

# raspberry pi with QT5 using yocto

1. create a directory called "yocto.rpi" and enter it

```
mkdir yocto.rpi
cd yocto.rpi
```

2. create a directory called "yocto-base" and enter it

```
mkdir yocto-base
cd yocto-base
```

3. clone yocto repositories

```
git clone -b fido git://git.yoctoproject.org/poky.git (git://git.yocto
git clone -b fido git://git.openembedded.org/meta-openembedded (git:/
git clone -b fido git://github.com/meta-qt5/meta-qt5.git (git://githu
git clone https://github.com/dvl/meta-gstreamer1.0.git (https://githu
git clone -b fido git://git.yoctoproject.org/meta-raspberrypi (git://
```

4. create meta-kongja-rpi layer as follows

```
mkdir -p meta-kongja-rpi
mkdir -p meta-kongja-rpi/conf
mkdir -p meta-kongja-rpi/recipes-qt/images
mkdir -p meta-kongja-rpi/recipes-qt/qt5
```

5. edit meta-kongja-rpi/conf/layer.conf as follows

```
BBPATH .= ":{LAYERDIR}"

# We have a recipes directory, add to BBFILES
BBFILES += "${LAYERDIR}/recipes*/*/*.bb ${LAYERDIR}/recipes*/*/*.bbap

BBFILE_COLLECTIONS += "kongja"
BBFILE_PATTERN_kongja := "^${LAYERDIR}/"
BBFILE_PRIORITY_kongja = "10"

LICENSE_PATH += "${LAYERDIR}/licenses"

BBFILES += "${@"' '.join('${LAYERDIR}/%s/recipes*/*/*.bbappend' % laye
for layer in BBFILE_COLLECTIONS.split())}"
BBFILES += "${@"' '.join('${LAYERDIR}/%s/recipes*/images/*.bb' % layer
for layer in BBFILE_COLLECTIONS.split())}"
```

6. edit meta-kongja-rpi/recipes-qt/images/kongja-rpi-qt5-image.bb as follows

```
DESCRIPTION = "An image that will launch into the demo application fo
LICENSE = "MIT"
PR = "r0"

LIC_FILES_CHKSUM = "file:// (file://){COREBASE}/LICENSE;md5=3f40d799
file:// (file://){COREBASE}/meta/COPYING.MIT;md5
```

```

IMAGE_FEATURES += "ssh-server-openssh package-management"

IMAGE_INSTALL += " \
    packagegroup-core-boot \
    packagegroup-core-full-cmdline \
    packagegroup-base-wifi \
    packagegroup-base-bluetooth \
    openssh-sftp \
    openssh-sftp-server \
    kernel-modules \
    packagegroup-core-buildessential pkgconfig \
    boost cmake zlib glib-2.0 \
    ruby \
    cpufrequtils \
    userland \
    gstreamer \
    gst-meta-video \
    gst-plugins-base-app \
    gst-plugins-base \
    gst-plugins-good \
    gst-plugins-good-rtsp \
    gst-plugins-good-udp \
    gst-plugins-good-rtpmanager \
    gst-plugins-good-rtp \
    gst-plugins-good-video4linux2 \
    openssh-sftp-server \
    qtbase \
    qtbase-fonts \
    qtbase-plugins \
    qtbase-tools \
    qtdeclarative \
    qtdeclarative-plugins \
    qtdeclarative-tools \
    qtdeclarative-qmlplugins \
    qtmultimedia \
    qtmultimedia-plugins \
    qtmultimedia-qmlplugins \
    qtsvg \
    qtsvg-plugins \
    qtsensors \
    qtimageformats-plugins \
    qtsystems \
    qtsystems-tools \
    qtsystems-qmlplugins \
    qtscript \
    qt3d \
    qt3d-qmlplugins \
    qt3d-tools \
    qtconnectivity-qmlplugins \
    qtlocation-plugins \
    qtlocation-qmlplugins \
    cairo pango fontconfig freetype pulseaudio d
    alsa-lib alsa-tools alsa-state alsa-utils-al
    i2c-tools \
    libdrm \
    qtwebkit-qmlplugins \
    qtwebkit \
    qtsmarthome \
    qt5everywheredemo \
    cinematicexperience \
    qt5-demo-extrafiles \
"

