

Cross-Compiling i.MX Linux BSP On Ubuntu 18.04 LTS/20.04 LTS/Debian-10

Host Configuration :

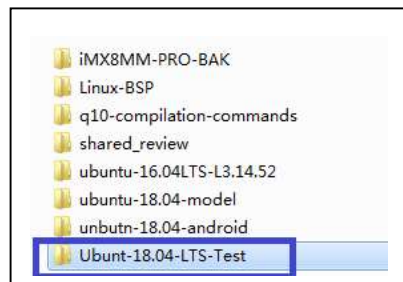
- CPU: i7-6700 4-core 8 threads
- Total memory: 32GB DDR4
- Windows 7 64bit
- USB3.1 SSD (For Linux virtual machine)

Virtual Machine:

- Vmware player 15
- Ubuntu 18.04 LTS / 20.04 LTS /Debian-10

1. Installing ubuntu 18.04 LTS or 20.04 LTS/ Debian-10 to USB3.1 SSD

--Creating a directory for the virtual machine on USB3.1 SSD



On my computer, the directory is H:\Ubunt-18.04-LTS-Test

--Starting VMWare player 15 and install ubuntu-18.04.4-desktop-amd64.iso (ubuntu-20.04-desktop-amd64.iso)



--Select ubuntu-18.04.4-desktop-amd64.iso(ubuntu-20.04-desktop-amd64.iso)



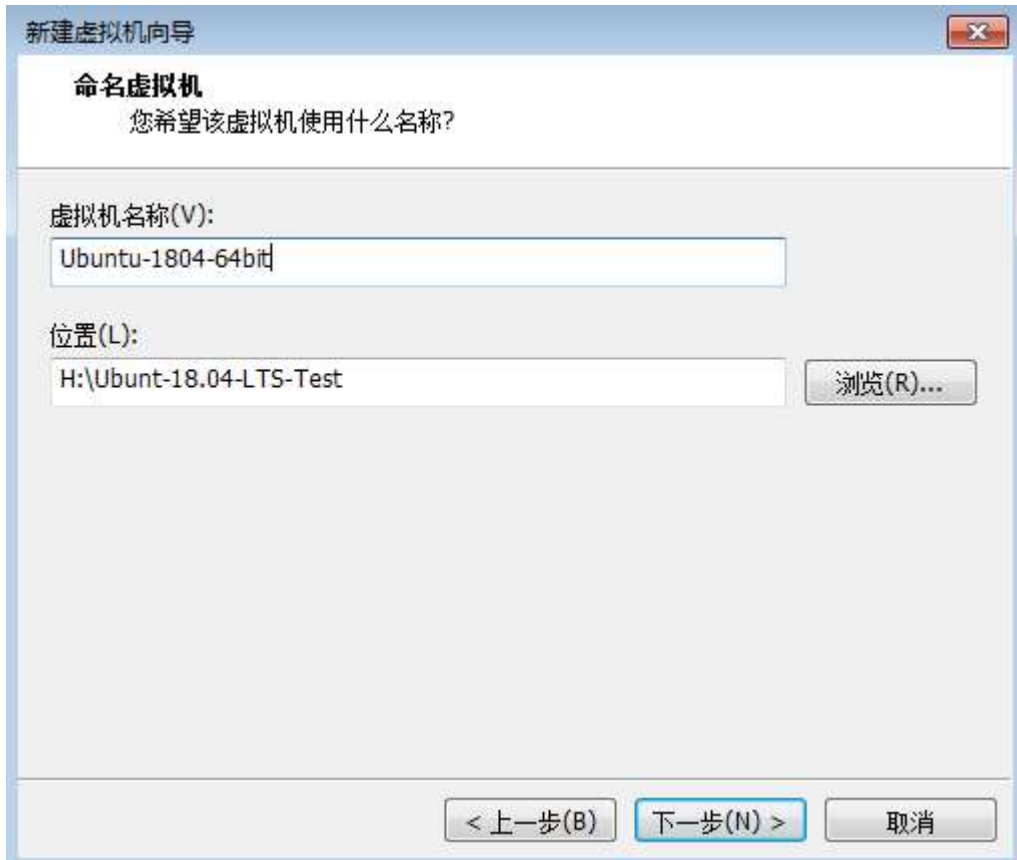
Then NEXT

--Input Contents according to Wizard



Then NEXT

--Select the path of installation



Then NEXT

--Input the size of DISK (350GB)



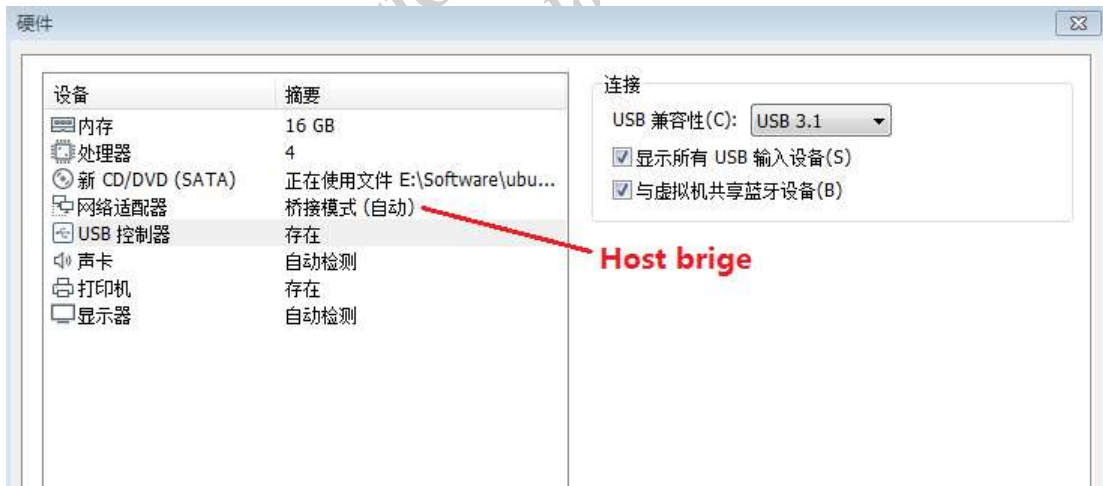
[Commnet] Multifile is also OK.

