



# NVIDIA GPU Cloud Virtual Machine Image for Alibaba Cloud

Release Notes

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# Chapter 1. NVIDIA GPU Cloud Machine Image Overview

NVIDIA makes available on the Alibaba Cloud platform a customized NGC virtual machine image optimized for the NVIDIA® Volta™ GPU. Running NVIDIA GPU Cloud containers on this instance provides optimum performance for deep learning jobs.

See the [NGC with Alibaba Cloud Setup Guide](#) for instructions on setting up and using the VMI.

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# Chapter 2. Version 20.06.3

## Image Name

- ▶ NGC Image: `NVIDIA-GPU-Cloud-Image-20.06.3-2020.06.29`
- ▶ NGC with TensorFlow Image: `nvidia-gpu-cloud-image-tensorflow-20.03.0-2020.06.29`
- ▶ NGC with PyTorch Image: `nvidia-gpu-cloud-image-pytorch-20.03.0-2020.06.29`

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 18.04 LTS
- ▶ NVIDIA Driver: 450.51.05
- ▶ Docker Engine: 19.03.11
- ▶ NVIDIA Container Toolkit v1.1.1-1
  - Includes new command to run containers: `docker run --gpus all <container>`
- ▶ TensorFlow container (NGC with TensorFlow image): `nvcr.io/nvidia/tensorflow:20.06-tf1-py3`, `nvcr.io/nvidia/tensorflow:20.06-tf2-py3`
- ▶ PyTorch container (NGC with PyTorch image): `nvcr.io/nvidia/pytorch:20.06-py3`

## Key Changes

- ▶ Updated NVIDIA Driver to 450.51.05
- ▶ Updated Docker Engine to 19.03.11
- ▶ Updated NVIDIA Container Toolkit to v1.1.1-1

## 2.1. Known Issues

## 2.1.1. Installing GPU drivers on the VM via a CUDA Install Succeeds Erroneously

### Issue

Attempting to install CUDA on the VM will succeed, resulting in a potential conflict with the NVIDIA GPU driver included in the VM image.

### Explanation

The configuration file to prevent driver installs is not working. This will be resolved in a later release of the VM image.

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# Chapter 3. Version 20.03.0

## Image Name

- ▶ NGC Image: `NVIDIA-GPU-Cloud-Image-20.03.0-2020.03.02`
- ▶ NGC with TensorFlow Image: `nvidia-gpu-cloud-image-tensorflow-20.03.0-2020.03.02`
- ▶ NGC with PyTorch Image: `nvidia-gpu-cloud-image-pytorch-20.03.0-2020.03.02`

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 18.04 LTS
- ▶ NVIDIA Driver: 440.64.01
- ▶ Docker Engine: 19.03.6
- ▶ NVIDIA Container Toolkit v1.0.5-1
  - Includes new command to run containers: `docker run --gpus all <container>`
- ▶ TensorFlow container (NGC with TensorFlow image): `nvcr.io/nvidia/tensorflow:20.02-py3`, `nvcr.io/nvidia/tensorflow:20.02-py3`
- ▶ PyTorch container (NGC with PyTorch image): `nvcr.io/nvidia/pytorch:19.10-py3`

## Key Changes

- ▶ Updated Docker-CE to 19.03.6
- ▶ Updated NVIDIA Driver to 440.64.01

## 3.1. Known Issues



### 3.1.1. Installing GPU drivers on the VM via a CUDA Install Succeeds Erroneously

#### Issue

Attempting to install CUDA on the VM will succeed, resulting in a potential conflict with the NVIDIA GPU driver included in the VM image.

#### Explanation

The configuration file to prevent driver installs is not working. This will be resolved in a later release of the VM image.

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# Chapter 4. Version 19.11.3

## Image Name

- ▶ NGC Image: `NVIDIA-GPU-Cloud-Image-19.11.3-2019.11.14`
- ▶ NGC with TensorFlow Image: `nvidia-gpu-cloud-image-tensorflow-19.11.3-2019.11.14`
- ▶ NGC with PyTorch Image: `nvidia-gpu-cloud-image-pytorch-19.11.3-2019.11.14`

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 18.04 LTS
- ▶ NVIDIA Driver: 440.33.01
- ▶ Docker CE: 19.03.4-ce
- ▶ NVIDIA Container Toolkit v1.0.5-1  
Includes new command to run containers: `docker run --gpus all <container>`
- ▶ TensorFlow container (NGC with TensorFlow image): `nvcr.io/nvidia/tensorflow:19.10-py3`
- ▶ PyTorch container (NGC with PyTorch image): `nvcr.io/nvidia/pytorch:19.10-py3`

## Key Changes

- ▶ Updated Docker-CE to 19.03.4
- ▶ Updated NVIDIA Driver to 440.33.01

## 4.1. Known Issues

## 4.1.1. Installing GPU drivers on the VM via a CUDA Install Succeeds Erroneously

### Issue

Attempting to install CUDA on the VM will succeed, resulting in a potential conflict with the NVIDIA GPU driver included in the VM image.

### Explanation

The configuration file to prevent driver installs is not working. This will be resolved in a later release of the VM image.

