DGX-1 System Firmware Update Container

Release Notes

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Chapter 1.   DGX-1 Firmware Update Container Overview

The NVIDIA ® DGX-1 Firmware Update container is the preferred method for updating firmware on the DGX-1 System. It provides an easy method for updating the firmware to the latest released versions, and uses the standard method for running Docker containers.

This document describes firmware components that can be updated, any known issues, and how to run this container.

Support

The DGX-1 firmware update container is supported on NVIDIA DGX-1 servers running on Ubuntu.

The container is currently not supported on servers running on Red Hat Enterprise Linux or CentOS.

Features

▶ Automates firmware update for DGX-1 firmware, such as the system BIOS, BMC, and power supplies.

▶ Provides flexibility to update individual or all firmware components.

▶ Embeds the following:

  ▶ Qualified firmware binaries for supported components

  ▶ Flash update utilities and supporting dependencies

  ▶ Manifest file which lists

    ▶ Target platform and firmware version numbers

    ▶ Sequence in which firmware update should be applied

    ▶ "On-Error" policy for every firmware component

▶ Supports interactive and non-interactive firmware update.

How to Use

The NVIDIA DGX-1 System software includes Docker software required to run the container.

See the NVIDIA DGX-1 System User Guide for instructions on updating the system firmware using this container.

Chapter 2. Using the DGX-1 FW Update Utility

The NVIDIA DGX-1 System Firmware Update utility is provided in a tar ball file and also as a .run file. Copy the files to the DGX-1 system, then update the firmware using one of the following three methods:

▶ **NVSM** provides convenient commands to update the firmware using the firmware update container

▶ **Using Docker** to run the firmware update container

▶ **Using the .run file** which is a self-extracting package embedding the firmware update container tarball

> ⚠ **CAUTION:**
>
> ▶ Stop all unnecessary system activities before attempting to update firmware.
>
> ▶ Stop all GPU activity, including accessing nvidia-smi, as this can prevent the VBIOS from updating.
>
> ▶ Do not add additional loads on the system (such as user jobs, diagnostics, or monitoring services) while an update is in progress. A high workload can disrupt the firmware update process and result in an unusable component.
>
> ▶ When initiating an update, the update software assists in determining the activity state of the DGX system and provides a warning if it detects that activity levels are above a predetermined threshold. If the warning is encountered, you are strongly advised to take action to reduce the workload before proceeding with the update.

> 💬 **Note:** Fan speeds may increase while updating the BMC firmware. This is a normal part of the BMC firmware update process.

2.1. Using NVSM

The NVIDIA DGX-2 system software includes Docker software required to run the container.

1. Copy the tar ball to a location on the DGX system.
2. From the directory where you copied the tarball file, enter the following command to load the container image.

```
$ sudo docker load -i nvfw-dgx1_21.06.8_210616.tar.gz
```

3. To verify that the container image is loaded, enter the following.

```
$ sudo docker images

REPOSITORY      TAG
nvfw-dg1        21.06.8
```

4. Using NVSM interactive mode, enter the firmware update module.

```
$ sudo nvsm
nvsm-> cd systems/localhost/firmware/install
```

5. Set the flags corresponding to the action you want to take.

```
$ nvsm(/system/localhost/firmware/install)-> set Flags=<option>
```

See the Command and Argument Summary section below for the list of common flags.

6. Run the command.

```
$ nvsm(/system/localhost/firmware/install)-> start
```

2.2. Using `docker run`

The NVIDIA DGX-2 system software includes Docker software required to run the container.

1. Copy the tar ball to a location on the DGX system.
2. From the directory where you copied the tarball file, enter the following command to load the container image.

```
$ sudo docker load -i nvfw-dgx1_21.06.8_210616.tar.gz
```

3. To verify that the container image is loaded, enter the following.

```
$ sudo docker images

REPOSITORY      TAG
nvfw-dg1        21.06.8
```

4. Use the following syntax to run the container image.

```
$ sudo docker run --rm --privileged -ti -v /:/hostfs nvfw-dgx1:21.06.8 <command>
 <[arg1] [arg2] ... [argn]
```

See the Command and Argument Summary section below for the list of common commands and arguments.

