

Extensible SDK support on RDK-V 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 rdkv-extsrc.xml
repo sync -j `nproc` --no-clone-bundle --no-tags
```

apply bug fixes

```
# fix to use eSDK with pinned revision of RDK components
(cd meta-rdk; git fetch https://code.rdkcentral.com/r/components/generic/rdk-oe/meta-rdk refs/changes/58/53258/1 && git checkout FETCH_HEAD)
```

Note: The above bug fixes changes are temporary given as instructions. This is not required once the change is get merged into the appropriate layer.

Populate eSDK

Media Client

image build

```
MACHINE=raspberrypi-rdk-mc source meta-cmf-raspberrypi/setup-environment
bitbake rdk-generic-mediaclient-wpe-image -c populate_sdk_ext
```

Hybrid Gateway

image build

```
MACHINE=raspberrypi-rdk-hybrid source meta-cmf-raspberrypi/setup-environment
bitbake rdk-generic-hybrid-wpe-image -c populate_sdk_ext
```

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 2 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.sh
```

Below is the result (terminal output) of the installation

```
xxxuser@yyy-machine-003:~/rpi/hyb/1712$ build-rpi-hyb/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 "/home/xxxuser/rdk_sdk". Proceed [Y/n]? Y
Extracting
SDK.....
done
Setting it up...
Extracting buildtools...
Preparing build system...

Parsing recipes: 100% |#####| Time: 0:00:52
Initialising tasks: 100% |#####| Time: 0:00:00
Checking sstate mirror object availability: 100% |#####| Time: 0:00:00
Loading cache: 100% |#####| Time: 0:00:00
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.

$ . /home/xxxuser/rdk_sdk/environment-setup-cortexa7t2hf-neon-vfpv4-rdk-linux-gnueabi

SDK Installation Done.
```

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>
# eg. devtool add westeros https://github.com/rdkcmf/westeros

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

Modify Component

```
# modify existing recipe's URL or srctree or to add patches
devtool modify <recipe_name> <new URL>
# eg. devtool modify westeros https://code.rdkcentral.com/r/rdk/components/generic/westeros
```

Edit Component's recipe

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

Upgrade Component

```
# modify existing recipe's URL or srctree or to add patches
devtool upgrade --version <version number> <recipe_name>
# eg. devtool upgrade --version 1.0.21 westeros
```

Build Components

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

Deploy binaries

```
# Pre-requisite: add a new recipe using devtool
devtool deploy-target <recipe_name> <target_path>
# eg. devtool deploy-target westeros 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-mediaclient-wpe-image or rdk-generic-hybrid-wpe-image
devtool build-image <IMAGE>
```