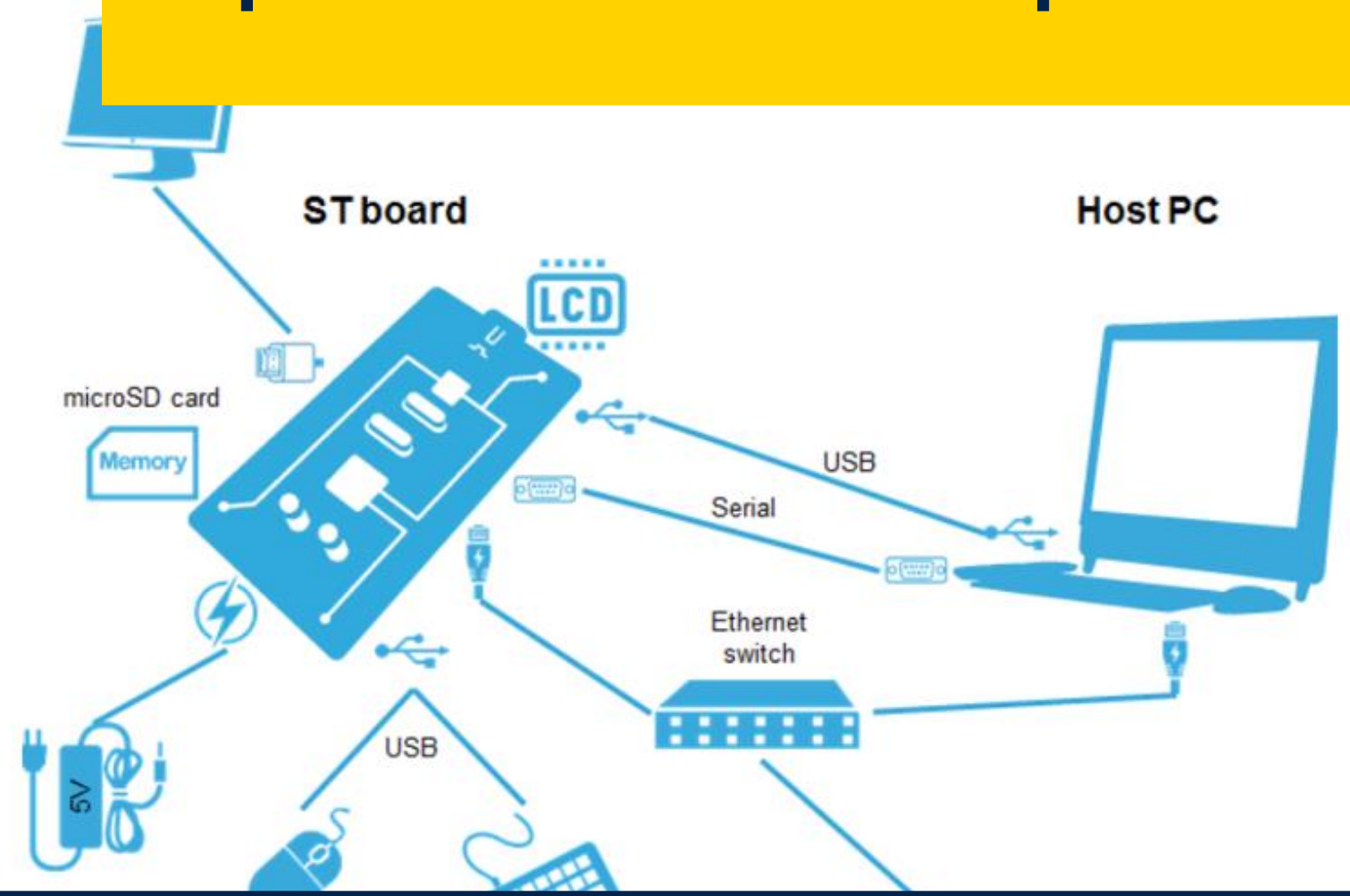
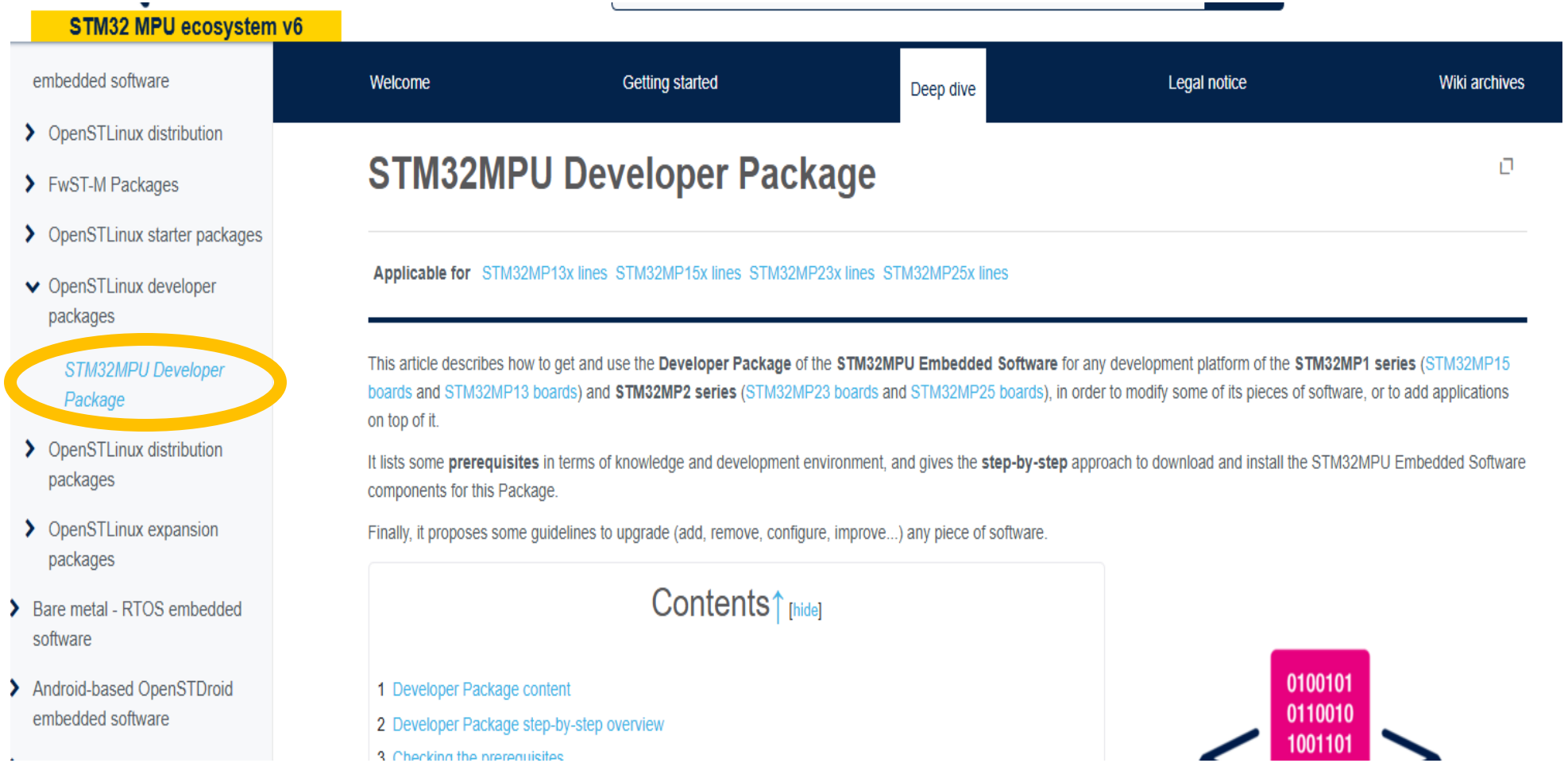
OpenSTLinux Developer Package



WIKI PAGE for OpenSTLinux Developer Package

Refer to:

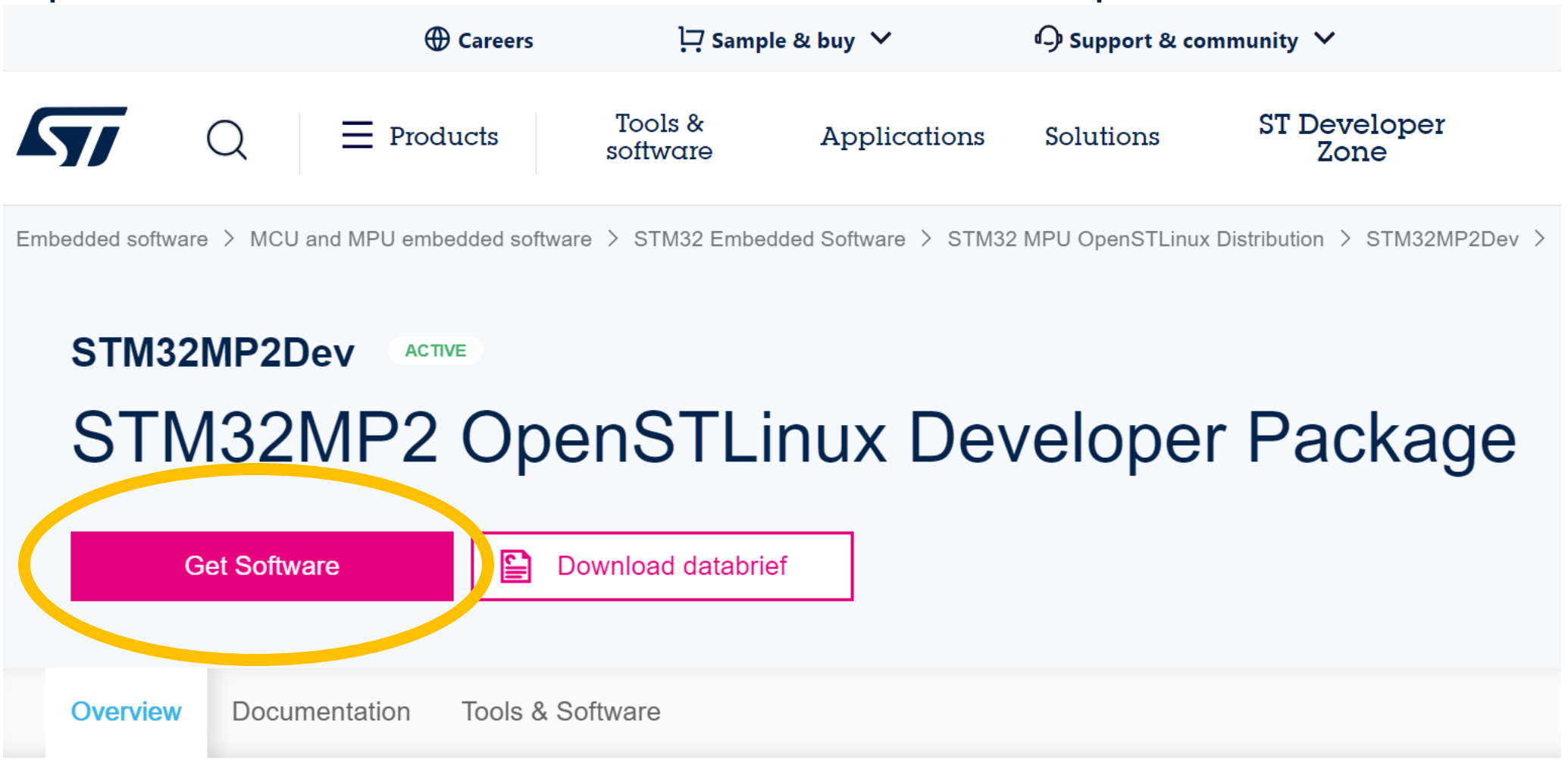
https://wiki.st.com/stm32mpu/wiki/STM32MPU_Developer_Package



OpenSTLinux Developer Package - **DOWNLOAD**

Refer to:

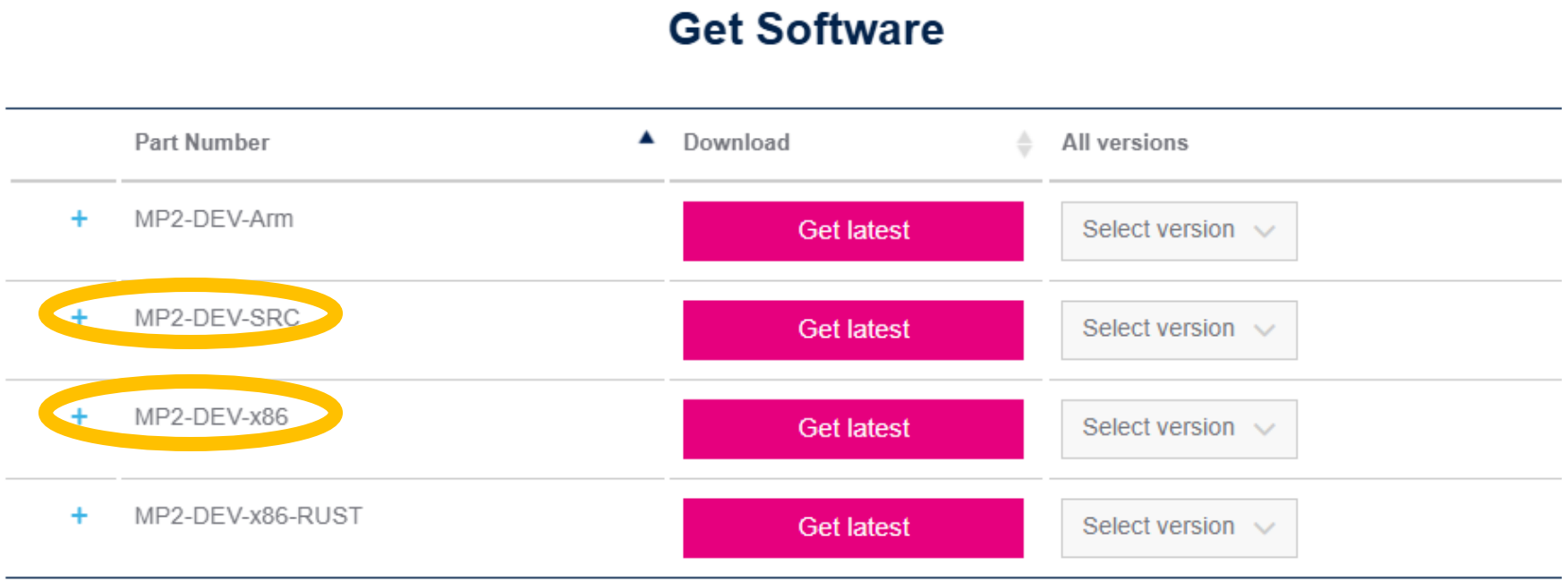
https://www.st.com/en/embedded-software/stm32mp2dev.html