Then NEXT

--Check system configurations



[comment] we can't change it like below according computer's resource

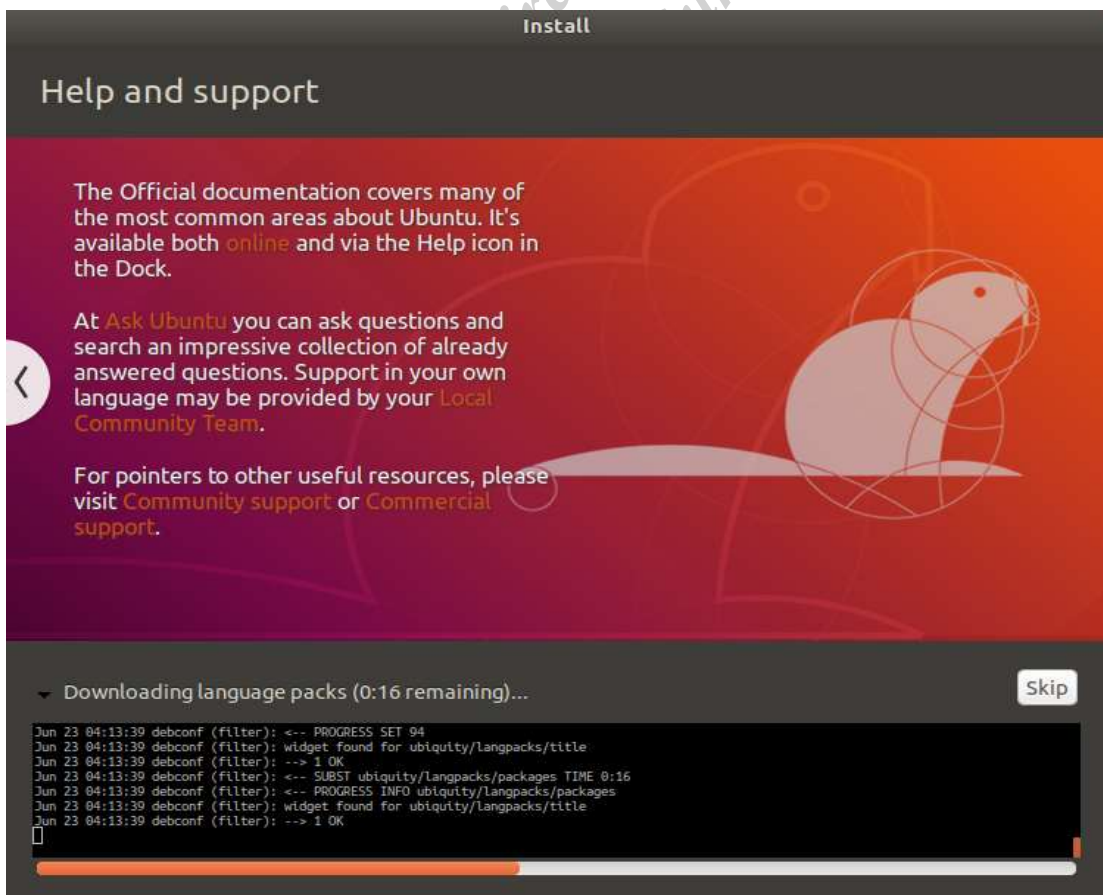
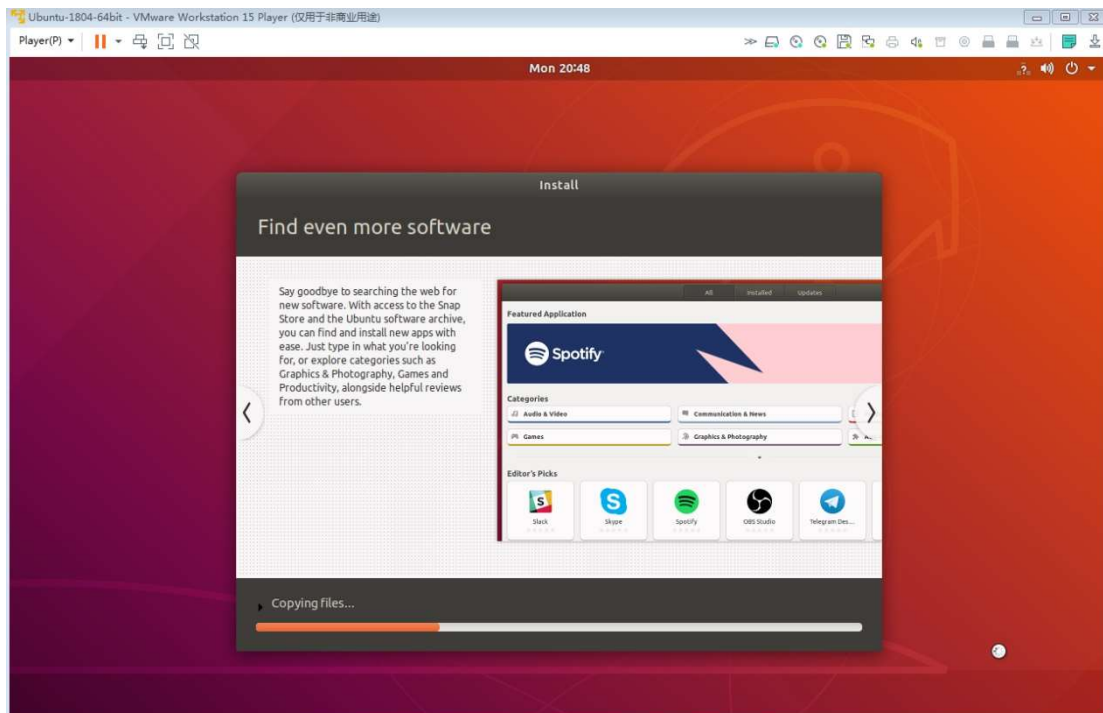


Then press Finish Button.

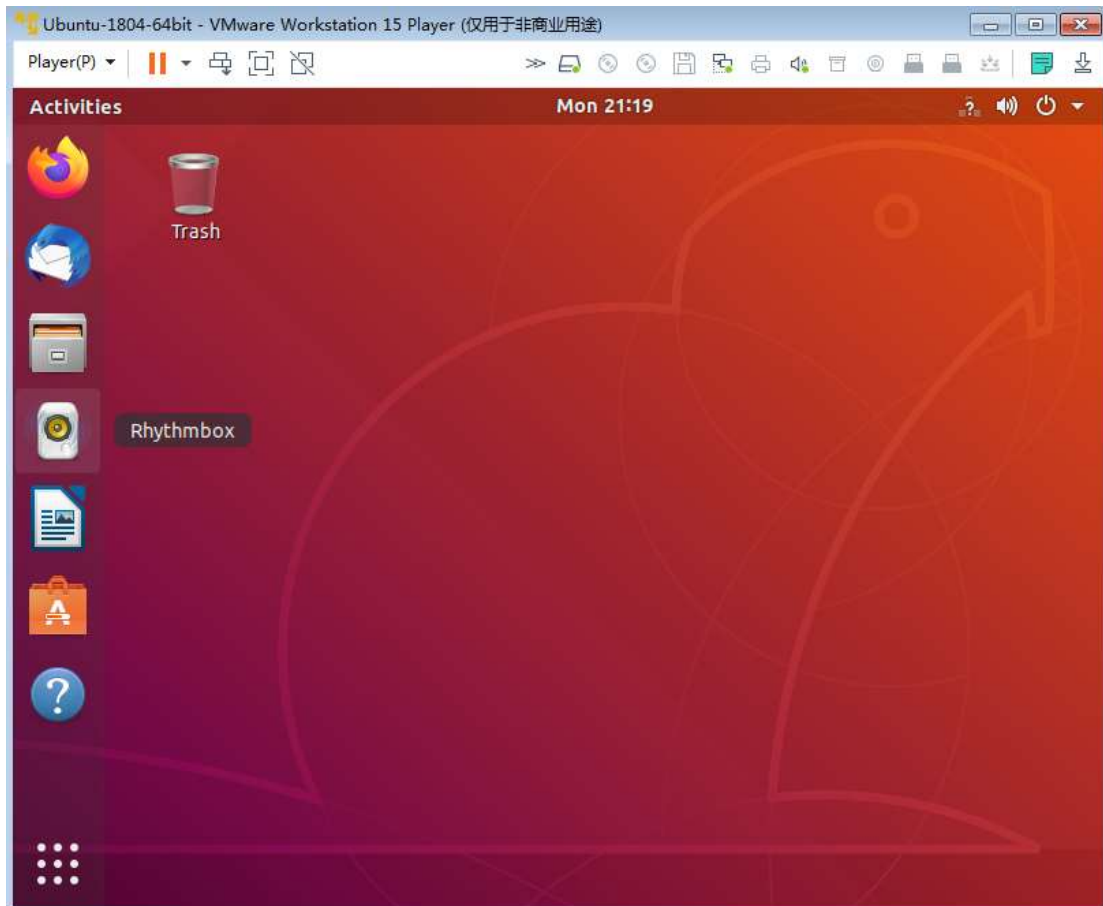
VMware player will begin to install ubuntu 18.04 LTS