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# Chapter 5. Version 19.10.2

## Image Name

- ▶ NGC Image: `NVIDIA-GPU-Cloud-Image-19.10.2-2019.11.01`
- ▶ NGC with TensorFlow Image: `nvidia-gpu-cloud-image-tensorflow-19.10.2-2019.11.01`
- ▶ NGC with PyTorch Image: `nvidia-gpu-cloud-image-pytorch-19.10.2-2019.11.01`

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 18.04 LTS
- ▶ NVIDIA Driver: 418.87.01
- ▶ Docker CE: 19.03.2-ce
- ▶ NVIDIA Container Toolkit v1.0.5-1
- ▶ TensorFlow container (NGC with TensorFlow image): `nvcr.io/nvidia/tensorflow:19.09-py3`
- ▶ PyTorch container (NGC with PyTorch image): `nvcr.io/nvidia/pytorch:19.09-py3`

## Key Changes

- ▶ Updated NVIDIA Driver to version 418.87.01
- ▶ Updated Docker-CE to 19.03.2
- ▶ Replaced the NVIDIA Container Runtime for Docker with the NVIDIA Container Toolkit.  
Includes new command to run containers: `docker run --gpus all <container>`

## 5.1. Known Issues

## 5.1.1. Installing GPU drivers on the VM via a CUDA Install Succeeds Erroneously

### Issue

Attempting to install CUDA on the VM will succeed, resulting in a potential conflict with the NVIDIA GPU driver included in the VM image.

### Explanation

The configuration file to prevent driver installs is not working. This will be resolved in a later release of the VM image.

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# Chapter 6. Version 19.08.1

## Image Name

NVIDIA-GPU-Cloud-Image-19.08.1-2019.07.22

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 18.04 LTS
- ▶ NVIDIA Driver: 418.87
- ▶ Docker CE: 18.09.8-ce
- ▶ NVIDIA Container Runtime for Docker: (nvidia-docker2) v2.1.0-1

## Key Changes

- ▶ Updated NVIDIA Driver to version 418.87.
- ▶ Updated Docker-CE to 18.09.8
- ▶ Updated NVIDIA Container Runtime for Docker to v2.1.0-1

## 6.1. Known Issues

### 6.1.1. Installing GPU drivers on the VM via a CUDA Install Succeeds Erroneously

#### Issue

Attempting to install CUDA on the VM will succeed, resulting in a potential conflict with the NVIDIA GPU driver included in the VM image.

#### Explanation

The configuration file to prevent driver installs is not working. This will be resolved in a later release of the VM image.

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# Chapter 7. Version 19.07.0

## Image Name

NVIDIA-GPU-Cloud-Image-19.07.0-2019.06.28

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 18.04 LTS
- ▶ NVIDIA Driver: 418.67
- ▶ Docker CE: 18.09.7-ce
- ▶ NVIDIA Container Runtime for Docker: (nvidia-docker2) v2.0.3

## Key Changes

- ▶ Incorporates updated Ubuntu kernel to address a security update.  
Refer to <https://wiki.ubuntu.com/SecurityTeam/KnowledgeBase/SACKPanic> for details.
- ▶ Updated Docker-CE to 18.09.7: Incorporates security update.  
Refer to <https://nvd.nist.gov/vuln/detail/CVE-2018-15664> for details.
- ▶ Incorporates cloud-init fix to allow updating older images to the latest kernel without user prompts.

## 7.1. Known Issues

### 7.1.1. Installing GPU drivers on the VM via a CUDA Install Succeeds Erroneously

#### Issue

Attempting to install CUDA on the VM will succeed, resulting in a potential conflict with the NVIDIA GPU driver included in the VM image.

## Explanation

The configuration file to prevent driver installs is not working. This will be resolved in a later release of the VM image.



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# Chapter 8. Version 19.05.1

## Image Name

NVIDIA-GPU-Cloud-Image-19.05.1-2019.05.22

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 18.04 LTS
- ▶ NVIDIA Driver: 418.67
- ▶ Docker CE: 18.09.4-ce
- ▶ NVIDIA Container Runtime for Docker: (nvidia-docker2) v2.0.3

## Key Changes

### 19.05.1

- ▶ Incorporates updated OS kernel to address a security update. Refer to <https://wiki.ubuntu.com/SecurityTeam/KnowledgeBase/MDS>.

### 19.05.0

- ▶ Updated the NVIDIA Driver to 418.67
- ▶ Updated Docker to 18.09.4-ce

## 8.1. Known Issues

### 8.1.1. Installing GPU drivers on the VM via a CUDA Install Succeeds Erroneously

#### Issue

Attempting to install CUDA on the VM will succeed, resulting in a potential conflict with the NVIDIA GPU driver included in the VM image.

## Explanation

The configuration file to prevent driver installs is not working. This will be resolved in a later release of the VM image.

