SEOC3 – TP 02 – Installation de Yocto sur un Raspberry Pi

Nicolas Vadkerti

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https://github.com/SlaynPool/CR_YOCTO/

1 Création d'une image minimale pour raspberry pi

Pour installer les paquets nessacaire a mpa distribution :

```
# sudo pacman —S git diffstat unzip texinfo python chrpath wget xterm sdl rpcsvc—proto
    socat cpio inetutils
avertissement: git-2.24.0-1 est   jour -- reinstallation
avertissement: unzip-6.0-13 est   jour -- reinstallation
avertissement: texinfo-6.7-1 est   jour -- reinstallation
avertissement: python-3.7.4-2 est   jour -- reinstallation
avertissement: wget-1.20.3-2 est   jour -- reinstallation
avertissement: xterm-350-1 est   jour -- reinstallation
avertissement: sdl-1.2.15-13 est   jour -- reinstallation
avertissement: inetutils-1.9.4-7 est   jour -- reinstallation
resolution des dependances?
recherche des conflits entre paquets?

Paquets (13) chrpath-0.16-2  cpio-2.13-1  diffstat-1.62-1  git-2.24.0-1  inetutils
    -1.9.4-7  python-3.7.4-2  rpcsvc-proto-1.4-1  sdl-1.2.15-13  socat-1.7.3.3-1  texinfo
    -6.7-1  unzip-6.0-13
            wget-1.20.3-2  xterm-350-1

Taille totale du telechargement:    0,47 MiB
Taille totale installee:        198,12 MiB
Taille de mise   jour nette:      1,85 MiB

:: Proceder   linstallation ? [O/n]
:: Recuperation des paquets
 rpcsvc-proto-1.4-1-x86_64
     60,4 KiB   487 KiB/s 00:00
     [-----------------------------------------------------------------------] 100%
 socat-1.7.3.3-1-x86_64
     169,6 KiB  1238 KiB/s 00:00
     [-----------------------------------------------------------------------] 100%
 cpio-2.13-1-x86_64
     199,5 KiB  2,16 MiB/s 00:00
     [-----------------------------------------------------------------------] 100%
 diffstat-1.62-1-x86_64
     25,0 KiB  8,13 MiB/s 00:00
     [-----------------------------------------------------------------------] 100%
 chrpath-0.16-2-x86_64
     23,5 KiB  0,00   B/s 00:00
     [-----------------------------------------------------------------------] 100%
(13/13) verification des cles dans le trousseau

     [-----------------------------------------------------------------------] 100%
(13/13) verification de l?integrite des paquets

     [-----------------------------------------------------------------------] 100%
(13/13) chargement des fichiers des paquets

     [-----------------------------------------------------------------------] 100%
(13/13) analyse des conflits entre fichiers

     [-----------------------------------------------------------------------] 100%
(13/13) verification de l?espace disque disponible

     [-----------------------------------------------------------------------] 100%
```

```
 :: Traitement des changements du paquet?
 ( 1/13) reinstallation git

      [------------------------------------------------------------------] 100%
 ( 2/13) installation de diffstat

      [------------------------------------------------------------------] 100%
 ( 3/13) reinstallation unzip

      [------------------------------------------------------------------] 100%
 ( 4/13) reinstallation texinfo

      [------------------------------------------------------------------] 100%
 ( 5/13) reinstallation python

      [------------------------------------------------------------------] 100%
 ( 6/13) installation de chrpath

      [------------------------------------------------------------------] 100%
 ( 7/13) reinstallation wget

      [------------------------------------------------------------------] 100%
 ( 8/13) reinstallation xterm

      [------------------------------------------------------------------] 100%
 ( 9/13) reinstallation sdl

      [------------------------------------------------------------------] 100%
 (10/13) installation de rpcsvc-proto

      [------------------------------------------------------------------] 100%
 (11/13) installation de socat

      [------------------------------------------------------------------] 100%
 (12/13) installation de cpio
```

Listing 1 – Installation des paquets pour ma distribution

On verifier locale est en en_US.UTF8

```
[slaynpool@MiniZbeub]commande$ locale -a
C
en_US.utf8
fr_FR.utf8
POSIX
```

