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## OpenSTLinux distribution



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A quality version of this page, accepted on *31 March 2021*, was based off this revision.

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## 1 What is the OpenSTLinux distribution?

The OpenSTLinux distribution, running on the Arm®Cortex®-A processor(s), is a sub-part of the STM32MPU Embedded Software distribution.

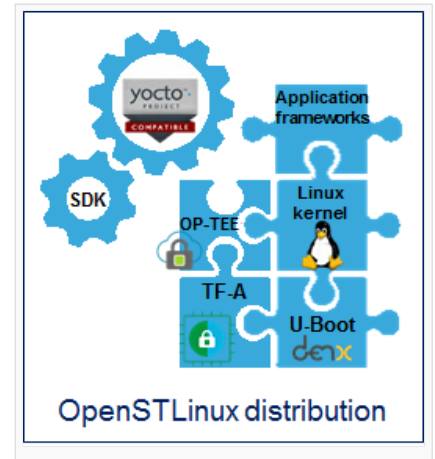
OpenSTLinux is a Linux® distribution based on the [OpenEmbedded](#) build framework.

It includes the following collection of software components:

- OpenSTLinux BSP (OP-TEE secure OS, boot chain and Linux kernel)
- Application frameworks such as the following Linux application frameworks (non-exhaustive list):
  - Wayland-Weston as a display/graphic framework
  - Gstreamer as a multimedia framework
  - Advanced Linux Sound Architecture (ALSA) libraries

As explained in the [OpenEmbedded](#) article, the files used to build an image are stored in layers that come from different sources, and that are configured for this image.

Only layers specific to the OpenSTLinux distribution (for example the OpenSTLinux Board Support Package layer) are detailed in the [Layers](#) chapter below. Community layers referenced in this article are not listed.



The [Machines](#) chapter introduces the machine metadata (the information needed to build a kernel for specific target boards), while the [Images](#) chapter specifies the images that contain the information needed to build the user space. The [Distros](#) chapter describes the available distros configurations.

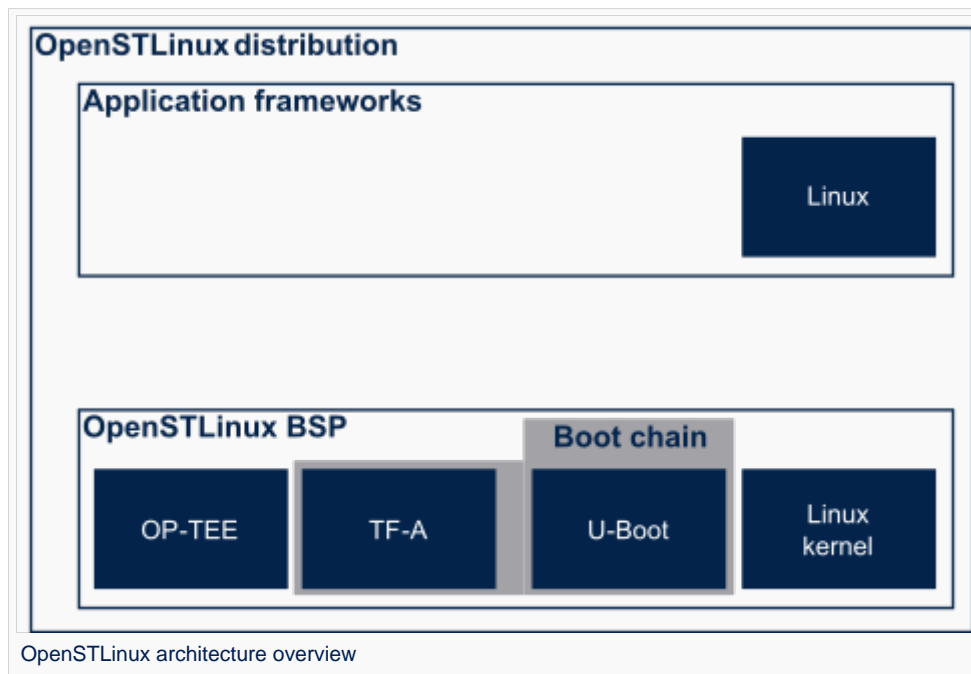


## 2 Software architecture overview

The figure below gives an overview of the OpenSTLinux architecture. You can obtain more details by clicking on one of the sub-levels.