OpenSTLinux Developer Package - **DOWNLOAD**

Refer to:

https://www.st.com/en/embedded-software/stm32mp2dev.html



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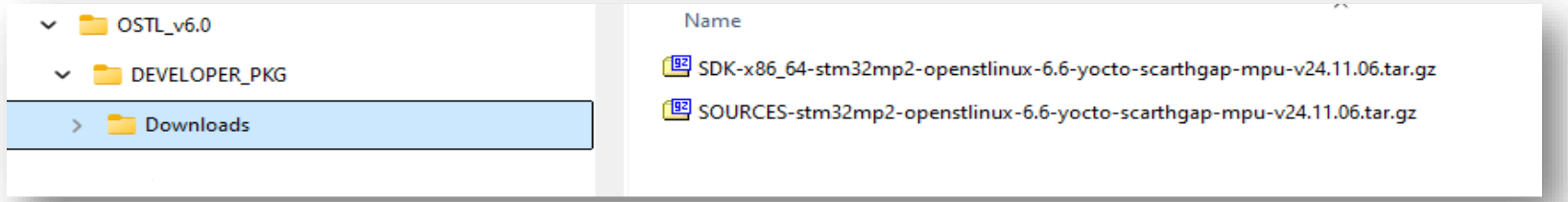
SDK ENVIRONMENT SETUP

OpenSTLinux Developer Package - **SETUP**

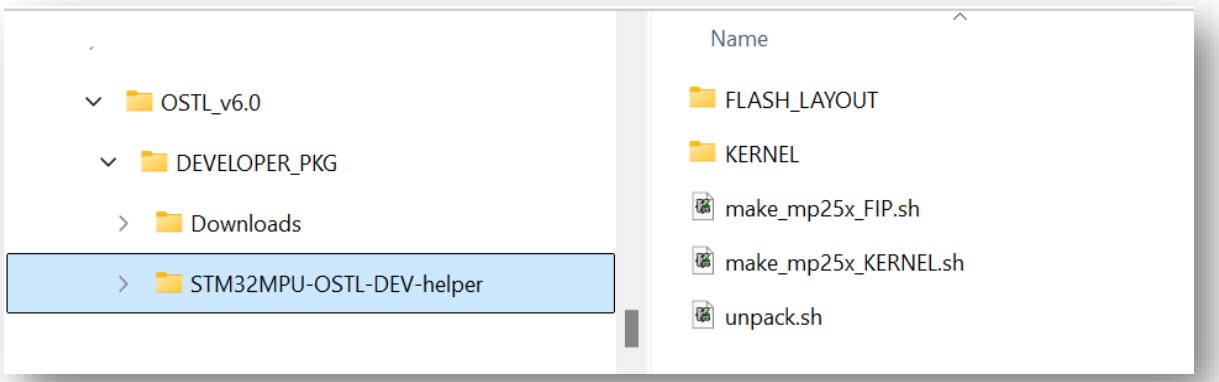
Materials:

1. Toolchain and SOURCES:



2. STM32MPU-OSTL-DEV-helper:

   - From: https://github.com/stm32-hotspot/STM32MPU-OSTL-DEV-helper



OpenSTLinux Developer Package - **SETUP**

Tree operations:

1. Unpack the 2 tar.gz archives
2. Install the cross compiler toolchain
3. Extract and patch the lowlevel firmware sources

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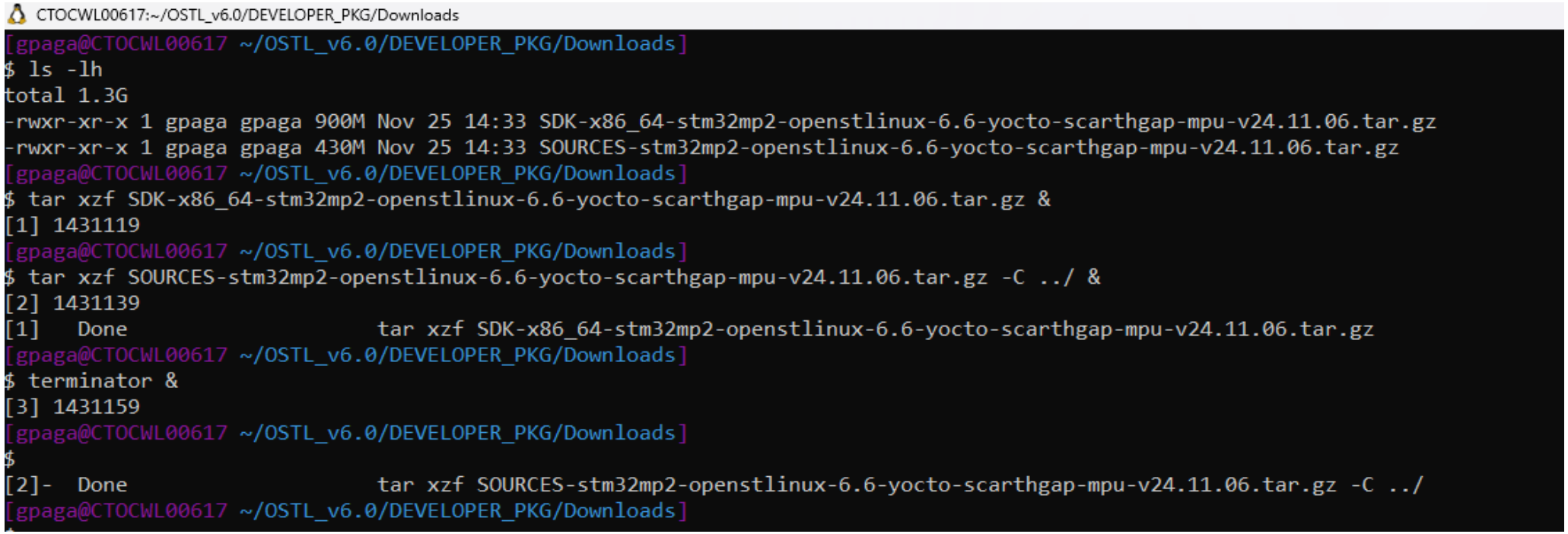
OpenSTLinux Developer Package - **SETUP**

1. Unpack tar.gz archives

$ cd ~/OSTL_v6.0/DEVELOPER_PKG/Downloads/
$ tar xzf en.SDK-x86_64-stm32mp2-openstlinux-6.6-yocto-scarthgap-mpu-v24.11.06.tar.gz &
$ tar xzf en.SOURCES-stm32mp2-openstlinux-6.6-yocto-scarthgap-mpu-v24.11.06.tar.gz -C ../ &
$ terminator &

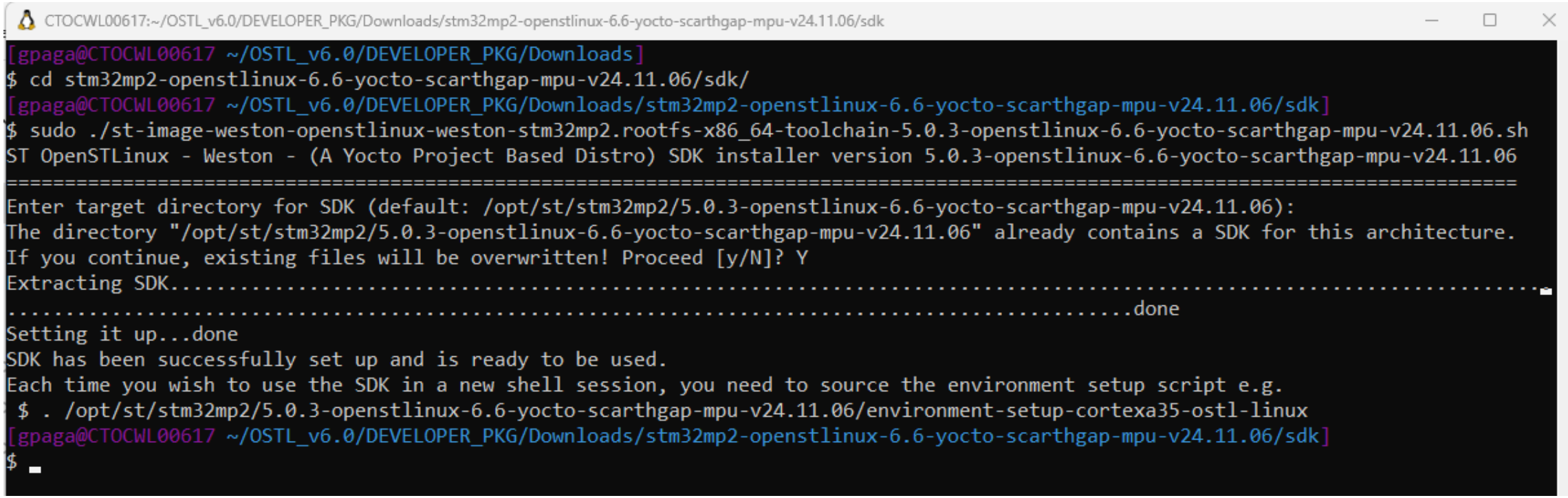


OpenSTLinux Developer Package - **SETUP**

2. Install the cross compiler toolchain

$ cd stm32mp2-openstlinux-6.6-yocto-scarthgap-mpu-v24.11.06/sdk/

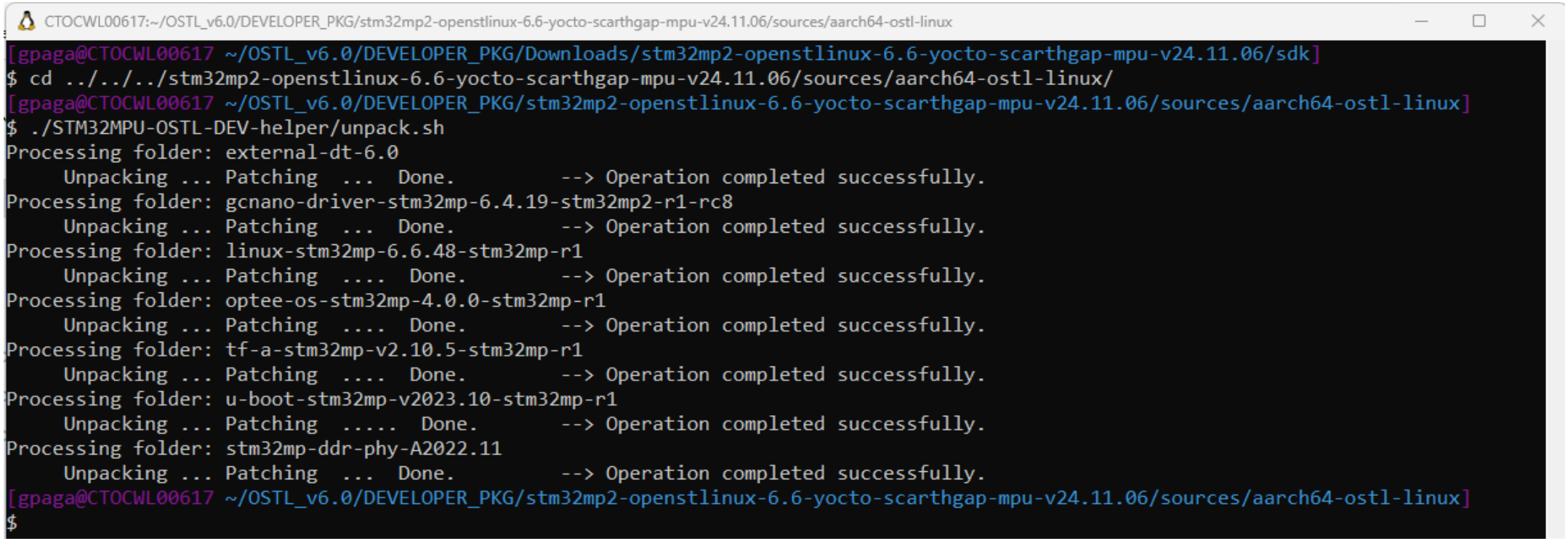
$ sudo ./st-image-weston-openstlinux-weston-stm32mp2.rootfs-x86_64-toolchain-5.0.3-openstlinux-6.6-yocto-scarthgap-mpu-v24.11.06.sh



OpenSTLinux Developer Package - **SETUP**

3. Extract and patch the lowlevel firmware sources

$ cd ../stm32mp2-openstlinux-6.6-yocto-scarthgap-mpu-v24.11.06/sources/aarch64-ostl-linux/
$ cp –r ../../../STM32MPU-OSTL-DEV-helper/ .
$ ./STM32MPU-OSTL-DEV-helper/unpack.sh



SDK BUILD

OpenSTLinux Developer Package - **BUILD**

We are now ready to build the low level components of our BSP:

