

Third Party Software: How do I upgrade to CUDA 5.5?

How do I upgrade from, say, CUDA 5 to to CUDA 5.5?

By replacing the old packages with the new ones appropriately. Details follow:

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Introduction

Bright Cluster Manager CUDA 5.5 packages are available for Bright Cluster Manager 6.1, 6.0 and 5.2.

Prerequisites:

- The head node is able to access the Bright RPM repositories.
- The head node is able to access the distribution RPM repositories (might be needed when installing Bright CUDA packages)

Upgrade/install CUDA 5.5 on the head node

For CUDA 5.5 the following shared RPM packages can be installed:

- cuda55-toolkit
- cuda55-sdk
- cuda55-profiler
- cuda55-tdk (optional)

For example:

```
[root@bright01 ~]# yum install cuda55-toolkit cuda55-sdk cuda55-profiler cuda55-tdk
```

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Shared packages mean that files from the RPM package are installed on /cm/shared, and available for all the nodes in the cluster.

If older versions of CUDA are not needed anymore on the cluster, older CUDA packages can be removed. If the old shared packages are still needed they don't have to be removed..

Upgrade a software image to CUDA 5.5

For older CUDA versions, the cudaXY-driver and the cudaXY-libs local packages were necessary. However the big change in CUDA 5.5 is that they are (both) replaced by the (one) cuda-driver package. Not only that, but the cuda-driver package for 5.5 is backward compatible for all CUDA versions.

The cuda-driver package has the same functionality, despite the package name. If the cuda-driver package is already installed, there is no need to remove the package. Just make sure the package is updated to the latest version.

The cudaXY-driver and the cudaXY-libs packages are first removed, and after this the CUDA 5.5 local packages can be installed. An example session to illustrate the upgrade of a software image, called cuda-image here, from CUDA 5.0 to CUDA 5.5:

```
[root@bright01 ~]# chroot /cm/images/cuda-image rpm -qa | grep ^cuda
cuda50-driver-319.23-110_cm6.1.x86_64
cuda50-libs-319.23-110_cm6.1.x86_64
[root@bright01 ~]# chroot /cm/images/cuda-image rpm -e cuda50-driver cuda50-libs
[root@bright01 ~]# chroot /cm/images/cuda-image yum install cuda-driver
...
Installed:
cuda-driver.x86_64 0:319.37-31_cm6.1
Complete!
```

The compute nodes must then be rebooted in order to use the updated software image on the compute nodes.

If the cudaXY-xorg local package is installed in the software image, it needs to be replaced by the cuda-xorg package. The cudaXY-xorg / cuda-xorg package is an optional local package.

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Upgrade a head node with CUDA GPUs to CUDA 5.5

If the head node has CUDA GPUs installed, the same conditions apply to it as for the software image: That is, the `cudaXY-driver` and the `cudaXY-libs` packages were needed in older CUDA versions, but are both replaced by the single `cuda-driver` package in CUDA 5.5. If the `cuda-driver` package is already installed, there is no need to remove the package. Just make sure the package is updated to the latest version.

First upgrade/install the shared CUDA 5.5 packages, as explained in the "Upgrade/install CUDA 5.5 on the head node." section earlier.

Then, remove the `cudaXY-driver` and the `cudaXY-libs` packages. After this the CUDA 5.5 local packages can be installed. An example session where the local CUDA packages are upgraded from CUDA 5.0 to CUDA 5.5 on the head node:

```
[root@bright01 ~]# rpm -qa | grep ^cuda
...
cuda50-libs-319.23-110_cm6.1.x86_64
cuda50-driver-319.23-110_cm6.1.x86_64
...
[root@bright01 ~]# rpm -e cuda50-driver cuda50-libs
[root@bright01 ~]# yum install cuda-driver
...
Installed:
cuda-driver.x86_64 0:319.37-31_cm6.1
Complete!
```

After updating the CUDA driver the head node should be rebooted in order to build and use the new kernel module.

Finally, if the `cudaXY-xorg` local package is installed on the head node, it needs to be replaced by the `cuda-xorg` package. The `cudaXY-xorg` / `cuda-xorg` package is an optional local package.

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