RDK-V Emulator Manager

INPROGRESS

- Overview
 Proroquisi
- Prerequisite
- RDKV Emulator Build Steps
- Source code setup and Run applicationCreate installer package
- Installation
 - Pre-Build Download
 - Steps to install
- Features
 - Emulator IP Address Configuration
 - VM Manager
 - App Manager
 - Tools
 - Api Manager
 - Remote Manager
 - O Help
- FAQ's
- In progress Tasks
- Resources

Overview

An RDK-V Emulator App Manager basically focuses on emulating the features such as: remote control unit, RDK services api validation's, testing automation, virtual box manager, application manager etc. and adding many more features to provide support to application developers and testers to make their life easier with the new RDK-V Emulator App Manager. It comes in a form of installer package that can be installed on desktop pc (Linux) and launched.

Prerequisite

Emulator app manager has been developed and tested on below environment

• VS Code: Version-1.63.0

Visual Studio Code is a source-code editor made by Microsoft for Windows, Linux and macOS.

• Electron: 13.5.2

Electron (formerly known as Atom Shell) is a free and open-source software framework developed and maintained by GitHub. It allows for the development of desktop GUI applications using web technologies: it combines the Chromium rendering engine and the Node. js runtime.

Google Chrome: Version 96.0.4664.93 (Official Build) (64-bit)

Google Chrome is a cross-platform web browser developed by Google.

Node.js: 14.16.0

Node.js is an open-source, cross-platform, back-end JavaScript runtime environment that runs on the V8 engine and executes JavaScript code outside a web browser.

• V8: 9.1.269.39-electron.0

V8 is Google's open-source high-performance JavaScript and WebAssembly engine, written in C++. It is used in Chrome and in Node.js, among others.

OS: Linux x64 5.11.0-41-generic

An operating system is system software that manages computer hardware, software resources, and provides common services for computer programs.

Oracle Virtual Box: Version 5.2.42_Ubuntu r137960

Oracle VM VirtualBox is cross-platform virtualization software.

RDKV Emulator Build Steps

Follow below link/steps to build rdkv emulator dunfell image along with rdk services

link will be updated soon

Source code setup and Run application

Follow below steps to run application on host pc and create installer package

• Step 1 - get the emulator src code

\$ git clone https://code.rdkcentral.com/r/rdk/devices/intel-x86-pc/emulator/appmanager

• Step 2 - goto RDKVEmulatorAppManager folder

\$ cd RDKVEmulatorAppManager

• Step 3 - run below command to install dependencies

\$ npm install

• Step 4 - run below command to launch emulator app manager

\$ npm run start

Create installer package

Follow below steps to create installer package for linux

· Need to install electron-packager and electron-installer-debian globally

\$ sudo npm install -g electron-packager

- \$ sudo npm install -g electron-installer-debian
- Run below commands to make deb file for linux intaller.

\$ electron-packager . --platform linux --arch x64 --out dist --overwrite

\$ electron-installer-debian --src dist/emulatormanager-linux-x64/ --arch amd64 --config config.json

• Installer package will be created and stored inside the dist folder.

Installation

Pre-Build Download

Download pre-build installer package for Emulator app manager: rdkv-emulatormanager_1.0.0_amd64.deb

Steps to install

Step 1- Double click on downloaded installer deb package

Act	ivities 🛛 🗟 Files 🕶	Thu 18:42●	€ - 6	∎ ●) 🖌 –
<	> 🕐 🏠 Home	Downloads >	Q ::	= •••
Ø	Recent	Name	Size	Modified -
ŵ	Home	🔚 rdkv-virtual-remote_1.0.0_amd64.deb	61.4 MB	18:29
Ē	Desktop	rdhvemulatormanager, 100 amd64 deb	73 7 MP	18:11
D	Documents	Tukv-enidacomanager_1.0.0_anido4.0eb	13.1 MD	10.11
÷		balena-etcher-electron-1.7.9-linux-ia32.zip	93.2 MB	17 Aug
99	Music			