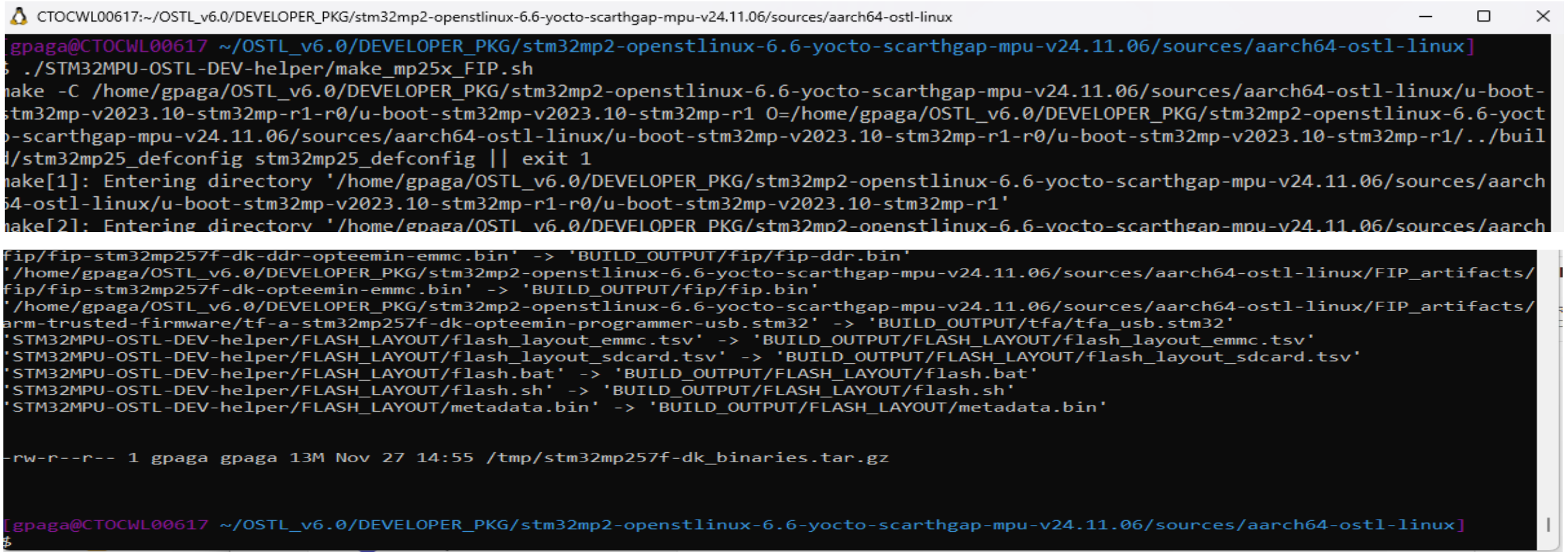
1. TF-A + devicetree
2. OP-TEE + devicetree
3. U-BOOT + devicetree
4. Linux kernel + devicetree

FIP = Firmware Image Package

OpenSTLinux Developer Package - **BUILD**

FIP build:

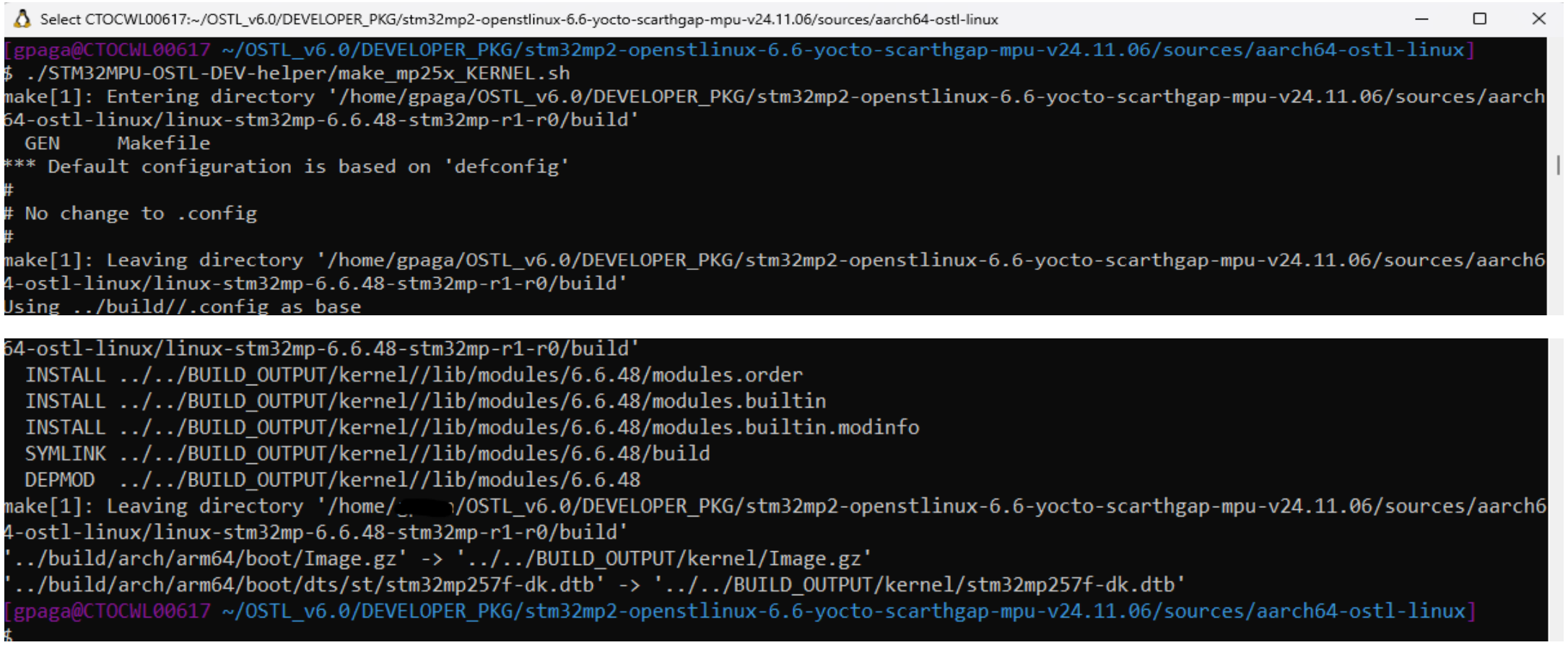
./STM32MPU-OSTL-DEV-helper/make_mp25x_FIP.sh



OpenSTLinux Developer Package - **BUILD**

KERNEL build:

./STM32-OSTL-DEV-helper/make_mp25x_KERNEL.sh



OpenSTLinux Developer Package - **BUILD OUTPUT**

- BUILD_OUTPUT/tfa/tfa_usb.stm32
- BUILD_OUTPUT/tfa/tfa_emmc.stm32

- BUILD_OUTPUT/fip/fip.bin
- BUILD_OUTPUT/fip/fip-ddr.bin

- BUILD_OUTPUT/kernel/Image.gz
- BUILD_OUTPUT/kernel/stm32mp257f-dk.dtb
- BUILD_OUTPUT/kernel/lib/modules/

```
[gpaga@CTOCWL00617 ~/OSTL_v6.0/DEVELOPER_PKG/stm32mp2-openstlinux-6.1-
$ ls -1 BUILD_OUTPUT/tfa/* BUILD_OUTPUT/fip/* BUILD_OUTPUT/kernel/*
BUILD_OUTPUT/fip/fip.bin
BUILD_OUTPUT/fip/fip-ddr.bin
BUILD_OUTPUT/kernel/Image.gz
BUILD_OUTPUT/kernel/stm32mp257f-dk.dtb
BUILD_OUTPUT/tfa/metadata.bin
BUILD_OUTPUT/tfa/tfa_emmc.stm32
BUILD_OUTPUT/tfa/tfa_usb.stm32

BUILD_OUTPUT/kernel/lib:
modules
[gpaga@CTOCWL00617 ~/OSTL_v6.0/DEVELOPER_PKG/stm32mp2-openstlinux-6.1-
$
```

Opt	Part	Name	Type	Device	Offset	Binary
-	0x01	fsbl-boot	Binary	none	0x0	tf-a-usb.stm32
-	0x02	fip-ddr	FIP	none	0x0	fip-ddr.bin
-	0x03	fip-boot	FIP	none	0x0	fip.bin
P	0x04	fsbla1	Binary	mmc1	boot1	tf-a-emmc.stm32
P	0x05	fsbla2	Binary	mmc1	boot2	tf-a-emmc.stm32
P	0x06	metadata1	FWU_MDATA	mmc1	0x00080000	metadata.bin
P	0x07	metadata2	FWU_MDATA	mmc1	0x00100000	metadata.bin
P	0x08	fip-a	FIP	mmc1	0x00180000	fip.bin

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BOARD UPDATE

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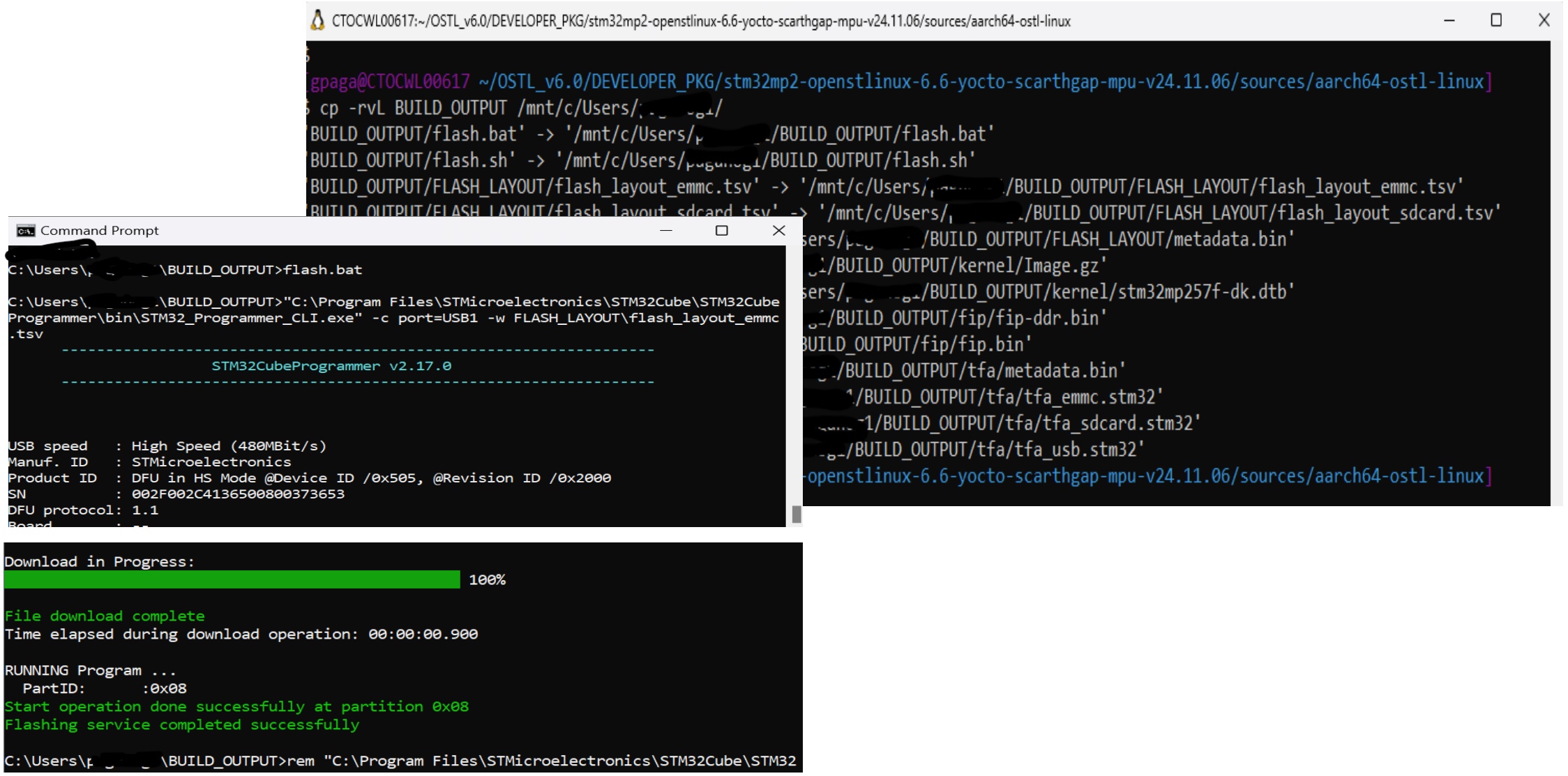
OpenSTLinux Developer Package - **FLUSH**