The **Linux application frameworks** (or Linux user space components) that rely on the OpenSTLinux BSP, mainly come from open-source communities.

OpenEmbedded core components (community layers) combined with STMicroelectronics-specific layers (for example the BSP layer) give a consistent starting point to develop customer applications based on a standardized interface.





## 3 OpenSTLinux concept

To build an OpenSTLinux based software, a combination of machine, image and distro must be selected. Available machines, images and distros are listed below.

More information on how to compile and use an OpenSTLinux distribution can be found in the [Distribution Package](#) articles.

### 3.1 Layers

This chapter describes the layers developed by STMicroelectronics.

STMicroelectronics' strategy is to organize the layers in order to split BSP descriptions from applications and frameworks. By doing this, any BSP can be combined with any framework, or no framework at all.

Layer	Description
meta-st-stm32mp	BSP Layer for stm32mp
meta-st-openstlinux	OpenSTLinux layer - framework/image settings

For the detailed content of the layers, please check [STM32MP15\\_OpenSTLinux\\_release\\_note#Detailed delivery content](#)

In addition, in OpenSTLinux distribution, a layer (meta-st-stm32mp-addons) has been created to manage STM32CubeMX integration.

If necessary, you can also create your own layer. The procedure to do so is explained in [How\\_to\\_create\\_a\\_new\\_open\\_embedded\\_layer](#).

Layer	Description
meta-st-stm32mp-addons	BSP Layer addons for stm32mp (CubeMX Machine)
meta-my-custo-layer	framework addons/customization

### 3.2 Machines

Machine	Description
stm32mp1	Machine configuration for STM32MP1 microprocessor device boards
stm32mp1-eval	Machine configuration for STM32MP1 evaluation board
stm32mp1-disco	Machine configuration for STM32MP1 disco board



### 3.3 Images

Image	Description
<b>Official images</b>	
st-image-weston	OpenSTLinux weston image with basic Wayland support (if enabled in distro)
<b>Supported images</b>	
st-image-core	OpenSTLinux core image
<b>Images, proposed as example only</b>	
st-example-image-qt	ST example of image based on QT framework
st-example-image-qtwayland	ST example of image based on QT framework (available for ecosystem release v2.1.0 )

### 3.4 Distros

For further details on distributions (distros), read "Creating a distribution" <sup>[1]</sup>

Distro	Description
openstlinux-eglfs	OpenSTLinux featuring eglfs - no X11, no Wayland
openstlinux-weston	OpenSTLinux featuring Weston/Wayland
nodistro	*** DEFAULT OPENEMBEDDED SETTING : DISTRO is not defined ***

### 3.5 Reference source code

The TF-A, U-Boot, OP-TEE and kernel components have been configured by default to use **tarball + patches** for source code.

If you prefer to use **github®** as a source code reference, you need to update your local.conf file

Refer to the section 'Configure STM32MP default version to github' in local.conf :

```
# =====
# Configure STM32MP default version to github
# =====
#STM32MP_SOURCE_SELECTION_pn-linux-stm32mp = "github"
#STM32MP_SOURCE_SELECTION_pn-optee-os-stm32mp = "github"
#STM32MP_SOURCE_SELECTION_pn-tf-a-stm32mp = "github"
#STM32MP_SOURCE_SELECTION_pn-u-boot-stm32mp = "github"
```

Then just uncomment the line to switch the component to github® for source code.



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## 4 How to get the software for this distribution

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The OpenSTLinux distribution is available through the three Packages (Starter, Developer, and Distribution) of the STM32MPU Embedded Software distribution.




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## 5 References

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- [Creating a distribution](#)

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Cortex<sup>®</sup>

Linux<sup>®</sup> is a registered trademark of Linus Torvalds.

Open Portable Trusted Execution Environment

Operating System

Board support package

Trusted Firmware for Arm<sup>®</sup> Cortex<sup>®</sup>-A

Das U-Boot -- the Universal Boot Loader (see [U-Boot\\_overview](#))