Probably VMware player will remind you download new version of vmware tools, so download it, please!

--Below shows installing ubuntu 18.04



Let us wait until it is done.

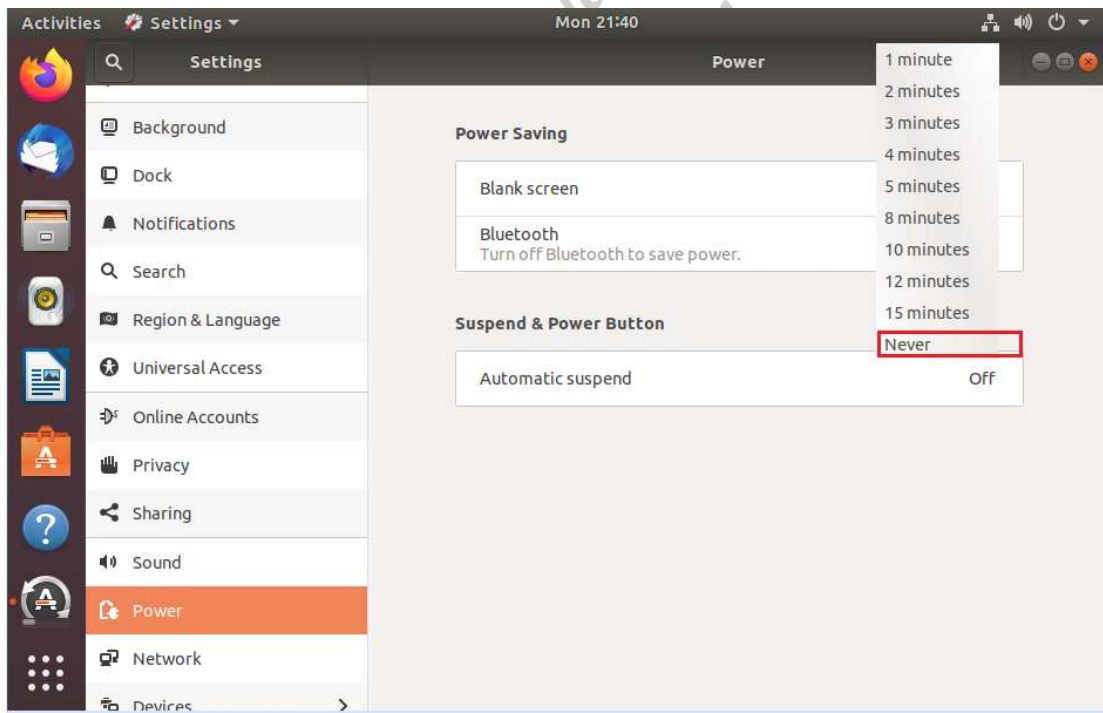


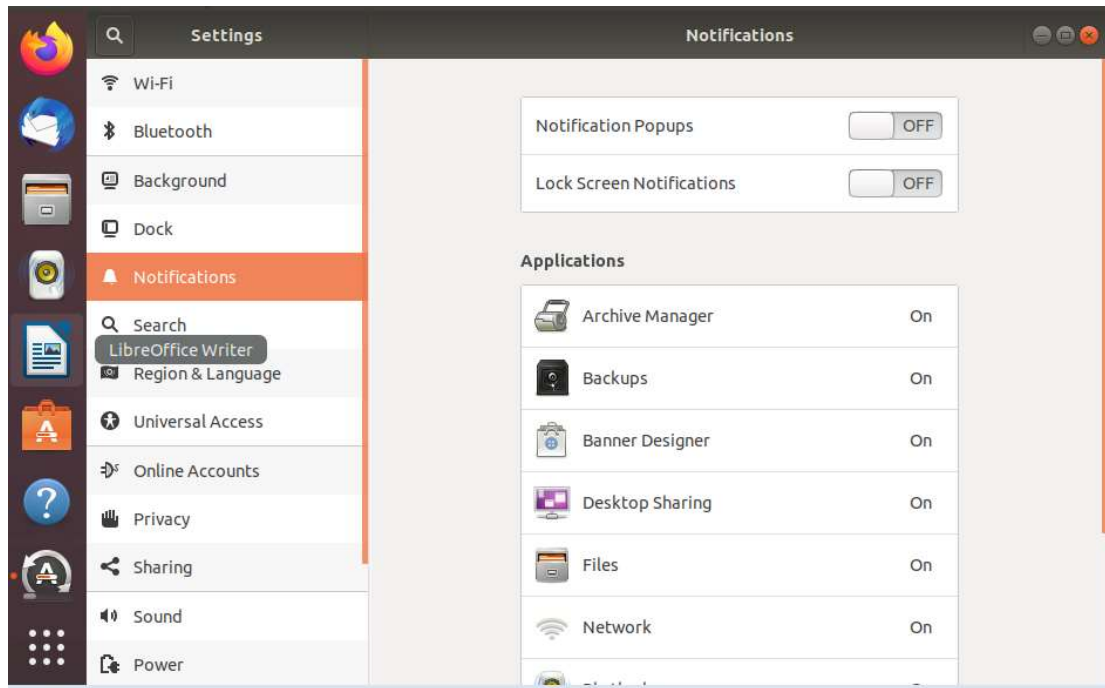
2. Configuring ubuntu 18.04 LTS

If ubuntu shows the dialog of update software, install now. otherwise continue.



