

RDK-V Control manager integration in RPI

Build instructions for Control manager integration in RPI

The following commands fetches the source code using repo tool and create the image using bitbake.

```
repo init -u https://code.rdkcentral.com/r/manifests -b rdk-next -m rdkv-nosrc.xml
repo sync -j4 --no-clone-bundle
observed in opensourced recipes
source meta-cmf-raspberrypi/setup-environment <select option raspberrypi-rdk-hybrid.conf>
```

recipe	layer	error/warning	root cause	action
bitbake rdk-generic-hybrid-wpe-image				
ctrlm-main.bb	meta-rdk-video	<pre> ../git/src/ble/ctrlm_hal_ble.cpp:25:10: fatal error: stropts.h: No such file or directory 25 #include <stropts.h> ^~~~~~ compilation terminated.</pre>	header file for morty and dunfell are different	https://gerrit.teamccp.com/#/c/503274/
ctrlm-main.bb	meta-rdk-video	<pre> ../../../../../../rdk/components/generic/control/src/./cpc/ctrlm_vendor_network_factory.cpp: In function 'void ctrlm_vendor_network_factory_func_add(int (*)(long unsigned int, json_t*, networks_map_t&))': ../../../../../../rdk/components/generic/control/src/./cpc/ctrlm_vendor_network_factory.cpp:27:12: error: return-statement with a value, in function returning 'void' [-fpermissive] return 0; ^ make[3]: *** [./cpc/ctrlm_vendor_network_factory.o] Error 1</pre>	missing symbol issue	 REFPLTV-929 - Jira project doesn't exist or you don't have permission to view it. Added dummy finction in ctrlm_vendor_network_factory.cpp
asblueto othrcu.bb	meta-rdk-video	<pre>const class QJsonValue' has no member named 'toInt' /home/vtv364/vtv364/dunfell/build-raspberrypi-rdk-hybrid/tmp/work/cortexa7t2hf-neon-vfpv4-rdk-linux-gnueabi/asblueto othrcu/1.99-r0/git/daemon/source/utls/promise.h:32:10: fatal error: QAtomicInteger: No such file or directory 32 #include <QAtomicInteger> ^~~~~~ compilation terminated. /home/vtv364/vtv364/dunfell/build-raspberrypi-rdk-hybrid/tmp/work/cortexa7t2hf-neon-vfpv4-rdk-linux-gnueabi/asblueto othrcu/1.99-r0/git/daemon/source/utls/logging.h:34:10: fatal error: QLoggingCategory: No such file or directory 34 #include <QLoggingCategory> ^~~~~~ compilation terminated.</pre>		patch https://gerrit.teamccp.com/#/c/477819/
package group-rdk-qt5.bb	meta-rdk	Nothing RPROVIDES 'qtremoteobjects'		Added DISTRO_FEATURES_append = "comcast_qt5" in meta-cmf-raspberrypi/conf/machine/raspberrypi-rdk-hybrid.conf