STM32MP2x power and flexibility 2/2

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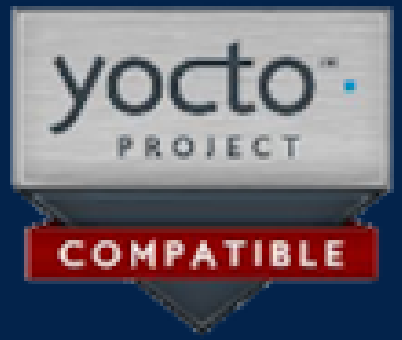
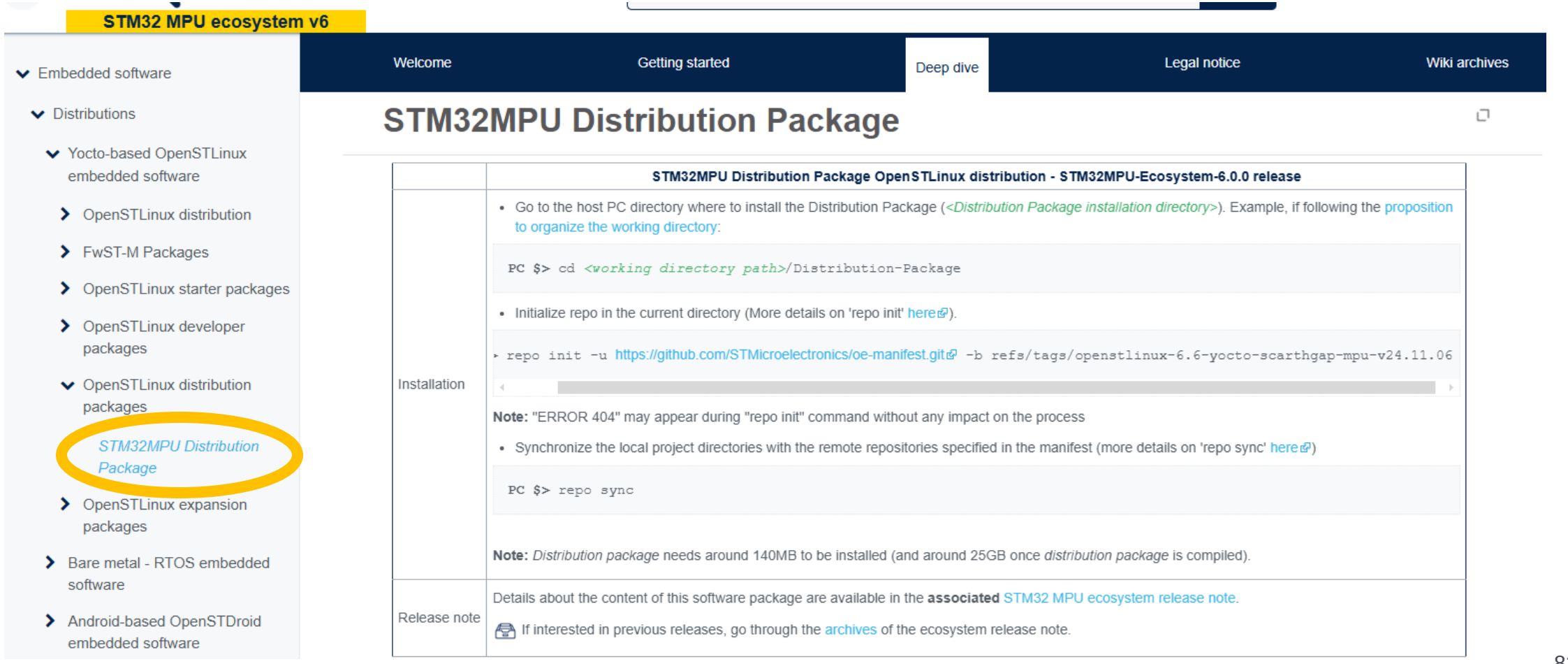
OpenSTLinux Distribution Package



WIKI PAGE for OpenSTLinux Distribution Package

Refer to:

https://wiki.st.com/stm32mpu/wiki/STM32MPU_Distribution_Package



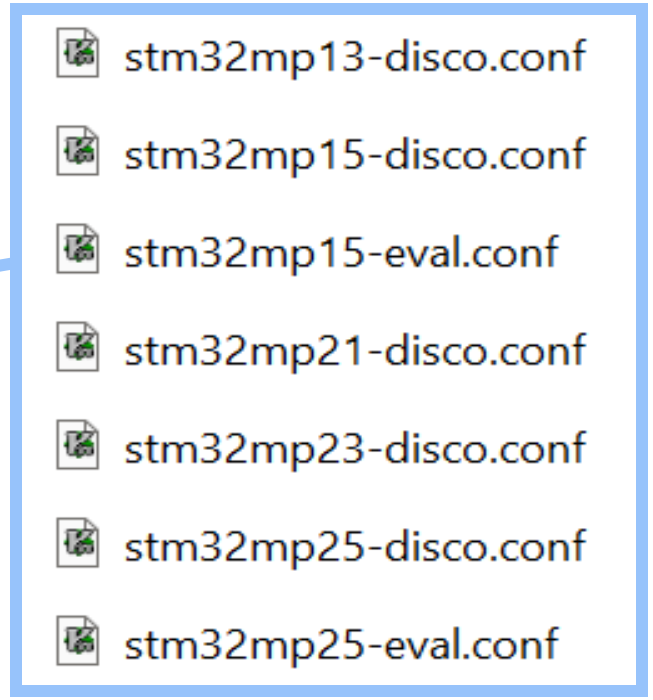
OpenSTLinux Distribution Package - **SETUP**

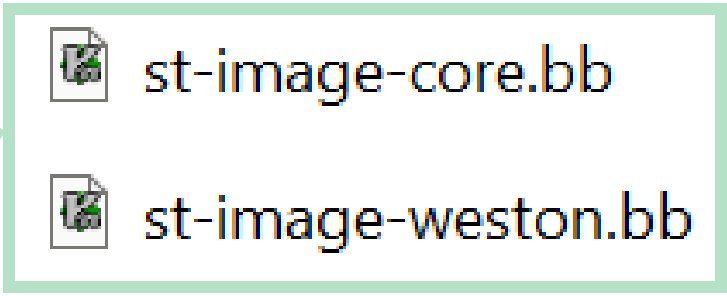
- Setup commands:
  - $ mkdir –p ~/OSTL_v6.0/DISTRIBUTION_PKG
  - $ cd ~/OSTL_v6.0/DISTRIBUTION_PKG
  - $ repo init -u https://github.com/STMicroelectronics/oe-manifest.git -b refs/tags/openstlinux-6.6-yocto-scarthgap-mpu-v24.11.06
  - $ repo –j8 sync

OpenSTLinux Distribution Package – **OpenSTLinux**

Brief Yocto ABC:

- 3 main definitions/variables:
  - DISTRO [openstlinux-weston]
  - MACHINE [MyBoard]
  - IMAGE [MyImage]
- 2 concepts
  - Overlay
  - Recipe
- 1 tool:
  - bitbake





OpenSTLinux Distribution Package – **OpenSTLinux**

Yocto ABC:

- DISTRO [openstlinux-weston]
- MACHINE [MyBoard]
- IMAGE [MyImage]

5.1. Initializing the OpenEmbedded build environment

The OpenEmbedded environment setup script must be run once in each new working terminal in which you use the BitBake or devtool tools (see later):

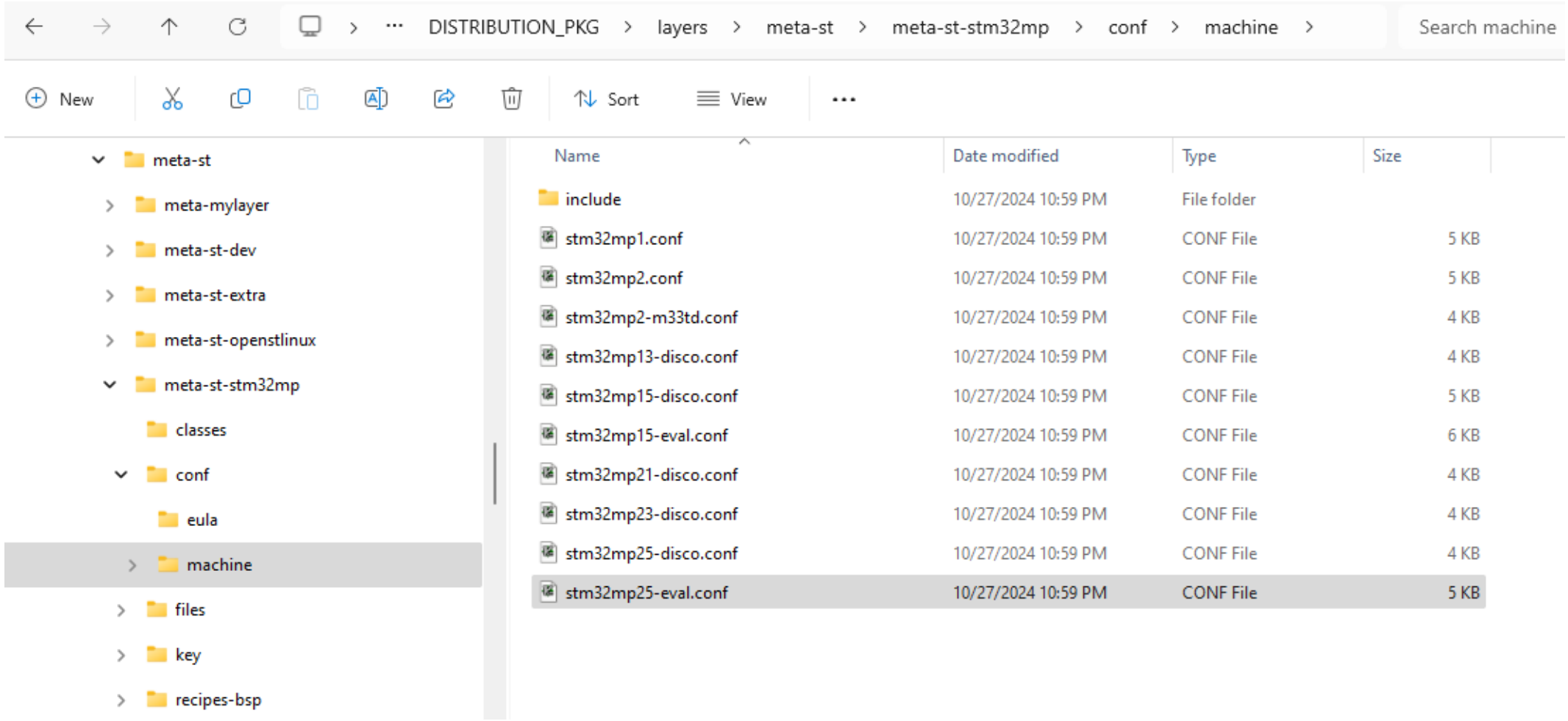
```
PC $> DISTRO=openstlinux-weston MACHINE=<machine> source layers/meta-st/scripts/envsetup.sh
```

The *bitbake <image>* command is used to build the image. *<image>* specifies the targeted image, *st-image-weston* here (Weston image support).

```
PC $> bitbake st-image-weston
```

OpenSTLinux Distribution Package – **MACHINE defs**

https://github.com/STMicroelectronics/meta-st-stm32mp/tree/scarthgap/conf/machine



OpenSTLinux Distribution Package – **MACHINE defs**

https://github.com/STMicroelectronics/meta-st-stm32mp/blob/scathgap/conf/machine/stm32mp25-eval.conf

```
# Chip architecture
# =========================================================================
DEFAULTTUNE = "cortexa35"
include conf/machine/include/arm/armv8a/tune-cortexa35.inc

# =========================================================================
# boot scheme
# =========================================================================
BOOTSCHEME_LABELS = "optee"

# =========================================================================
# boot device
# =========================================================================
# Define the boot device supported
BOOTDEVICE_LABELS += "emmc"
BOOTDEVICE_LABELS += "nor-sdcard"
BOOTDEVICE_LABELS += "sdcard"

# =========================================================================
# Machine settings
# =========================================================================
# activate external dt
EXTERNAL_DT_ENABLED = "1"

# Define list of devicetree per supported storage
STM32MP_DT_FILES_EMMC    += "stm32mp257f-ev1"
STM32MP_DT_FILES_SDCARD  += "stm32mp257f-ev1"
STM32MP_DT_FILES_NOR     += "stm32mp257f-ev1"

EXTERNAL_DEVICETREE_SDCARD = "stm32mp257f-ev1-ca35tdcid-ostl"
EXTERNAL_DEVICETREE_SDCARD =+ "stm32mp257f-ev1-ca35tdcid-ostl-m33-examples"

EXTERNAL_DEVICETREE_EMMC = "stm32mp257f-ev1-ca35tdcid-ostl"
```

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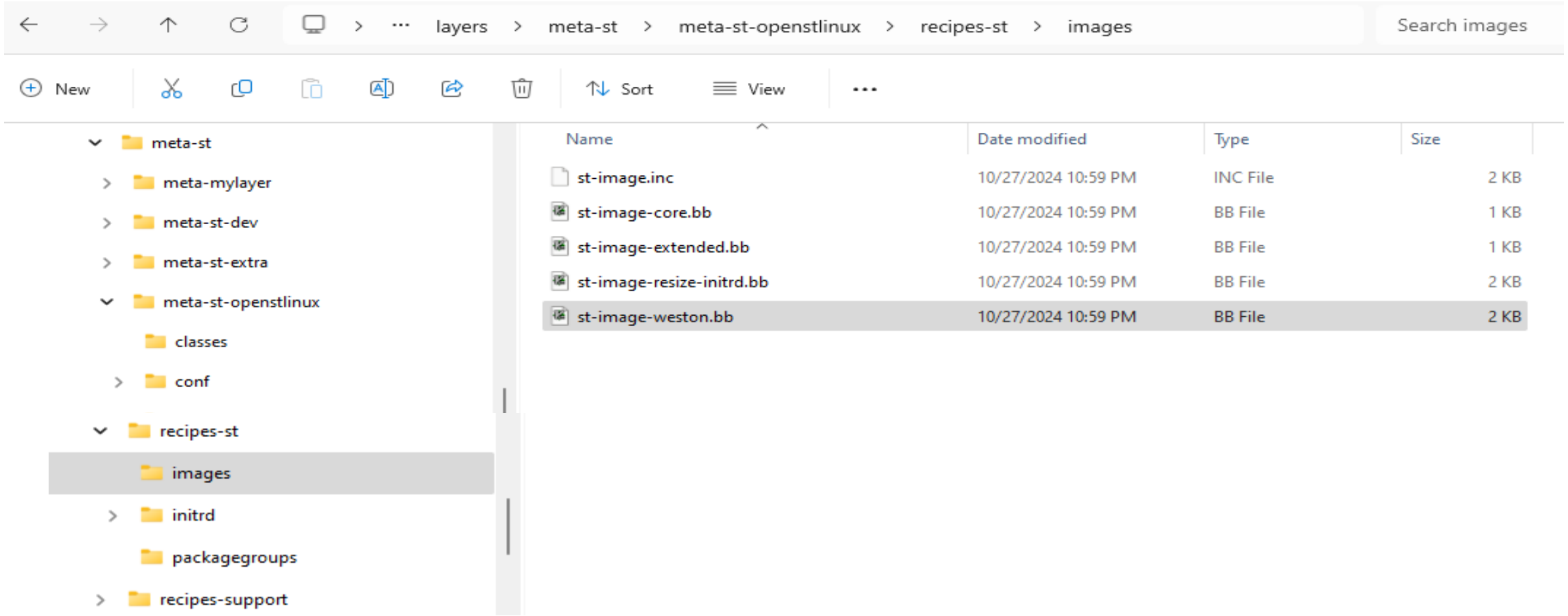
OpenSTLinux Distribution Package – **IMAGE defs**

https://github.com/STMicroelectronics/meta-st-openstlinux/tree/scarthgap/recipes-st/images