Listing 2 – Mes Locale

Puis on tape les commandes du TP

```
#~$ git clone git://git.yoctoproject.org/poky
Clonage dans 'poky'...
remote: Counting objects: 461422, done.
remote: Compressing objects: 100% (108855/108855), done.
remote: Total 461422 (delta 345364), reused 461219 (delta 345161)
Reception dobjets: 100% (461422/461422), 160.14 Mio | 264.00 Kio/s, fait.
Resolution des deltas: 100% (345364/345364), fait.
#~$ cd poky/
#poky$ mv ../meta-raspberrypi/ .
#poky$ source oe-init-build-env rpi-build
You had no conf/local.conf file. This configuration file has therefore been
created for you with some default values. You may wish to edit it to, for
example, select a different MACHINE (target hardware). See conf/local.conf
for more information as common configuration options are commented.

You had no conf/bblayers.conf file. This configuration file has therefore been
created for you with some default values. To add additional metadata layers
into your configuration please add entries to conf/bblayers.conf.

The Yocto Project has extensive documentation about OE including a reference
manual which can be found at:
    http://yoctoproject.org/documentation

For more information about OpenEmbedded see their website:
    http://www.openembedded.org/
```

```
### Shell environment set up for builds. ###

You can now run 'bitbake <target>'

Common targets are:
    core-image-minimal
    core-image-sato
    meta-toolchain
    meta-ide-support

You can also run generated qemu images with a command like 'runqemu qemux86'

Other commonly useful commands are:
 - 'devtool' and 'recipetool' handle common recipe tasks
 - 'bitbake-layers' handles common layer tasks
 - 'oe-pkgdata-util' handles common target package tasks
#rpi-build$ bitbake-layers add-layer ../meta-raspberrypi
NOTE: Starting bitbake server...

#rpi-build$ echo 'MACHINE="raspberrypi3"' >> conf/local.conf
#time bitbake core-image-minimal
WARNING: Host distribution "manjaro" has not been validated with this version of the
    build system; you may possibly experience unexpected failures. It is recommended that
     you use a tested distribution.
Parsing recipes: 100% |#####################################################| Time:
    0:00:31
Parsing of 798 .bb files complete (0 cached, 798 parsed). 1327 targets, 67 skipped, 0
    masked, 0 errors.
NOTE: Resolving any missing task queue dependencies

Build Configuration:
BB_VERSION           = "1.44.0"
BUILD_SYS            = "x86_64-linux"
NATIVELSBSTRING      = "manjaro"
TARGET_SYS           = "arm-poky-linux-gnueabi"
MACHINE              = "raspberrypi3"
DISTRO               = "poky"
DISTRO_VERSION       = "3.0"
TUNE_FEATURES        = "arm vfp cortexa7 neon vfpv4 thumb callconvention-hard"
TARGET_FPU           = "hard"
meta
meta-poky
meta-yocto-bsp       = "master:7e7b066085c2496a259b356c59acda32d444a261"
meta-raspberrypi     = "master:3ae288aa38e3a1609c6e861918a874416d3f0f13"

NOTE: Fetching uninative binary shim from http://downloads.yoctoproject.org/releases/
    uninative/2.7/x86_64-nativesdk-libc.tar.xz;sha256sum=9498
    d8bba047499999a7310ac2576d0796461184965351a56f6d32c888a1f216
Initialising tasks: 100% |##################################################| Time:
    0:00:01
Sstate summary: Wanted 1016 Found 0 Missed 1016 Current 0 (0% match, 0% complete)
NOTE: Executing Tasks
NOTE: Setscene tasks completed
Currently  8 running tasks (291 of 2777)  10% |####
                                                 |
Currently  8 running tasks (293 of 2777)  10% |####
                                                 |
Currently  8 running tasks (296 of 2777)  10% |####
                                                 |
Currently  8 running tasks (299 of 2777)  10% |####
                                                 |
Currently  8 running tasks (303 of 2777)  10% |#####
                                                 |
Currently  8 running tasks (306 of 2777)  10% |#####
                                                 |
0: binutils-cross-arm-2.33.1-r0 do_fetch (pid 3303)   4% |#                        |
    106K/s
Currently  8 running tasks (322 of 2777)  11% |#####
                                                 |
0: binutils-cross-arm-2.33.1-r0 do_fetch (pid 3303)   5% |#                        |
    94.8K/s
Currently  8 running tasks (775 of 2777)  27% |###########
                                                 |
0: binutils-cross-arm-2.33.1-r0 do_fetch (pid 3303)  14% |###                      |
    42.4K/s
```

```
Currently  8 running tasks (2216 of 2777)  79% |#
    ###########################################################################
                    |
0: linux-raspberrypi-1_4.19.81+gitAUTOINC+eef78b714c-r0 do_fetch (pid 27144)  78% |#
    #######################################################################
                    |
1: elfutils-0.177-r0 do_compile - 2m46s (pid 9021)
2: perl-5.30.1-r0 do_configure - 37s (pid 23227)
3: gmp-6.1.2-r0 do_configure - 30s (pid 28651)
Currently  1 running tasks (2701 of 2777)  97% |#
    ###########################################################################
        NOTE: Tasks Summary: Attempted 2777 tasks of which 1 didn't need to be rerun and
    all succeeded.

Summary: There were 3 WARNING messages shown.
[2]+  Fini                    firefox TP2.pdf  (wd : ~/Documents/IDO/SEOC3/TP2)
(maintenant, wd : ~/Documents/IDO/SEOC3/TP2/poky/rpi-build)

real  104m25,320s
user  8m14,546s
sys 1m14,001s
```

