



Package repository for OpenSTLinux distribution

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Contents



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Contents

1 Disclaimers	4
1.1 Description	4
1.2 Organization	4
1.3 Limitations	4
2 Usage	5
2.1 Prerequisite	5
2.2 Apt	5
3 How to activate a local package repository	8
3.1 Prerequisite	8
3.2 Update the repo package indexes	8
3.3 HTTP server execution on the computer	8
3.4 How to use the local OpenSTLinux Distribution	8
4 Support	10
5 Further readings	11



1 Disclaimers

STMicroelectronics packages repository service is provided for evaluation purpose only, and therefore not approved for use in production.

The package licenses hosted in these repositories can be found here: [OpenSTLinux licenses](#).

Command outputs described in this document may slightly vary depending on tools version.

1.1 Description

OpenSTLinux provides a package repository service hosted at the non-browsable URL <http://packages.openstlinux.st.com>.

The package repository service is designed for *STM32MP157C-DK2* boards and is enabled by default in the *Starter Package*.

1.2 Organization

Within each repository, packages are organized in two groups (a.k.a *components* in the APT terminology):

- the **main** group contains a wide selection of packages whose installation is automatically tested by STMicroelectronics
- the **untested** group contains all the other packages that can be built using the `bitbake world` command. However their installation is not guaranteed.

A third group named **updates** is reserved for future use.

1.3 Limitations

Packages repository service doesn't include the packages that are shipped in the *rootfs* image, nor the BSP components (TF-A, U-Boot, Linux and OP-TEE). They can be installed only from the *Starter Package* using the *STM32CubeProgrammer*.

rootfs available space is about 60MB by default. For a better experience it is recommended to flash the *Starter Package* using the "extensible" flashlayout (**-extensible.tsv*).

Extensible flashlayout does not flash *userfs* partition to extend the *rootfs* partition to the size of the *sdcard*.



2 Usage

2.1 Prerequisite

We assume your board has an internet connection either through the network cable or through a WiFi connection.

2.2 Apt

OpenSTLinux packages can be handled using `apt -*` utilities, which are the same utilities used on a Debian system. The first `apt -*` command that must be run before any other is:

```
Board $> apt-get update
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bound to the terms of the software license agreement (SLA).
The detailed content licenses can be found at
https://wiki.st.com/stm32mpu/wiki/OpenSTLinux_licenses.

Get:1 http://packages.openstlinux.st.com/1.2 thud InRelease [2691 B]
Get:2 http://packages.openstlinux.st.com/1.2 thud/main armhf Packages [1012 kB]
Get:3 http://packages.openstlinux.st.com/1.2 thud/untested armhf Packages [1438]
Fetched 2453 kB in 3s (652 kB/s)
Reading package lists... Done
```

This command synchronizes the local packages index from the repositories enumerated in `/etc/apt/sources.list{,.d}`. Once it is updated, `apt-cache` can be used to get the list of all available packages:

```
Board $> apt-cache search .
a52dec - ATSC A/52 surround sound stream decoder
a52dec-doc - ATSC A/52 surround sound stream decoder
acl - Utilities for managing POSIX Access Control Lists
...
libglapi0 - A free implementation of the OpenGL API (OpenGL only, no EGL/GLES)
libxcb-xkb1 - XCB library module for xkb
libavahi-core7 - Avahi IPv4LL network address configuration daemon
```

It is possible to list only packages that match a given pattern, for example:

```
Board $> apt-cache search emacs
libreadline-doc - Library for editing typed command lines - Documentation files
gpm - gpm version 1.99.7+git1fd19417b8a4dd9945347e98dfa97e4cfd798d77-r2
zile - Zile is lossy Emacs
zile-doc - Zile is lossy Emacs - Documentation files
libreadline7 - Library for editing typed command lines
```

The desired package(s) can then be easily installed:

```
Board $> apt-get install zile
Reading package lists... Done
Building dependency tree
Reading state information... Done
```



```
The following additional packages will be installed:
  bdwgc
The following NEW packages will be installed:
  bdwgc zile
0 upgraded, 2 newly installed, 0 to remove and 0 not upgraded.
Need to get 141 kB of archives.
After this operation, 0 B of additional disk space will be used.
Do you want to continue? [Y/n]
Get:1 http://packages.openstlinux.st.com/1.2 thud/untested armhf bdwgc armhf 7.6.0-r0
[60.3 kB]
Get:2 http://packages.openstlinux.st.com/1.2 thud/untested armhf zile armhf 2.4.14-r0
[80.2 kB]
Fetched 141 kB in 5s (25.2 kB/s)
```

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```
Selecting previously unselected package bdwgc.
(Reading database ... 16257 files and directories currently installed.)
Preparing to unpack ../bdwgc_7.6.0-r0_armhf.deb ...
Unpacking bdwgc (7.6.0-r0) ...
Selecting previously unselected package zile.
Preparing to unpack ../zile_2.4.14-r0_armhf.deb ...
Unpacking zile (2.4.14-r0) ...
Setting up bdwgc (7.6.0-r0) ...
Setting up zile (2.4.14-r0) ...
```

... or removed:

```
Board $> apt-get remove zile
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following package was automatically installed and is no longer required:
  bdwgc
Use 'apt autoremove' to remove it.
The following packages will be REMOVED:
  zile
0 upgraded, 0 newly installed, 1 to remove and 0 not upgraded.
After this operation, 0 B of additional disk space will be used.
Do you want to continue? [Y/n]