OpenSTLinux Distribution Package – **IMAGE defs**

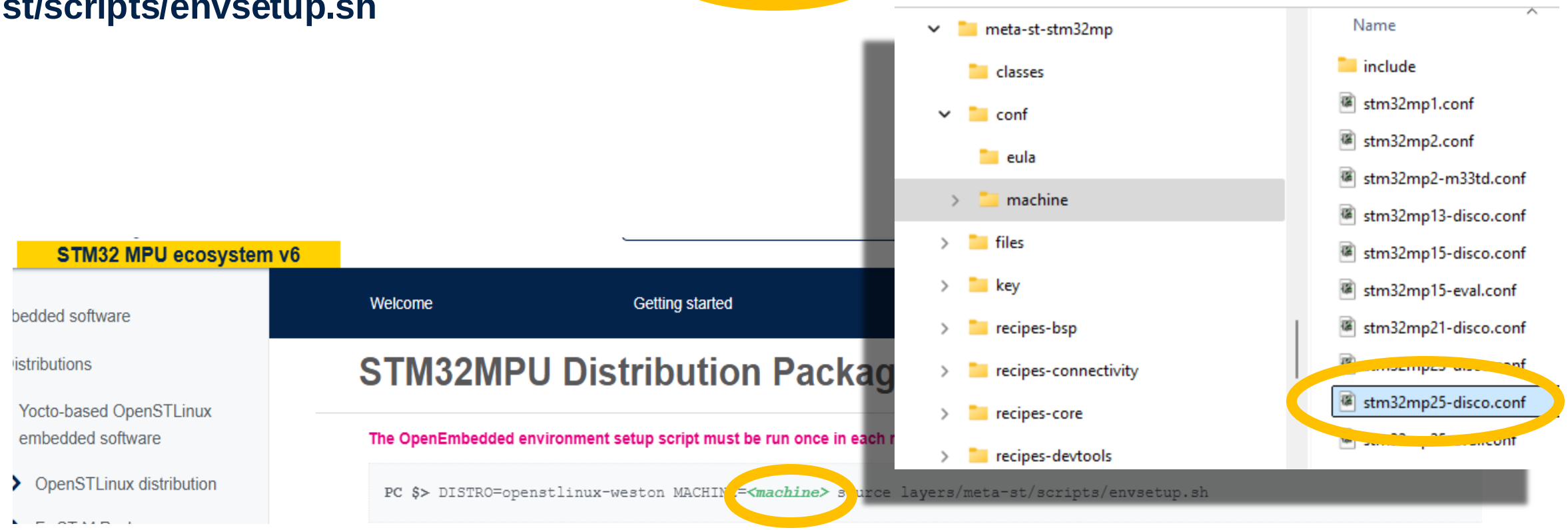
https://github.com/STMicroelectronics/meta-st-openstlinux/blob/scarthgap/recipes-st/images/st-image-weston.bb

```
SUMMARY = "OpenSTLinux weston image with basic Wayland support (if enable in distro)."
LICENSE = "Proprietary"

include recipes-st/images/st-image.inc

inherit core-image features_check

# let's make sure we have a good image...
REQUIRED_DISTRO_FEATURES = "wayland"

IMAGE_LINGUAS = "en-us"

IMAGE_FEATURES += "\
     splash                \
     package-management    \
     ssh-server-dropbear   \
     hwcodecs              \
     tools-profile         \
     eclipse-debug         \
     "

#
# INSTALL addons
#
CORE_IMAGE_EXTRA_INSTALL += " \
     resize-helper \
     st-hostname \
     \
     packagegroup-framework-core-base     \
     packagegroup-framework-tools-base    \
     \
     packagegroup-framework-core          \
     packagegroup-framework-tools         \
     \
     packagegroup-framework-core-extra    \
     \
     ${@bb.utils.contains('COMBINED_FEATURES', 'optee', 'packagegroup-optee-core', '', d)} \
     ${@bb.utils.contains('COMBINED_FEATURES', 'optee', 'packagegroup-optee-test', '', d)} \
     "
```

OpenSTLinux Distribution Package – **ENV SETUP**

Rif: https://wiki.st.com/stm32mpu/wiki/STM32MPU_Distribution_Package

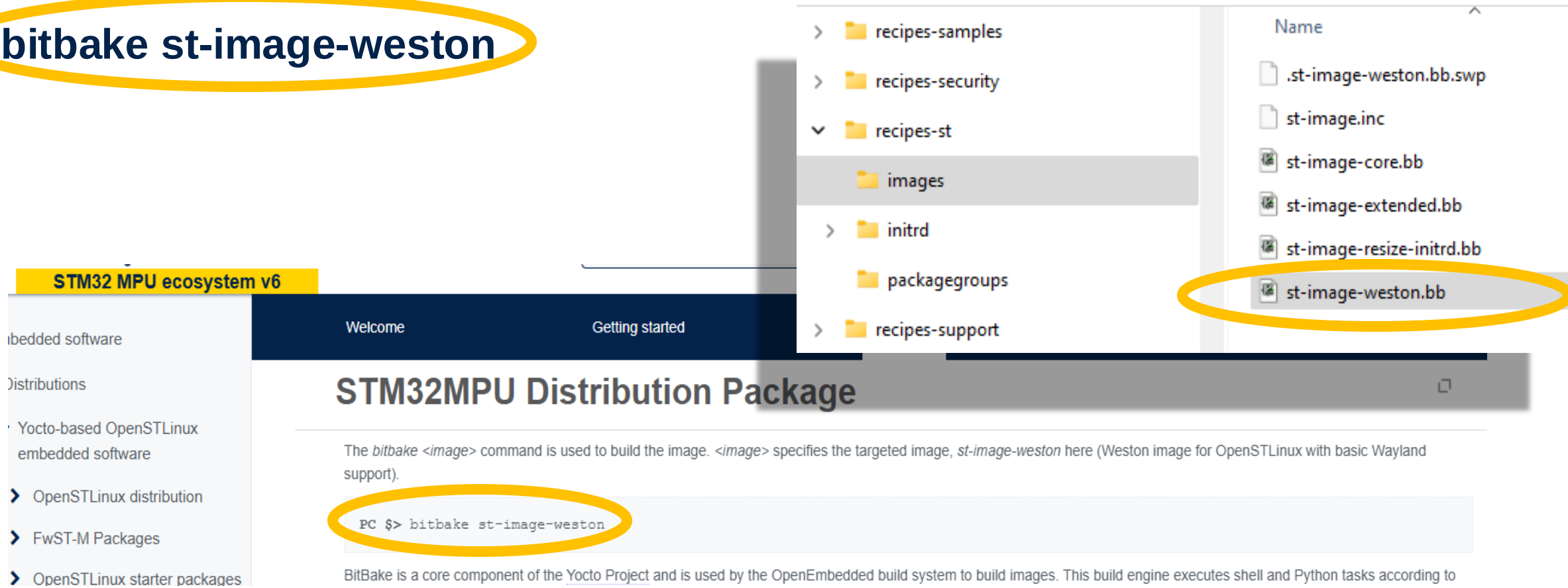
DISTRO=openstlinux-weston MACHINE=<machine> source layers/meta-st/scripts/envsetup.sh



OpenSTLinux Distribution Package – **BUILD image**

Rif: https://wiki.st.com/stm32mpu/wiki/STM32MPU_Distribution_Package

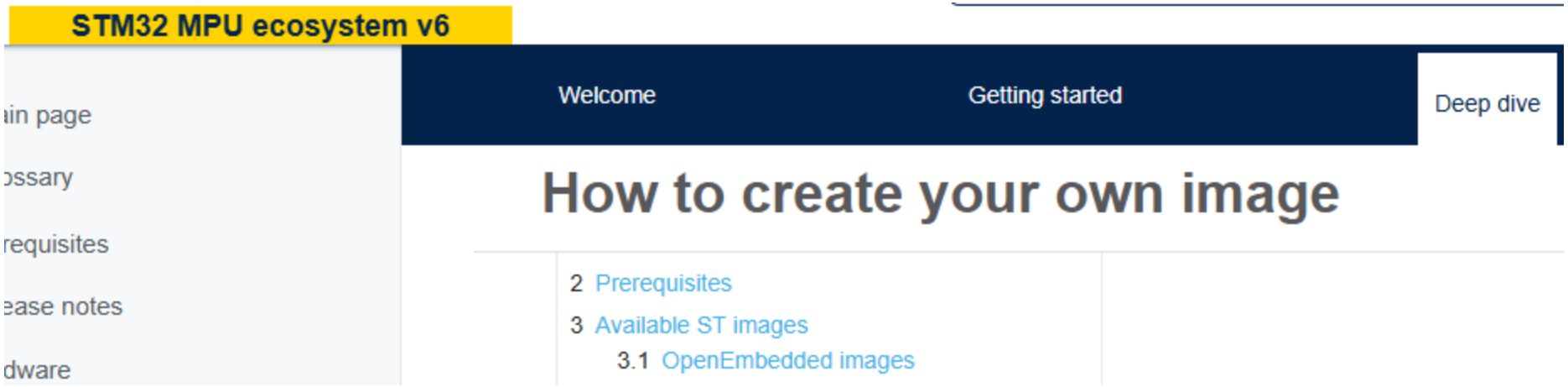
bitbake st-image-weston

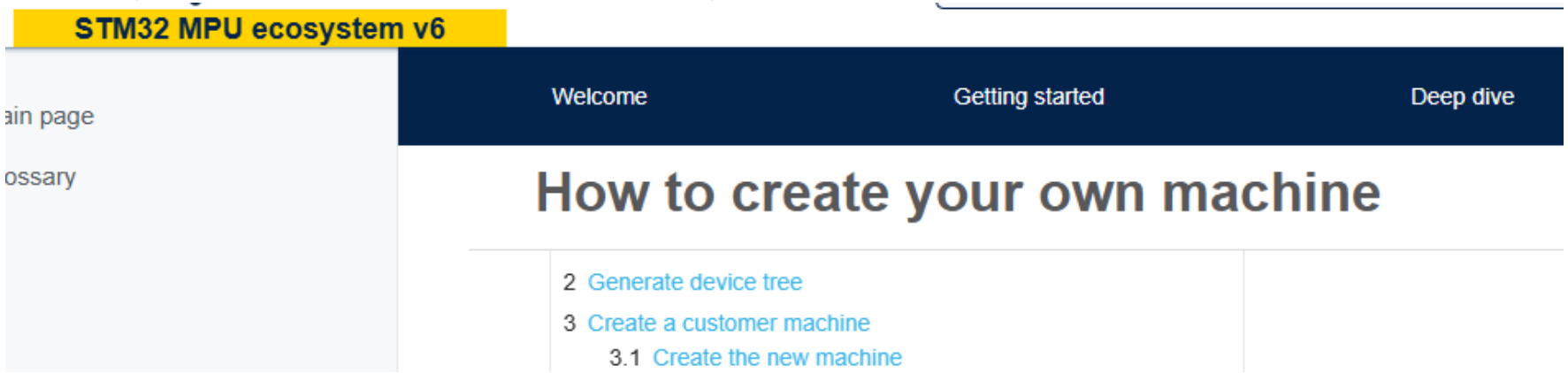


CUSTOMIZATION of OpenSTLinux Distribution Package

OpenSTLinux Distribution Package – **CUSTOMIZATION**

https://wiki.st.com/stm32mpu/wiki/How_to_create_your_own_image





https://wiki.st.com/stm32mpu/wiki/How_to_create_your_own_machine

OSTL Distribution Package – **CUSTOMIZATION**

```
$ DISTRO=openstlinux-weston MACHINE=stm32mp25-myboard \
                                source layers/meta-st/scripts/envsetup.sh
$ bitbake-layers –h
$ bitbake-layers create-layer ../layers/meta-st/meta-my-new-layer/

$ mkdir -p ../layers/meta-st/meta-my-new-layer/conf/machine/
$ cp -v ../layers/meta-st/meta-st-stm32mp/conf/machine/stm32mp25-disco.conf \
        ../layers/meta-st/meta-my-new-layer/conf/machine/stm32mp25-myboard.conf

$ mkdir -p ../layers/meta-st/meta-my-new-layer/recipes-st/images/
$ cp -v ../layers/meta-st/meta-st-openstlinux/recipes-st/images/st-image-core.bb \
        ../layers/meta-st/meta-my-new-layer/recipes-st/images/myimage.bb

$ bitbake-layers add-layer ../layers/meta-st/meta-my-new-layer/

$ bitbake myimage
```

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OpenSTLinux Distribution Package – **ENV SETUP**