```

```
inherit core-image populate_sdk_qt5
```

## 7. edit meta-kongja-rpi/recipes-qt/qt5/qtbase\_%.bbappend as follows

```
CXXFLAGS += " -I${STAGING_DIR_TARGET}/usr/include/interface/vcos/pthre
           -I${STAGING_DIR_TARGET}/usr/include/interface/vmcs_host/

LDFLAGS_prepend = " -lGLESV2 "
```

## 8. edit meta-kongja-rpi/recipes-qt/qt5/qtmultimedia\_%.bbappend as follows

```
CXXFLAGS += " -I${STAGING_DIR_TARGET}/usr/include/interface/vcos/pthre
           -I${STAGING_DIR_TARGET}/usr/include/interface/vmcs_host/

LDFLAGS_prepend = " -lGLESV2 "
```

## 9. edit meta-kongja-rpi/recipes-qt/qt5/qtwebkit\_%.bbappend as follows

```
CXXFLAGS += " -I${STAGING_DIR_TARGET}/usr/include/interface/vcos/pthre
           -I${STAGING_DIR_TARGET}/usr/include/interface/vmcs_host/

LDFLAGS_prepend = " -lGLESV2 "
```

## 10. Under yocto.rpi enter the following command to create build-rpi

```
source yocto-base/poky/oe-init-build-env build-rpi
```

## 11. edit conf/bblayers.conf as follows

```
# LAYER_CONF_VERSION is increased each time build/conf/bblayers.conf
# changes incompatibly
LCONF_VERSION = "6"
```

```
BBPATH = "${TOPDIR}"
BBFILES ?= ""
```

```
BBLAYERS ?= " \
  /your-dir/yocto.rpi/yocto-base/meta-kongja-rpi \
  /your-dir/yocto.rpi/yocto-base/meta-raspberrypi \
  /your-dir/yocto.rpi/yocto-base/meta-qt5 \
  /your-dir/yocto.rpi/yocto-base/poky/meta \
  /your-dir/yocto.rpi/yocto-base/poky/meta-yocto \
  /your-dir/yocto.rpi/yocto-base/meta-openembedded/meta-oe \
  /your-dir/yocto.rpi/yocto-base/meta-openembedded/meta-networking \
  /your-dir/yocto.rpi/yocto-base/meta-openembedded/meta-python \
  /your-dir/yocto.rpi/yocto-base/meta-openembedded/meta-ruby \
  /your-dir/yocto.rpi/yocto-base/meta-openembedded/meta-multimedia \
"
```

```
BBLAYERS_NON_REMOVABLE ?= " \
  /your-dir/yocto.rpi/yocto-base/poky/meta \
  /your-dir/yocto.rpi/yocto-base/poky/meta-yocto \
"
```

## 12. edit conf/local.conf as follows

```
MACHINE = "raspberrypi"
DL_DIR ?= "${TOPDIR}/../downloads"
SSTATE_DIR ?= "${TOPDIR}/../sstate-cache"
DISTRO ?= "poky"
PACKAGE_CLASSES = "package_ipk"
```

```
EXTRA_IMAGE_FEATURES = " debug-tweaks ssh-server-openssh "  
USER_CLASSES ?= "buildstats image-mklibs image-prelink"  
PATCHRESOLVE = "noop"  
BB_DISKMON_DIRS = "\  
    STOPTASKS,${TMPDIR},1G,100K \  
    STOPTASKS,${DL_DIR},1G,100K \  
    STOPTASKS,${SSTATE_DIR},1G,100K \  
    ABORT,${TMPDIR},100M,1K \  
    ABORT,${DL_DIR},100M,1K \  
    ABORT,${SSTATE_DIR},100M,1K"  
PACKAGECONFIG_append_pn-qemu-native = " sdl"  
PACKAGECONFIG_append_pn-nativesdk-qemu = " sdl"  
ASSUME_PROVIDED += "libsdl-native"  
CONF_VERSION = "1"  
DISTRO_FEATURES_remove = "X11 wayland"  
PACKAGECONFIG_GL = "gles2"
```

```
SYSVINIT_ENABLED_GETTYS = ""
```

13. execute bitbake as follows to build rpi image

```
bitbake kongja-rpi-qt5-image
```

14. execute bitbake as follows to build SDK

```
bitbake -c populate_sdk kongja-rpi-qt5-image
```

- 15.



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## **CONTACT**

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