In order to prevent ubuntu from entering standby mode, you can set it like this:
Press "show applications"--->Settings





[Comment]

[For customers in China]

We can change the ubuntu source to be that of Tsinghua University.

```
# sudo passwd root
```

Input root password, and continue.

```
# sudo cp /etc/apt/sources.list /etc/apt/sources.list.bak
```

```
# sudo gedit /etc/apt/sources.list
```

Add the links of ubuntu source of Tsinghua University:

```
# 默认注释了源码镜像以提高 apt update 速度，如有需要可自行取消注释
```

```
deb https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ bionic main restricted universe multiverse
```

```
# deb-src https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ bionic main restricted universe multiverse
```

```
deb https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ bionic-updates main restricted universe multiverse
```

```
# deb-src https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ bionic-updates main restricted universe multiverse
```

```
deb https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ bionic-backports main restricted universe multiverse
```

```
# deb-src https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ bionic-backports main restricted universe multiverse
```

```
deb https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ bionic-security main restricted universe multiverse
```

```
# deb-src https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ bionic-security main restricted universe multiverse
```

```
# 预发布软件源，不建议启用
```

```
# deb https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ bionic-proposed main restricted universe multiverse
```

```
# deb-src https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ bionic-proposed main restricted universe multiverse
```

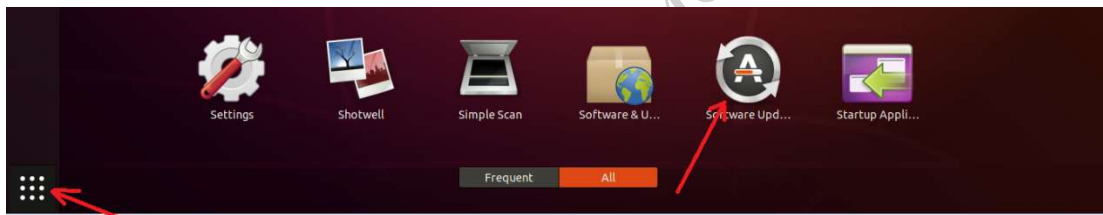
Save and exit.

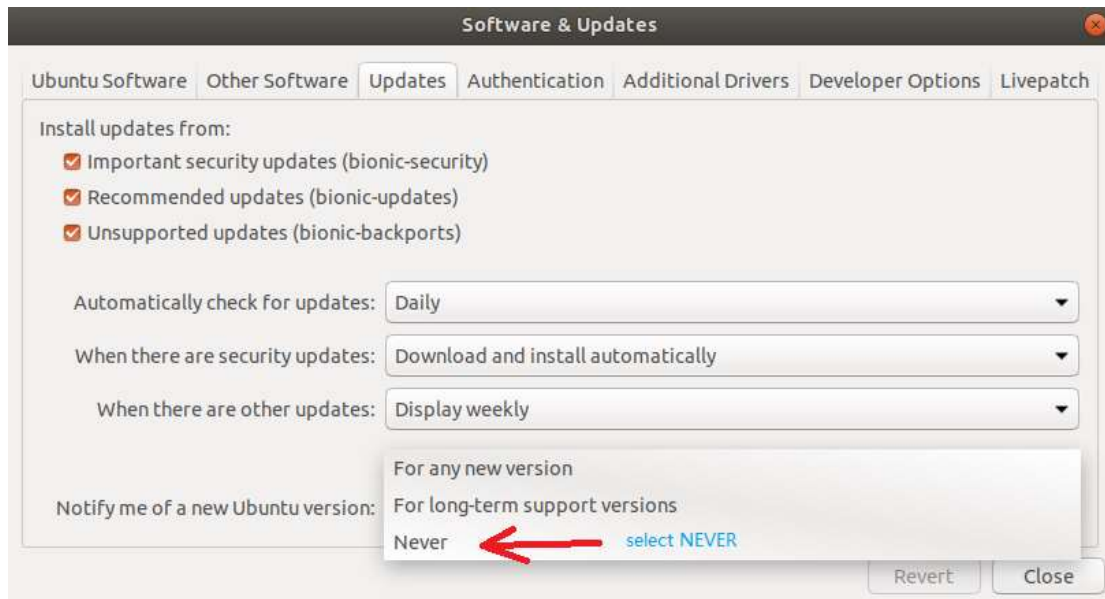
For ubuntu 20.04 LTS source, see below, please!

```
# 默认注释了源码镜像以提高 apt update 速度，如有需要可自行取消注释
deb https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ focal main restricted universe multiverse
# deb-src https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ focal main restricted universe multiverse
deb https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ focal-updates main restricted universe multiverse
# deb-src https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ focal-updates main restricted universe multiverse
deb https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ focal-backports main restricted universe multiverse
# deb-src https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ focal-backports main restricted universe multiverse
deb https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ focal-security main restricted universe multiverse
# deb-src https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ focal-security main restricted universe multiverse

# 预发布软件源，不建议启用
# deb https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ focal-proposed main restricted universe multiverse
# deb-src https://mirrors.tuna.tsinghua.edu.cn/ubuntu/ focal-proposed main restricted universe multiverse
```

In order to prevent ubuntu from upgrading to the new version, you can set it like this:





Close it, and continue to configure ubuntu 18.04.

(1) Setting root user and password

If the step has been done, omit it, please!

```
# sudo passwd root
```

(2) Run these 2 commands to update software and system

```
# sudo apt-get update
```

```
# sudo apt-get upgrade
```

(3) Installing software packages for cross-compile linux BSP

```
# sudo apt-get install flex bison gperf build-essential zlib1g-dev
```

```
# sudo apt-get install lib32ncurses5-dev x11proto-core-dev
```

```
# sudo apt-get install libx11-dev lib32z1-dev libgl1-mesa-dev
```

```
# sudo apt-get install tofrodos python-markdown libxml2-utils xsltproc
```

```
# sudo apt-get install uuid-dev:i386 liblzo2-dev:i386 gcc-multilib g++-multilib
```

[comment]

For Debian-10 `uuid-dev:i386 liblzo2-dev:i386` ---> `uuid-dev liblzo2-dev`

```
# sudo apt-get install subversion openssh-server openssh-client uuid uuid-dev zlib1g-dev
```

```
# sudo apt-get install liblz-dev lzop liblzo2-2 liblzo2-dev git-core curl
```

```
# sudo apt-get install python3 python3-pip python3-pexpect python3-git python3-jinja2 pylint3
```

```
# sudo apt-get install u-boot-tools mtd-utils android-tools-fsutils
```

[comment]

For ubuntu 20.04 LTS, don't need **android-tools-fsutils**. So remove it, please!

```
# sudo apt-get install openjdk-8-jdk device-tree-compiler aptitude
```

[comment]

For Debian-10 `openjdk-8-jdk` --- > `default-jdk`

```
# sudo apt-get install libcurl4-openssl-dev nss-updatedb
```

```
# sudo apt-get install chrpath texinfo gawk cpio diffstat
```

```
# sudo apt-get install libncursesw5-dev libssl-dev libegl1-mesa libncurses5
```

```
# sudo apt-get install net-tools python libstdl1.2-dev xterm socat
```

```
# sudo apt-get install icedtea-netx-common icedtea-netx
```