Activities	🖄 Ubuntu Software 👻		Thu 18:48●	& -	1 () F -
<			rdkv-emulatormanager		●
			rdkv-emulatormanager RDKV-Emulator Manager. Emulator Manager for Developers to provide application development support		
		Install			
		RDKV-Em developn	ulator Manager. Emulator Manager for Developers to provide application nent support		
		Details			
		Version	1.0.0		
		Updated	Never		
		License	Proprietary		
		Source	rdkv-emulatormanager_1.0.0_amd64.deb		



Activities 🛛 🖄 Ubuntu Software 👻			
<			
	rdkv-emulatormanag RDKV-Emulator Manager. En development support	er mulator Manager for Developers to provide ap	plication
	Inst	alling 0%	
	RDKV-Emu developme	ion Required	
	Authentication	n is required to install untrusted software 1625	
	Details Password:		
	Version 1.0.0		
	Updated Never		
	License Rioprietary		
	Source Cancel	Authenticate	
	Download Size 0 bytes		

Step 4- Progress bar will be displayed, on successful progress bar will become 100% filled



or

You can use below command to install package into linux

\$ sudo dpkg -i rdkv-emulatormanager_1.0.0_amd64.deb

You can use below command to uninstall/remove package from linux

\$ sudo dpkg --remove rdkv-emulatormanager

On successful installation user/developer will be able to launch emulator app manager ui by selecting the RDK-V emulator icon from apps



Note: RDK virtual remote can be launched from emulator app manager > remote manager (Prerequisite: RDK virtual remote should be installed, refer link: RDK-V Virtual Remote).

Features

Emulator IP Address Configuration

				Em	ulator Manager			
VM	Manager	App Manager	Tools	API Manager	Remote Manager	Help	Configure Target IP 192.168.1.100	

• Developer has to configure the rpi device/emulator ip address, after device ip configuration emulator app manager will be able to communicate with rpi/emulator.

VM Manager



• Install image: By clicking on install image button developer will get the option to provide instance name, select added image from the list (or ad d image by clicking on add image button) and install image into the vm.

Emulator Manager		• •
VM Manager App Manager Tools API Manager Remote Manager Help	Configure Target IP 192.168.1.100	
Virtual Machine Manager		
Install image Show Installed OS List		
Provide image instance name * RDK_Emulator_V1		
Select image from below list to be intalled on VM *		
 /home/kathiravan/Downloads/X86EMLTRHYB_rdkv-2021q1_20210506142151.vmdk /home/kathiravan/Downloads/kf/X86EMLTRHYB_rdkv-2021q1_20210506142151.vmdk 		
Add Image Install Delete Image		

• Show installed OS List: By default, on launch VM manager installed os list will be display (show installed os list tab will be active), developer can see the list of installed images into the vm on the show installed list screen.

Emulator Manager	
VM Manager App Manager Tools API Manager Remote Manager Help	Configure Target IP * 192.168.1.100
Virtual Machine Manager	
Install image Show Installed OS List	
Select intalled OS list on VM to Start VM/Shutdown VM/Reboot VM/Delete VM* RDK_Emulator_V13I RDK_Emulator_V13Id rdk10 F1 Emv1	
Start VM Shutdown VM Reboot VM Delete VM instance	

- Start VM: By clicking on start vm button developer can start the vm.
 Shutdown VM: By clicking on shutdown vm button developer can power off the vm.
- Reboot VM: By clicking on reboot vm button developer can restart/reboot the vm.
 Delete VM instance: By clicking on delete vm instance developer can remove/delete the vm instance.