2.3. Using the .run File

The update container is also available as a run file that does not require a Docker installation.

1. After obtaining the .run file, make the file executible.

```
$ chmod +x nvfw-dgx1_21.06.8_210616.run
```

2. Use the following syntax to run the container image.

```
$ sudo nvfw-dgx1_21.06.8_210616.run <command> <[arg1] [arg2] ... [argn]
```

See the Command and Argument Summary section below for the list of common commands and arguments.

2.4.   Command and Argument Summary

The following are common commands and arguments.

▶ Show the manifest
```
show_fw_manifest
```

- ▶ NVSM Example: $ `nvsm(/system/localhost/firmware/install)-> set Flags=show_fw_manifest`

- ▶ Docker Run Example:$ `sudo docker run --rm --privileged -ti -v /:/hostfs nvfw-dgx1:21.06.8 show_fw_manifest`

- ▶ .run File Example: $ `./nvfw-dgx1_21.06.8_210616.run show_fw_manifest`

▶ Show version information
```
show_version
```

- ▶ NVSM Example: $ `nvsm(/system/localhost/firmware/install)-> set Flags=show_version`

- ▶ Docker Run Example:$ `sudo docker run --rm --privileged -ti -v /:/hostfs nvfw-dgx1:21.06.8 show_version`

- ▶ .run File Example: $ `./nvfw-dgx1_21.06.8_210616.run show_version`

▶ Check the onboard firmware against the manifest and update all down-level firmware.
```
update_fw all
```

- ▶ NVSM Example: $ `nvsm(/system/localhost/firmware/install)-> set Flags=update_fw\ all`

    For NVSM, an escape is needed before blank spaces when setting the flags.

- ▶ Docker Run Example:$ `sudo docker run --rm --privileged -ti -v /:/hostfs nvfw-dgx1:21.06.8 update_fw all`

- ▶ .run File Example: $ `./nvfw-dgx1_21.06.8_210616.run update_fw all`

▶ Check the specified onboard firmware against the manifest and update if down-level.
```
update_fw [fw]
```
Where `[fw]` corresponds to the specific firmware as listed in the manifest. Multiple components can be listed within the same command. The following are examples of updating the BMC and SBIOS.

- ▶ NVSM Example: $ `nvsm(/system/localhost/firmware/install)-> set Flags=update_fw\ BMC\ SBIOS`

    For NVSM, an escape is needed before blank spaces when setting the flags.

- ▶ Docker Run Example:$ `sudo docker run --rm --privileged -ti -v /:/hostfs nvfw-dgx1:21.06.8 update_fw BMC SBIOS`

- ▶ .run File Example: $ `./nvfw-dgx1_21.06.8_210616.run update_fw BMC SBIOS`

Chapter 3. Version 21.06.8

The DGX-1 Firmware Update container version 21.06.8 is available.

▶ Package name:`nvfw-dgx1_21.06.8_210616.tar.gz`

▶ Image name: `nvfw-dgx1:21.06.8`

▶ Run file name: `nvfw-dgx1_21.06.8_210616.run`

Highlights and Changes in this Release

▶ This release is supported with the following DGX OS software.

  ▶ DGX OS 4 (4.8 or later)

  ▶ DGX OS 5 (May 6, 2021 Updated or later)

  ▶ EL7-21.04 or later

  ▶ EL8-20.11 or later

▶ Before using the container to update firmware on systems installed with DGX OS release 5.0 or later, first stop certain NVIDIA services. See Special Instructions for all Updates.

Contents of the DGX-1 Firmware Update Container

This container includes the firmware binaries and update utilities for the firmware listed in the following table.