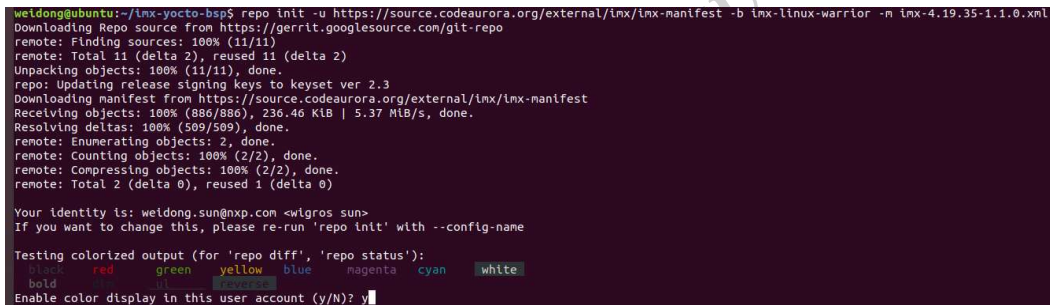
```
# git config --global user.name "wigros_sun"
# git config --global user.email "weidong.sun@nxp.com"
# git config --list
```

Compiling L4.19.35_1.1.0 BSP

(1) downloading yocto bsp (L4.19.35_1.10)

```
# mkdir ~/bin
# curl https://storage.googleapis.com/git-repo-downloads/repo > ~/bin/repo
# chmod a+x ~/bin/repo
# export PATH=~/bin:$PATH

# mkdir imx-yocto-bsp
# cd imx-yocto-bsp
# repo init -u https://source.codeaurora.org/external/imx/imx-manifest -b imx-linux-warrior -m imx-4.19.35-1.1.0.xml
```



```
weldong@ubuntu:~/imx-yocto-bsp$ repo init -u https://source.codeaurora.org/external/imx/imx-manifest -b imx-linux-warrior -m imx-4.19.35-1.1.0.xml
Downloading Repo source from https://gerrit.googlesource.com/git-repo
remote: Finding sources: 100% (11/11)
remote: Total 11 (delta 2), reused 11 (delta 2)
Unpacking objects: 100% (11/11), done.
repo: Updating release signing keys to keyset ver 2.3
Downloading manifest from https://source.codeaurora.org/external/imx/imx-manifest
Receiving objects: 100% (886/886), 236.46 KiB | 5.37 MiB/s, done.
Resolving deltas: 100% (509/509), done.
remote: Enumerating objects: 2, done.
remote: Counting objects: 100% (2/2), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 2 (delta 0), reused 1 (delta 0)

Your identity is: weldong.sun@nxp.com <wigros_sun>
If you want to change this, please re-run 'repo init' with --config-name

Testing colored output (for 'repo diff', 'repo status'):
  bold      red       green     yellow    blue      magenta   cyan      white
Enable color display in this user account (y/N)? y
```

```
# cd .repo/manifests
# gedit imx-4.19.35-1.1.0.xml
    Modify it like below:
...
<remote fetch="https://git.yoctoproject.org/git" name="yocto"/>
<remote fetch="https://github.com/Freescale" name="community"/>
<remote fetch="https://github.com/openembedded" name="oe"/>
<remote fetch="https://github.com/OSSystems" name="OSSystems"/>
<remote fetch="https://github.com/meta-qt5" name="QT5"/>
<remote fetch="https://github.com/TimesysGit" name="Timesys"/>
<remote fetch="https://github.com/meta-rust" name="rust"/>
<remote fetch="https://source.codeaurora.org/external/imx" name="CAF"/>
...
    Save and exit.
# cd ~/imx-yocto-bsp
# repo sync
```

```

weidong@ubuntu:~/imx-yocto-bsp$ repo sync
remote: Enumerating objects: 255, done.
remote: Counting objects: 100% (255/255), done.
remote: Enumerating objects: 13, done.
remote: Counting objects: 100% (13/13), done.
remote: Compressing objects: 100% (161/161), done.
remote: Compressing objects: 100% (10/10), done.
remote: Total 6474 (delta 2), reused 6 (delta 1), pack-reused 6461
Receiving objects: 100% (6474/6474), 2.25 MiB | 169.00 KiB/s, done.
Resolving deltas: 100% (4254/4254), done.
remote: Enumerating objects: 333, done. | 147.00 KiB/s 6% (4867/13519), 1.82 MiB | 131.00 KiB/s
remote: Counting objects: 100% (333/333), done.
remote: Compressing objects: 100% (178/178), done. B/s
remote: Total 13519 (delta 126), reused 150 (delta 93), pack-reused 13264
Receiving objects: 100% (13519/13519), 3.49 MiB | 120.00 KiB/s, done.
Resolving deltas: 100% (9435/9435), done.
Receiving objects: 97% (130876/133886), 38.32 MiB | 85.00 KiB/s /133886), 2.21 MiB | 102.00 KiB/s

```

It was done:

```

Receiving objects: 100% (1768/1768), 364.46 KiB | 186.00 KiB/s, done.
Resolving deltas: 100% (957/957), done.
Fetching projects: 36% (4/11) meta-freescale-distromote: Enumerating objects: 4, done.
remote: Counting objects: 100% (4/4), done.
remote: Compressing objects: 100% (4/4), done.
remote: Total 275 (delta 1), reused 0 (delta 0), pack-reused 271
Receiving objects: 100% (275/275), 61.04 KiB | 183.00 KiB/s, done.
Resolving deltas: 100% (148/148), done.
Fetching projects: 54% (6/11) meta-freescaleremote: Enumerating objects: 61, done.
remote: Counting objects: 100% (61/61), done.
remote: Compressing objects: 100% (46/46), done.
remote: Total 4665 (delta 21), reused 41 (delta 14), pack-reused 4604
Receiving objects: 100% (4665/4665), 966.19 KiB | 124.00 KiB/s, done.
Resolving deltas: 100% (2551/2551), done.
Fetching projects: 63% (7/11) meta-rustremote: Enumerating objects: 561, done.
remote: Counting objects: 100% (561/561), done.
remote: Compressing objects: 100% (497/497), done.
remote: Total 1754 (delta 239), reused 382 (delta 64), pack-reused 1193
Receiving objects: 100% (1754/1754), 300.07 KiB | 72.00 KiB/s, done.
Resolving deltas: 100% (884/884), done.
Fetching projects: 72% (8/11) meta-timesysremote: Enumerating objects: 34, done.
remote: Counting objects: 100% (34/34), done.
remote: Compressing objects: 100% (23/23), done.
remote: Total 5954 (delta 15), reused 23 (delta 11), pack-reused 5920
Receiving objects: 100% (5954/5954), 2.58 MiB | 173.00 KiB/s, done.
Resolving deltas: 100% (3517/3517), done.
Fetching projects: 100% (11/11), done.
Checking out projects: 100% (11/11), done.
repo sync has finished successfully.
weidong@ubuntu:~/imx-yocto-bsp$

```

(2) Compiling L4.19.35_1.1.0 BSP

DISTRO=fsl-imx-wayland MACHINE=imx8mqevk source fsl-setup-release.sh -b build-wayland

If you encounter the error below when running the command, re-run "repo sync", please!

```

weidong@ubuntu:~/imx-yocto-bsp$ DISTRO=fsl-imx-wayland MACHINE=imx8mqevk source fsl-setup-release.sh -b build-wayland
Build directory is build-wayland
bash: ./setup-environment: No such file or directory
ERROR - No build directory is set yet. Run the 'setup-environment' script before running this script to create .

