archive.ubuntu.com/ubuntu/dists/bionic/Release
$ wget -O f3-usarchive \
http://us.archive.ubuntu.com/ubuntu/dists/bionic/Release
$ wget -O f4-security \
http://security.ubuntu.com/ubuntu/dists/bionic/Release
$ wget -O f5-international \
http://international.download.nvidia.com/dgx/repos/bionic/dists/bionic/Rele
ase
$ wget -O f6-international \
http://international.download.nvidia.com/dgx/repos/bionic/dists/bionic-\
r418+cuda10.1/Release
```

```
$ wget -O f7-international \
http://international.download.nvidia.com/dgx/repos/bionic/dists/bionic-\
r450+cuda11.0/Release
```

All the **wget** commands should be successful and there should be seven files in the directory with non-zero content

Performing the Updates

Update Path Instructions

Follow the instructions corresponding to your current DGX OS server software.

▶ **Updating from Release 4.1 and later**
   Follow the instructions at <u>Updating from Release 4.1 and later.</u>

▶ **Updating from Release 4.0 (Version 4.0.1 or later only)**
   Follow the instructions at <u>Updating from 4.0.1 (or Later).</u>

▶ **Updating from Release 3.1**
   Follow the instructions at <u>Updating from Release 3.1.</u>

▶ **Updating from Release 2.x**
   a) Update from Release 2.x to the latest Release 3.1 as described in the <u>DGX OS 3.1.8 Release Notes.</u>
   b) <u>Update from Release 3.1.</u>

.

Updating from Release 4.1 and Later

See the section **Connecting to the DGX Console** for guidance on connecting to the console to perform the update.

> ☽ CAUTION: These instructions update all software for which updates are available from your configured software sources, including applications that you installed yourself. If you want to prevent an application from being updated, you can instruct the Ubuntu package manager to keep the current version. For more information, see Introduction to Holding Packages on the Ubuntu Community Help Wiki.

Update Instructions

1. If you have not already done so, verify that your DGX system can access the public repositories as explained in **Verifying the DGX Server Connection to the Repositories**.

2. (Optional) Skip this step to stay with the R418 package; however, to move to the R450 package, issue the following.

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

3. Update the list of available packages and their versions.

```
$ sudo apt update
```

4. Review the packages that will be updated.

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

To prevent an application from being updated, instruct the Ubuntu package manager to keep the current version. See Introduction to Holding Packages.

5. Upgrade to version 4.9.0.

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

- Answer any questions that appear.
  - > Most questions require a Yes or No response. When asked to select the grub configuration to use, select the current one on the system.
  - > Other questions will depend on what other packages were installed before the update and how those packages interact with the update.
- If a message appears indicating that `nvidia-docker.service` failed to start, you can disregard it and continue with the next step. The service will start normally at that time.

6. Reboot the system.

Recovering from an Interrupted or Failed Update

If the script is interrupted during the update, such as from a loss of power or loss of network connection, then restore power or restore the network connection, whichever caused the interruption.

▶ If the system encounters a kernel panic after you restore power and reboot the DGX-2, you will not be able to perform the over-the-network update. You will need to re-image the DGX-2 with the latest image (see the **DGX-2 User Guide** for instructions) and then perform the network update.

  If you are successfully returned to the Linux command line, continue following the instructions from step 2 in the **Updating from Release 4.1 and later** update instructions

Updating from 4.0.1 (or later)

For Release 4.0, only updates from versions 4.0.1 and later are supported with these instructions. To update from version 4.0.0, you must re-image the system.

See the section Connecting to the DGX Console for guidance on connecting to the console to perform the update.

> ❯ CAUTION: These instructions update all software for which updates are available from your configured software sources, including applications that you installed yourself. If you want to prevent an application from being updated, you can instruct the Ubuntu package manager to keep the current version. For more information, see Introduction to Holding Packages on the Ubuntu Community Help Wiki.

Update Instructions

1. If you have not already done so, verify that your DGX system can access the public repositories as explained in Verifying the DGX Server Connection to the Repositories.

1. Update the list of available packages and their versions.

```
$ sudo apt update
```

2. Install the 4.1.0 components from the repository.

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

3. (Optional) Skip this step to stay with the R418 package; however, to move to the R450 package, issue the following.

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

4. Update the new list of packages and their versions.