Component	Version	Key Changes
BMC	3.38.30	No change from previous release
SBIOS	**S2W_3A12**	See DGX-1 SBIOS Changes.
SSD (Samsung SM863A) 1.92 TB	GXM1103Q	No change from previous release.
SSD (Samsung PM883) 1.92 TB	**HXT7904Q**	**Added to the container.**
SSD (Samsung SM883) 480 GB	**HXM7904Q**	**Added to the container.**

Component	Version	Key Changes
VBIOS (DGX-1 with V100, 16 GB)	88.00.18.00.01	No change from previous release.
VBIOS (DGX-1 with V100, 32 GB)	88.00.80.00.04	No change from previous release.
VBIOS (DGX-1 with P100)	86.00.41.00.05	No change from previous release.
PSU	00.03.07	No change from previous release.

Special Notes

> **Note:** If updating the BMC from any version earlier than 3.27.30, the update can take from 30 to 50 minutes to complete.

▶ When updates to the BMC or PSU are initiated,

  ▶ The BMC is (cold) reset to be put in a known good state before the update, then

  ▶ Additional logs are gathered for troubleshooting purposes and made available in `/var/log/comp_fw_log.txt`.

  The logs are gathered before updating and upon completion of the update or in the event of an update failure.

▶ (On DGX systems installed with DGX OS 4.99.x or earlier): To prevent NVSM services from interfering with BMC and PSU updates, the container stops the following services before applying the update:

  ▶ `nvsm-apis-gpumonitor`

  ▶ `nvsm-apis-plugin-storage`

  ▶ `nvsm-apis-selwatcher`

  ▶ `nvsm-apis-plugin-memory`

  ▶ `nvsm-apis-plugin-environment`

  ▶ `nvsm-sys-dshmnvsm-env-dshm`

  ▶ `nvsm-storage-dshm`

  System health monitor will not be available until firmware update completes.

▶ For the PSU update, the container implements a protective check which requires the system to be fully redundant (all four supplies are installed and in a healthy state) in order for the update to occur.

  If you are using only three of the four PSUs, the full power redundancy requirement can be overridden with the Docker run environment (`DGX_MAX_PSU`) as follows.

```
sudo docker run --privileged -ti -v /:/hostfs <container_name> set_flags DGX_MAX_PSU=3
 update_fw PSU
```

3.1. Special Instructions for Updating the BMC Using the Web UI

Before updating the BMC using the Web UI, refer to the following instructions to ensure the updates are successful.

BMC Updates via the Web UI

When Preserving Settings

1. Navigate to Maintenance > Firmware Update, select **IPMI, Network,** and **SEL**, then proceed with updating the BMC.

2. After updating the BMC, issue the following from the command line.
   ```
   $ sudo ipmitool raw 0x32 0x6 1
   $ sudo ipmitool mc reset cold
   ```

> 📰 **Note:** You cannot preserve user settings when downgrading to a previous version of the BMC. Attempting to do so will result in a failure to log in to the BMC.

When Not Preserving Settings

Navigate to Maintenance > Firmware Update, clear all preservation items, then proceed with updating the BMC

3.2. Known Issues

3.2.1. Unable to Log in to the BMC Web UI

Issue

You may not be able to log in to the BMC Web UI after updating to 3.38.30 (using the firmware update container or through the Web UI) or after a factory reset.

Explanation

To work around if you encounter the issue. reset the BMC from the command line by issuing the following.
```
$ sudo ipmitool mc reset cold
```

3.2.2. Unable to Update SBIOS via BMC Web UI with Preserve BIOS NVRAM Region

Issue

When attempting to update the SBIOS from version 3A10 to a later version using the BMC web UI and selecting **Preserve BIOS NVRAM Region**, the system will hang at a black screen and SBIOS settings will not be preserved.

Explanation

A security update involved removing the BIOS Shared SW Architecture (BSSA) option in the SBIOS. This changed the NVRAM mapping, so the NVRAM region cannot be preserved. To successfully update the SBIOS using the BMC web UI, do not select **Preserve BIOS NVRAM Region**.

Chapter 4. Version 20.10.2.1

The DGX-1 Firmware Update container version 20.10.2.1 is available.