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(Reading database ... 16262 files and directories currently installed.)
Removing zile (2.4.14-r0) ...
```

This command only removes the files that were installed from this package. It does not remove the package from the apt download cache. If there is not enough space available on the system, it is recommended to clean the cache:

```
Board $> apt-get clean
```

Likewise, some packages may have been automatically installed to respect dependencies with other packages. If they are no longer required, they can be removed to free space:



```
Board $> apt-get autoremove
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following packages will be REMOVED:
  bdwgc
0 upgraded, 0 newly installed, 1 to remove and 0 not upgraded.
After this operation, 0 B of additional disk space will be used.
Do you want to continue? [Y/n]

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(Reading database ... 16261 files and directories currently installed.)
Removing bdwgc (7.6.0-r0) ...
```



3 How to activate a local package repository

3.1 Prerequisite

Even if *Package repository for OpenSTLinux* offers lots of and various packages, you may need to use a local and personal package repository. To use a local and personal package repository is a 'smart' and 'quick' way to update the `STM32MP15_Discovery_kits_-_Starter_Package` with your developments.

A local package repository is a collection of *.deb organized such apt needs it. The local repository should provide *Packages* metafiles.

Natively OpenEmbedded/Yocto build system is able to generate a valid package repository (by using `bitbake package-index` command listed below). So first Install the `STM32MP1` OpenSTLinux distribution.

3.2 Update the repo package indexes

Execute the `bitbake package-index` command:

```
PC $> cd [your STM32MP1 Distribution path]/build-<DISTRO>-<MACHINE>
PC $> bitbake package-index
```

3.3 HTTP server execution on the computer

`SimpleHTTPServer` python application is already installed on the board with the OpenSTLinux distribution. You just need to launch this application on your host computer, in the "[your STM32MP1 Distribution path]/build-<DISTRO>-<MACHINE>/tmp-glibc/deploy/deb" folder:

```
PC $> cd [your STM32MP1 Distribution path]/build-<DISTRO>-<MACHINE>/tmp-glibc/deploy/deb
PC $> python -m SimpleHTTPServer&
```

3.4 How to use the local OpenSTLinux Distribution

We use the physical IP address of the HTTP server we launched above to configure APT. That means this `{{<IP>}}` address should be defined as static on the host computer.

You can now configure the APT tool directly on the target via a Linux console:

```
Board $> echo "deb [trusted=yes] http://<IP>:8000/stm32mp1 /" > /etc/apt/sources.list.d/my_custom.list
Board $> echo "deb [trusted=yes] http://<IP>:8000/all /" >> /etc/apt/sources.list.d/my_custom.list
Board $> echo "deb [trusted=yes] http://<IP>:8000/cortexa7t2hf-neon-vfpv4 /" >> /etc/apt/sources.list.d/my_custom.list
```

In the above example, `[trusted=yes]` has been specified because the package manifest `Release` is not signed.

Then you can run the command to synchronize the local packages index:



```
Board $> apt-get update
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bound to the terms of the software license agreement (SLA).
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https://wiki.st.com/stm32mpu/wiki/OpenSTLinux\_licenses.
Ign:1 http://<IP>:8000/all
InRelease

Ign:2 http://<IP>:8000/stm32mp1
InRelease

Ign:3 http://<IP>:8000/cortexa7t2hf-neon-vfpv4
InRelease

Get:4 http://<IP>:8000/all Release [1213
B]

Get:5 http://<IP>:8000/stm32mp1 Release [1218
B]

Get:6 http://<IP>:8000/cortexa7t2hf-neon-vfpv4 Release [1233
B]

Ign:7 http://<IP>:8000/all Release.
gpg

Ign:8 http://<IP>:8000/stm32mp1 Release.
gpg

Ign:9 http://<IP>:8000/cortexa7t2hf-neon-vfpv4 Release.
gpg

Get:10 http://<IP>:8000/all Packages [82.8
kB]

Get:11 http://<IP>:8000/stm32mp1 Packages [173
kB]

Get:12 http://<IP>:8000/cortexa7t2hf-neon-vfpv4 Packages [1734
kB]

Fetched 1994 kB in 3s (662 kB
/s)

Reading package lists... Done
```

The other apt - * commands are now available as described above.



4 Support

Bug reports, request for new packages, or any other kind of support requests can be submitted through <https://community.st.com>.



5 Further readings

- Dpkg
- <https://manpages.debian.org/stable/apt/apt-get.8.en.html>
- <https://manpages.debian.org/stable/apt/sources.list.5.en.html>
- <https://manpages.debian.org/stable/apt/apt-cache.8.en.html>
- <https://wiki.debian.org/DebianRepository/Setup>
- <https://wiki.debian.org/DebianRepository/SetupWithReprepro>
- <https://wiki.debian.org/SecureApt>
- https://wiki.st.com/stm32mpu/wiki/STM32MP15_Discovery_kits_-_Starter_Package
- https://wiki.st.com/stm32mpu/wiki/STM32MP15_Evaluation_boards_-_Starter_Package
- https://wiki.st.com/stm32mpu/wiki/STM32MP1_Developer_Package

Advanced Package Tool (see <https://wiki.debian.org/Apt>)

Board support package

Trusted Firmware for Arm Cortex-A

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

Open Portable Trusted Execution Environment

Portable Operating System Interface based on uniX (https://en.wikipedia.org/wiki/POSIX_terminal_interface for more details)

Open Graphics Library (See <http://www.opengl.org/> for more details)

Application programming interface

Khronos Native Platform Graphics Interface (See <http://www.khronos.org/egl/> for more details)