```
$ sudo apt update
```

5. Review the packages that will be updated.

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

To prevent an application from being updated, instruct the Ubuntu package manager to keep the current version. See Introduction to Holding Packages.

6. Upgrade to version 4.10.0.

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

- Answer any questions that appear.
  - \> Most questions require a Yes or No response. When asked to select the grub configuration to use, select the current one on the system.
  - \> Other questions will depend on what other packages were installed before the update and how those packages interact with the update.
- If a message appears indicating that `nvidia-docker.service` failed to start, you can disregard it and continue with the next step. The service will start normally at that time.

7. Reboot the system.

Recovering from an Interrupted or Failed Update

If the script is interrupted during the update, such as from a loss of power or loss of network connection, then restore power or restore the network connection, whichever caused the interruption.

▶ If the system encounters a kernel panic after you restore power and reboot the DGX-2, you will not be able to perform the over-the-network update. You will need to re-image the DGX-2 with the latest image (see the **DGX-2 User Guide** for instructions) and then perform the network update.

  If you are successfully returned to the Linux command line, continue following the instructions from step 2 in the **Updating from Version 4.0.1 (or Later)** update instructions.

Updating from 3.1.x

See the section **Connecting to the DGX Console** for guidance on connecting to the console to perform the update.

> ☽ **CAUTION: These instructions update all software for which updates are available from your configured software sources, including applications that you installed yourself. If you want to prevent an application from being updated, you can instruct the Ubuntu package manager to keep the current version. For more information, see Introduction to Holding Packages on the Ubuntu Community Help Wiki.**

Update Instructions

1. If you have not already done so, verify that your DGX-1 system can access the public repositories as explained in **Verifying the DGX Server Connection to the Repositories**.

2. Update the list of available packages and their versions.

```
$ sudo apt update
```

3. Install any updates.

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

4. Install dgx-release-upgrade.

```
$ sudo apt install -y dgx-release-upgrade
```

5. Begin the update process.

```
$ sudo dgx-release-upgrade
```

If you are using a proxy server, then add the **-E** option to keep your proxy environment variables.
Example:

```
$ sudo -E dgx-release-upgrade
```

6. After starting the update process, respond to the presented options as follows:
   - Press **y** if you are logged in to the DGX server remotely through secure shell (SSH) and are asked if you want to continue running under SSH.
   ```
   Continue running under SSH?

   This session appears to be running under ssh. It is not recommended
   ```

```
to perform a upgrade over ssh currently because in case of failure
it is harder to recover.


If you continue, an additional ssh daemon will be started at port
'1022'.
Do you want to continue?


Continue [yN]
```

An additional sshd daemon is started.

Press **Enter** in response to the following message.

```
Starting additional sshd


To make recovery in case of failure easier, an additional sshd will
be started on port '1022'. If anything goes wrong with the running
ssh you can still connect to the additional one.
If you run a firewall, you may need to temporarily open this port.
As this is potentially dangerous it's not done automatically. You
can open the port with e.g.:
'iptables -I INPUT -p tcp --dport 1022 -j ACCEPT'


To continue please press [ENTER]
```

-   Press **Enter** in response to the message warning you that third-party sources are disabled.

```
Third party sources disabled


Some third party entries in your sources.list were disabled. You
can re-enable them after the upgrade with the 'software-properties'
tool or your package manager.


To continue please press [ENTER]
```

-   Press **N** if prompted about `dgx.list` configuration choices.

```
Configuration file '/etc/apt/sources.list.d/dgx.list'
==> Modified (by you or by a script) since installation.
==> Package distributor has shipped an updated version.
   What would you like to do about it ?  Your options are:
    Y or I  : install the package maintainer's version
    N or O  : keep your currently-installed version
      D     : show the differences between the versions
      Z     : start a shell to examine the situation
The default action is to keep your current version.
*** dgx.list (Y/I/N/O/D/Z) [default=N] ?
```

-   When prompted to resolve other configuration files, evaluate the changes before accepting the package maintainer's version, keeping the local version, or

manually resolving the difference. You are also asked to confirm that you want to remove obsolete packages.

7. At the prompt to confirm starting the upgrade, press **Y** to begin.

```
Do you want to start the upgrade?
...


Installing the upgrade can take several hours. Once the download has
finished, the process cannot be canceled.


Continue [yN]  Details [d]
```

8. Press **Y** to proceed with the final reboot.

```
System upgrade is complete.


Restart required


To finish the upgrade, a restart is required.
If you select 'y' the system will be restarted.


