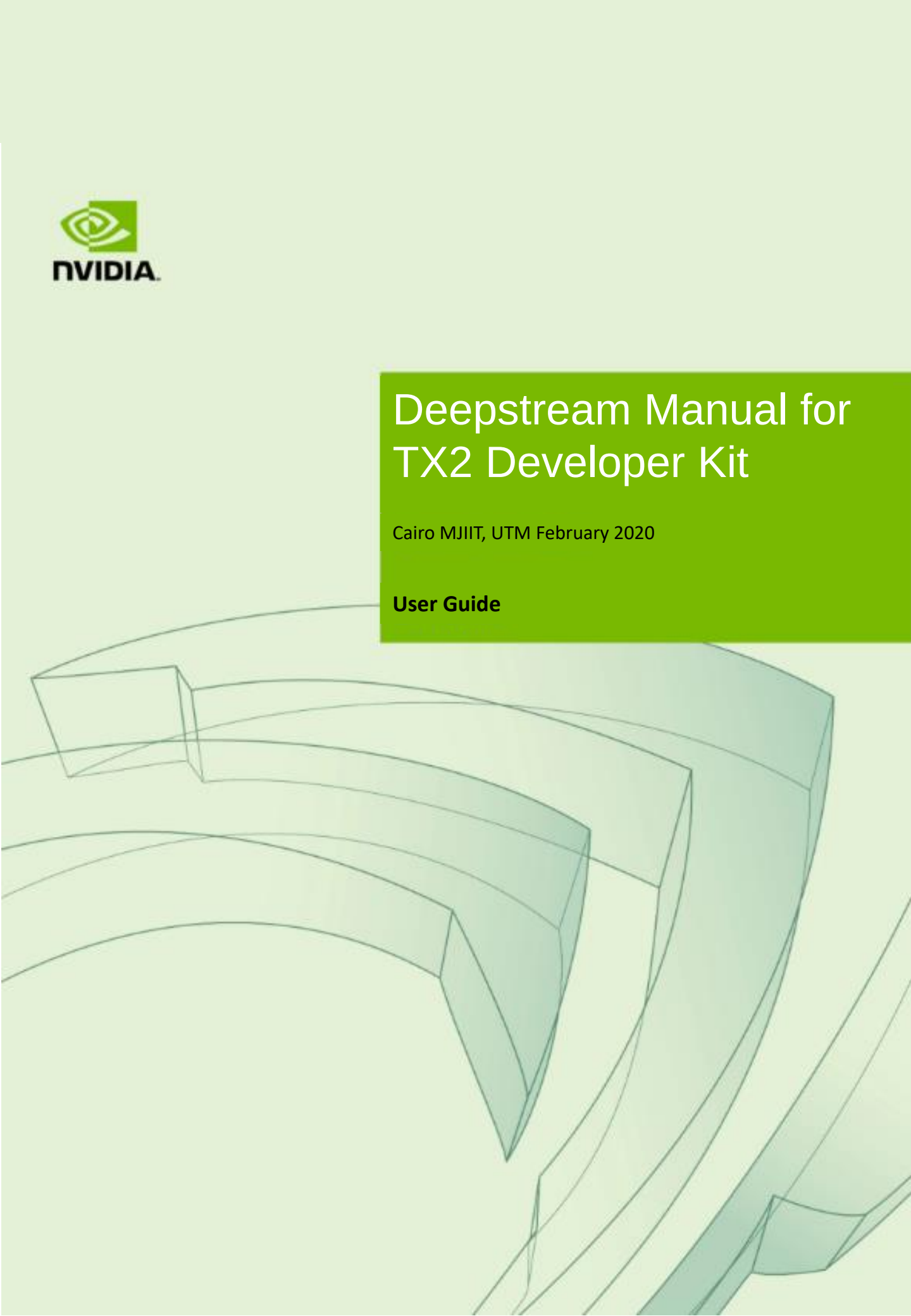


Deepstream Manual for TX2 Developer Kit

Cairo MJIIT, UTM February 2020

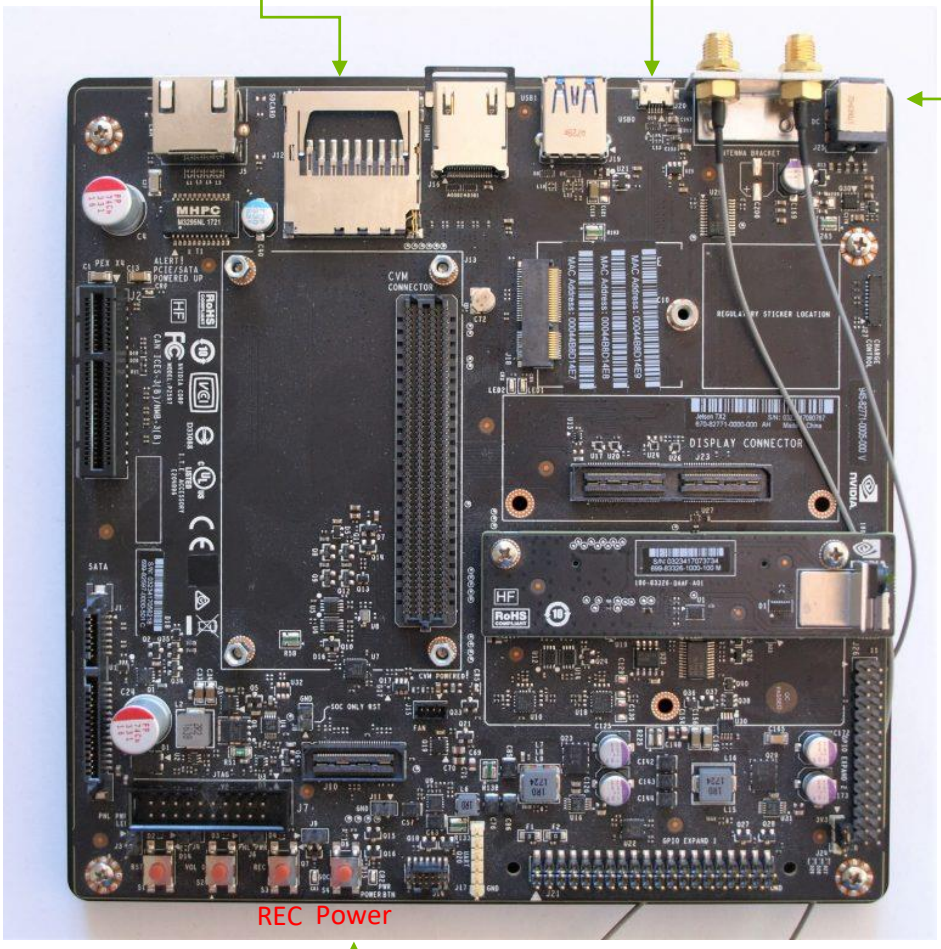
User Guide

Flashing TX2

Prepare Your Board

1. Insert SD Card

4. Connect board to host using micro USB



2. Plug 19V power

3. Device must in OFF state. Press REC button and hold. Press Power then release it. Release REC after 2 Second.

5. In Host Terminal execute ‘lsusb’. If it shown NVidia Corp then you good to go

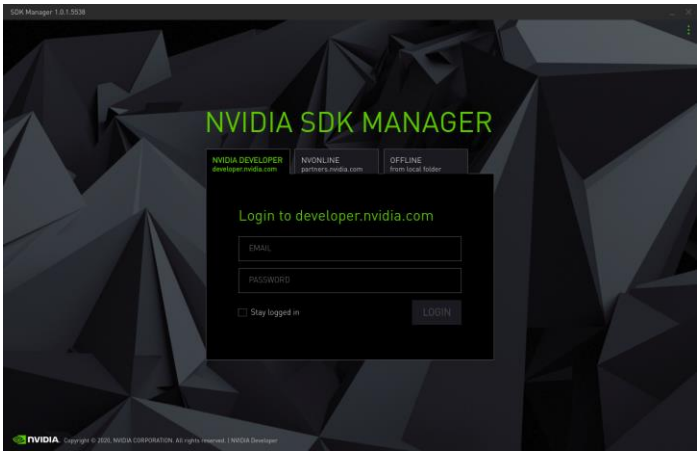
```
gmnx@GL553VD:/media/gmnx/cf9d96ca-f7c4-45f5-9064-652345026106/home/dlinano$ lsusb