▶ Package name:`nvfw-dgx1_20.10.2.1_201119.tar.gz`

▶ Image name: `nvfw-dgx1:20.10.2.1`

▶ Run file name: `nvfw-dgx1_20.10.2.1_201119.run`

Highlights and Changes in this Release

▶ This release is supported with the following DGX OS software.

    ▶ DGX OS 4.6 or later

▶ Added support for the using the .run file on systems running Red Hat Enterprise Linux 8.

▶ Before using the container to update firmware on systems installed with DGX OS release 5.0 or later, first stop certain NVIDIA services. See Special Instructions for all Updates.

Contents of the DGX-1 Firmware Update Container

This container includes the firmware binaries and update utilities for the firmware listed in the following table.

Component	Version	Key Changes
BMC	3.38.30	No change from previous release
SBIOS	S2W_3A10	No change from previous release
SSD (Samsung SM863A)	GXM1103Q	No change from previous release.
VBIOS (DGX-1 with V100, 16 GB)	88.00.18.00.01	No change from previous release.
VBIOS (DGX-1 with V100, 32 GB)	88.00.80.00.04	No change from previous release.
VBIOS (DGX-1 with P100)	86.00.41.00.05	No change from previous release.
PSU	00.03.07	No change from previous release.

Special Notes

> 📧 **Note:** If updating the BMC from any version earlier than 3.27.30, the update can take from 30 to 50 minutes to complete.

▶ When updates to the BMC or PSU are initiated,

　▶ The BMC is (cold) reset to be put in a known good state before the update, then

　▶ Additional logs are gathered for troubleshooting purposes and made available in `/var/log/comp_fw_log.txt`.

　　The logs are gathered before updating and upon completion of the update or in the event of an update failure.

▶ (On DGX systems installed with DGX OS 4.99.x or earlier): To prevent NVSM services from interfering with BMC and PSU updates, the container stops the following services before applying the update:

　▶ `nvsm-apis-gpumonitor`

　▶ `nvsm-apis-plugin-storage`

　▶ `nvsm-apis-selwatcher`

　▶ `nvsm-apis-plugin-memory`

　▶ `nvsm-apis-plugin-environment`

　▶ `nvsm-sys-dshmnvsm-env-dshm`

　▶ `nvsm-storage-dshm`

System health monitor will not be available until firmware update completes.

▶ For the PSU update, the container implements a protective check which requires the system to be fully redundant (all four supplies are installed and in a healthy state) in order for the update to occur.

If you are using only three of the four PSUs, the full power redundancy requirement can be overridden with the Docker run environment (`DGX_MAX_PSU`) as follows.

```
docker run -e DGX_MAX_PSU=3 --privileged -ti -v /:/hostfs <container_name> update_fw
```

4.1.　Special Instructions for all Updates

Updating Firmware on DGX Systems Installed with DGX OS Release 5.0 or Later

You need to stop certain NVIDIA services before using the container to update firmware on systems installed with DGX OS 5.0 or later.

▶ If you run the container using either the `docker run` or `.run` file method, then stop services first by issuing the following.

```
$ sudo systemctl stop nvsm dcgm nvidia-persistenced.service
```

▶ If you run the container using NVSM CLI, then stop services first by issuing the following (does not include stopping nvsm).

```
$ sudo systemctl stop dcgm nvidia-persistenced.service
```

4.2. Special Instructions for Updating the BMC Using the Web UI

Before updating the BMC using the Web UI, refer to the following instructions to ensure the updates are successful.

BMC Updates via the Web UI

When Preserving Settings

1. Navigate to Maintenance > Firmware Update, select **IPMI, Network,** and **SEL**, then proceed with updating the BMC.

2. After updating the BMC, issue the following from the command line.
```
$ sudo ipmitool raw 0x32 0x6 1
$ sudo ipmitool mc reset cold
```

> 📝 **Note:** You cannot preserve user settings when downgrading to a previous version of the BMC. Attempting to do so will result in a failure to log in to the BMC.

When Not Preserving Settings

Navigate to Maintenance > Firmware Update, clear all preservation items, then proceed with updating the BMC

4.3. Known Issues

4.3.1. Unable to Log in to the BMC Web UI

Issue

You may not be able to log in to the BMC Web UI after updating to 3.38.30 (using the firmware update container or through the Web UI) or after a factory reset.