$ DISTRO=openstlinux-weston MACHINE=stm32mp25-myboard source layers/meta-st/scripts/envsetup.sh

```
$ DISTRO=openstlinux-weston MACHINE=stm32mp25-myboard source layers/meta-st/scripts/envsetup.sh
[HOST DISTRIB check]
Linux Distrib: Ubuntu
Linux Release: 22.04

Required packages for Linux Distrib:
bsdmainutils build-essential chrpath cpio debianutils diffstat gawk gcc-multilib git git-lfs iputils-ping libegl1-mesa l
ect python3-pip socat texinfo unzip wget xterm xz-utils zstd

Check OK: all required packages are installed on host.

[source layers/openembedded-core/oe-init-build-env][with previous config]

=========================================================================
Configuration files have been created for the following configuration:

     DISTRO                 :   openstlinux-weston
     DISTRO_CODENAME        :   scarthgap
     MACHINE                :   stm32mp25-myboard
     BB_NUMBER_THREADS      :   8
     PARALLEL_MAKE          :   -j 8

     BUILDDIR               :   build-openstlinuxweston-stm32mp25-myboard
     DOWNLOAD_DIR           :   /home/gpaga/Public/oe-downloads
     SSTATE_DIR             :   /home/gpaga/OSTL_v6.0/DISTRIBUTION_PKG/sstate-cache

     SOURCE_MIRROR_URL      :   http://freenas.gnb.st.com/pub/yocto/stm-opensdk/scarthgap/downloads
     SSTATE_MIRRORS         :   <disable>

     WITH_EULA_ACCEPTED:   YES

=========================================================================

Available images for OpenSTLinux layers are:

   - Official OpenSTLinux images:
       st-image-weston          -    OpenSTLinux weston image with basic Wayland support (if enable in distro)

   - Other OpenSTLinux images:
       - Supported images:
           st-image-core            -    OpenSTLinux core image


You can now run 'bitbake <image>'

*[gpaga@HOSTPC ~/OSTL_v6.0/DISTRIBUTION_PKG/build-openstlinuxweston-stm32mp25-myboard]
$
```

OSTL Distribution Package – **CREATE NEW LAYER**

$ bitbake-layers -h

```
$ bitbake-layers -h
NOTE: Starting bitbake server...
NOTE: Started PRServer with DBfile: /home/gpaga/OSTL_v6.0/DISTRIBUTION_PKG/build-openstlinuxweston
usage: bitbake-layers [-d] [-q] [-F] [--color COLOR] [-h] <subcommand> ...

BitBake layers utility

options:
  -d, --debug           Enable debug output
  -q, --quiet           Print only errors
  -F, --force           Force add without recipe parse verification
  --color COLOR         Colorize output (where COLOR is auto, always, never)
  -h, --help            show this help message and exit

subcommands:
  <subcommand>
    add-layer           Add one or more layers to bblayers.conf.
    remove-layer        Remove one or more layers from bblayers.conf.
    flatten             flatten layer configuration into a separate output directory.
    show-layers         show current configured layers.
    show-overlayed      list overlayed recipes (where the same recipe exists in another layer)
    show-recipes        list available recipes, showing the layer they are provided by
    show-appends        list bbappend files and recipe files they apply to
    show-cross-depends  Show dependencies between recipes that cross layer boundaries.
    layerindex-fetch    Fetches a layer from a layer index along with its dependent layers, and ad
    layerindex-show-depends
                        Find layer dependencies from layer index.
    create-layer        Create a basic layer
    create-layers-setup
                        Writes out a configuration file and/or a script that replicate the directo
    save-build-conf     Save the currently active build configuration (conf/local.conf, conf/bblay

Use bitbake-layers <subcommand> --help to get help on a specific command
*[gpaga@HOSTPC ~/OSTL_v6.0/DISTRIBUTION_PKG/build-openstlinuxweston-stm32mp25-myboard]
$
```

OSTL Distribution Package – **CREATE NEW LAYER**

$ bitbake-layers create-layer ../layers/meta-st/meta-my-new-layer/

```
$ bitbake-layers create-layer ../layers/meta-st/meta-my-new-layer
NOTE: Starting bitbake server...
NOTE: Started PRServer with DBfile: /home/gpaga/OSTL_v6.0/DISTRIBUTION_PKG/build-openstl
Add your new layer with 'bitbake-layers add-layer ../layers/meta-st/meta-my-new-layer'
*[gpaga@HOSTPC ~/OSTL_v6.0/DISTRIBUTION_PKG/build-openstlinuxweston-stm32mp25-myboard]
$
```

OSTL Distribution Package – **POPULATE NEW LAYER**

```
$ mkdir -p ../layers/meta-st/meta-my-new-layer/conf/machine/
$ cp -v ../layers/meta-st/meta-st-stm32mp/conf/machine/stm32mp25-disco.conf \
                ../layers/meta-st/meta-my-new-layer/conf/machine/stm32mp25-myboard.conf

$ mkdir -p ../layers/meta-st/meta-my-new-layer/recipes-st/images/
$ cp -v ../layers/meta-st/meta-st-openstlinux/recipes-st/images/st-image-core.bb \
                ../layers/meta-st/meta-my-new-layer/recipes-st/images/my-image.bb
```

```
$ mkdir -p ../layers/meta-st/meta-my-new-layer/conf/machine/
*[gpaga@HOSTPC ~/OSTL_v6.0/DISTRIBUTION_PKG/build-openstlinuxweston-stm32mp25-myboard]
$ cp -v ../layers/meta-st/meta-st-stm32mp/conf/machine/stm32mp25-disco.conf ../layers/meta-st/meta-my-new-layer/conf/machine/stm32mp25-myboard.conf
'../layers/meta-st/meta-st-stm32mp/conf/machine/stm32mp25-disco.conf' -> '../layers/meta-st/meta-my-new-layer/conf/machine/stm32mp25-myboard.conf'
*[gpaga@HOSTPC ~/OSTL_v6.0/DISTRIBUTION_PKG/build-openstlinuxweston-stm32mp25-myboard]
$ mkdir -p ../layers/meta-st/meta-my-new-layer/recipes-st/images/
*[gpaga@HOSTPC ~/OSTL_v6.0/DISTRIBUTION_PKG/build-openstlinuxweston-stm32mp25-myboard]
$ cp -v ../layers/meta-st/meta-st-openstlinux/recipes-st/images/st-image-core.bb ../layers/meta-st/meta-my-new-layer/recipes-st/images/my-image.bb
'../layers/meta-st/meta-st-openstlinux/recipes-st/images/st-image-core.bb' -> '../layers/meta-st/meta-my-new-layer/recipes-st/images/my-image.bb'
*[gpaga@HOSTPC ~/OSTL_v6.0/DISTRIBUTION_PKG/build-openstlinuxweston-stm32mp25-myboard]
$
```

OSTL Distribution Package – **ADD NEW LAYER**

$ bitbake-layers add-layer ../layers/meta-st/meta-my-new-layer/

```
$ bitbake-layers add-layer ../layers/meta-st/meta-my-new-layer
NOTE: Starting bitbake server...
NOTE: Started PRServer with DBfile: /home/gpaga/OSTL_v6.0/DISTRIBUTION_PKG/build-openst
*[gpaga@HOSTPC ~/OSTL_v6.0/DISTRIBUTION_PKG/build-openstlinuxweston-stm32mp25-myboard]
$
```

OSTL Distribution Package – **BUILD THE NEW IMAGE**

$ bitbake myimage

```
*[gpaga@HOSTPC ~/OSTL_v6.0/DISTRIBUTION_PKG/build-openstlinuxweston-stm32mp25-myboard]
$ bitbake myimage
NOTE: Started PRServer with DBfile: /home/gpaga/OSTL_v6.0/DISTRIBUTION_PKG/build-openstlinuxweston-stm32mp25
Loading cache: 100% |                                                                                | ETA:  --:--:--
NOTE: /home/gpaga/OSTL_v6.0/DISTRIBUTION_PKG/layers/meta-st/meta-st-openstlinux/recipes-st/images/st-image-
Parsing recipes: 100% |##########################################################################################
Parsing of 3034 .bb files complete (0 cached, 3034 parsed). 4982 targets, 739 skipped, 0 masked, 0 errors.
NOTE: Resolving any missing task queue dependencies

Build Configuration:
BB_VERSION           = "2.8.0"
BUILD_SYS            = "x86_64-linux"
NATIVELSBSTRING      = "universal"
TARGET_SYS           = "aarch64-ostl-linux"
MACHINE              = "stm32mp25-myboard"
DISTRO               = "openstlinux-weston"
DISTRO_VERSION       = "5.0.3-snapshot-20241102"
TUNE_FEATURES        = "aarch64 crc cortexa35"
TARGET_FPU           = ""
DISTRO_CODENAME      = "scarthgap"
ACCEPT_EULA_stm32mp25-myboard = "1"
GCCVERSION           = "13.%"
PREFERRED_PROVIDER_virtual/kernel = "linux-stm32mp"
meta-mylayer         = "<unknown>:<unknown>"
meta-python
meta-oe
meta-gnome
meta-multimedia
meta-networking
meta-webserver       = "HEAD:1235dd4ed4a57e67683c045ad76b6a0f9e896b45"
meta-st-stm32mp      = "HEAD:0831ee6057b49692e88dcca169250cb3e8f6c597"
meta-st-openstlinux  = "HEAD:6efa32c7e8162950b39827d18ffba23af01483d8"
meta                 = "HEAD:236ac1b43308df722a78d3aa20aef065dfae5b2b"
meta-my-new-layer    = "<unknown>:<unknown>"

Sstate summary: Wanted 60 Local 59 Mirrors 0 Missed 1 Current 1453 (98% match, 99% complete)#################
Initialising tasks: 100% |#######################################################################################
NOTE: Executing Tasks
NOTE: Tasks Summary: Attempted 3445 tasks of which 3441 didn't need to be rerun and all succeeded.
NOTE: Writing buildhistory
NOTE: Writing buildhistory took: 4 seconds
*[gpaga@HOSTPC ~/OSTL_v6.0/DISTRIBUTION_PKG/build-openstlinuxweston-stm32mp25-myboard]
```

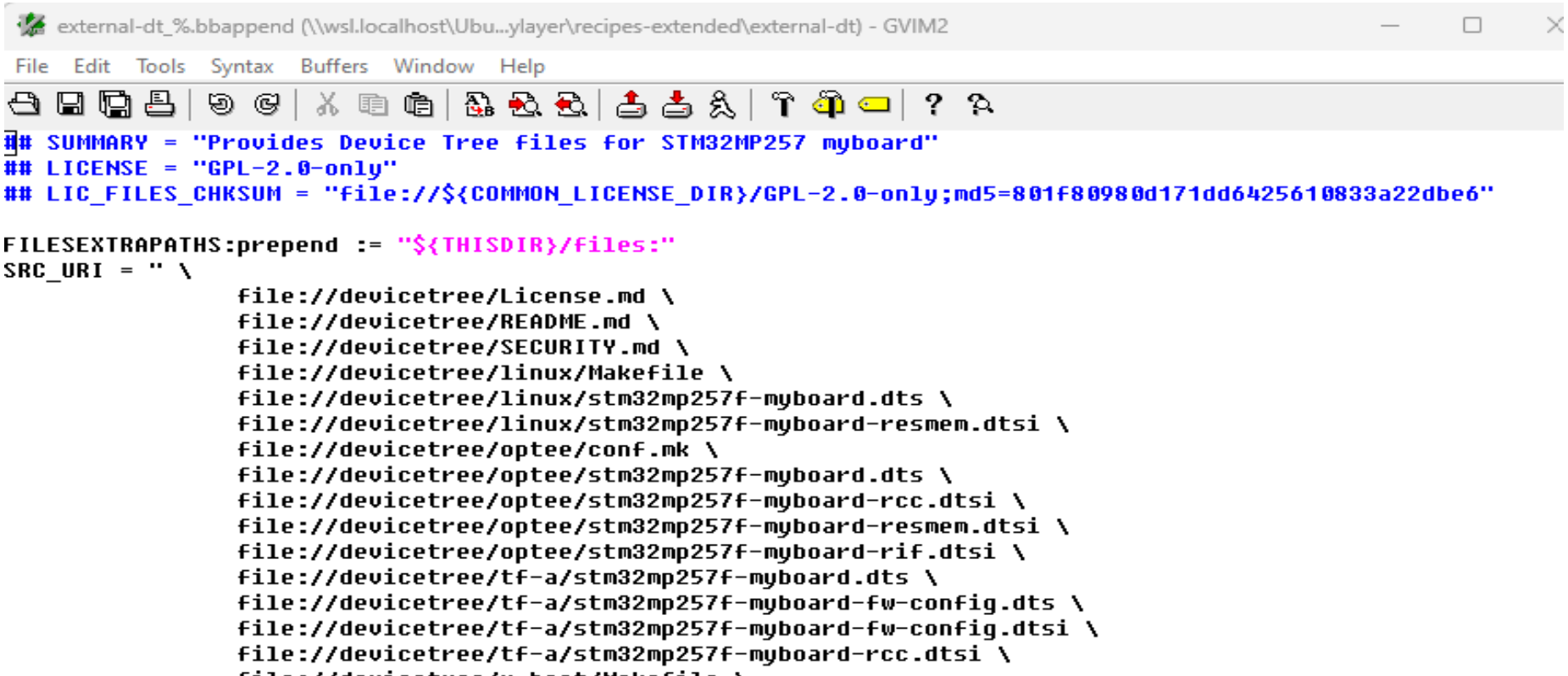
OSTL Distribution Package – **myboard.conf** machine file