```

Then continue

```
You can now run 'bitbake <target>'

Common targets are:
  core-image-minimal
  meta-toolchain
  meta-toolchain-sdk
  adt-installer
  meta-ide-support

Your build environment has been configured with:

  MACHINE=imx8mqevk
  SDKMACHINE=i686
  DISTRO=fsl-imx-wayland
  EULA=
  BSPDIR=
  BUILD_DIR=.
  meta-freescale directory found
weidong@ubuntu:~/imx-yocto-bsp/build-wayland$
```

bitbake imx-image-multimedia

Then system begins to compile BSP:

```
weidong@ubuntu: ~/imx-yocto-bsp/build-wayland
File Edit View Search Terminal Help
Parsing recipes: 100% |#####| Time: 0:01:57
Parsing of 2784 .bb files complete (0 cached, 2784 parsed). 3921 targets, 460 skipped, 4 masked, 0 errors.
NOTE: Resolving any missing task queue dependencies

Build Configuration:
BB_VERSION      = "1.42.0"
BUILD_SYS       = "x86_64-linux"
NATIVELSBSTRING = "ubuntu-18.04"
TARGET_SYS      = "aarch64-poky-linux"
MACHINE         = "imx8mqevk"
DISTRO          = "fsl-imx-wayland"
DISTRO_VERSION  = "4.19-warrior"
TUNE_FEATURES   = "aarch64"
TARGET_FPU      = ""
meta
meta-poky       = "HEAD:6d2e12e79211b31cdf5ea824fb9a8be54ba9a9eb"
meta-oe
meta-multimedia = "HEAD:3bdbf72e3a4bf18a4a2c7afbde4f7ab773aeded9"
meta-freescale  = "HEAD:2142f7ded1b3115ccc21f7575f683e2376247193"
meta-freescale-3rdparty = "HEAD:4a422478d38e74993bcf61123c4a526396c7030"
meta-freescale-distro = "HEAD:d4e77ea682fa10d0d54a723b3d3099c44fc5e95c"
meta-bsp
meta-sdk
meta-rtl        = "HEAD:bb05c60e6398b374ac49554c642a3bef36452f73"
meta-browser   = "HEAD:5f365ef842ba4651efe88787c9c63bc8b6cb3"
meta-rust       = "HEAD:11aed43748d7dd194dc6c06a35a16104400d1090"
meta-gnome
meta-networking
meta-python
meta-filesystems = "HEAD:3bdbf72e3a4bf18a4a2c7afbde4f7ab773aeded9"
meta-qt5        = "HEAD:dc2dedf9961950b88f4245ba7499538ec4244ab"

Initialising tasks: 100% |#####| Time: 0:00:06
State summary: Wanted 2622 Found 0 Missed 2622 Current 0 (0% match, 0% complete)
NOTE: Executing Setscene Tasks
NOTE: Executing RunQueue Tasks
Currently 4 running tasks (7 of 7097) 0% |
0: quilt-native-0.65-r0 do_fetch (pid 28035) 0% |
1: m4-native-1.4.18-r0 do_fetch (pid 28038) 5% |####
2: gnu-config-native-2.0181128-glibc-AUTOINC-0950639be22-r0 do_fetch (pid 28036) 13% |#####
3: autoconf-native-2.69-r11 do_fetch (pid 28060) 2% |##
```


Compiling L5.4.24_2.1.0 BSP

(1) downloading yocto bsp (L5.4.24_2.1.0)

```
# rm -rf ~/bin
# mkdir ~/bin
# curl https://storage.googleapis.com/git-repo-downloads/repo > ~/bin/repo
# chmod a+x ~/bin/repo
# export PATH=~/bin:$PATH

# mkdir imx-yocto-bsp-5.4.24-2.1.0
# cd imx-yocto-bsp-5.4.24-2.1.0
# repo init -u https://source.codeaurora.org/external/imx/imx-manifest -b imx-linux-zeus -m imx-5.4.24-2.1.0.xml
```

```
weidong@ubuntu:~/imx-yocto-bsp-5.4.24-2.1.0$ repo init -u https://source.codeaurora.org/external/imx/imx-manifest -b imx-linux-zeus -m imx-5.4.24-2.1.0.xml
Downloading Repo source from https://gerrit.googlesource.com/git-repo
remote: Finding sources: 100% (7/7)
remote: Total 7 (delta 0), reused 7 (delta 0)
Unpacking objects: 100% (7/7), done.
repo: Updating release signing keys to keyset ver 2.3
Downloading manifest from https://source.codeaurora.org/external/imx/imx-manifest
Receiving objects: 100% (938/938), 248.87 KiB | 10.37 MiB/s, done.
Resolving deltas: 100% (539/539), done.
remote: Enumerating objects: 9, done.
remote: Counting objects: 100% (9/9), done.
remote: Compressing objects: 100% (9/9), done.
remote: Total 9 (delta 1), reused 1 (delta 0)

Your identity is: "wigros_sun" <weidong.sun@nxp.com>
If you want to change this, please re-run 'repo init' with --config-name

Testing colorized output (for 'repo diff', 'repo status'):
  black  red  green  yellow  blue  magenta  cyan  white
bold    |
Enable color display in this user account (y/N)? y

repo has been initialized in /home/weidong/imx-yocto-bsp-5.4.24-2.1.0
weidong@ubuntu:~/imx-yocto-bsp-5.4.24-2.1.0$
```

```
# cd .repo/manifests
# gedit imx-5.4.24-2.1.0.xml
```

Modify git to https like below:

```
<remote fetch="https://git.yoctoproject.org/git" name="yocto"/>
<remote fetch="https://github.com/Freescale" name="community"/>
<remote fetch="https://github.com/openembedded" name="oe"/>
<remote fetch="https://github.com/OSSystems" name="OSSystems"/>
<remote fetch="https://github.com/meta-qt5" name="QT5"/>
<remote fetch="https://github.com/TimesysGit" name="Timesys"/>
<remote fetch="https://github.com/meta-rust" name="rust"/>
<remote fetch="https://git.openembedded.org" name="python2"/>
<remote fetch="https://source.codeaurora.org/external/imx" name="CAF"/>
```