Bus 002 Device 001: ID 1d6b:0003 Linux Foundation 3.0 root hub
Bus 001 Device 003: ID 8087:0a2a Intel Corp.
Bus 001 Device 002: ID 0bda:57f5 Realtek Semiconductor Corp.
Bus 001 Device 023: ID 0955:7020 NVidia Corp.
Bus 001 Device 004: ID 0b05:1854 ASUSTek Computer, Inc.
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
gmnx@GL553VD:/media/gmnx/cf9d96ca-f7c4-45f5-9064-652345026106/home/dlinano$
```

Flash OS using SDK Manager

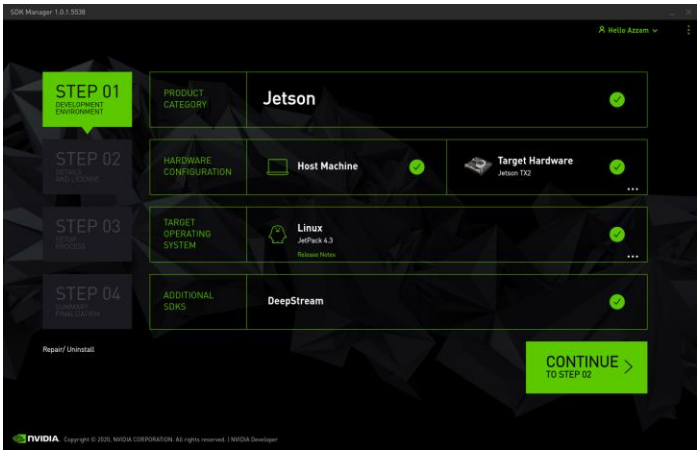
1. Download and Install

You can download .deb installation file at
https://developer.nvidia.com/nvidia-sdk-manager
Install it using command
‘sudo dpkg -i sdkmanager_x.x.x-xxxx_amd64.deb’

