

# Aug2021 Tagged dunfell build for RPI3

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## Host Setup

The OpenEmbedded build system should be able to run on Ubuntu 18.04 distribution/other compatible linux distribution with the following versions for Git, tar, and Python.

- Git 1.8.3.1 or greater
- tar 1.27 or greater
- Python 3.4.0 or greater
- Coreutils(E.g realpath)

**Note:** You should also have about 50 Gbytes of free disk space for building images.

The essential packages you need for a supported Ubuntu or Debian distribution are shown in the following command:

```
$ sudo apt-get install gawk wget git-core diffstat unzip texinfo gcc-multilib \
build-essential chrpath socat cpio python python3 python3-pip python3-pexpect \
xz-utils debianutils iputils-ping python3-git python3-jinja2 libegl1-mesa libsdl1.2-dev \
pylint3 xterm bmap-tools
```

## Repo Setup

In order to use Yocto build system, the repo tool must be properly installed on the machine.

To install Repo make sure you have a /bin directory in your home directory and that it is included in your path

### Repo Setup Steps

```
$ mkdir ~/bin
$ PATH=~/bin:$PATH
Download the repo tool and ensure that it is executable
$ curl http://commondatastorage.googleapis.com/git-repo-downloads/repo > ~/bin/repo
$ chmod a+x ~/bin/repo
```

**Note:** it is also recommended to put credentials in ~/.netrc when interacting with repo.

A sample ~/.netrc file is illustrated below

### .netrc

```
machine code.rdkcentral.com login YOUR_USERNAME password YOUR_PASSWORD
```

## Yocto Build Steps

To build, follow below instructions

### Build Steps

```
$ mkdir <workspace dir>
$ cd <workspace dir>
$ repo init -u https://code.rdkcentral.com/r/reference/manifests -m rpi-tags/rpi3_rdkb_dunfell_m8.xml -b master
$ repo sync -j`nproc` --no-clone-bundle
```

Please append the below lines in setup-environment file in your local workspace,

set-up environment

```
$ cd ~/meta-cmf-raspberrypi
$ vi setup-environment

if [ -L ${TOP_DIR}/.repo/manifest.xml ] ; then
    MANIFEST="$(basename `readlink -f ${TOP_DIR}/.repo/manifest.xml` .xml)"
else
    MANIFEST=$(grep include ${TOP_DIR}/.repo/manifest.xml | cut -d ' ' -f 2 | xargs basename -s .xml )
fi
echo "Manifest Name = ${MANIFEST}.xml"
if [ -f "${TOP_DIR}/.repo/manifests/rpi-tags/${MANIFEST}.conf" ]; then
    cat ${TOP_DIR}/.repo/manifests/rpi-tags/${MANIFEST}.conf >> $BUILD_DIR/conf/auto.conf
    if [ $? == 0 ]; then
        echo "${MANIFEST}.conf copied to auto.conf successfully"
    else
        echo "FAILED to copy auto.conf"
    fi
fi
fi
```

Build Steps

```
$ MACHINE=raspberrypi-rdk-broadband source meta-cmf-raspberrypi/setup-environment
$ bitbake rdk-generic-broadband-image
```

Flashing Procedure

Following command can be used to flash the RPI image to sd card using linux machine . bmap tool should be available in linux

Flash command

```
bzip2 -d <path to ImageName.wic.bz2>
sudo -E bmaptool copy --nobmap <path to ImageName.wic> <path to SD card space>

Example:

$ bzip2 -d rdk-generic-broadband-image-raspberrypi-rdk-broadband.wic.bz2
$ sudo -E bmaptool copy --nobmap rdk-generic-broadband-image-raspberrypi-rdk-broadband.wic /dev/sdb
```

Validated Functionalities

| No | Feature                          | Supported |
|----|----------------------------------|-----------|
| 1  | LAN Connected Devices-Ethernet   | ✔         |
| 2  | WAN Connected Devices-Wi-Fi      | ✔         |
| 3  | Parental Control                 | ✔         |
| 4  | Firewall settings                | ✔         |
| 5  | Advanced Config: Port Triggering | ✘         |

|    |  |   |
|----|--|---|
| 6  | Advanced Config: Port Forwarding         | ✓ |
| 7  | Advanced Config: Remote Management       | ✓ |
| 8  | Advanced Config: DMZ                     | ✓ |
| 9  | Xfinity Wi-Fi 2.4/5 GHz – Public Hotspot | ✓ |
| 10 | Test and Diagnostics                     | ✓ |
| 11 | Local WebUI Configuration                | ✓ |
| 12 | Factory Reset                            | ✓ |
| 13 | DHCP /Reserved IP                        | ✓ |
| 14 | EthWan                                   | ✓ |
| 15 | Eth Agent                                | ✓ |
| 16 | 2.4 GHz Band Support                     | ✓ |
| 17 | 5 GHz Band Support                       | ✓ |
| 18 | Bridge Mode Support                      | ✓ |
| 19 | Persistent Storage Management            | ✓ |
| 20 | WebPA for Comcast,community              | ✓ |
| 21 | Lost and Found                           | ✗ |
| 22 | Bluetooth                                | ✗ |
| 22 | Harvester Support                        | ✗ |
| 23 | TR-69                                    | ✗ |
| 24 | SNMP                                     | ✓ |
| 27 | Boot time data measurement               | ✗ |
| 28 | Wireless Protection Setup(WPS)           | ✓ |
| 29 | Captive Portal                           | ✓ |
| 30 | Wi-Fi MAC Filtering                      | ✗ |
| 31 | Log Rotation Support                     | ✓ |
| 32 | Firmware Upgrade Support                 | ✓ |
| 33 | Multiboot Support                        | ✓ |
| 34 | Telemetry Support                        | ✓ |
| 35 | IPV6                                     | ✗ |
| 36 | Log level control through CcspLogAgent   | ✓ |
| 37 | Band Steering using RSSI                 | ✓ |
| 38 | Backup and Restore                       | ✗ |
| 39 | SelfHeal                                 | ✓ |
| 40 | Password-Reset                           | ✓ |
| 41 | WebUI JST                                | ✓ |
| 42 | Telemetry 2                              | ✓ |
| 43 | RdkWanManager                            | ✓ |
| 44 | RdkFwUpgradeManager                      | ✓ |