App Manager

			Em	ulator Manager			
VM Manager	App Manager	Tools	API Manager	Remote Manager	Help	Configure Target IP * 192.168.1.100	
Applicati	on Manag	er					
Set app url	Ex: https://youtube.	com or http	://localhost:port			Launch Application	
Home app url	Resident App U	RL				Launch Application	
Launch IDE	Automate Tests	Option					

- Set app url: Developer having the option to set the web-based app url and on clicking launch application button app will be launched on emulator.
 Home app url: Developer has to provide the resident app url running on host machine and by clicking on launch application button default residentapp will be launched on emulator.
- Launch IDE: By clicking on launch ide button developer can launch the pre-configured vs code and do modification in the code after that need to run \$ Ing dev command and immediately changes will reflect on emulator.

Follow below steps to configure your workspace in VS Code IDE

• Step 1- Launch IDE by navigating and clicking on Launch IDE button

		Em	ulator Manager				
VM Manager App	o Manager Tools	API Manager	Remote Manager	Help	Configure Target IP * 192.168.1.100		
Application	Application Manager						
Set app url Ex: htt	Set app url Ex: https://youtube.com or http://localhost:port/						
Home app url Res	sident App URL				Launch Application		
Launch IDE Aut	tomate Tests Option						

• Step 2- Select your workspace

Can	icel		c	٥к
0	Recent			5
ŵ	Home	Name 🔺	Size	Modified
	Desktop	🏲 accelerator-home-ui		12:01
۵	Documents	BluetoothAudio		14 Feb
⇒	Downloads	FireboltUI		14 Feb
49	Music	i notification		10 Mar
ø	Pictures	SwitcherApp CONTRIBUTING.md	524 bytes	14 Feb 14 Feb
H	Videos	COPYING	27.7 kB	14 Feb
	EMV	LICENSE .	27.7 kB	14 Feb
		NOTICE	3.6 kB	15 Feb
+	Other Locations			

• Step 3- VS code will be launched along with your workspace, do modification in the code.



• Automate tests option: By clicking on automate tests button developer will get the option to execute the test scripts (pre-configured). On submit selected script will be executed and developer will be able to see the results on emulator.

	Emulator Manager	
VM Manager App M	Manager Tools API Manager Remote Manager Help Configure Target IP * 192.168.1.100	
Set app url Ex: https:	s://youtube.com or http://localhost:port/	
Home app url Resid	dent App URL	
Launch IDE Auton	mate Tests Option	
Choose a test option *	WIFIscreen.json bluetoothscreen.json open_Remote_control.json open_networkscreen.json open_setting screen.json open_youtube.json play_summerland.json play_tvshow_fantasyisland.json verify_Featured_Content_list_navigation verify_feature_app_list_navigation.json	
Submit Add Scrip	pt Delete Script	.

Tools

			Em	ulator Manager			
VM Manager	App Manager	Tools	API Manager	Remote Manager	Help	Configure Target IP * 192	.168.1.100
Tools							
Show Apps							
Move Back	Move Front						
Set opacity	100 s	et					

Scale width 1 × Scale height 1	Set
Set Focus Visible	
Zoom-in Zoom-out	
Move Left Move Right Move Up Move Down	

- Show apps: Developer can use this option to get the running apps name.
- Move back: Developer can use this option to change apps z-order.
- **Move front:** Developer can use this option to change apps z-order. **Opacity:** Developer can use this option to change apps display. •
- •
- Set focus: Developer can use this option to change apps display.
 Visible: Developer can use this option to change apps display.
- Move left: Developer can use this option to shift the apps window to left.
- Move right: Developer can use this option to shift the apps window to right.
- Move up: Developer can use this option to shift the apps window to up.
- Move down: Developer can use this option to shift the apps window to down.

Api Manager

Emulator Manager										
VM Manager App Manager	Tools API Manager	Remote Manager	Help	Configure Tar	get IP * 192.168.1.100					
RDK Service API Manager										
Selected Api params Selected A	PI params will display her				Validate Api					
Sample api's										
org.rdk.System.1	Result:									
Validate All API										

• Validate Api: Developer can use this option to validate the plugin api's by selecting api from dropdown and click/select api from the list and click on "Validate Api" button.