Listing 4 – Fini de la commande bitbake

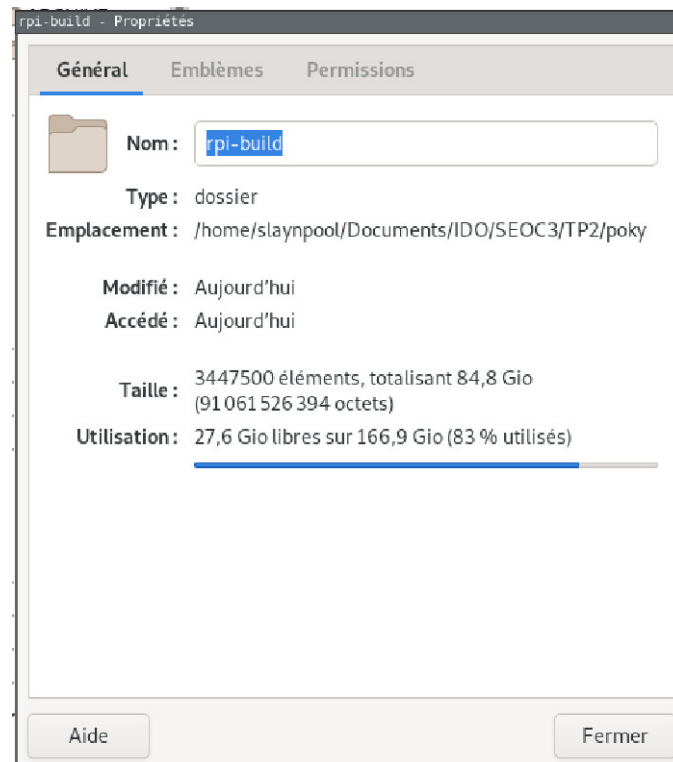Le dossier rpi-build pèse 84 go après l'operation.