Save it and exit.

```
# cd ~/imx-yocto-bsp-5.4.24-2.1.0
# repo sync
```

```
weidong@ubuntu:~/imx-yocto-bsp-5.4.24-2.1.0/.repo/manifests$ cd ../../
weidong@ubuntu:~/imx-yocto-bsp-5.4.24-2.1.0$ repo sync
remote: Enumerating objects: 4, done.
remote: Counting objects: 100% (4/4), done.
remote: Compressing objects: 100% (4/4), done.
remote: Enumerating objects: 32, done. 12.00 KiB/s
remote: Total 275 (delta 1), reused 0 (delta 0), pack-reused 271
Receiving objects: 100% (275/275), 61.04 KiB | 52.00 KiB/s, done.
Resolving deltas: 100% (148/148), done.
remote: Counting objects: 100% (32/32), done. remote: Counting objects: 12% (4/32)
remote: Compressing objects: 100% (17/17), done.
remote: Enumerating objects: 36, done. B | 119.00 KiB/s
remote: Counting objects: 100% (36/36), done.
remote: Compressing objects: 100% (23/23), done.
Receiving objects: 34% (2208/6493), 1.09 MiB | 201.00 KiB/s
```

Begin to compile i.MX8MQ BSP:

```
# DISTRO=fsl-imx-wayland MACHINE=imx8mqevk source imx-setup-release.sh -b build-wayland
```

If users want to use chromium, do it like below, otherwise omit the step.

Add CORE_IMAGE_EXTRA_INSTALL += "chromium-ozone-wayland" to local.conf

And use 8 thread to compile BSP

```
# gedit ./conf/local.conf
```

.....

```
BB_NUMBER_THREADS = "4"
```

```
PARALLEL_MAKE = "-j 4"
```

```
CORE_IMAGE_EXTRA_INSTALL += "chromium-ozone-wayland"
```

.....

Save it and exit.

[comment]

If your ubuntu has 8GB DDR, BB_NUMBER_THREADS can be set to "2", PARALLEL_MAKE can be set to "-j 2".

```
# bitbake chromium-ozone-wayland -c fetch
```

```
# bitbake imx-image-full
```

```
Parsing recipes: 100% |#####| TLine: 0:02:26
Parsing of 3213 .bb files complete (0 cached, 3213 parsed). 4671 targets, 458 skipped, 2 masked, 0 errors.
NOTE: Resolving any missing task queue dependencies

Build configuration:
BB_VERSION      = "1.44.0"
BUILD_SYS       = "x86_64-linux"
NATIVELSBSTRING = "ubuntu-18.04"
TARGET_SYS      = "aarch64-poky-linux"
MACHINE         = "imx8mqevk"
DISTRO          = "fsl-imx-wayland"
DISTRO_VERSION  = "5.4-zeus"
TUNE_FEATURES   = "aarch64 cortexa53 crc crypto"
TARGET_FPU      = ""
meta
meta-poky       = "HEAD:cb967414370e195d109353e51510bd829aa86c3"
meta-oe
meta-multimedia
meta-python     = "HEAD:9e60d30669a2ad0598e9abfcd15ee06b523986b"
meta-freescale  = "HEAD:c2a0d924f6200ee1fb1db1e7420easda2f8fb"
meta-freescale-3rdparty = "HEAD:dbcc68f52c3c84db8cb86aa897344e373651b98"
meta-freescale-distro = "HEAD:ca27d12e4964d1336e662bcc0184bfff526c857"
meta-bsp
meta-sdk
meta-nl         = "HEAD:6e7809dfbd9d97b280fa896f50707163dacbf1"
meta-browser    = "HEAD:5f305ef0f842ba4651ef88787cf9c63bc8b6cb3"
meta-rust       = "HEAD:a012a1027defe28495f06ed522a7a82bdd59a610"
meta-gnome
meta-networking
meta-filesystems = "HEAD:9e60d30669a2ad0598e9abfcd15ee06b523986b"
meta-qt5        = "HEAD:1b8cfc8b57d072f435a0177375e54424f07d1c9"
meta-python2    = "HEAD:251c3d74cfc734c415e06ea8d97773dced9d"

Initialising tasks: 100% |#####| TLine: 0:00:08
Setstate summary: Wanted 3084 Found 0 Missed 3084 Current 0 (0% match, 0% complete)
NOTE: Executing Tasks
NOTE: Setscene tasks completed
Currently 4 running tasks (43 of 8243) 0% |
0: quilt-native-0.66-r0 do_configure - 1s (pid 63629)
1: flex-native-2.6.0-r0 do_unpack - 0s (pid 63733)
2: binutils-cross-aarch64-2.32.0-r0 do_fetch - 0s (pid 63894)
3: gmp-native-6.1.2-r0 do_unpack - 0s (pid 63944)
```

```
Initialising tasks: 100% |#####| TLine: 0:00:08
Setstate summary: Wanted 2952 Found 0 Missed 2952 Current 132 (0% match, 4% complete)
NOTE: Executing Tasks
NOTE: Setscene tasks completed
ERROR: chromium-ozone-wayland-75.0.3770.142-r0 do_check_fdlimit_for_linking: The current maximum number of open file descriptors is too low (1024), and causes ld.bfd to fail to link. Chromium please use ulimit -n to increase it to a higher value, such as 4096, or switch to gold or lld.
ERROR: Logfile of failure stored in: /home/weldong/linux-yocto-bsp-5.4.24-2.1.0/build-wayland/tmp/work/aarch64-poky-linux/chromium-ozone-wayland/75.0.3770.142-r0/temp/log.do_check_fdlimit_for_linking.63830
ERROR: Task (/home/weldong/linux-yocto-bsp-5.4.24-2.1.0/sources/meta-browser/recipes-browser/chromium/chromium-ozone-wayland-75.0.3770.142.bb:do_check_fdlimit_for_linking) failed with exit code 1
NOTE: Tasks Summary: Attempted 1865 tasks of which 1787 didn't need to be rerun and 1 failed.

Summary: 1 task failed:
/home/weldong/linux-yocto-bsp-5.4.24-2.1.0/sources/meta-browser/recipes-browser/chromium/chromium-ozone-wayland-75.0.3770.142.bb:do_check_fdlimit_for_linking
Summary: There was 1 ERROR message shown, returning a non-zero exit code.
weldong@ubuntu:~/linux-yocto-bsp-5.4.24-2.1.0/build-waylands$ ulimit -n 4096
weldong@ubuntu:~/linux-yocto-bsp-5.4.24-2.1.0/build-waylands$
```