Continue [yN]
```

After this reboot, the update process will take several minutes to perform some final installation steps.

Your system is now updated to the latest DGX OS 4 release.

9. (Optional) Follow the instructions at **Updating from Release 4.1 and Later** if you want to install the R450 driver package.

Known Issues

This chapter captures the issues related to the DGX OS software or DGX hardware at the time of the software release.

Known Software Issues

The following are known issues with the software.

- ▶ DCGM Service Labelled as Deprecated
- ▶ NVSM May Raise 'md1 is corrupted' Alert
- ▶ nvsm show health Reports Empty /proc/driver Folders
- ▶ NVSM Reports "Unknown" for Number of logical CPU cores on non-English system
- ▶ InfiniBand Bandwidth Drops for KVM Guest VMs

DCGM Service Labelled as Deprecated

Issue

When inquiring the status of `dcgm.service`, it is reported as deprecated.

```
$ sudo systemctl status dcgm.service
dcgm.service - DEPRECATED. Please use nvidia-dcgm.service

...
```

Explanation

The message can be ignored.

`dcgm.service` is, indeed, deprecated, but can still be used without issue. The name of the DCGM service is in the process of migrating from `dcgm.service` to `nvidia-dcgm.service`. During the transition, both are included in DCGM 2.2.8.

A later version of DGX OS 4 will enable `nvidia-dcgm.service` by default. You can enable `nvidia-dcgm.service` manually (even though there is no functional difference) as follows:

```
$ sudo systemctl stop dcgm.service
$ sudo systemctl disable dcgm.service
$ sudo systemctl start nvidia-dcgm.service
$ sudo systemctl enable nvidia-dcgm.service
```

NVSM May Raise 'md1 is corrupted' Alert

Issue

On a system where one OS drive is used for the EFI boot partition and one is used for the root file system (each configured as RAID 1), NVSM raises 'md1 is corrupted' alerts.

Explanation

The OS RAID 1 drives are running in a non-standard configuration, resulting in erroneous alert messages. If you alter the default configuration, you must let NVSM know so that the utility does not flag the configuration as an error, and so that NVSM can continue to monitor the health of the drives.

To configure NVSM to support a custom drive partitioning, perform the following.

1. Stop NVSM services.
   ```
   $ systemctl stop nvsm
   ```
2. Edit /etc/nvsm/nvsm.config and set the "use_standard_config_storage" parameter to false.
   ```
   "use_standard_config_storage":false
   ```
3. Remove the NVSM database.
   ```
   $ sudo rm /var/lib/nvsm/sqlite/nvsm.db
   ```
4. Restart NVSM.
   ```
   $ systemctl restart nvsm
   ```

nvsm show health Reports Empty /proc/driver Folders

Issue

When issuing `nvsm show health`, the `nvsmhealth_log.txt` log file reports that the /proc/driver/ folders are empty.

Example from a DGX-1

```
2020-09-01 20:03:05,204 INFO: Found empty path glob
"/proc/driver/nvidia/*/gpus/*/information"
```

```
2020-09-01 20:03:06,206 INFO: Found empty path glob
"/proc/driver/nvidia/*/gpus/*/registry"
2020-09-01 20:03:09,742 INFO: Found empty path glob
"/proc/driver/nvidia/*/params"
2020-09-01 20:03:10,743 INFO: Found empty path glob
"/proc/driver/nvidia/*/registry"
2020-09-01 20:03:11,745 INFO: Found empty path glob
"/proc/driver/nvidia/*/version"
2020-09-01 20:03:12,747 INFO: Found empty path glob
"/proc/driver/nvidia/*/warnings/*"
```

Explanation

This is an erroneous message as the folder content is actually loaded during the software installation. The message can be ignored. This will be resolved in a future NVSM release.

NVSM Reports "Unknown" for Number of logical CPU cores on non-English system

Issue

On systems set up for a non-English locale, the `nvsm show health` command lists the number of logical CPU cores as Unknown.

