



INTERNAL USE

OpenWRT SDK Build Code SOP (LEDE)

How to build LEDE (1/2)

- **Step1:** Extract SDK tarball, there will be a dir named **mtk-openwrt-4.1.0.0**

```
tar Jxvf mtk-openwrt-4.1.0.0-20190318-83a1c995.tar
```

- **Step2:** Extract Wi-Fi tarball, there will be a dir named **mtk-wifi-xxxx**

```
tar Jxvf mtk-wifi-xxxx.tar.xz
```

- **Step3:** Copy all files in **mtk-wifi-xxxx/** to **mtk-openwrt-4.1.0.0**

```
cp -rf mtk-wifi-xxxx/* mtk-openwrt-4.1.0.0
```

- **Step4:** Enter **mtk-openwrt-4.1.0.0/**, extract **patch tarball** and copy config

```
cd mtk-openwrt-4.1.0.0/  
tar Jxvf mtk-openwrt-4.1.0.1-patch_20190506.tar.xz  
cp autobuild/xxxx/.config .config
```

— **xxxx:**

- mt7622-AP-RFB1
- mt7629-AP-UpstreamEth

How to build LEDE (2/2)

- Taking 7622+7615 as an example

```
tar Jxvf mtk-openwrt-4.1.0.0-20190318-83a1c995.tar
tar Jxvf mtk-wifi-mt7622-20190503.tar.xz
cp -rf mtk-wifi-mt7622/* mtk-openwrt-4.1.0.0
cd mtk-openwrt-4.1.0.0/
tar Jxvf mtk-openwrt-4.1.0.1-patch_20190506.tar.xz
cp autobuild/mt7622-AP-RFB1/.config .config
```

Check Configuration

- Configure SDK

```
make menuconfig
```

Check Configuration

- Select Libraries
 - Enable libmapd

```
.config - LEDE Configuration
> Libraries
  Libraries
  Arrow keys navigate the menu. <Enter> selects submenus ---- (or empty submenus ----).
  Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes
  features. Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [ ]
  excluded <M> module <> module capable

  ^(-)
  <> libiconv-full..... Character set conversion library
  <> libid3tag..... An ID3 tag manipulation library
  <> libidn..... Stringprep, Punycode and IDNA implementation
  <> libimobiledevice..... A library that talks to Apple devices.
  <> libinput..... a library to handle input devices
  <> libintl..... Stub header for the GNU Internationalization library
  <> libintl-full..... GNU Internationalization library
  <> libiw..... Library for manipulating Linux Wireless Extensions
  -* libiwinfo..... Generalized Wireless Information Library (iwinfo)
  <> libjpeg..... The Independent JPEG Group's JPEG runtime library
  -* libjson-c..... javascript object notation
  <> libkmod..... Linux kernel module handling (library)
  <> libldns..... A library to simplify DNS programming
  <> libltdl..... A generic dynamic object loading library
  -* liblua..... Lua programming language (libraries)
  <> liblz4..... Extremely fast compression
  <> liblz4..... A real-time data compression library
  <> libmad..... An high-quality MPEG audio decoding library
  <> libmagic..... File type determination library
  [-*] libmapd..... mtk mapd library
  <> libmbedtls..... Cryptographic library
  <> libmicrohttpd
  <> libmicrohttpd-no-ssl
  ^(+)
```

Check Configuration

- Select MTK Properties > Applications
 - Enable 1905daemon
 - Enable mapd
 - Enable wapp

```
.config - LEDE Configuration
> MTK Properties > Applications

Applications
Arrow keys navigate the menu. <Enter> selects submenus ---- (or empty submenus ----).
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features.
Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [ ] excluded
<M> module < > module capable

[*] 1905daemon..... 1905 daemon
<*> 8021xd..... 802.1X Daemon
<*> ated_ext..... ated_ext
<*> flash_test..... Mediatek flash test tools/scripts
< > hostapd-2.2..... WPA hostapd V2.2
< > hostapd-2.6..... WPA hostapd V2.6
< > longloopd..... Daemon to monitor switch link for long distance(>100m)
<*> malloctest..... malloc test Daemon
<*> mapd..... map daemon
<*> mii_mgr..... mii_mgr/mii_mgr_cl45
<*> miniupnpd..... Miniupnpd Daemon
<*> qdma..... QDMA configuration tool
<*> pgs..... an program to read/write from/to a pci device from userspace.
<*> relayd..... relayd for bluetooth fw combo tool test
-* samba4-server..... Samba Server (V4)
(-1) Maximum level of compiled-in debug messages
<*> sigma_dut..... SIGMA_DUT(WFA SIGMA DUT)
< > smart_speed..... smart speed
< > switch..... Command to config switch
-* wapp..... wapp daemon
<*> wificonf..... Read/Write MTK WiFi profiles ---->
< > wpa_supplicant-2.0..... WPA Supplicant V2.0

<Select> < Exit > < Help > < Save > < Load >
```