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# Chapter 9. Version 19.03.1

## Image Name

NVIDIA-GPU-Cloud-Image-19.03.0-2019.03.18

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 18.04 LTS
- ▶ NVIDIA Driver: 418.40.04
- ▶ Docker CE: 18.09.2-ce
- ▶ NVIDIA Container Runtime for Docker: (nvidia-docker2) v2.0.3

## Key Changes

- ▶ Updated the NVIDIA Driver to 418.40.04
- ▶ Updated Docker to 18.09.2-ce

## Known Issues

There are no known issues in this release.

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# Chapter 10. Version 19.02.1

## Image Name

NVIDIA-GPU-Cloud-Image-19.02.1-2019.02.11

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 16.04 LTS
- ▶ NVIDIA Driver: 410.104
- ▶ Docker CE: 18.09.1-ce
- ▶ NVIDIA Container Runtime for Docker: (nvidia-docker2) v2.0.3

## Key Changes

- ▶ Updated the NVIDIA Driver to 410.104
- ▶ Updated Docker to 18.09.1-ce

## Known Issues

There are no known issues in this release.

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# Chapter 11. Version 19.01.1

## Image Name

NVIDIA-GPU-Cloud-Image-19.01.1-2019.01.08

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 16.04 LTS
- ▶ NVIDIA Driver: 410.79
- ▶ Docker CE: 18.06.1
- ▶ NVIDIA Container Runtime for Docker: (nvidia-docker2) v2.0.3

## Known Issues

There are no known issues in this release.

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# Chapter 12. Version 18.11.1

## Image Name

NVIDIA-GPU-Cloud-Image-18.11.1-2018.11.21

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 16.04 LTS
- ▶ NVIDIA Driver: 410.79
- ▶ Docker CE: 18.06.1
- ▶ NVIDIA Container Runtime for Docker: (nvidia-docker2) v2.0.3

## Key Changes

- ▶ Updated the NVIDIA driver to 410.79.

## Known Issues

There are no known issues in this release.

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# Chapter 13. Version 18.09.1

## Image Name

NVIDIA-GPU-Cloud-Image-18.09.1

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 16.04 LTS
- ▶ NVIDIA Driver: 410.48
- ▶ Docker CE: 18.06.1
- ▶ NVIDIA Container Runtime for Docker: (nvidia-docker2) v2.0.3

## Key Changes

- ▶ Updated the NVIDIA driver to 410.48.
- ▶ Updated Docker CE to 18.06.1

## Known Issues

There are no known issues in this release.

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# Chapter 14. Version 18.08.1

## Image Name

NVIDIA-GPU-Cloud-Image-18.08.1

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 16.04 LTS
- ▶ NVIDIA Driver: 396.44
- ▶ Docker CE: 18.06-ce
- ▶ NVIDIA Container Runtime for Docker: (nvidia-docker2) v2.0.3

## Key Changes

- ▶ Updated the NVIDIA driver to 396.44.
- ▶ Updated Docker CE to 18.06

## Known Issues

There are no known issues in this release.



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# Chapter 15. Version 18.07.1

## Image Name

NVIDIA-GPU-Cloud-Image-18.07.1-2018.07.16

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 16.04 LTS
- ▶ NVIDIA Driver: 396.37
- ▶ Docker CE: 18.03.1-ce
- ▶ NVIDIA Container Runtime for Docker: (nvidia-docker2) v2.0.3

## Key Changes

- ▶ Updated the NVIDIA driver to 396.37.

## Known Issues

There are no known issues in this release.

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# Chapter 16. Version 18.06.1

## Image Name

NVIDIA-GPU-Cloud-Image-18.06.1-2018.06.14

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 16.04 LTS
- ▶ NVIDIA Driver: 396.26
- ▶ Docker CE: 18.03.1-ce
- ▶ NVIDIA Container Runtime for Docker: (nvidia-docker2) v2.0.3

## Key Changes

- ▶ Updated the NVIDIA driver to 396.26.

## Known Issues

There are no known issues in this release.

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# Chapter 17. Version 18.05.1

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 16.04 LTS
- ▶ NVIDIA Driver: 384.125
- ▶ Docker CE: 18.03.1-ce
- ▶ NVIDIA Container Runtime for Docker: (nvidia-docker2) v2.0.3

## Key Changes

- ▶ Includes Ubuntu 16.04 security updates
- ▶ Updated Docker CE to version 18.03.1-ce

## Known Issues

There are no known issues in this release.

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# Chapter 18. Version 18.04.1

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 16.04 LTS
- ▶ NVIDIA Driver: 384.125
- ▶ Docker CE: 18.03.0-ce
- ▶ NVIDIA Container Runtime for Docker: (nvidia-docker2) v2.0.3

## Key Changes

- ▶ Updated the NVIDIA Driver to version 384.125
- ▶ Updated Docker CE to version 18.03.0-ce

## Known Issues

There are no known issues in this release.

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# Chapter 19. Version 18.03.0

## Contents of the NVIDIA GPU Cloud Virtual Machine Image

- ▶ Ubuntu Server: 16.04 LTS
- ▶ NVIDIA Driver: 384.111
- ▶ Docker CE: 17.12.1-ce
- ▶ NVIDIA Container Runtime: (nvidia-docker2) v2.0.3

## Known Issues

There are no known issues in this release.

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