2. Open and login into your Nvidia developer account



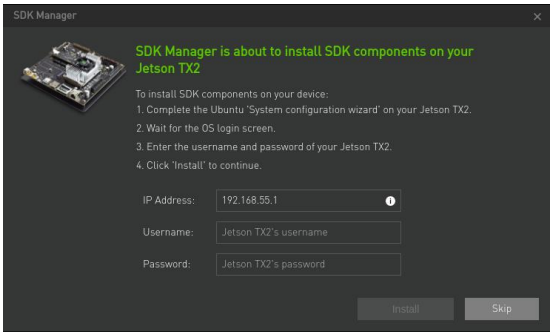
3. Select your board and deepstream SDK



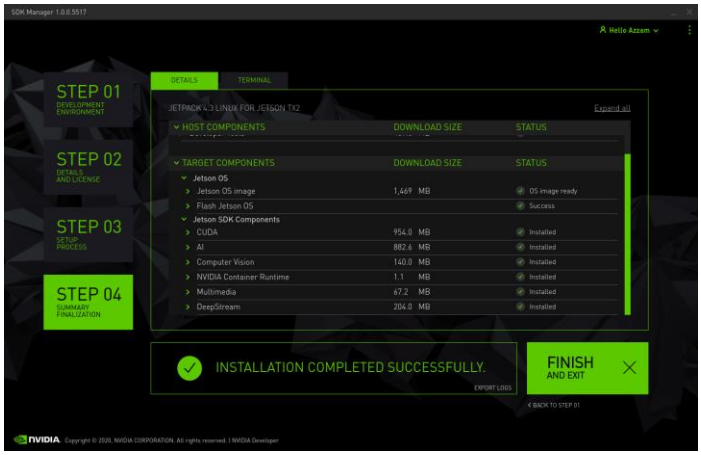
4. Start flashing, wait until everything downloaded and completed

5. Connect keyboard and HDMI monitor. Finish ubuntu installation by fill new user name and password

6. SDK manager will ask the username and password for the TX2 board. And start to install the SDK using SSH automatically



7. After everything complete, you can close the SDK manager and start configuring your freshly installed Jetpack



Setup TX2 for Getting Started Course

1. log using SSH through usb connection

```
ssh username@192.168.55.1
```

2. Update repo

```
sudo apt-get update
```

3. Install necessary dependency

```
sudo apt-get install git cmake libpython3-dev python3-pip
python3-numpy iptables-persistent libgstrtspserver-1.0-dev
```

5. Install Jupyter

```
python3 -m pip install jupyter jupyterlab
```

6. add jupyter binary to PATH

```
echo export PATH=~/.local/bin:$PATH >> ~/.bashrc

source ~/.bashrc
```

4. Open port for Jupyter

```
sudo iptables -A INPUT -p tcp --dport 8888 \
-m conntrack --ctstate NEW,ESTABLISHED -j ACCEPT

sudo iptables -A OUTPUT -p tcp --sport 8888 \
-m conntrack --ctstate ESTABLISHED -j ACCEPT
```

5. Open port for RTSP

```
sudo iptables -A INPUT -p udp -m udp --dport 8554 \
-j ACCEPT

sudo iptables -A OUTPUT -p udp -m udp --sport 8554 \
-j ACCEPT
```

6. Save iptables config for next boot

```
sudo netfilter-persistent save
```

7. Clone the course material

```
git clone https://github.com/pintar-ai/getting-started-tx2.git

mv getting-started-tx2/* ~/
```

8. Run Jupyter

```
jupyter lab --ip 192.168.55.1 --port 8888
```

9. Now you can follow the Getting Started for Nano Course https://courses.nvidia.com/courses/course-v1:DLI+C-RX-02+V1/about

Good Luck

Troubleshoot

if TX2 can't access internet through USB. You need to execute this script to share your internet access to USB interface
let say, you have internet connection in adapter wlp2s0 and the TX2 board connected to adapter enp0s20f0u2(hint : the connected adapter should have ip 192.168.55.100)

1. create script in your Host

```
nano share_my_internet.sh
```

2. Copy this script into the file

```
#!/bin/sh
# Share one network's internet connection with another
network.
# eg: If your Wifi adapter with internet is called wlan0
# and your local Ethernet adapter is called eth0,
# then run:
#    ./share_my_internet.sh wlan0 eth0
# This will only last until you reboot your computer.
sudo iptables --flush
sudo iptables --table nat --flush
sudo iptables --delete-chain
sudo iptables --table nat --delete-chain
sudo iptables --table nat --append POSTROUTING --out-
interface $1 -j MASQUERADE
sudo iptables --append FORWARD --in-interface $2 -j
ACCEPT
sudo sysctl -w net.ipv4.ip_forward=1
```

3. Make it executable

```
chmod +x share_my_internet.sh
```

4. Share the internet connection between adapter

```
./share_my_internet.sh wlp2s0 enp0s20f0u2
```