$ cat ../layers/meta-st/meta-mylayer/conf/machine/stm32mp25-myboard.conf

```
#@TYPE: Machine
#@NAME: stm32mp25-myboard
#@DESCRIPTION: Configuration for all STM32MP25 myboard boards (MYBOARD)
#@NEEDED_BSPLAYERS: layers/meta-openembedded/meta-oe layers/meta-openembedded/meta-python

# Define specific familly common machine name
MACHINEOVERRIDES =. "stm32mp2common:stm32mp25common:"

include conf/machine/include/st-machine-common-stm32mp.inc
include conf/machine/include/st-machine-providers-stm32mp.inc

# ========================================================================
# Chip architecture
# ========================================================================
DEFAULTTUNE = "cortexa35"
include conf/machine/include/arm/armv8a/tune-cortexa35.inc

# ========================================================================
# boot scheme
# ========================================================================
BOOTSCHEME_LABELS = "optee"

# ========================================================================
# boot device
# ========================================================================
# Define the boot device supported
BOOTDEVICE_LABELS += "emmc"
BOOTDEVICE_LABELS += "nor-sdcard"
BOOTDEVICE_LABELS += "sdcard"

# ========================================================================
# Machine settings
# ========================================================================
# activate external dt
EXTERNAL_DT_ENABLED = "1"

# Define list of devicetree per supported storage
STM32MP_DT_FILES_EMMC    = "stm32mp257f-myboard"
STM32MP_DT_FILES_SDCARD  = "stm32mp257f-myboard"
STM32MP_DT_FILES_NOR     = "stm32mp257f-myboard"

EXTERNAL_DEVICETREE_SDCARD = "stm32mp257f-myboard"

EXTERNAL_DEVICETREE_EMMC = "stm32mp257f-myboard"

UBOOT_CONFIG[default_stm32mp25] = "stm32mp25_myboard_defconfig,,u-boot.dtb"

# ========================================================================
# Machine features
# ========================================================================
# MACHINE_FEATURES += "splashscreen"
# MACHINE_FEATURES += "watchdog"
# MACHINE_FEATURES += "bluetooth"
# MACHINE_FEATURES += "wifi"
```

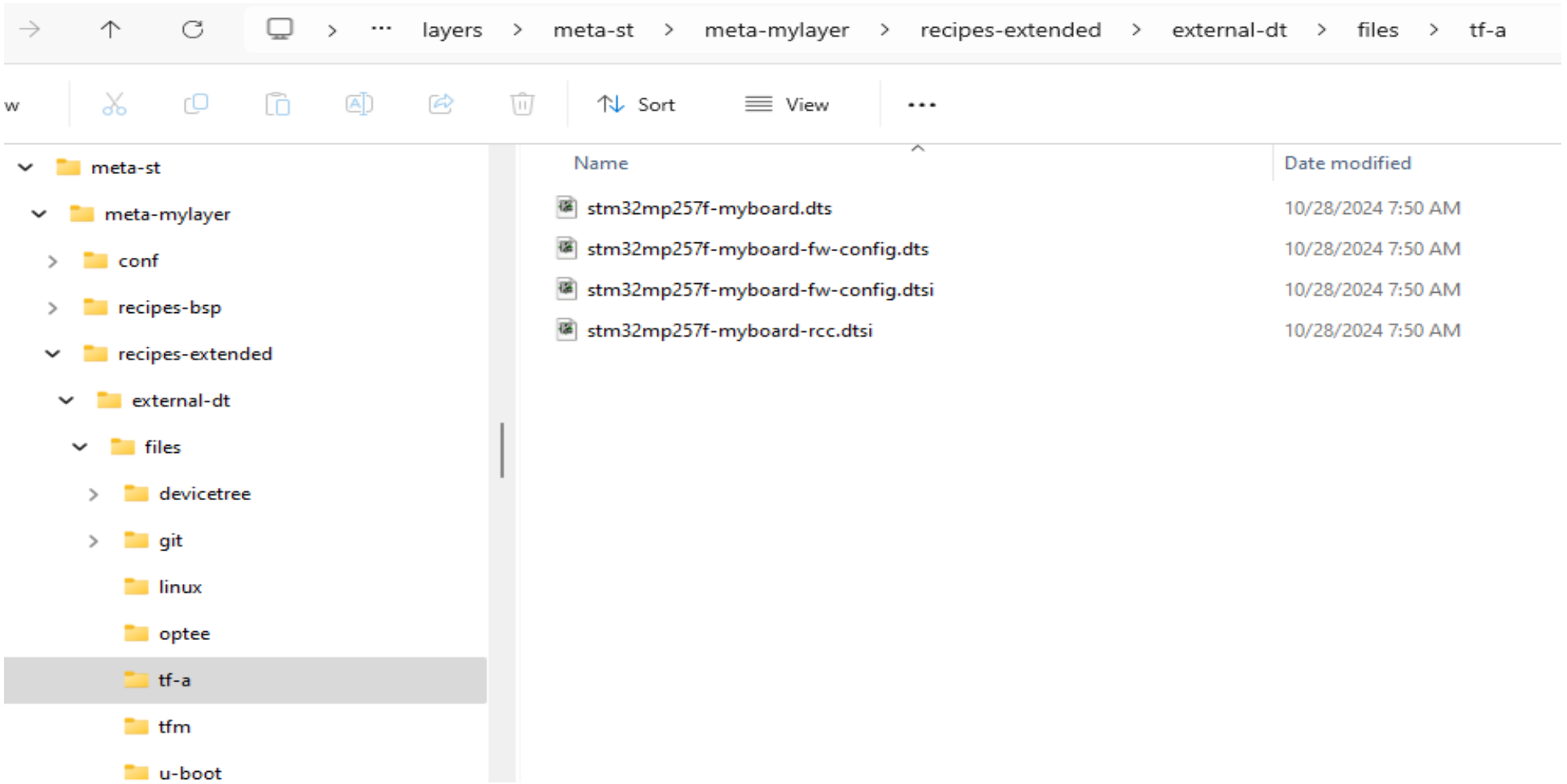
OSTL Distribution Package – **ext devicetree** files

$ cat ../layers/meta-st/meta-mylayer/recipes-extended/external-dt/external-dt_%.bbappend



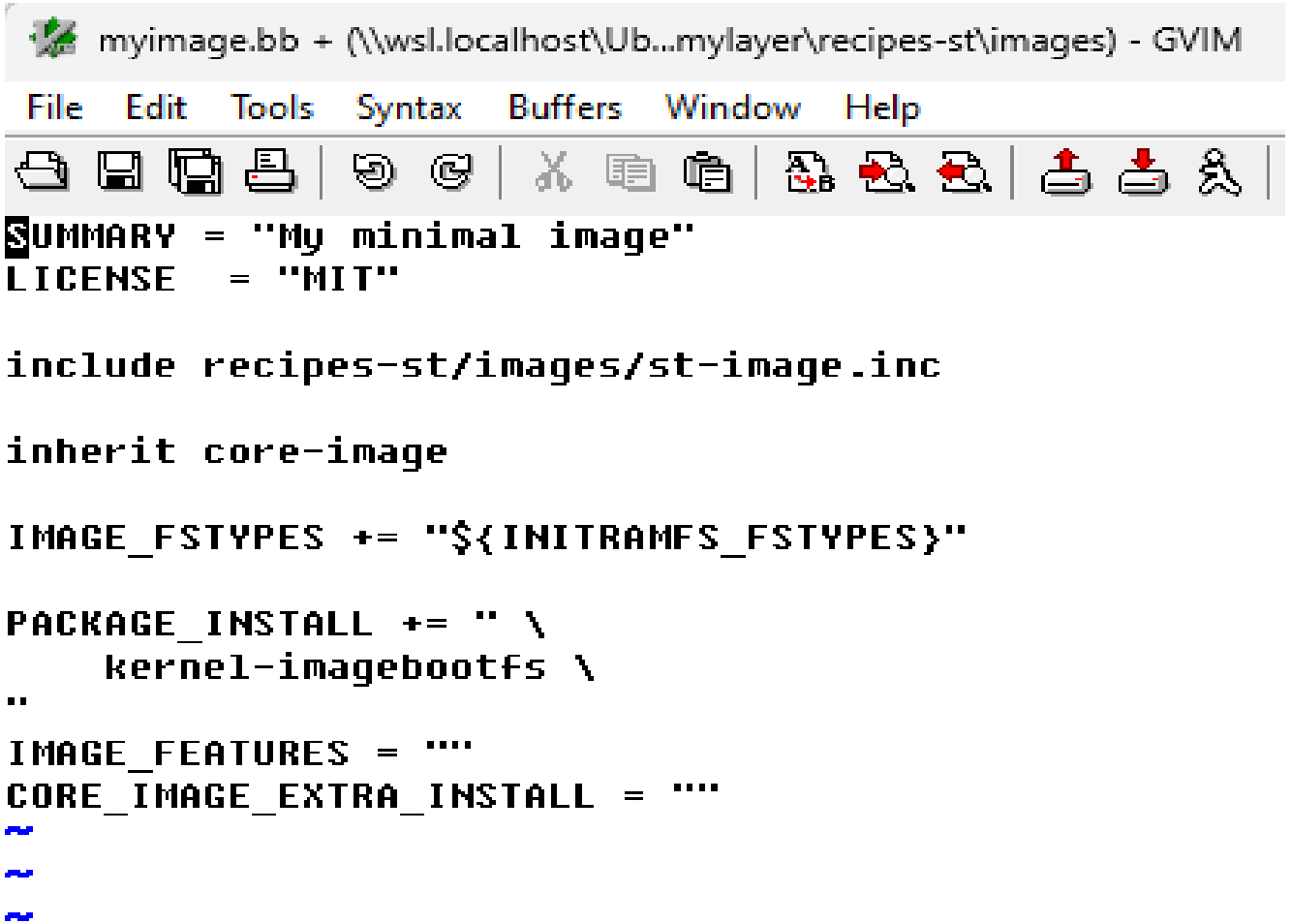
OSTL Distribution Package – **ext devicetree** files

