如何在jetson开发板中安装TensorRT容器

当前环境:jetpack4.4DP、jetson nano

注：适用于jetpack>=4.2和其他jetson开发板，如Xavier AGX、NX、TX2

一、拉取docker基础镜像卸载基础镜像中的CUDA

1、这里将官方提供的tensorflow镜像作为基础镜像，镜像地址https://ngc.nvidia.com/catalog/containers/nvidia:l4t-tensorflow，在jetson nano命令窗口输入指令

> sudo docker pull nvcr.io/nvidia/l4t-tensorflow:r32.4.3-tf1.15-py3

注:jetpack的版本匹配问题

2、进去docker并删除cuda

2. 1 使用以下指令进入docker

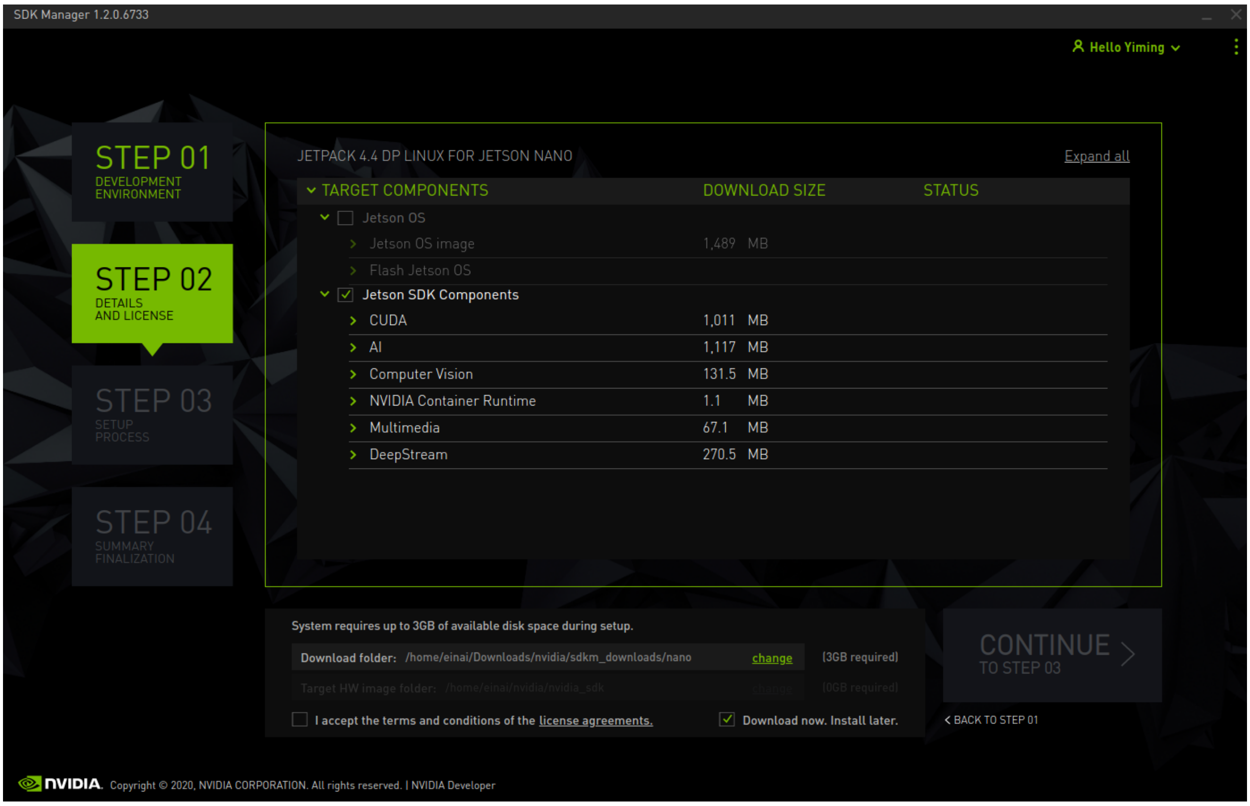
> sudo docker run -it nvcr.io/nvidia/l4t-tensorflow:r32.4.2-tf1.15-py3 /bin/bash