ctrlm-main.bb	meta-rdk-video	ERROR: ctrlm-main-1.0-r0 do_compile: oe_runmake failed /usr/src/debug/ctrlm-main/1.0-r0/git/src/ble/ctrlm_hal_ble.cpp:1709: error: undefined reference to 'libevdev_new_from_fd' /usr/src/debug/ctrlm-main/1.0-r0/git/src/ble/ctrlm_hal_ble.cpp:1714: error: undefined reference to 'libevdev_get_uniq' /usr/src/debug/ctrlm-main/1.0-r0/git/src/ble/ctrlm_hal_ble.cpp:1720: error: undefined reference to 'libevdev_free' /usr/src/debug/ctrlm-main/1.0-r0/git/src/ble/ctrlm_hal_ble.cpp:1729: error: undefined reference to 'libevdev_free'		Added DEPENDS_append = "\${@bb.utils.contains('DISTRO_FEATURES', 'build_for_sky', 'libevdev', '', d)}" LDFLAGS_append = "\${@bb.utils.contains('DISTRO_FEATURES', 'build_for_sky', '-levdev', '', d)}" in ctrlm-main.bbappend
msgpack-c_2.1.1.bb	meta-rdk-ext	ERROR: msgpack-c-2.1.1+gitAUTOINC+20ef1f925b-r0 do_compile /mnt/home/mbaska691/vijith/mngr/build-raspberrypi-rdk-hybrid/tmp/work/cortexa7t2hf-neon-vfpv4-rdk-linux-gnueabi/msgpack-c/2.1.1+gitAUTOINC+20ef1f925b-r0/git/test/carray.cpp:2:25: fatal error: gtest/gtest.h: No such file or directory #include <gtest/gtest.h> ^ compilation terminated.		Add DEPENDS="gtest" in meta-rdk-ext/recipes-support/msgpack/msgpack-c_2.1.1.bb
asblueto othru.bb	meta-cmf-raspberrypi	CMake Error at CMakeLists.txt:24 (cmake_minimum_required): CMake 3.10.3 or higher is required. You are running version 3.8.2		added cmake_3.10.3.bb and related recipes to openembedded-core/meta/recipes-devtools/cmake/ observed in morty image.
		"BleRcuDaemon" received signal SIGSEGV, Segmentation fault.		upgrade bluez from 5.45 to 5.48
		CTRLM :FATAL : ctrlm_main: failed to load version		version.txt missing params, JENKINS_JOB JENKINS_BUILD_NUMBER

Qtbase bringup for controlMgr

- Observed BlercuDaemon crash with cmf qtbase.
- Created a patch with delta's of qtbase(comcast + patches included in the meta-qt5 layer) to qtbase-opensource-src-5.1.1.
 - https://gerrit.teamccp.com/plugins/gitiles/rdk/yocto_oe/layers/meta-qt5/+stable2 (recipe location)
 - patches location

https://gerrit.teamccp.com/plugins/gitiles/rdk/yocto_oe/layers/meta-qt5/+stable2/recipes-qt/qt5/qtbase-5.1.1

List of patches included in the comcast meta-qt5.

Patches
0001-Add-linux-oe-g-platform.patch
0001-Backport-QDBus_Fix_of_Losing_Valid_DBus_Obj_After_UnregisterObject.patch
0001-Backport-QObject-Not-to-Destroy-SlotObject-inside-lock.patch
0001-backport-QAtomic-feature-enhancement.patch
0001-backport-QCommandLineParser-feature-addon.patch
0001-backport-QLoggingCategory-enhancement.patch
0001-backport-QLoggingCategory-feature-addon.patch
0001-backport-QVersionNumber-feature-from_addon.patch
0001-backport-qjsonvalue-toInt-function.patch
0001-fix_cmake_path_for_mkspec.patch
0002-qlibraryinfo-allow-to-set-qt.conf-from-the-outside-u.patch
0003-Add-external-hostbindir-option.patch
0004-qt_functions-temporary-remove-isEmpty-check.patch

0005-qmake-is-already-built-in-qtbase-native.patch
0006-Allow-building-a-separate-qmake-for-the-target.patch
0007-configureapp-Prefix-default-LIBDIRS-and-INCDIRS-with.patch
0008-qt_module-Fix-pkgconfig-replacement.patch
0009-qt_module-Fix-paths-in-.prl-files.patch
0010-wayland-scanner-disable-silent-rules.patch
0011-configure-don-t-export-SYSTEM_VARIABLES-to-.qmake.va.patch
0012-configure.prf-Allow-to-add-extra-arguments-to-make.patch
0013-Disable-mkv8snapshot.patch
0014-enables-tslib-device-to-be-read-from-env-variable.patch
0015-qtbase-allow-build-of-examples.patch
0018-QOpenGLPaintDevice-sub-area-support.patch
0020-Use-BGRA-extension-in-bindTexture.patch
0021-configure-make-pulseaudio-a-configurable-option.patch
0022-configure-make-alsa-a-configurable-option.patch
0023-configure-make-freetype-a-configurable-option.patch
0024-Use-OE_QMAKE_PATH_EXTERNAL_HOST_BINS-to-determine-pa.patch
0025-force-setting-of-MODULE_SYNCQT_DIR-correctly.patch
disable-printsupport.patch
qgetenv.patch
qt-5.1.1_qeglfs.patch

