文档

1. NVIDIA Container Toolkit源码：https://github.com/NVIDIA/nvidia-container-toolkit
2. NVIDIA Container Toolkit 安装向导：https://docs.nvidia.com/datacenter/cloud-native/container-toolkit/latest/install-guide.html

安装NVIDIA容器工具

确保主机操作系统已安装NVIDIA的显卡驱动

```
(GPTSoVits) nick@ubuntu:~/GPT-SoVITS4$ nvidia-smi
Sat May 18 13:48:25 2024
+---------------------------------------------------------------------------------------+
| NVIDIA-SMI 535.161.08             Driver Version: 535.161.08   CUDA Version: 12.2     |
|-----------------------------------------+----------------------+----------------------+
| GPU  Name                 Persistence-M | Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp   Perf          Pwr:Usage/Cap |         Memory-Usage | GPU-Util  Compute M. |
|                                         |                      |               MIG M. |
|=========================================+======================+======================|
|   0  Tesla P40                      Off | 00000000:84:00.0 Off |                    0 |
| N/A   36C    P0              47W / 250W |      0MiB / 23040MiB |      1%      Default |
|                                         |                      |                  N/A |
+-----------------------------------------+----------------------+----------------------+

+---------------------------------------------------------------------------------------+
| Processes:                                                                            |
|  GPU   GI   CI        PID   Type   Process name                            GPU Memory |
|        ID   ID                                                             Usage      |
|=======================================================================================|
|  No running processes found                                                           |
+---------------------------------------------------------------------------------------+
```

安装NVIDIA容器工具

配置apt repository（仓库）

```
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
```

安装容器工具

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

配置

前置条件

1. 安装了支持的容器引擎（Docker、Containerd、CRI-O、Podman）
2. 安装了NVIDIA容器工具包

配置docker

1. 配置容器运行时。nvidia-ctk命令修改主机上的/etc/docker/daemon.json文件。文件会更新，以便Docker可以使用NVIDIA Container Runtime

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

2. 重启守护进程

```
sudo systemctl restart docker
```

运行案例

```
docker run --rm --runtime=nvidia --gpus all ubuntu nvidia-smi
```

```
(base) nick@ubuntu:~$ docker run --rm --runtime=nvidia --gpus all ubuntu nvidia-smi
Mon May 20 14:10:57 2024
+---------------------------------------------------------------------------------------+
| NVIDIA-SMI 535.161.08             Driver Version: 535.161.08   CUDA Version: 12.2     |
|-----------------------------------------+----------------------+----------------------+
| GPU  Name                 Persistence-M | Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp   Perf          Pwr:Usage/Cap |         Memory-Usage | GPU-Util  Compute M. |
|                                         |                      |               MIG M. |
|=========================================+======================+======================|
|   0  Tesla P40                      Off | 00000000:84:00.0 Off |                    0 |
| N/A   31C    P0              46W / 250W |      0MiB / 23040MiB |      1%      Default |
|                                         |                      |                  N/A |
+-----------------------------------------+----------------------+----------------------+

+---------------------------------------------------------------------------------------+
| Processes:                                                                            |
|  GPU   GI   CI        PID   Type   Process name                            GPU Memory |
|        ID   ID                                                             Usage      |
|=======================================================================================|
|  No running processes found                                                           |
+---------------------------------------------------------------------------------------+
```