Explanation

To work around if you encounter the issue. reset the BMC from the command line by issuing the following.

```
$ sudo ipmitool mc reset cold
```

Chapter 5. Version 20.10.2

The DGX-1 Firmware Update container version 20.10.2 is available.

▶ Package name:`nvfw-dgx1_20.10.2_201005.tar.gz`

▶ Image name: `nvfw-dgx1:20.10.2`

▶ Run file name: `nvfw-dgx1_20.10.2_201005.run`

Highlights and Changes in this Release

▶ The BMC update includes software security enhancements.

See the NVIDIA Security Bulletin 5010 for details.

▶ Before using the container to update firmware on systems installed with DGX OS release later than 4.99.x, first stop certain NVIDIA services. See Special Instructions for all Updates.

Contents of the DGX-1 Firmware Update Container

This container includes the firmware binaries and update utilities for the firmware listed in the following table.

Component	Version	Key Changes
BMC	3.38.30	Security enhancements and updates.
SBIOS	S2W_3A10	No change from previous release
SSD (Samsung SM863A)	GXM1103Q	No change from previous release.
VBIOS (DGX-1 with V100, 16 GB)	88.00.18.00.01	No change from previous release.
VBIOS (DGX-1 with V100, 32 GB)	88.00.80.00.04	No change from previous release.
VBIOS (DGX-1 with P100)	86.00.41.00.05	No change from previous release.
PSU	00.03.07	No change from previous release.

Special Notes

> 📝 **Note:** If updating the BMC from any version earlier than 3.27.30, the update can take from 30 to 50 minutes to complete.

▶ When updates to the BMC or PSU are initiated,

  ▶ The BMC is (cold) reset to be put in a known good state before the update, then

  ▶ Additional logs are gathered for troubleshooting purposes and made available in `/var/log/comp_fw_log.txt`.

    The logs are gathered before updating and upon completion of the update or in the event of an update failure.

▶ (On DGX systems installed with DGX OS 4.99.x or earlier): To prevent NVSM services from interfering with BMC and PSU updates, the container stops the following services before applying the update:

  ▶ `nvsm-apis-gpumonitor`

  ▶ `nvsm-apis-plugin-storage`

  ▶ `nvsm-apis-selwatcher`

  ▶ `nvsm-apis-plugin-memory`

  ▶ `nvsm-apis-plugin-environment`

  ▶ `nvsm-sys-dshmnvsm-env-dshm`

  ▶ `nvsm-storage-dshm`

  System health monitor will not be available until firmware update completes.

▶ For the PSU update, the container implements a protective check which requires the system to be fully redundant (all four supplies are installed and in a healthy state) in order for the update to occur.

  If you are using only three of the four PSUs, the full power redundancy requirement can be overridden with the Docker run environment (`DGX_MAX_PSU`) as follows.

```
docker run -e DGX_MAX_PSU=3 --privileged -ti -v /:/hostfs <container_name> update_fw
```

5.1.   Special Instructions for all Updates

Updating Firmware on DGX Systems Installed with DGX OS Release 5.0 or Later

You need to stop certain NVIDIA services before using the container to update firmware on systems installed with DGX OS 5.0 or later.

▶ If you run the container using either the `docker run` or `.run` file method, then stop services first by issuing the following.

```
$ sudo systemctl stop nvsm dcgm nvidia-persistenced.service
```

▶ If you run the container using NVSM CLI, then stop services first by issuing the following (does not include stopping nvsm).

```
$ sudo systemctl stop dcgm nvidia-persistenced.service
```

5.2.   Special Instructions for Updating the BMC Using the Web UI

Before updating the BMC using the Web UI, refer to the following instructions to ensure the updates are successful.