Some of the build errors and its root cause is described in the below table. We will keep updating the table as we encounter more errors. (Before opensourcing)

recipe	layer	error/warning	root cause	action
ctrlm-main.bb	meta-rdk-video	ERROR: Nothing PROVIDES 'rdkversion'	missing rdkversion recipe	Add rdkversion.bb file in meta-cmf-raspberrypi
xr-speech-router_1.0.bb	meta-rdk-voice-sdk	ERROR: Nothing PROVIDES 'xr-sm-engine'	BBMASK was added for 'xr-sm-engine'	Comment BBMASK .= " meta-rdk-video/recipes-extended/xr-sm-engine/"
rdkx-logger_1.0.bb	meta-rdk-voice-sdk	ERROR: rdkx-logger-1.0-gitAUTOINC+777c7f9a2f-r0 do_compile: oe_runmake failed		EXTRA_OECONF_append = "--enable-rdkv" add above line in bbappend file in meta-cmf-raspberrypi
ctrlm-main.bb	meta-rdk-video	ERROR: Failed to parse recipe: /mnt/home/mbaska691/vijith/mngr/meta-rdk-video/recipes-extended/ctrlm/ctrlm-main.bb		RDK_CPC_ROOT_GIT ?= "git://\$({RDK_GIT})/rdk/components/cpc add in meta-cmf-raspberrypi conf/layer.conf file.
xraudio_1.0.bb	meta-rdk-voice-sdk	ERROR: xraudio-1.0-gitAUTOINC+ac4106d2ff-r0 do_compile: oe_runmake failed ../git/src/xraudio.c: In function 'xraudio_thread_poll': ../git/src/xraudio.c:2346:8: error: #error Need to add thread poll for resource management thread.		Add xraudio_1.0.bbappend file in meta-cmf-raspberrypi from meta-rdk-comcast-video layer