Check Configuration

- Select MTK Properties > Drivers
 - Enable mapfilter

```
.config - LEDE Configuration
> MTK Properties > Drivers

Drivers
Arrow keys navigate the menu. <Enter> selects submenus ---> (or empty submenu ----). Highlighted
letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features. Press
<Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [ ] excluded <M> module
< > module capable

< > kmod-hw_nat..... MTK Hardware NAT
< > kmod-hw_nat..... MTK Hardware NAT
[*] kmod-mapfilter..... MTK map filter
<*> kmod-mt_wifi..... MTK wifi AP driver --->
< > kmod-wifi_forward..... MTK wifi forward driver ----
-*- wifi-profile --->

<Select> < Exit > < Help > < Save > < Load >
```

Check Configuration

- Select *MTK Properties > Drivers > kmod-mt_wifi > WiFi Operation Modes*
 - Enable Concurrent WPS Support
 - Enable Air Monitor

```
~( )  
[ ] CFG80211  
[ ] MBSS AS WDS AP Support  
[ ] Dscp Qos Mapping Support  
[ ] Dscp Priority Mapping Support  
[ ] Minimum PHY rate support  
[ ] Fast UP rate support  
[*] Concurrent WPS Support  
[*] User specific tx rate of mcast pkt  
[*] MediaAir(VOW) support  
[*] Band Steering  
[ ] LED Control Support  
[*] WLAN hook Support  
[ ] Radius Accounting Support  
[*] GreenAP Support  
[ ] TxRx Stats Support  
[ ] Vendor11 Feature Enable  
[*] Pcie Aspm Dynamic Control Support  
[ ] Coex Support  
[ ] Whole Home Coverage - Easy Setup  
[ ] Whole Home Coverage - Event Notifier  
[*] Air Monitor  
-* 802.11v WNM Support  
-* 802.11u Interworking  
[ ] NET TX Queue Support  
[*] WPA3 Support  
[*] Enhanced Open Support  
[ ] Single SKU Support
```


Check Configuration

- Select *MTK Properties* > *Drivers* > *kmod-mt_wifi* > *WiFi Generic Feature Options*
 - Enable MAP Support

```
.config - LEDE Configuration
[...] mt_wifi..... MTK_wifi AP driver > WiFi Generic Feature Options
WiFi Generic Feature Options
Arrow keys navigate the menu. <Enter> selects submenus ---- (or empty submenus ----).
Highlighted letters are hotkeys. Pressing <Y> includes, <N> excludes, <M> modularizes features.
Press <Esc><Esc> to exit, <?> for Help, </> for Search. Legend: [*] built-in [ ] excluded
<M> module < > module capable

[*] Tx Header Translation
[*] Rx Header Translation
[*] dbdc mode support
[ ] Multi Profile Support
[ ] 5G default profile for DBDC
[*] WSC (WiFi Simple Config)
[*] WSC V2(WiFi Simple Config Version 2.0)
[*] PMF
[*] Tx Beam Forming Support
[*] Fast-NAT support
<M> Wifi Hardware NAT support
[ ] FTM Support
[*] IGMP snooping
[*] Flash Support
[ ] Calibration To Flash/BinFile Support
[ ] RlmCalibrationCache Support
[ ] Pre-calibration to Flash Support
[*] Calibration to BinFile Support
[ ] RF Lockdown Support
[ ] Link Test Support
[*] ATE/QA Support
[ ] Wlan Service Library Support
[*] Passpoint Release-2 Support
[*] MLO Support
[*] MAP Support
[*] APSD support
[ ] TCP Reduced ACK support
[*] RED(Random Early Drop) support
[*] Fair Queueing support

<Select> < Exit > < Help > < Save > < Load >
```

Start to compile

- **Step6:** Start to compile

make defconfig; make V=s