BMC Updates via the Web UI

When Preserving Settings

1. Navigate to Maintenance > Firmware Update, select **IPMI, Network,** and **SEL**, then proceed with updating the BMC.

2. After updating the BMC, issue the following from the command line.
   ```
   $ sudo ipmitool raw 0x32 0x6 1
   $ sudo ipmitool mc reset cold
   ```

> 📝 **Note:** You cannot preserve user settings when downgrading to a previous version of the BMC. Attempting to do so will result in a failure to log in to the BMC.

When Not Preserving Settings

Navigate to Maintenance > Firmware Update, clear all preservation items, then proceed with updating the BMC

5.3.   Known Issues

5.3.1.   Unable to Log in to the BMC Web UI

Issue

You may not be able to log in to the BMC Web UI after updating to 3.38.30 (using the firmware update container or through the Web UI) or after a factory reset.

Explanation

To work around if you encounter the issue. reset the BMC from the command line by issuing the following.

```
$ sudo ipmitool mc reset cold
```

Chapter 6. Previous Releases

6.1. Version 19.10.7

The DGX-1 Firmware Update container version 19.10.7 is available.

- Package name:`nvfw-dgx1_19.10.7.tar.gz`
- Image name: `nvfw-dgx1:19.10.7`
- Run file name: `nvfw-dgx1_19.10.7.run`

Obtain the files from the NVIDIA Enterprise Support announcement <u>System Firmware Upgrade 19.10.7 for all NVIDIA DGX-1 Server</u> (requires login).

Contents of the DGX-1 Firmware Update Container

This container includes the firmware binaries and update utilities for the firmware listed in the following table.

Component	Version	Key Changes
BMC	3.36.30	- Added HTML5 support for the Remote Console - Removed Java-based Remote Console **Note:** Be sure to clear your browser cache to see the new Remote Console.
SBIOS	S2S_3A10	Incorporated Intel microcode to mitigate new side channel attacks (Zombieload v1).
SSD (Samsung SM863A)	GXM1103Q	No change from previous release.

Component	Version	Key Changes
VBIOS (DGX-1 with V100, 16 GB)	88.00.18.00.01	No change from previous release.
VBIOS (DGX-1 with V100, 32 GB)	88.00.80.00.04	No change from previous release.
VBIOS (DGX-1 with P100)	86.00.41.00.05	No change from previous release.
PSU	00.03.07	No change from previous release.

Changes in the Container in this Release

▶ Fixed unexpected error appearing upon exiting the container after successful PSU update.

▶ Fixed BMC update failing with an unexpected error.

▶ Fixed `show_version` command reporting "???" for the VBIOS version.

▶ Fixed firmware update errors on EL7-19.07.

▶ Fixed update output only showing the last VBIOS updated, instead of listing all the VBIOSes updated.

Special Notes

> **Note:** If updating the BMC from any version earlier than 3.27.30, the update can take from 30 to 50 minutes to complete.

▶ When updates to the BMC or PSU are initiated,

  ▶ The BMC is (cold) reset to be put in a known good state before the update, then

  ▶ Additional logs are gathered for troubleshooting purposes and made available in `/var/log/comp_fw_log.txt`.

  The logs are gathered before updating and upon completion of the update or in the event of an update failure.

▶ To prevent NVSM services from interfering with BMC and PSU updates, the container stops the following services before applying the update:

  ▶ `nvsm-apis-gpumonitor`

  ▶ `nvsm-apis-plugin-storage`

  ▶ `nvsm-apis-selwatcher`

  ▶ `nvsm-apis-plugin-memory`

  ▶ `nvsm-apis-plugin-environment`

  ▶ `nvsm-sys-dshmnvsm-env-dshm`

  ▶ `nvsm-storage-dshm`

  System health monitor will not be available until firmware update completes.

▶ For the PSU update, the container implements a protective check which requires the system to be fully redundant (all four supplies are installed and in a healthy state) in order for the update to occur.

If you are using only three of the four PSUs, the full power redundancy requirement can be overridden with the Docker run environment (DGX_MAX_PSU) as follows.

```
docker run -e DGX_MAX_PSU=3 --privileged -ti -v /:/hostfs <container_name> update_fw
```

6.2.   Version 19.04.1

The DGX-1 Firmware Update container version 19.04.1 is available.