```
Number of logical CPU cores [None]............................ Unknown
```

Resolution

This issue will be resolved in a later version of the DGX OS software.

InfiniBand Bandwidth Drops for KVM Guest VMs

Issue

The InfiniBand bandwidth when running on multi-GPU guest VMs is lower than when running on bare metal.

Explanation

Currently, performance when using GPUDirect within a guest VM will be lower than when used on a bare-metal system.

Known DGX-2 System Issues

The following are known issues specific to the DGX-2 server.

▸ DGX KVM: nvidia-vm health-check May Fail

▸ NVSM Does not Detect Downgraded GPU PCIe Link

DGX KVM: `nvidia-vm health-check` May Fail

Issue

When running `nvidia-vm health-check` to check the health of specific GPUs used by the DGX KVM guest VM, the command may fail.

Example:

```
$ sudo nvidia-vm health-check --gpu-count 1 --gpu-index 0 --fulltest
run
…
ERROR: Unexpected response from blacklist "connection"
ERROR: Unexpected response from blacklist "to"
ERROR: Unexpected response from blacklist "the"
ERROR: Unexpected response from blacklist "host"
ERROR: Unexpected response from blacklist "engine"
ERROR: Unexpected response from blacklist "is"
ERROR: Unexpected response from blacklist "not"
ERROR: Unexpected response from blacklist "valid"
ERROR: Unexpected response from blacklist "any"
ERROR: Unexpected response from blacklist "longer""
ERROR: No healthy/unhealthy data returned from blacklist command
```

Explanation and Resolution

This occurs because the health-check VM is created from an image based on the DGX OS ISO, which uses the R418 driver package, but the host was updated to the R450 driver package. The two packages use different DCGM releases which cannot communicate with each other, resulting in the error.

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NVSM Does not Detect Downgraded GPU PCIe Link

Issue

If the GPU PCIe link is downgraded to Gen1, NVSM still reports the GPU health status as OK.

Explanation and Resolution

The NVSM software currently does not check for this condition. The check will be added in a future software release.

Known DGX-1 System Issues

The following are known issues specific to the DGX-1 server.

▶ nvidia-nvswitch Version Mismatch Message Appears when Running DCGM

▶ Forced Reboot Hangs the OS

nvidia-nvswitch Version Mismatch Message Appears when Running DCGM

Issue

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

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

Explanation

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 non-NVSwitch systems such as the DGX Station or DGX-1.

Forced Reboot Hangs the OS

Issue

When issuing `reboot -f` (forced reboot), I/O error messages appear on the console and then the system hangs.

The system reboots normally when issuing `reboot`.

Resolution

This issue will be resolved in a future version of the DGX OS server.

Known Issues Related to Ubuntu / Linux Kernel

The following are known issues related to the Ubuntu OS or the Linux kernel that affect the DGX server.

▶ [System May Slow Down When Using mpirun](#)

System May Slow Down When Using `mpirun`

Issue

Customers running Message Passing Interface (MPI) workloads may experience the OS becoming very slow to respond. When this occurs, a log message similar to the following would appear in the kernel log:

```
kernel BUG at /build/linux-fQ94TU/linux-4.4.0/fs/ext4/inode.c:1899!
```

Explanation

Due to the current design of the Linux kernel, the condition may be triggered when `get_user_pages` is used on a file that is on persistent storage. For example, this can happen when `cudaHostRegister` is used on a file path that is stored in an ext4 filesystem. DGX systems implement `/tmp` on a persistent ext4 filesystem.

Workaround

> ☾ **NOTE**: If you performed this workaround on a previous DGX OS software version, you do not need to do it again after updating to the latest DGX OS version.

In order to avoid using persistent storage, MPI can be configured to use shared memory at `/dev/shm` (this is a temporary filesystem).

If you are using Open MPI, then you can solve the issue by configuring the Modular Component Architecture (MCA) parameters so that `mpirun` uses the temporary file system in memory.

For details on how to accomplish this, see the Knowledge Base Article [DGX System Slows Down When Using mpirun](#) (requires login to the [NVIDIA Enterprise Support](#) portal).

Known Limitations

This section list known limitations and other issues that will not be fixed.

▸ [DGX-2] srp_daemon Causes NVIDIA KVM Update Failure
▸ [DGX-2] Hot-plugging of Storage NVMe Drives is not Supported
▸ [DGX-2] Serial Over LAN Does not Work After Cold Resetting the BMC
▸ [DGX-2] Some BMC Dashboard Quick Links Appear Erroneously
▸ [DGX-2] Applications Cannot be Run Immediately Upon Powering on the DGX-2
▸ [DGX-2] PKCS Errors Appear When the System Boots
▸ [DGX-2 KVM] Logfile Setup Error When Creating a VM
▸ [DGX-2 KVM] nvidia-vm vmshow Command Does Not Work for Running VMs
▸ [DGX-1] Script Cannot Recreate RAID Array After Re-inserting a Known Good SSD

[DGX-2] `srp_daemon` Causes NVIDIA KVM Update Failure

Issue

When performing an over-the-network update on the NVIDIA KVM, the update fails with a
`"Package mlnx-ofed-all is not configured yet"` message.

The issue does not occur if you have installed the DGX OS from the ISO.

Explanation

This issue is the result of the `srp_daemon` within the Mellanox driver. The daemon is
used to discover and connect to InfiniBand SCSI RDMA Protocol (SRP) targets.

If you are not using RDMA, then disable the `srp_daemon` as follows.