• Validate All Api: Developer can use this option to validate the plugin api's by selecting multiple api's from dropdown and click/select api from the list and click on "Validate All Api" button.

Remote Manager

Prerequisite: RDK virtual remote should be installed, refer link: RDK-V Virtual Remote.



• Launch remote: Developer can choose the remote from the available remotes listed in remote manager and on clicking use this button selected remote will be launched on window, as a separate app.

VM Manager App Manager Tools API Manager Remote Manager Help Configure T: Configure T: Configure T: Configure T: Configure T: Configure T: Configure T: Configure T: Configure T: Configure T:			00			
RDK Remote Manager	VM Manager App Manager	Tools API Manager	Remote Manager	Help Configure Ta	4	
С ОК) VIL СН) По)) Use This))	RDK Remote Mana	ager			<u>`</u>	
 ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ ★ ○ <!--</td--><td>(d) (d)</td><td></td><td></td><td></td><td>< ок</td><td></td>	(d) (d)				< ок	
$(\mathbf{r}) = \mathbf{r} + \mathbf{r} $	 ок > ок > 					
+ •					н С	
Use This	VOL CH					СН
Use This						
	Use This				192.168.1	.100 DK

Help



FAQ's

1. How to set rpi or emulator ip in emulator manager app? We can provide target machine ip address in ip box which appears on right-top side.

2. How to add image in vm manager?

Select "Install image" option from vm manager tab, then select "Add image" button then we need to select the image from the file browser box.

3. How to install OS in oracle virtual machine?

Select "Install image" option from vm manager tab, then select image which is appear on above install button and provide instance name (*) then select install button. Selected image will be installed on virtual machine.

4. How to delete image from list? Select "Install image" option from vm manager tab and then select delete option.

5. How to boot virtual machine OS?

Select "Show Installed OS List" option from vm manager tab and then select installed os from the list and then select start button.

6. What is use of "Launch ResidentApp" option?

"Launch ResidentApp" option allow to launch residentapp from host machine to target machine.

Follow below steps to launch resident from host machine to target machine.

- 1. Select "Open IDE" option from app manager tab.
- 2. Select source code then open-source code.
- 3. Press "ctlr+~" key to open vs code terminal.
- 4. Run Ing run command.
- 5. Select "Launch ResidentApp" option from app manager tab.

7. How to execute test script?

Select "Automate Test" option from app manager tab and then select "test script" from list and then select submit button.

- 8. What is use of Add Script option? Add script option allow to create test script and add in the list.
- 9. What is use of delete script option?

We can remove the selected script from the list by using "Delete script" option.

10. How to test api from emulator manager/api manager?

Select api from "Api list" result will be appear above "Api list". we can modify Api params in "Selected Api params" text fields and then select "Validate Api" button to make Api request.

11. What is use of "Validate all Api" option?

Select apifrom "Api list" result will be appear above "Api list". we can modify Api params in "Selected Api params" text fields and then select "Validate Api" button to make Api request.

12. How to launch virtual remote from Emulator manager?

Prerequisite: RDK virtual remote should be installed, refer link: RDK-V Virtual Remote.

Select "Use this " option from remote manager tap and then enter R-pi or Emulator ip address in remote app. Ip address will appear in bottom. After entering the ip address need to hit enter key.

In progress Tasks

- RDKV Emulator App Manager UI improvisation
- · Mouse over effect and tooltip will be shown in emulator manager ui buttons
- · Images/screenshots need to update with the latest changes
- Other new features

Resources

For the complete documentation on electronjs refer link:

• https://www.electronjs.org/.

For the complete documentation on RDK Services please refer links:

- https://wiki.rdkcentral.com/display/RDK/RDK+Services
- https://github.com/rdkcentral/rdkservices