xr-speech-router_1.0.bb	meta-rdk-voice-sdk	<pre> ERROR: oe_runmake failed ../git/src/xrsr_protocol_ws.c: In function 'xrsr_ws_connect_new': ../git/src/xrsr_protocol_ws.c:408:25: error: implicit declaration of function 'nopoll_conn_new_opts6' [-Werror=implicit-function-declaration]</pre>	missing nopoll_0.3.2.b232.bbappend file.	Add nopoll_0.3.2.b232.bbappend present in meta-rdk-comcast-voice-sdkiin meta-cmf-raspberrypi
ctrlm-main.bb	meta-rdk-video	<pre>ERROR: ctrlm-main-1.0-r0 do_compile: oe_runmake failed /usr/src/debug/ctrlm-main/1.0-r0/git/src/ctrlm_main.cpp:1898: error: undefined reference to 'ctrlm_vendor_network_factory(unsigned long, json_t*, std::map<unsigned char, ctrlm_obj_network_t*, std::less<unsigned char>, std::allocator<std::pair<unsigned char const, ctrlm_obj_network_t*>> >> &)'</pre>		Add ctrlm recipes present in meta-rdk-comcast-video to meta-cmf-raspberrypi
ctrlm-main.bb	meta-rdk-video	<pre>ERROR: ctrlm-main-1.0-r0 do_compile: oe_runmake failed ../git/src/ctrlm_main.cpp:63:52: fatal error: client/linux/handler/exception_handler.h: No such file or directory #include "client/linux/handler/exception_handler.h"</pre>		Comment breakpad from ctrlm-main.bbappend # Enable breakpad #EXTRA_OECONF_append = "--enable-breakpad"
ctrlm-main.bb	meta-rdk-video	<pre>ERROR: ctrlm-main-1.0-r0 do_compile: oe_runmake failed ../git/src/ctrlm_main.cpp: At global scope: ../git/src/ctrlm_main.cpp:931:17: error: 'gboolean ctrlm_authservice_expired(gpointer)' defined but not used [-Werror=unused-function] static gboolean ctrlm_authservice_expired(gpointer user_data) { ^~~~~~ cc1plus: all warnings being treated as errors</pre>		Temporary fix AUTH ?= "false" in ctrlm-main.bbappend file.
ctrlm-main.bbappend	meta-cmf-raspberrypi	<pre>DISTRO_FEATURES_append = " ctrlm_irdb_uei" Added append resulted in error. ERROR: ParseError at /mnt/home/mbaska691/vijith/mngr/meta-cmf-raspberrypi/recipes-extended/ctrlm/ctrlm-main.bbappend:4: Could not inherit file classes/ctrlm-irdb-uei.bbclass</pre>	missing ctrlm-irdb-uei.bbclass file.	Add bbclass file from meta-rdk-comcast-video
ctrlm-irdb-uei.bb	meta-cmf-raspberrypi	<pre>ERROR: ctrlm-irdb-uei-1.0-r0 do_fetch: Function failed: base_do_fetch</pre>	missing configuration for package download. which should be present in ctrlm-irdb-uei.bbappend file	Temporary Solution: Added the corresponding bbappend file. meta-arrisxi6wv/recipes-extended/ctrlm/ctrlm-irdb-uei.bbappend
package-group-rdk-qt5.bb	meta-rdk	<pre>Nothing RPROVIDES 'qtremoteobjects'</pre>		Added DISTRO_FEATURES_append = " comcast_qt5" in meta-cmf-raspberrypi/conf /machine/raspberrypi-rdk-hybrid.conf
ctrlm-main.bb	meta-rdk-video	<pre>ERROR: ctrlm-main-1.0-r0 do_compile: oe_runmake failed /usr/src/debug/ctrlm-main/1.0-r0/git/src/ble/ctrlm_hal_ble.cpp:1709: error: undefined reference to 'libevdev_new_from_fd' /usr/src/debug/ctrlm-main/1.0-r0/git/src/ble/ctrlm_hal_ble.cpp:1714: error: undefined reference to 'libevdev_get_uniq' /usr/src/debug/ctrlm-main/1.0-r0/git/src/ble/ctrlm_hal_ble.cpp:1720: error: undefined reference to 'libevdev_free' /usr/src/debug/ctrlm-main/1.0-r0/git/src/ble/ctrlm_hal_ble.cpp:1729: error: undefined reference to 'libevdev_free'</pre>		Added LDFLAGS_append = "\${@bb. utils.contains ('DISTRO_FEATURES', 'build_for_sky', '-levdev', '', d)}" in meta-cmf-raspberrypi /recipes-extended/ctrlm/ctrlm-main.bbappend
asblueto othru.bb	meta-cmf-raspberrypi	<pre> CMake Error at CMakeLists.txt:24 (cmake_minimum_required): CMake 3.10.3 or higher is required. You are running version 3.8.2</pre>		added cmake_3.10.3.bb and related recipes to openembedded-core/meta/recipes-devtools/cmake/
msgpack-c_2.1.1.bb	meta-rdk-ext	<pre>ERROR: msgpack-c-2.1.1+gitAUTOINC+20ef1f925b-r0 do_compile /mnt/home/mbaska691/vijith/mngr/build-raspberrypi-rdk-hybrid/tmp/work/cortexa72hf-neon-vfpv4-rdk-linux-gnueabi/msgpack-c/2.1.1+gitAUTOINC+20ef1f925b-r0/git/test/carray.cpp:2:25: fatal error: gtest/gtest.h: No such file or directory #include <gtest/gtest.h> ^ compilation terminated.</pre>		Add DEPENDS ="gtest" in meta-rdk-ext/recipes-support/msgpack/msgpack-c_2.1.1.bb

