



**Vista Cube™ Download Interface for Android**

# **Vista Cube™ Interface API Guide**

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**RAONTECH, Inc.**

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## Revision History

Revision	Description	By	Date
1.0	Initial release	Jami, Park	05/31/2017

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## 1 Scope

The scope of the Vista Cube™ Downloader for Android document is to describe the architecture, call-flows and APIs.

## 2. References

- A. Android Developers, URL: <https://developers.google.com>

## 3. Terminology and Conventions

- A. AP : Application Processor
- B. JNI : Java™ Native Interface
- C. Vista Cube™ : The trademark of RAONTECH Micro Display Platform Porting SDK

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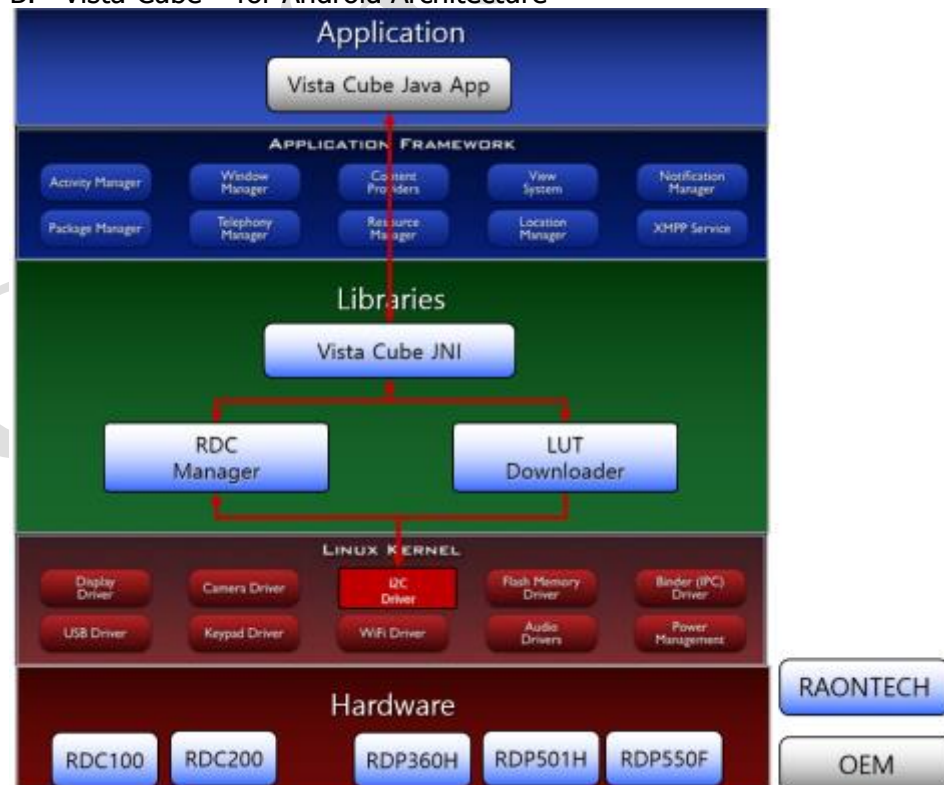
## 4. Architectural Models

Below System Block diagram describes Conventional Android Architecture(A) and RAONTECH Vista-Cube™ Micro Display Platform Porting SDK Architecture(B).

A. Android Architecture



B. Vista-Cube™ for Android Architecture



## 5. System requirement

Application requires API level 19 (Android 4.4) and above.

## 6. Precondition

A Target Board must have system files about LUT(LookUp Table) of RDC100 or RDC200