2. 2 使用以下指令删除原始cuda

> sudo apt-get --purge remove "*cublas*" "cuda*"

二、下载jetson nano 所需要的安装包

1、在一台ubuntu host上安装sdkmanager，下载对应的jetson和jetpack安装文件到host本地。如下图所示，勾选下方的**Download now. Install later**。左侧可以看到下载路径。



JETPACK 4.4 DP LINUX FOR JETSON NANO

TARGET COMPONENTS	DOWNLOAD SIZE	STATUS
□ Jetson OS		
Jetson OS image	1,489 MB	
Flash Jetson OS		
☑ Jetson SDK Components		
CUDA	1,011 MB	
AI	1,117 MB	
Computer Vision	131.5 MB	
NVIDIA Container Runtime	1.1 MB	
Multimedia	67.1 MB	
DeepStream	270.5 MB	

System requires up to 3GB of available disk space during setup.

Download folder: /home/einai/Downloads/nvidia/sdkm_downloads/nano change (3GB required)

Target HW image folder: /home/einai/nvidia/nvidia_sdk change (0GB required)

□ I accept the terms and conditions of the license agreements. ☑ Download now. Install later.

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2、下载完成后，安装文件打包并传送给容器。

三、配置TensorRT环境

1、安装CUDA

进入下载好的文件包中依次输入以下指令

```
sudo dpkg -i cuda-repo-l4t-10-2-local-10.2.89_1.0-1_arm64.deb
```

```
sudo apt-key add /var/cuda-repo-10-2-local-10.2.89/7fa2af80.pub
```

```
sudo apt-get -y update
```

```
sudo apt-get -y install cuda-toolkit-10-2
```

2、安装Cudnn

进入下载好的文件包中依次输入以下指令

```
sudo dpkg -i libcudnn8_8.0.0.180-1+cuda10.2_arm64.deb
```

```
sudo dpkg -i libcudnn8-dev_8.0.0.180-1+cuda10.2_arm64.deb
```

```
sudo dpkg -i libcudnn8-doc_8.0.0.180-1+cuda10.2_amd64.deb
```

