



Install the SDK

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A quality version of this page, approved on *17 November 2020*, was based off this revision.



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## 1 Overview

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This stage explains how to install the SDK.

The SDK for OpenSTLinux distribution provides a stand-alone cross-development toolchain and libraries tailored to the contents of the specific image flashed in the board.



## 2 Host computer configuration

### 2.1 Install extra package

Additional Ubuntu packages must be installed to perform basic development tasks, basic cross-compilation (via *Developer Package*) or more complex cross-compilation such as OpenEmbedded does (via *Distribution Package*):

- Packages required by OpenEmbedded/Yocto (details [here](#)):

```
PC $> sudo apt-get update
PC $> sudo apt-get install gawk wget git-core diffstat unzip texinfo gcc-multilib build-essential chrpath socat cpio python3 python3-pip python3-pexpect xz-utils debianutils iputils-ping python3-git python3-jinja2 libegl1-mesa libsdl1.2-dev pylint3 pylint xterm
PC $> sudo apt-get install make xsltproc docbook-utils fop dblatex xmlto
```

- Packages needed for some "Developer Package" use cases:

```
PC $> sudo apt-get install libncurses5 libncurses5-dev libncursesw5-dev libssl-dev linux-headers-generic u-boot-tools device-tree-compiler bison flex g++ libyaml-dev
```

- Package for repo (used to download the "Distribution Package" source code):

Please follow the installation instructions described in [repo](#).  
For Ubuntu 16.04, use the legacy repo [old-repo-python2 chapter](#)

- Useful tools:

```
PC $> sudo apt-get install coreutils bsdmainutils sed curl bc lrzsz corkscrew cvs subversion mercurial nfs-common nfs-kernel-server libarchive-zip-perl dos2unix texi2html diffstat libxml2-utils
```

You can also install a Java Runtime Engine that is required for [STM32CubeMX](#) and [STM32CubeProgrammer](#)

```
PC $> sudo apt-get install default-jre
```

### 2.2 Additional configurations

- Allow up to 16 partitions per mmc

By default, on Linux system, a maximum of 8 partitions are allowed on mmc. All Packages (Starter Package, ...) need more than 10 partitions for the storage device. In order to extend the number of partitions per device to 16, the following options must be added to modprobe:

```
PC $> echo 'options mmc_block perdev_minors=16' > /tmp/mmc_block.conf
PC $> sudo mv /tmp/mmc_block.conf /etc/modprobe.d/mmc_block.conf
```



### 3 Download the SDK

The software package is provided AS IS, and by downloading it, you agree to be bound to the terms of the software license agreement (SLA). The detailed content licenses can be found [here](#).

#### Warning

To download a package, it is recommended to be logged in to your "myst" account [1]. If, trying to download, you encounter a "403 error", you could try to empty your browser cache to workaround the problem. We are working on the resolution of this problem.

We apologize for this inconvenience

#### For ecosystem release v2.1.0

- Download the [Developer Package SDK](#) into the following directory: `$HOME/STM32MPU_workspace/tmp`
- Uncompress the tarball file to get the SDK installation script

```
PC $> cd $HOME/STM32MPU_workspace/tmp
PC $> tar xvf en.SDK-x86_64-stm32mp1-openstlinux-5-4-dunfell-mp1-20-11-12.tar.xz
```

#### For ecosystem release v2.0.0

- Download the [Developer Package SDK](#) into the following directory: `$HOME/STM32MPU_workspace/tmp`
- Uncompress the tarball file to get the SDK installation script

```
PC $> cd $HOME/STM32MPU_workspace/tmp
PC $> tar xvf en.SDK-x86_64-stm32mp1-openstlinux-5.4-dunfell-mp1-20-06-24.tar.xz
```



## 4 Run the SDK installation script

### 4.1 For ecosystem release v2.1.0

- Create your STM32MP15 Developer Package SDK directory on your host computer

```
PC $> mkdir -p $HOME/STM32MPU_workspace/STM32MP15-Ecosystem-v2.1.0/Developer-Package/SDK
```

- Change the permissions of the SDK installation script so that it is executable

```
PC $> chmod +x stm32mp1-openstlinux-5.4-dunfell-mp1-20-11-12/sdk/st-image-weston-
openstlinux-weston-stm32mp1-x86_64-toolchain-3.1-openstlinux-5.4-dunfell-mp1-20-11-12.sh
```