$ ls ../layers/meta-st/meta-mylayer/recipes-extended/external-dt/files

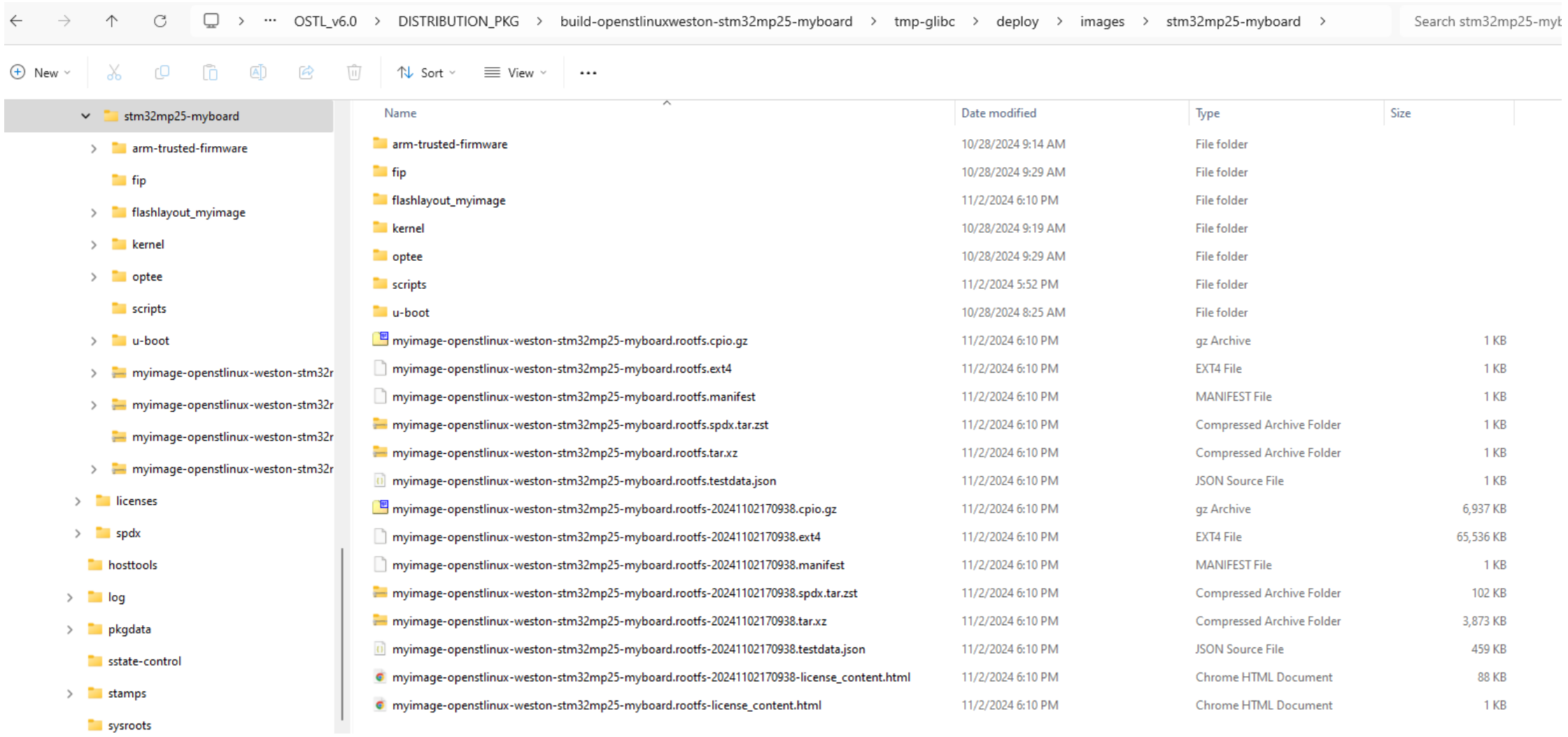


OSTL Distribution Package – **myimage.bb** image file

$ gvim ../layers/meta-st/meta-mylayer/recipes-st/images/myimage.bb



OpenSTLinux Distribution Package – **MY IMAGE**



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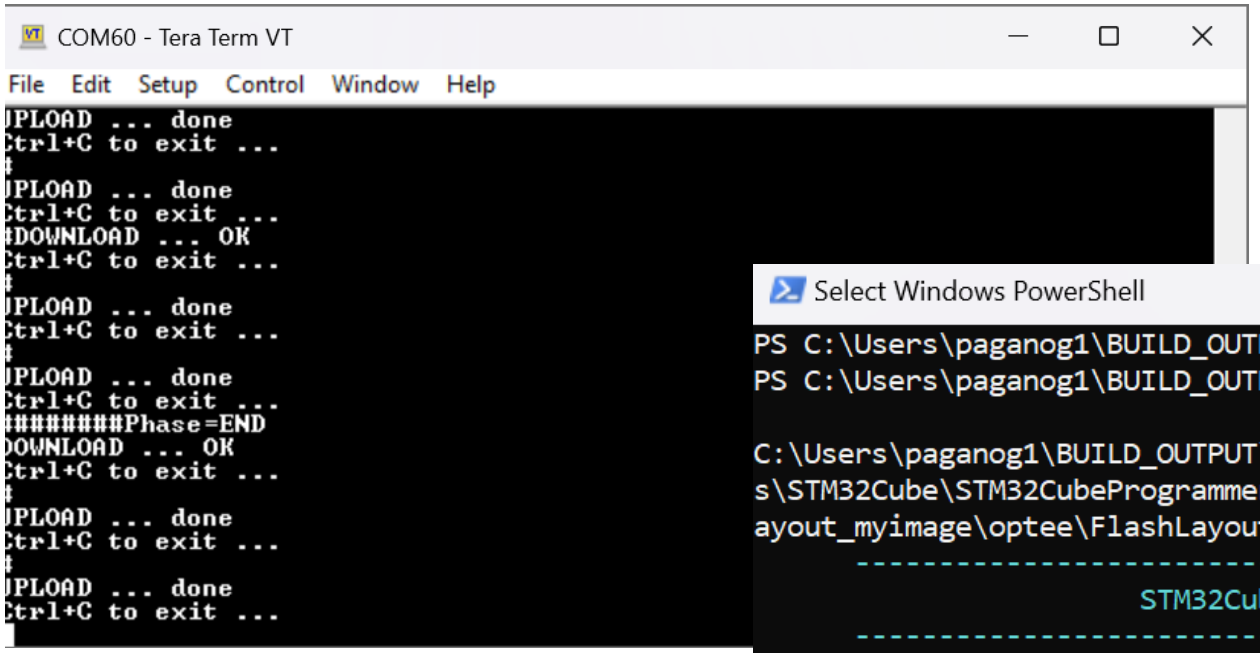
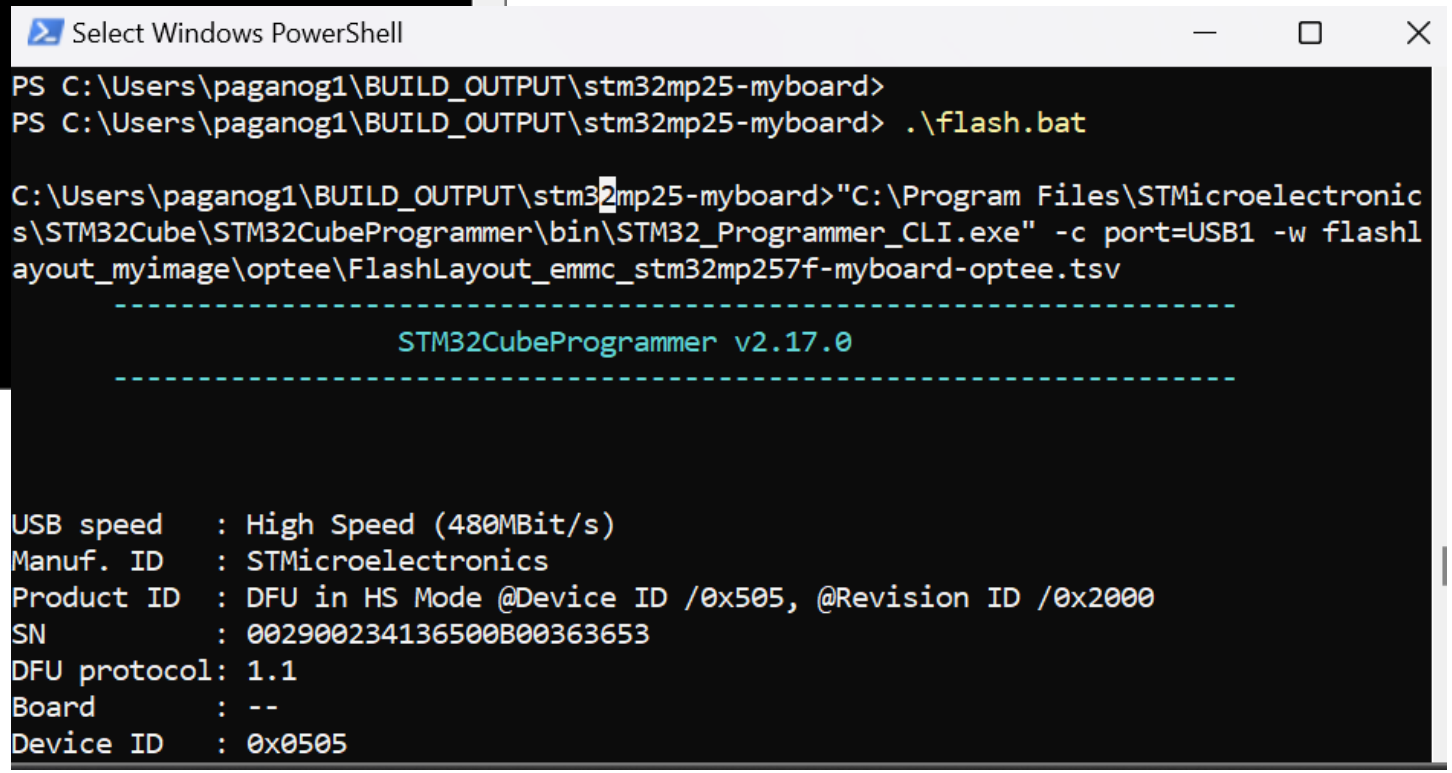
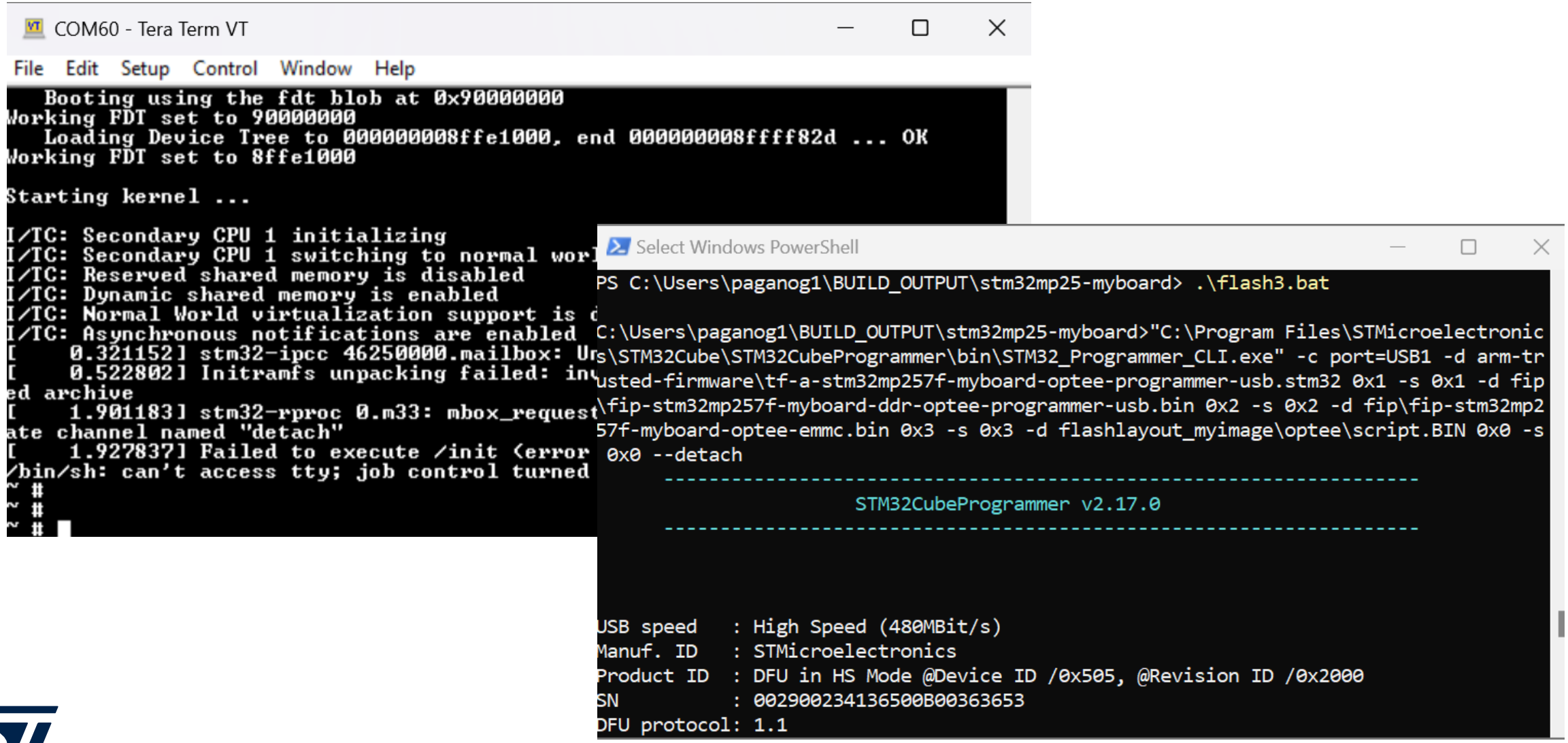
OpenSTLinux Distribution Package – **IMAGE FLUSH**





OpenSTLinux Distribution Package – **playing with ramfs**

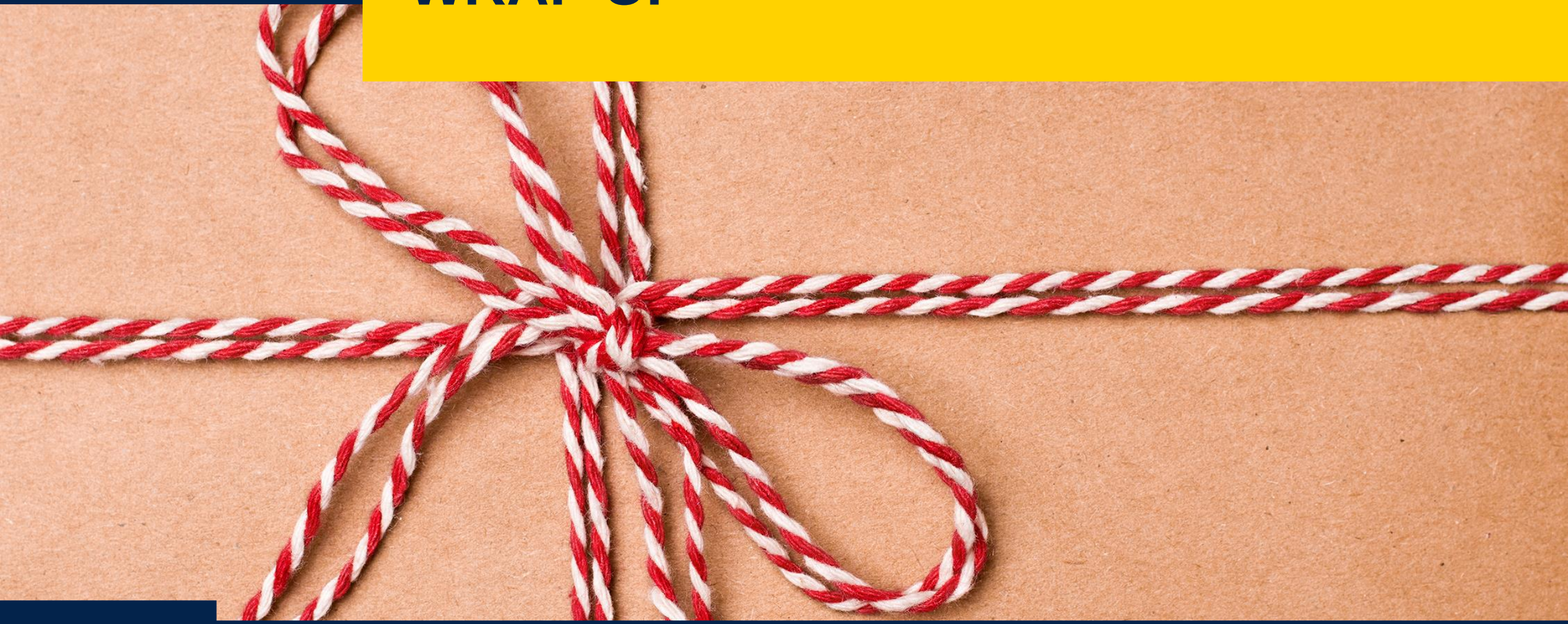


OpenSTLinux installation check

Use serial console to run some simple commands:

- free Discover how much DDR RAM is available on your system
- uptime Print load of your system
- df –h Print occupation of your storage [Disk Free]
- dmesg Show debug messages from Linux kernel
- dmesg | grep “version” Extract version string from debug Linux kernel messages
- ps ax Show active processes running on your Linux system
- gdisk -l Print GPT disk partition table

WRAP UP



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Wrap up

- Rich Ecosystem:
  - HW => EVAL + DISCOVERY board + expansion boards + PCB examples
  - SW => Android + OpenSTLinux + BuildRoot + OpenWrt + CubeMP2
  - TOOLS => STM32CubeMX + STM32CubeIDE + STM32CubeProgrammer + STLink debugger

- Easy methods for customizing OpenSTLinux Distribution:
  - MyImage
  - MyBoard
  - External device tree

Thank you

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