Clone / Restore Jetson Image

Reference pages:

https://elinux.org/Jetson/Clone

https://emrejakbulut.medium.com/nvidia-jetson-agx-xavier-image-cloning-with-cti-rogue-carrier-board-181cf2979e76

For the most update-to-date instructions:

- Refer to the README for backup and restore utility that is installed along with the Jetson SDK Manager
- This README is found at, for example, ~/nvidia/nvidia_sdk/JetPack_5.0.2_Linux_JETSON_AGX_ORIN_TARGETS/Linux_for_Tegra/tools/backup_restore/README_backup_restore.txt

Cloning Jetson AGX Orin Image:

On Host System for JetPack 5.1.3

$ cd ~/nvidia/nvidia_sdk/JetPack_5.1.3_Linux_JETSON_AGX_ORIN_TARGETS/Linux_for_Tegra

$ systemctl stop udisks2.service

$ sudo tools/l4t_flash_prerequisites.sh

$ sudo service nfs-kernel-server start

Place Jetson into recovery mode and connect to remote PC (check with lsusb command)

Then run the following command with appropriate values for <devname> (optional) and board-name

$ sudo ./tools/backup_restore/l4t_backup_restore.sh [-e <devname>] -b <board-name>

E.g.:

$ sudo ./tools/backup_restore/l4t_backup_restore.sh -b jetson-orin-nano-devkit

(The above command was used to backup the Jetson Orin on 8.23.2024)

-- or –

$ sudo ./tools/backup_restore/l4t_backup_restore.sh -e nvme0n1 -b jetson-orin-nano-devkit

(NOTE: nvme0n1 for <devname> in the command above is just an example and may not actually be valid for the Jetson Orin)

If backup is successful, the image is stored in "Linux_for_Tegra/tools/backup_resotre/images"

On Host System for JetPack 5.0.2:

$ systemctl stop udisks2.service

$ sudo apt install libxml2-utils simg2img abooting sshpass

put Jetson in recovery mode and connect to host

$ cd <path-to-Linux_for_Tegra-folder>

$ ./tools/backup_restore/l4t_backup_restore.sh -b jetson-agx-orin-devkit

If command completes successfully, a backup image is stored in Linux_for_Tegra/tools/backup_restore/images

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OLD INSTRUCTIONS:

Jetson Forced Recovery Mode

Put the Jetson into forced recovery mode

Jetson AGX Xavier

- Hold down the recovery button (middle button) and power up

Jetson AGX Orin

- Hold down the recovery button (middle button) and power up

Verify that Jetson is in forced recovery mode

- Connect Ubuntu host computer to the Jetson via USB (using USB-C port on opposite side of Jetson from the power input)
- Open a terminal and run the following command on host computer:

  $> lsusb

  One of the output lines will contain "NVIDIA Corp.", indicated the Jetson is in forced recovery mode.

Clone Jetson Image

If you can to create a backup of the userspace in your Jetson.

You will need to have used the sdkmanage to download and build the base structure of the corresponding Jetpack.

```
#-------------------------
# On Jetson Source Device

1. place Jetson into forced recovery mode
2. connect Jetson to Host machine using same USB port as used for installing JetPack

#-----------------
# On Host Machine

# {VERSION}  is the version of the Jetpack such as '5.0.2'
# {JETSON_BOARD} is the Jetson board name such as 'AGX_XAVIER'
cd ~/nvidia/nvidia_sdk/JetPack_{VERSION}_Linux_JETSON_{JETSON_BOARD}_TARGETS/Linux_for_Tegra

# {name_img_backup} can be any name such as "slamr01_ubuntu20_04_jetpack5_0_2_backup"
#

# <board> options:
# - Jetson AGX Orin:   "jetson-agx-orin-devkit"
# - Jetson AGX Xavier: "jetson-xavier"
# - Jetson TX2:        "jetson-tx2"
sudo ./flash.sh -r -k APP -G {name_img_backup].img <board> mmcblk0p1
```

Restore Jetson Image

flashing a built image (backup or original image) into the corresponding board.

```
#-------------------------
# On Jetson Target Device

1. place Jetson into forced recovery mode
2. connect Jetson to Host machine using same USB port as used for installing JetPack

#-----------------
# On Host Machine

cd {Linux_for_Tegra_Dir}

# save the original base image from JetPack by renaming these files
mv bootloader/system.img  bootloader/system_base.img
mv bootloader/system.img.raw  bootloader/system_base.img.raw

# copy the new .img and .img.raw files which contain the complete image from source device
cp backup.img bootloader/system.img
cp backup.img.raw bootloader/system.img.raw
# or to save drive space, you can create a symbolic link to the new image files located someplace on the host
system
ln -s <new_image.img> bootloader/system.img
ln -s <new_image.img.raw> bootloader/system.img.raw

# flash the existing image onto the target Jetson device
# <board> options:
# - Jetson AGX Orin:   "jetson-agx-orin-devkit"
# - Jetson AGX Xavier: "jetson-xavier"
# - Jetson TX2:        "jetson-tx2"
sudo ./flash.sh -r -k APP <board> mmcblk0p1
```