FIGURE 1 – visualiser

L'image final pese 56MO Donc si on fait les modifications démender dans le TP soit :

```
# cd rpi-build/
# echo 'INHERIT+="rm_work"' >> conf/local.conf
# echo 'hostname_pn-base-files="yocto-XX"' >> conf/local.conf
# time bitbake core-image-minimal
Parsing recipes: 100% |#
    ###########################################################################
    Time: 0:00:30
Parsing of 798 .bb files complete (0 cached, 798 parsed). 1327 targets, 67 skipped, 0
    masked, 0 errors.
NOTE: Resolving any missing task queue dependencies
```
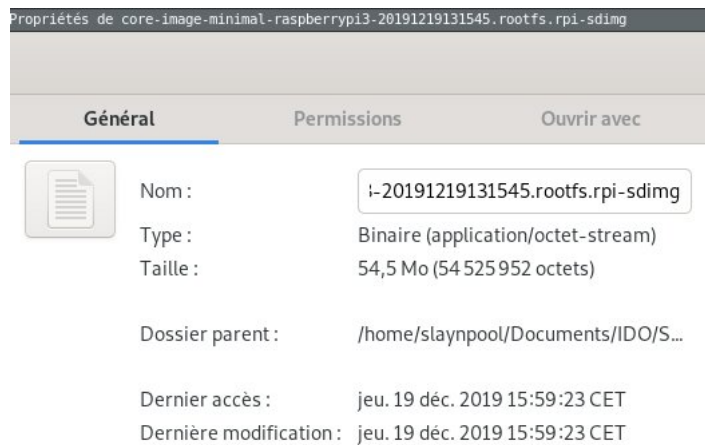
```
     Build Configuration:
10   BB_VERSION           = "1.44.0"
     BUILD_SYS            = "x86_64-linux"
     NATIVELSBSTRING      = "universal"
     TARGET_SYS           = "arm-poky-linux-gnueabi"
     MACHINE              = "raspberrypi3"
15   DISTRO               = "poky"
     DISTRO_VERSION       = "3.0"
     TUNE_FEATURES        = "arm vfp cortexa7 neon vfpv4 thumb callconvention-hard"
     TARGET_FPU           = "hard"
     meta
20   meta-poky
     meta-yocto-bsp       = "master:6bb4a252199cfd5d44ad7ab6fc4118c80a1aae92"
     meta-raspberrypi     = "master:3ae288aa38e3a1609c6e861918a874416d3f0f13"

     Initialising tasks: 100% |#
         ###################################################################################
          Time: 0:00:02
25   Sstate summary: Wanted 7 Found 0 Missed 7 Current 1009 (0% match, 99% complete)
     NOTE: Executing Tasks
     NOTE: Setscene tasks completed
     NOTE: Task /home/slaynpool/Documents/IDO/SEOC3/TP2/poky/meta/recipes-core/base-files/
         base-files_3.0.14.bb:do_populate_sysroot unihash changed to 0
         ef4804ae671527a824f9411460c6438cb15db45476e15054f8759c382fbafbc
     NOTE: Task /home/slaynpool/Documents/IDO/SEOC3/TP2/poky/meta/recipes-core/base-files/
         base-files_3.0.14.bb:do_package_qa unihash changed to 219
         bd4123aa1622fa40da4e61dde9b582dc4965868bcd5b3a1c307b6e6fdd2f5
30   NOTE: Setscene tasks completed
     Currently  1 running tasks (3187 of 3196)  99% |#
         ###################################################################################
          |
     0: core-image-minimal-1.0-r0 do_rootfs (pid 13719)  13% |################
                                              NOTE: Tasks Summary: Attempted 3196
         tasks of which 2554 didn't need to be rerun and all succeeded.

     Summary: There was 1 WARNING message shown.

35
     real   1m41,596s
     user   0m1,342s
     sys 0m0,187s
```

Listing 5 – .

Alors deja, on peut voir que l'operation prend drastiquement moins de temps. De plus, comme on lui a gentillement demandé de supprimé tous ce qu'il avait besion pour travailler, on a récupéré de l'espace disque :
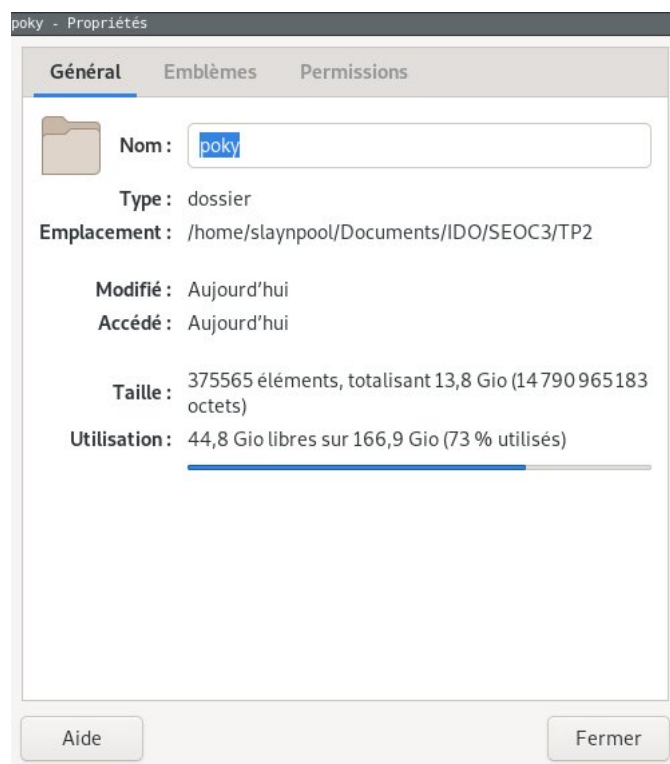
FIGURE 3 – visualiser