```
sudo systemctl disable srp_daemon.service
sudo systemctl disable srptools.service
```

[DGX-2] Hot-plugging of Storage NVMe Drives is not Supported

Issue

Hot-plugging or hot-swapping one of the storage non-volatile memory express (NVMe) drive might result in system instability or incorrect device reporting.

Workaround and Resolution

Turn off the system before removing and replacing any of the storage NVMe drives.

[DGX-2] Serial Over LAN Does not Work After Cold Resetting the BMC

Issue

After performing a cold reset on the BMC (`ipmitool mc reset cold`) while serial over LAN (SOL) is active, you cannot restart a SOL session.

Workaround

To re-active SOL, either

▶ Reboot the system, or

▶ Kill and then restart the process as follows.

   c) Identify the Process ID of the SOL TTY process by running the following.
```
ps -ef | grep "/sbin/agetty -o -p -- \u --keep-baud
115200,38400,9600 ttyS0 vt220"
```

   d) Kill the process.
```
kill <PID>
```
   where *<PID>* is the Process ID returned by the previous command.

   e) Either wait for the cron job to respawn the process or manually restart the process by running
```
/sbin/agetty -o -p -- \u --keep-baud 115200,38400,9600 ttyS0
vt220
```

[DGX-2] Some BMC Dashboard Quick Links Appear Erroneously

Issue

On the BMC dashboard, the following Quick Links appear by mistake and should not be used.

- Maintenance->Firmware Update
- Settings->NvMeManagement->NvMe P3700Vpd Info

[DGX-2] Applications Cannot be Run Immediately Upon Powering on the DGX-2

Issue

When attempting to run an application that uses the GPUs immediately upon powering on the DGX-2 system, you may encounter the following error.

CUDA_ERROR_SYSTEM_NOT_READY

Explanation and Workaround

The DGX-2 uses a fabric manager service to manage communication between all the GPUs in the system. When the DGX-2 system is powered on, the fabric manager initializes all the GPUs. This can take approximately 45 seconds. Until the GPUs are initialized, applications that attempt to use them will fail.

If you encounter the error, wait and launch the application again.

[DGX-2] PKCS Errors Appear When the System Boots

Issue

When the DGX system boots, "PKCS#7 signature not signed with a trusts key" messages appear on the console and system logs.

Explanation

DGX OS Server installs Ubuntu 18.04, which checks all kernel modules for signatures even though Secure Boot is not enabled. Since the NVIDIA drivers are not part of the Ubuntu kernel, the drivers will be flagged with the message when the system boots.

This does not affect the system nor indicate a problem with system software.

[DGX-2 KVM] Logfile Setup Error When Creating a VM

Issue

The following error may appear while creating a VM:

```
 ..Error setting up logfile: No write access to directory
/home/$USER/.cache/virt-manager
```

Workaround

To avoid the error, remove the `/home/$USER/.cache/virt-manager` directory after installing KVM packages or before running the first `nvidia-vm` command.

[DGX-2 KVM] nvidia-vm vmshow Command Does Not Work for Running VMs

Issue

When running `nvidia-vm vmshow`, the information for running guest VMs is reported as "Unknown".

[DGX-1] Script Cannot Recreate RAID Array After Re-inserting a Known Good SSD

Issue

When a good SSD is removed from the DGX-1 RAID 0 array and then re-inserted, the script to recreate the array fails.

Explanation and Workaround

After re-inserting the SSD back into the system, the RAID controller sets the array to offline and marks the re-inserted SSD as `Unconfigured_Bad` (`UBad`). The script will fail when attempting to rebuild an array when one or more of the SSDs are marked `UBad`.

To recreate the array in this case,

1. Set the drive back to a good state.
   ```
   # sudo /opt/MegaRAID/storcli/storcli64
   /c0/e<enclosure_id>/s<drive_slot> set good
   ```
2. Run the script to recreate the array.
   ```
   # sudo /usr/bin/configure_raid_array.py -c -f
   ```

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msecli

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NVIDIA Corporation | 2788 San Tomas Expressway, Santa Clara, CA 95051

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