Image Validation

```
login as: root
root@raspberrypi-rdk-hybrid:~# systemctl start ctrlm-main

Job for ctrlm-main.service failed because the control process exited with error code.

See "systemctl status ctrlm-main.service" and "journalctl -xe" for details.

root@raspberrypi-rdk-hybrid:~# systemctl status ctrlm-main.service
ctrlm-main.service - Control Manager Main Service
Loaded: loaded (/lib/systemd/system/ctrlm-main.service; enabled; vendor preset: enabled)
Active: activating (auto-restart) (Result: exit-code) since Fri 2021-05-21 15:55:10 UTC; 3s ago
Process: 7870 ExecStart=/usr/bin/controlMgr (code=exited, status=255)
Main PID: 7870 (code=exited, status=255)
May 21 15:55:10 raspberrypi-rdk-hybrid controlMgr[7870]: 20210521 15:55:10:754 XLOG xlog_init_int : module <XRTA> level
<XLOG_LEVEL_INFO>
May 21 15:55:10 raspberrypi-rdk-hybrid controlMgr[7870]: 20210521 15:55:10:754 XLOG xlog_init_int : module <CTRLM> level
<XLOG_LEVEL_INFO>
May 21 15:55:10 raspberrypi-rdk-hybrid controlMgr[7870]: 20210521 15:55:10:754 CTRLM : ctrlm_main: load version
May 21 15:55:10 raspberrypi-rdk-hybrid controlMgr[7870]: 20210521 15:55:10:754 CTRLM : ctrlm_load_version: STB Name <rdk-generic-
hybrid-wpe-image> Image Type <DEV> Version <4.05.21.21> Branch <rdk-next> Build Time <"2021-05-21 12:14:42">
May 21 15:55:10 raspberrypi-rdk-hybrid controlMgr[7870]: 20210521 15:55:10:755 CTRLM :FATAL : ctrlm_main: failed to load version
May 21 15:55:10 raspberrypi-rdk-hybrid systemd[1]: ctrlm-main.service: Main process exited, code=exited, status=255/n/a
May 21 15:55:10 raspberrypi-rdk-hybrid controlMgr[7870]:
May 21 15:55:10 raspberrypi-rdk-hybrid systemd[1]: Failed to start Control Manager Main Service.
May 21 15:55:10 raspberrypi-rdk-hybrid systemd[1]: ctrlm-main.service: Unit entered failed state.
May 21 15:55:10 raspberrypi-rdk-hybrid systemd[1]: ctrlm-main.service: Failed with result 'exit-code'.
root@raspberrypi-rdk-hybrid:~#
```

Issue Observed

ISSUE	Remark
CTRLM :FATAL : ctrlm_main: failed to load version	Ticket in progress, DELIA-49822

List of Components (morty , before opensourcing)

Component name	Recipe name	Path
ctrlm	ctrlm-device-update.bb ctrlm-irdb-ruwido.bb ctrlm-irdb-uei.bb ctrlm-main.bbappend	meta-rdk-comcast-video/recipes-extended/ctrlm
nopoll	nopoll_0.3.2.b232.bbappend	meta-rdk-comcast-voice-sdk/recipes-common/nopoll
rdkversion	rdkversion_1.0.bb	meta-rdk-comcast/recipes-common/rdkversion
rdkx_logger	rdkx-logger_1.0.bbappend	meta-rdk-comcast-video/recipes-extended/rdkx_logger
xraudio	xraudio_1.0.bbappend	meta-rdk-comcast-video/recipes-extended/xraudio