- Execute the SDK installation script

```
PC $> ./stm32mp1-openstlinux-5.4-dunfell-mp1-20-11-12/sdk/st-image-weston-openstlinux-
weston-stm32mp1-x86_64-toolchain-3.1-openstlinux-5.4-dunfell-mp1-20-11-12.sh -d <working
directory absolute path>/Developer-Package/SDK
```

- A successful installation outputs the following log:

```
ST OpenSTLinux - Weston - (A Yocto Project Based Distro) SDK installer version 3.1-
openstlinux-5.4-dunfell-mp1-20-11-12
=====
=====
You are about to install the SDK to "/home/osboxes/MCD/V2.1/Developer-Package/SDK".
Proceed [Y/n]? Y
Extracting SDK.....
.....done
Setting it up...done
SDK has been successfully set up and is ready to be used.
Each time you wish to use the SDK in a new shell session, you need to source the
environment setup script e.g.
$ ./<working directory absolute path>/STM32MPU_workspace/STM32MP15-Ecosystem-v2.1.0
/Developer-Package/SDK/environment-setup-cortexa7t2hf-neon-vfpv4-ostl-linux-gnueabi
```

### 4.2 For ecosystem release v2.0.0

- Create your STM32MP15 Developer Package SDK directory on your host computer

```
PC $> mkdir -p $HOME/STM32MPU_workspace/STM32MP15-Ecosystem-v2.0.0/Developer-Package/SDK
```

- Change the permissions of the SDK installation script so that it is executable

```
PC $> chmod +x stm32mp1-openstlinux-5.4-dunfell-mp1-20-06-24/sdk/st-image-weston-
openstlinux-weston-stm32mp1-x86_64-toolchain-3.1-openstlinux-5.4-dunfell-mp1-20-06-24.sh
```

- Execute the SDK installation script



```
PC $> ./stm32mp1-openstlinux-5.4-dunfell-mp1-20-06-24/sdk/st-image-weston-openstlinux-
weston-stm32mp1-x86_64-toolchain-3.1-openstlinux-5.4-dunfell-mp1-20-06-24.sh -d <working
directory absolute path>/Developer-Package/SDK
```

- A successful installation outputs the following log:

```
ST OpenSTLinux - Weston - (A Yocto Project Based Distro) SDK installer version 3.1-
openstlinux-5.4-dunfell-mp1-20-06-24
=====
=====
You are about to install the SDK to "/home/osboxes/MCD/V2.0/Developer-Package/SDK".
Proceed [Y/n]? Y
Extracting SDK.....
.....done
Setting it up...done
SDK has been successfully set up and is ready to be used.
Each time you wish to use the SDK in a new shell session, you need to source the
environment setup script e.g.
$ ./<working directory absolute path>/STM32MPU_workspace/STM32MP15-Ecosystem-v2.0.0
/Developer-Package/SDK/environment-setup-cortexa7t2hf-neon-vfpv4-ostl-linux-gnueabi
```







## 5 Starting up the SDK

### Information

The SDK environment setup script must be run once in each new working terminal in which you cross-compile

```
PC $> cd $HOME/STM32MPU_workspace/STM32MP15-Ecosystem-v2.X.0/Developer-Package /* For
ecosystem release v2.1.0  : X is equal to 1 ; For ecosystem release v2.0.0  : X is
equal to 0 ;
PC $> source SDK/environment-setup-cortexa7t2hf-neon-vfpv4-ostl-linux-gnueabi
```

The following checkings allow to ensure that the environment is correctly setup:

- Check the target architecture

```
PC $> echo $ARCH
arm
```



- Check the toolchain binary prefix for the target tools

```
PC $> echo $CROSS_COMPILE
arm-ostl-linux-gnueabi-
```

- Check the C compiler version

```
PC $> $CC --version
arm-ostl-linux-gnueabi-gcc (GCC) 9.3.0
Copyright (C) 2019 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
```

- Check that the SDK version is the expected one

```
PC $> echo $OECORE_SDK_VERSION
3.1-openstlinux-5.4-dunfell-mp1-20-11-12 /* For ecosystem release v2.1.0  */
3.1-openstlinux-5.4-dunfell-mp1-20-06-24 /* For ecosystem release v2.0.0  */
```

If any of these commands fails or does not return the expected result, please try to reinstall the SDK.

Software development kit (A programming package that enables a programmer to develop applications for a specific platform.)

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