▶ Package name:nvfw-dgx1_19.04.1.tar.gz
▶ Image name: nvfw-dgx1:19.04.1
▶ Run file name: nvfw-dgx1_19.04.1.run

Obtain the files from the NVIDIA Enterprise Support announcement DGX-1 Firmware Update Container Version 19.04.1 (requires login).

Contents of the DGX-1 Firmware Update Container

This container includes the firmware binaries and update utilities for the firmware listed in the following table.

Component	Version	Key Changes
BMC	3.30.30	**Note**: The BMC update process can take about 50 minutes to complete if updating from a version earlier than 3.27.30. ▶ Added support for sending SNMPv3 Traps. ▶ Added GPU Page Retirement tracking. ▶ Added ability to configure KVM and VMedia via ipmitool. ▶ Added ability to enabled/disable SNMPv3 via ipmitool. ▶ Implemented IPMI command for OEM debugging. ▶ Fixed BMC/SBIOS providing incorrect mapping for memory DIMM errors.

Component	Version	Key Changes
		▶ Fixed PSU firmware update disruption by implementing mutual exclusion logic in the BMC.
SBIOS	3A08	▶ Fixed BMC/SBIOS providing incorrect mapping for memory DIMM errors. ▶ USB ports default to USB 3.0.
SSD (Samsung SM863A)	GXM1103Q	Added to the container.
VBIOS (DGX-1 with V100, 16 GB)	88.00.18.00.01	No change from previous release.
VBIOS (DGX-1 with V100, 32 GB)	88.00.80.00.04	Supports all HBM memory sources.
VBIOS (DGX-1 with P100)	86.00.41.00.05	No change from previous release.
PSU	00.03.07	Added to the container.

Changes in the Container in this Release

> 📝 **Note:** If updating the BMC from any version earlier than 3.27.30, the update can take from 30 to 50 minutes to complete.

▶ Added integration with NVSM (requires DGX OS Server 4.0.5 or later).

This allows firmware to be updated using a .run file that simplifies the steps needed. See the DGX-1 User Guide for instructions on obtaining and using the .run file.

▶ Changed the container naming convention and now provide one file for all DGX-1 configurations.

▶ When updates to the BMC or PSU are initiated,

   ▶ The BMC is (cold) reset to be put in a known good state before the update, then

   ▶ Additional logs are gathered for troubleshooting purposes and made available in `/var/log/comp_fw_log.txt`.

   The logs are gathered before updating and upon completion of the update or in the event of an update failure.

▶ To prevent NVSM services from interfering with BMC and PSU updates, the container stops the following services before applying the update:

   ▶ `nvsm-apis-gpumonitor`

   ▶ `nvsm-apis-plugin-storage`

- ▶ `nvsm-apis-selwatcher`

- ▶ `nvsm-apis-plugin-memory`

- ▶ `nvsm-apis-plugin-environment`

- ▶ `nvsm-sys-dshmnvsm-env-dshm`

- ▶ `nvsm-storage-dshm`

System health monitor will not be available until firmware update completes.

▶ For the PSU update, the container implements a protective check which requires the system to be fully redundant (all four supplies are installed and in a healthy state) in order for the update to occur.

If you are using only three of the four PSUs, the full power redundancy requirement can be overridden with the Docker run environment (`DGX_MAX_PSU`) as follows.

```
docker run -e DGX_MAX_PSU=3 --privileged -ti -v /:/hostfs <container_name> update_fw
```

6.2.1. Known Issues

6.2.1.1. VBIOS Update Status Only Shows One GPU

Issue

On an DGX-1 with Tesla P100 , when updating the VBIOS for all the GPUs in the system, the "Firmware Update in Progress" output banner shows only the last GPU to be updated instead of each or all GPUs.

Explanation

The firmware update container does not report which GPU VBIOS is flashed as it occurs, but shows the last GPU to indicate that all GPUs are being updated. In the background, all the GPUs are sequentially flashed with the new VBIOS until the last GPU completes the update successfully.

