

RDKB: Extensible SDK support on Raspberrypi Yocto 3.1 dunfell build

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Yocto Build

Host Machine Setup

Hardware requirements:

- Ubuntu 18.04 desktop machine
- RAM - 8 GB or more
- Memory - a minimum of 100 GB free space

Refer to the link for host machine setup: [Host Setup](#)

Yocto workspace setup

Build setup

```
repo init -u https://code.rdkcentral.com/r/manifests -b dunfell -m rdkb-extsrc.xml
repo sync -j`nproc` --no-clone-bundle
```

Populate eSDK

- broadband RPi gateway

Image build

```
MACHINE=raspberrypi4-rdk-broadband source meta-cmf-raspberrypi/setup-environment
bitbake rdk-generic-broadband-image -c populate_sdk_ext -f
```

The generated eSDK installer resides under the directory build-<MACHINE>/tmp/deploy/sdk/rdk-glibc-x86_64-arm-toolchain-ext-2.0.sh of the Yocto workspace.

Note: The generated eSDK installer script usually occupies 1.5 to 2.5 GB

eSDK Installation

The installer can be done on any x86_64 Linux machines.

Host Configuration

Refer to the [RDKCentral's credential configuration](#) to setup RDK Central's credentials in the machine where eSDK to be installed. This is to access repositories by the RDK Yocto recipes that reside in the eSDK installer.

Installation

```
# run the installer script file
# installer asks for a directory to install (default directory ~/rdk_sdk)
# installer asks permission to proceed
./rdk-glibc-x86_64-arm-toolchain-ext-2.0.s(default directory ~/rdk_sdk)
# installer asks permission to proceed
./rdk-glibc-x86_64-arm-toolchain-ext-2.0.sh
```

Below is the result (terminal output) of the installation

```
xxxuser@yyy-machine-003:~/RPi_esdk/build-raspberrypi-rdk-broadband/tmp/deploy/sdk$ ./rdk-glibc-x86_64-arm-
toolchain-ext-2.0.sh RDK (A Yocto Project based Distro) Extensible SDK installer version 2.0
=====
Enter target directory for SDK (default: ~/rdk_sdk):
You are about to install the SDK to "/mnt/home/mgopal850/rdk_sdk". Proceed [Y/n]? Y
Extracting SDK.....done
Setting it up...
Extracting buildtools...
Preparing build system...
Initialising tasks: 100%
|#####| Time:
0:00:00
done
SDK has been successfully set up and is ready to be used.
Each time you wish to use the SDK in a new shell session, you need to source the environment setup script e.g.
$ . /mnt/home/mgopal850/rdk_sdk/environment-setup-cortexa7t2hf-neon-vfpv4-rdk-linux-gnueabi
```

Build from eSDK

This section covers how to use the eSDK for component build and image build

Environment Setup

The installer can be run on any x86_64 Linux based machines.

```
# change directory to the installed path
cd ~/rdk_sdk
# setup the eSDK environemnt
source environment-setup-cortexa7t2hf-neon-vfpv4-rdk-linux-gnueabi
```

New Components

Add Component

```
# way 1
# add a new recipe with URL
devtool add <recipe_name> <source URL>
devtool add mosquito "http://mosquitto.org/files/source/mosquitto-1.6.10.tar.gz"

# way 2
# add a new recipe with external source directory
devtool add <recipe_name> <absolute path>
# eg. devtool add wireless-tools /path/for/source/directory
```

Modify Component

```
# modify existing recipe's URL or srctree or to add patches
devtool modify <recipe_name> <new URL>
devtool modify mosquitto "http://mosquitto.org/files/source/mosquitto-1.6.10.tar.gz"
```

Edit Component's recipe

```
# modify recipe from an editor
devtool edit-recipe <recipe_name>
# eg. devtool edit-recipe mosquitto
```

Build Components

```
# Pre-requisite: add a new recipe using devtool
devtool build <recipe_name>
# eg. devtool build mosquitto
```

Deploy binaries

```
# Pre-requisite: add a new recipe using devtool
devtool deploy-target <recipe_name> <target_path>
# eg. devtool deploy-target mosquitto root@192.168.xx.xx
```

Build Image

A complete RDK image can be generated from the eSDK installer.

Note: The same image where the eSDK populated can be generated here.

```
# devtool command to build image from eSDK
# <IMAGE> - rdk-generic-broadband-image
devtool build-image <IMAGE>
```

Known Issues

1. Taskhash mismatch error may appear while generating image from sdk, but that would not break the build.
2. Below do_rootfs error may appear while building image through devtool, we can fix through devtool upgrade <recipe_name> and adding respective needed LDFLAGS and depends in the recipe in the workspace directory

```
Problem 1/2:
* - nothing provides libbreakpadwrapper0 >= 5+git999 needed by ccsp-tr069-pa-5-r0.aarch64
*
* Solution 1:
* - do not ask to install a package providing packagegroup-rdk-ccsp-broadband
```

Reference ticket

[REFPLTB-2916](#) - Getting issue details...

STATUS