Use `ulimit -n 4096` to solve the issue. Then continue.

```
# bitbake imx-image-full
```

```
Initialising tasks: 100% |#####| TLine: 0:00:06
Setstate summary: Wanted 2941 Found 0 Missed 2941 Current 143 (0% match, 4% complete)
NOTE: Executing Tasks
NOTE: Setscene tasks completed
WARNING: cpuburn-arm-1.0:gitAUTOINC+ad7e646700-r0 do_fetch: Failed to fetch URL glt://github.com/ssvb/cpuburn-arm.glt, attempting MIRRORS if available
WARNING: jailhouse-0.12-r0 do_fetch: Failed to fetch URL glt://source.codeaurora.org/external/linux/jailhouse.glt:protocol=ssh;branch=imx-5.4.24_2.1.0, attempting MIRRORS if available
Currently 8 running tasks (4187 of 8243) 50% |#####|
0: llvmlinux-5.4-r0 do_compile - ih24m3s (pid 81106)
1: nodejs-native-10.16.3-r0 do_compile - ih17m57s (pid 8431)
2: glibc-locale-2.30-r0 do_package (pid 64889) 99% |#####|
3: systemd-1.243.2-r0 do_compile (pid 92454) 44% |#####|
4: icu-64.2-r0 do_compile - 4m50s (pid 502)
5: libogg-1.3.4-r0 do_configure - 41s (pid 17208)
6: python3-3.7.7-r0 do_install - 27s (pid 17797)
7: openssl-1.1.1g-r0 do_package - 27s (pid 17402)
```

chromium compilation error:

```

ERROR: Task (/home/weldong/linux-yocto-bsp-5.4.24-2.1.0/sources/meta-browser/recipes-browser/chromium/chromium-ozone-wayland_75.0.3770.142.bb:do_configure) failed with exit code
Waiting for 2 running tasks to finish:
0: opencv-4.2.0.linux-r0.do_compile (pid 87963) 29% |#####
1: arnn-19.08-r1.do_compile (pid 95679) 15% |#####

```

Compile chromium-ozone-wayland separately.

bitbake chromium-ozone-wayland -c cleansstate

bitbake chromium-ozone-wayland -c compile

```

Error from pkg-config.
stderr:
Package dri was not found in the pkg-config search path.
Perhaps you should add the directory containing `dri.pc'
to the PKG_CONFIG_PATH environment variable
No package 'dri' found
See //content/gpu/BUILD.gn:128:18: which caused the file to be included.
configs += [ "//build/config/linux/dri" ]
WARNING: exit code 1 from a shell command.
ERROR: Logfile of failure stored in: /home/weldong/linux-yocto-bsp-5.4.24-2.1.0/build-wayland/tmp/work/aarch64-mx8m-poky-linux/chromium-ozone-wayland/75.0.3770.142-r0/temp/log.do_configure.80816.

```

Use the command to solve the problem.

gedit ../sources/meta-imx/meta-sdk/dynamic-layers/browser-layer/recipes-browser/chromium/chromium-ozone-wayland_%.bbappend

Add mesa to DEPENDS

```

DEPENDS += "\
    libxkbcommon \
    virtual/egl \
    wayland \
    wayland-native \
    mesa \
"

```

Save and exit.

Continue to compile it.

bitbake chromium-ozone-wayland -c compile

```

weldong@ubuntu:~/linux-yocto-bsp-5.4.24-2.1.0/build-wayland$ bitbake chromium-ozone-wayland -c compile
Loading cache: 100% |#####| Time: 0:00:01
Loaded 4671 entries from dependency cache.
NOTE: Resolving any missing task queue dependencies

Build Configuration:
BB_VERSION      = "1.44.0"
BUILD_SYS      = "x86_64-linux"
NATIVELSBSTRING = "ubuntu-18.04"
TARGET_SYS     = "aarch64-poky-linux"
MACHINE        = "imx8mqevk"
DISTRO         = "fsl-linux-wayland"
DISTRO_VERSION = "5.4-zeus"
TUNE_FEATURES  = "aarch64 cortexa53 crc crypto"
TARGET_FPU     = ""
meta
meta-poky      = "HEAD:cba967414370e195d109353e51510bd829aa86c3"
meta-oe
meta-multimedia
meta-python   = "HEAD:9e60d30669a2ad0598e9abf0cd15ee0b523986b"
meta-freescale = "HEAD:c2a0d924f620ee1fb1d1b61e7420e5da2f8fb"
meta-freescale-3rdparty = "HEAD:dbcc686f52c3c84db8cb86aa8973a4e373651b98"
meta-freescale-distro = "HEAD:ca27d12e4964d130e602bc00184bfff526c857"
meta-bsp
meta-sdk
meta-nl       = "HEAD:6e7809dfb8d9d97b280fa896f5070711c3dacbf1"
meta-browser = "HEAD:5f365ef0842ba4651efe88787cf9c63bc8b6cb3"
meta-rust     = "HEAD:a012a1027defe28495f06ed522a7a02bdd59a610"
meta-gnome
meta-networking
meta-filesystems = "HEAD:9e60d30669a2ad0598e9abf0cd15ee0b523986b"
meta-gt5     = "HEAD:b8bcf8cb576d072f435a0177375e54424f67d1c9"
meta-python2 = "HEAD:231c3d74cfc734c3415e06ea8d97173ddced9d"

Installing tasks: 100% |#####| Time: 0:00:01
NOTE: Executing Tasks
NOTE: Setscene tasks completed
NOTE: Tasks Summary: Attempted 1694 tasks of which 1682 didn't need to be rerun and all succeeded.

```









done, continue to compile full image

bitbake imx-image-full

For other versions of linux bsp, we can download their documents from the link:
https://www.nxp.com/design/software/embedded-software/i-mx-software/embedded-linux-for-i-mx-applications-processors:IMXLINUX?tab=Documentation_Tab

For example, [L5.4.70 2.3.0 LINUX DOCS](#)

After downloading and decompressing it, we can find several pdf files,

 i.MX_Graphics_User's_Guide	2020/12/30 12:47
 i.MX_Linux_Release_Notes	2020/12/30 12:46
 i.MX_Linux_Users_Guide	2020/12/30 12:47
 i.MX_Machine_Learning_User's_Guide	2020/12/30 12:45
 i.MX_Porting_Guide	2020/12/30 13:16
 i.MX_Reference_Manual	2020/12/30 12:48
 i.MX_VPU_Application_Programming_Interface_Linux_Reference_Manual	2020/12/30 12:48
 i.MX_Yocto_Project_User's_Guide	2020/12/30 12:49

In i.MX_Yocto_Project_User's_Guide.pdf, steps on how to compile Yocto bsp are described in detail. Users can refer to it to obtain the relevant compilation commands, and then combine the configuration methods in this document to compile different versions of linux BSP.

```
# mkdir imx-yocto-bsp-5.4.70_2.3.0
# cd imx-yocto-bsp-5.4.70_2.3.0
# repo init -u https://source.codeaurora.org/external/imx/imx-manifest -b imx-linux-zeus -m imx-5.4.70-2.3.0.xml
# repo sync
```

For example, compiling **imx-image-multimedia** image for **imx6qpsabreauto**:
(image and board names are listed in i.MX_Yocto_Project_User's_Guide.pdf)

```
# DISTRO=fsl-imx-fb MACHINE=imx6qpsabreauto source imx-setup-release.sh -b build-fb
# bitbake imx-image-multimedia
```

NXP CAT-TIC Wireless MCU team
Weidong Sun
05/15/2020