6.2.1.2. Recovery for PSU Update Failure

Issue

On rare occasions, the recovery mechanism in the container may not be able to recover from a failure in the PSU update process.

Action to Take

If the container does not recover, contact NVIDIA Enterprise Support for assistance.

6.2.1.3. Update May Stop with an Unexpected Error

Issue

When updating the BMC, the update may fail with the following error code.

```
TypeError: __init__() takes exactly 4 arguments
```

Recommendation

Attempt to run the container again for the component that failed. If the component update continues to fail, contact NVIDIA Enterprise Support.

6.2.1.4. Unexpected Error May Occur Upon Exiting the Container

Issue

After successfully completing an update and then exiting the container, the following error message may appear.

```
Method not supported in this mode
```

Details and Recommendation

This can occur if the CPU is under a high load while the container runs. The update is successful and no further action is needed.

To avoid this error, stop all GPU and CPU intensive applications. You can also use the `show_version` option when running the container to confirm the firmware is updated to the correct version.

6.3. Version 20181107

The DGX-1 with Tesla V100 Firmware Update container version 20181107 is available.

▶ Package name: `nvidia-dgx-fw-0102-20181107.tar.gz`
▶ Image name: `nvidia-dgx-fw-0102-20181107`

Contents of the DGX-1 System Firmware Container

This container includes the firmware binaries and update utilities for the firmware listed in the following table.

Component	Version
SBIOS	S2W_3A06

Component	Version
VBIOS	88.00.18.00.01 (16 GB)
	88.00.43.00.04 (32 GB)

Changes in this Release

▶ **Container**

    ▶ Removed BMC and PSU firmware updates due to potential issues with the update process.

▶ **System BIOS**

    ▶ Updated to version S2W_3A06

    Updated microcode to address Spectre vulnerability.

6.3.1. Known Issues

6.3.1.1. Recovery for PSU Update Failure

Issue

On rare occasions, the recovery mechanism in the container may not be able to recover from a failure in the PSU update process.

Action to Take

If the container does not recover, contact NVIDIA Enterprise Support for assistance.

6.3.1.2. SNMPv3 Traps are not Available for the BMC

Issue

The BMC is not capable of sending SNMPv3 traps at this time.

Workaround

From the BMC dashboard->SNMP Community Settings, enable traps for SNMPv2.

Chapter 7. DGX-1 System FW Changes

This chapter contains the list of changes for the following DGX-1 firmware components.

► BMC

► System BIOS

7.1.   DGX-1 BMC Changes

Changes in 3.38.30

► Added security enhancements.

Changes in 3.36.30

► Added HTML5 support for the Remote Console.

► Removed Java-based Remote Console.

> 📝 **Note:** Be sure to clear your browser cache to see the new Remote Console.

► Fixed BMC not reporting all temperature sensor readings correctly.

► Fixed potential inability to communicate with BMC after failed BMC update.

Changes in 3.30.30

► Added support for sending SNMPv3 Traps.

► Added GPU Page Retirement tracking.

► Added ability to configure KVM and VMedia via ipmitool.

► Added ability to enabled/disable SNMPv3 via ipmitool. Implemented IPMI command for OEM debugging.

► Fixed BMC/SBIOS providing incorrect mapping for memory DIMM errors.

► Fixed PSU firmware update disruption by implementing mutual exclusion logic in the BMC.

7.2.   DGX-1 SBIOS Changes

Changes in S2W_3A12

▶ Removed and disabled "BIOS Shared SW Architecture (BSSA)" implementation.

This imposes a limitation when updating the SBIOS using the BMC web UI. See Unable to Update SBIOS via BMC Web UI with Preserve BIOS NVRAM Region.

Changes in S2W_3A10

▶ Incorporated Intel microcode to mitigate new side channel attacks (Zombieland).

Changes in S2W_3A08

▶ Fixed BMC/SBIOS providing incorrect mapping for memory DIMM errors.
▶ USB ports now default to USB 3.0

Changes in S2W_3A06

▶ Updated microcode to address Spectre vulnerability.