Installing the NVIDIA Container Toolkit

Installation

Installing with Apt

1. Configure the production repository:

```
$ curl -fsSL https://nvidia.github.io/libnvidia-container/gpgkey | sudo gpg --
dearmor -o /usr/share/keyrings/nvidia-container-toolkit-keyring.gpg \
  && curl -s -L https://nvidia.github.io/libnvidia-container/stable/deb/nvidia-
container-toolkit.list | \
    sed 's#deb https://#deb [signed-by=/usr/share/keyrings/nvidia-container-
toolkit-keyring.gpg] https://#g' | \
    sudo tee /etc/apt/sources.list.d/nvidia-container-toolkit.list
```

   Optionally, configure the repository to use experimental packages:

```
$ sed -i -e '/experimental/ s/^#//g' /etc/apt/sources.list.d/nvidia-container-
toolkit.list
```

2. Update the packages list from the repository:

```
$ sudo apt-get update
```

3. Install the NVIDIA Container Toolkit packages:

```
$ sudo apt-get install -y nvidia-container-toolkit
```

Installing with Yum or Dnf

1. Configure the production repository:

```
$ curl -s -L https://nvidia.github.io/libnvidia-container/stable/rpm/nvidia-
container-toolkit.repo | \
  sudo tee /etc/yum.repos.d/nvidia-container-toolkit.repo
```

Optionally, configure the repository to use experimental packages:

```
$ sudo yum-config-manager --enable nvidia-container-toolkit-experimental
```

2. Install the NVIDIA Container Toolkit packages:

```
$ sudo yum install -y nvidia-container-toolkit
```

Installing with Zypper

1. Configure the production repository:

```
$ sudo zypper ar https://nvidia.github.io/libnvidia-container/stable/rpm/nvidia-
container-toolkit.repo
```

Optionally, configure the repository to use experimental packages:

```
$ sudo zypper modifyrepo --enable nvidia-container-toolkit-experimental
```

2. Install the NVIDIA Container Toolkit packages:

```
$ sudo zypper --gpg-auto-import-keys install -y nvidia-container-toolkit
```

Configuration

Prerequisites

- You installed a supported container engine (Docker, Containerd, CRI-O, Podman).
- You installed the NVIDIA Container Toolkit.

Configuring Docker

1. Configure the container runtime by using the `nvidia-ctk` command:

```
$ sudo nvidia-ctk runtime configure --runtime=docker
```

   The `nvidia-ctk` command modifies the `/etc/docker/daemon.json` file on the host. The file is updated so that Docker can use the NVIDIA Container Runtime.

2. Restart the Docker daemon:

```
$ sudo systemctl restart docker
```

Rootless mode

To configure the container runtime for Docker running in Rootless mode, follow these steps:

1. Configure the container runtime by using the `nvidia-ctk` command:

```
$ nvidia-ctk runtime configure --runtime=docker --config=$HOME/.config/docker/
daemon.json
```

2. Restart the Rootless Docker daemon:

```
$ systemctl --user restart docker
```

3. Configure `/etc/nvidia-container-runtime/config.toml` by using the `sudo nvidia-ctk` command:

```
$ sudo nvidia-ctk config --set nvidia-container-cli.no-cgroups --in-place
```

Configuring containerd (for Kubernetes)

1. Configure the container runtime by using the `nvidia-ctk` command:

```
$ sudo nvidia-ctk runtime configure --runtime=containerd
```

The `nvidia-ctk` command modifies the `/etc/containerd/config.toml` file on the host. The file is updated so that containerd can use the NVIDIA Container Runtime.

2. Restart containerd:

```
$ sudo systemctl restart containerd
```

Configuring containerd (for nerdctl)

No additional configuration is needed. You can just run `nerdctl run --gpus=all`, with root or without root. You do not need to run the `nvidia-ctk` command mentioned above for Kubernetes.

See also the nerdctl documentation.

Configuring CRI-O

1. Configure the container runtime by using the `nvidia-ctk` command:

```
$ sudo nvidia-ctk runtime configure --runtime=crio
```

The `nvidia-ctk` command modifies the `/etc/crio/crio.conf` file on the host. The file is updated so that CRI-O can use the NVIDIA Container Runtime.

2. Restart the CRI-O daemon:

```
$ sudo systemctl restart crio
```

Configuring Podman

For Podman, NVIDIA recommends using CDI for accessing NVIDIA devices in containers.

Next Steps

- Install an NVIDIA GPU Driver if you do not already have one installed. You can install a driver by using the package manager for your distribution, but other installation methods, such as downloading a `.run` file intaller, are available. Refer to the *NVIDIA Driver Installation Quickstart Guide* for more information.
- Running a Sample Workload