3、安装TensorRT

进入下载好的文件包中依次输入以下指令

```
sudo dpkg -i libnvinfer7_7.1.0-1+cuda10.2_arm64.deb
```

> sudo dpkg -i libnvinfer-dev_7.1.0-1+cuda10.2_arm64.deb

> sudo dpkg -i libnvparsers7_7.1.0-1+cuda10.2_arm64.deb

> sudo dpkg -i libnvparsers-dev_7.1.0-1+cuda10.2_arm64.deb

> sudo dpkg -i libnvinfer-plugin7_7.1.0-1+cuda10.2_arm64.deb

> sudo dpkg -i libnvinfer-plugin-dev_7.1.0-1+cuda10.2_arm64.deb

> sudo dpkg -i libnvonnxparsers7_7.1.0-1+cuda10.2_arm64.deb

> sudo dpkg -i libnvonnxparsers-dev_7.1.0-1+cuda10.2_arm64.deb

> sudo dpkg -i libnvinfer-bin_7.1.0-1+cuda10.2_arm64.deb

> sudo dpkg -i libnvinfer-samples_7.1.0-1+cuda10.2_all.deb

> sudo dpkg -i libnvinfer-doc_7.1.0-1+cuda10.2_all.deb

> sudo dpkg -i graphsurgeon-tf_7.1.0-1+cuda10.2_arm64.deb

> sudo dpkg -i uff-converter-tf_7.1.0-1+cuda10.2_arm64.deb

> sudo dpkg -i python3-libnvinfer_7.1.0-1+cuda10.2_arm64.deb

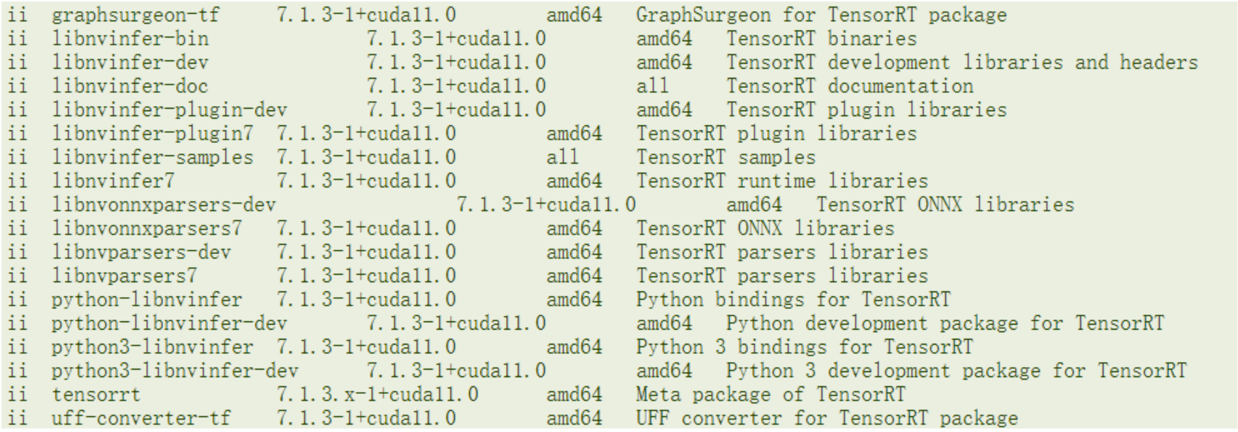
> sudo dpkg -i python3-libnvinfer-dev_7.1.0-1+cuda10.2_arm64.deb

> sudo dpkg -i tensorrt_7.1.0.16-1+cuda10.2_arm64.deb

4、验证

> dpkg -l | grep TensorRT

如下图所示则安装成功



```
ii  graphsurgeon-tf     7.1.3-1+cuda11.0        amd64   GraphSurgeon for TensorRT package
ii  libnvinfer-bin              7.1.3-1+cuda11.0        amd64   TensorRT binaries
ii  libnvinfer-dev              7.1.3-1+cuda11.0        amd64   TensorRT development libraries and headers
ii  libnvinfer-doc              7.1.3-1+cuda11.0        all     TensorRT documentation
ii  libnvinfer-plugin-dev       7.1.3-1+cuda11.0        amd64   TensorRT plugin libraries
ii  libnvinfer-plugin7  7.1.3-1+cuda11.0        amd64   TensorRT plugin libraries
ii  libnvinfer-samples  7.1.3-1+cuda11.0        all     TensorRT samples
ii  libnvinfer7         7.1.3-1+cuda11.0        amd64   TensorRT runtime libraries
ii  libnvonnxparsers-dev                7.1.3-1+cuda11.0        amd64   TensorRT ONNX libraries
ii  libnvonnxparsers7   7.1.3-1+cuda11.0        amd64   TensorRT ONNX libraries
ii  libnvparsers-dev    7.1.3-1+cuda11.0        amd64   TensorRT parsers libraries
ii  libnvparsers7       7.1.3-1+cuda11.0        amd64   TensorRT parsers libraries
ii  python-libnvinfer   7.1.3-1+cuda11.0        amd64   Python bindings for TensorRT
ii  python-libnvinfer-dev       7.1.3-1+cuda11.0        amd64   Python development package for TensorRT
ii  python3-libnvinfer  7.1.3-1+cuda11.0        amd64   Python 3 bindings for TensorRT
ii  python3-libnvinfer-dev      7.1.3-1+cuda11.0        amd64   Python 3 development package for TensorRT
ii  tensorrt            7.1.3.x-1+cuda11.0      amd64   Meta package of TensorRT
ii  uff-converter-tf    7.1.3-1+cuda11.0        amd64   UFF converter for TensorRT package
```