Pushsystem files into a target board

In case of RDC100 : /sdcard/Movies/vclut/rdc100

In case of RDC200 : /sdcard/Movies/vclut/rdc200

```
ls -l /mnt/sdcard/Movies/vclut/rdc200
-rw-rw---- root    sdcard_r    3582 2017-05-24 07:52 20170323-14902338190050_high.vt
-rw-rw---- root    sdcard_r    1851 2017-05-24 07:52 20170323-14902338190050_low.vt
-rw-rw---- root    sdcard_r    46134 2017-05-24 07:52 bitmap_01.bmp
-rw-rw---- root    sdcard_r    7234 2017-05-24 07:52 cocoa_fhd_barrel.lut
-rw-rw---- root    sdcard_r    21584 2017-05-24 07:52 cocoa_fhd_color_ab_barrel.lut
-rw-rw---- root    sdcard_r    21625 2017-05-24 07:52 cocoa_fhd_color_ab_pinc.lut
-rw-rw---- root    sdcard_r    7229 2017-05-24 07:52 cocoa_fhd_kst_x.lut
-rw-rw---- root    sdcard_r    7216 2017-05-24 07:52 cocoa_fhd_kst_xy.lut
-rw-rw---- root    sdcard_r    7174 2017-05-24 07:52 cocoa_fhd_kst_y.lut
-rw-rw---- root    sdcard_r    7228 2017-05-24 07:52 cocoa_fhd_pinc.lut
-rw-rw---- root    sdcard_r    17474 2017-05-24 07:52 firmware_rdc200_dcdc_inv.hex
-rw-rw---- root    sdcard_r    15071 2017-05-24 07:52 font_color_example.lut
-rw-rw---- root    sdcard_r    98358 2017-05-24 07:52 fontmap_00.bmp
-rw-rw---- root    sdcard_r    2041 2017-05-24 07:52 fw_rdc200.cfg
-rw-rw---- root    sdcard_r    23214 2017-05-24 07:52 fw_rdc200_demo.hex
-rw-rw---- root    sdcard_r    24071 2017-05-24 07:52 fw_rdc200_v1.0.hex
-rw-rw---- root    sdcard_r    13750 2017-05-24 07:52 gamma_20170427-14932709670029.lut
-rw-rw---- root    sdcard_r    59506 2017-05-24 07:52 horizontal_example.lut
-rw-rw---- root    sdcard_r    4039 2017-05-24 07:52 init_rdc200_20170511_F5.rega
-rw-rw---- root    sdcard_r    4039 2017-05-24 07:52 init_rdc200_20170517_F5_MIPI.rega
-rw-rw---- root    sdcard_r    3779 2017-05-24 07:52 init_rdc200for360h.rega
-rw-rw---- root    sdcard_r    5856 2017-05-24 07:52 init_rdp360h.rega
-rw-rw---- root    sdcard_r    4175 2017-05-24 07:52 init_rdp550f.rega
-rw-rw---- root    sdcard_r    46134 2017-05-24 07:52 raon_00.bmp
-rw-rw---- root    sdcard_r    285 2017-05-24 07:52 rdc200_adb_push.bat
-rw-rw---- root    sdcard_r    355 2017-05-24 07:52 rdc200_cocoa_demo_adb_push.bat
-rw-rw---- root    sdcard_r    668 2017-05-24 10:32 rdc200_download_file_list.txt
-rw-rw---- root    sdcard_r    5 2017-05-23 15:13 version_rdc200.txt
-rw-rw---- root    sdcard_r    51886 2017-05-24 07:52 vertical_example.lut
```

## 7. Editing a Download List

In download list file, Add files to download if necessary.

In case of RDC100 : rdc100\_download\_file\_list.txt

In case of RDC200 : rdc200\_download\_file\_list.txt

**Format)**

**File type Index + Space +File Name**

File type Index	Description
0	Firmware hex
1	Firmware configuration

2	RDC init LUT
3	Panel init LUT
4	Gamma LUT
5	CoKoA LUT
6	Vertical Correction LUT
7	Horizontal Correction LUT
8	Font
9	Palette LUT
10	Bitmap

Ex) /sdcard/Movies/vclut/rdc200/rdc200\_download\_file\_list.txt

```

0 fw_rdc200_demo.hex
1 fw_rdc200.cfg
2 init_rdc200_20170517_F5_MIPI.rega
3 init_rdp550f.rega
4 gamma_20170427-14932709670029.lut
8 fontmap_00.bmp
9 font_color_example.lut
10 raon_00.bmp
5 cocoa_fhd_color_ab_barrel.lut
.
.
.

```

**NOTE:**

If RDC200 is used on the development product, the firmware configuration file must be modified correctly on the target platform.

Ex) /sdcard/Movies/vclut/rdc200/fw\_rdc200.cfg

```

# Panel Model
# 0 RDP501H
# 1 RDP360H
# 2 RDP550F
panel_model= 2

# The number of panel
num_panel=2

# Determine if panel was attached to PORT 0 or not. (true or false)
panel_0_attached=true

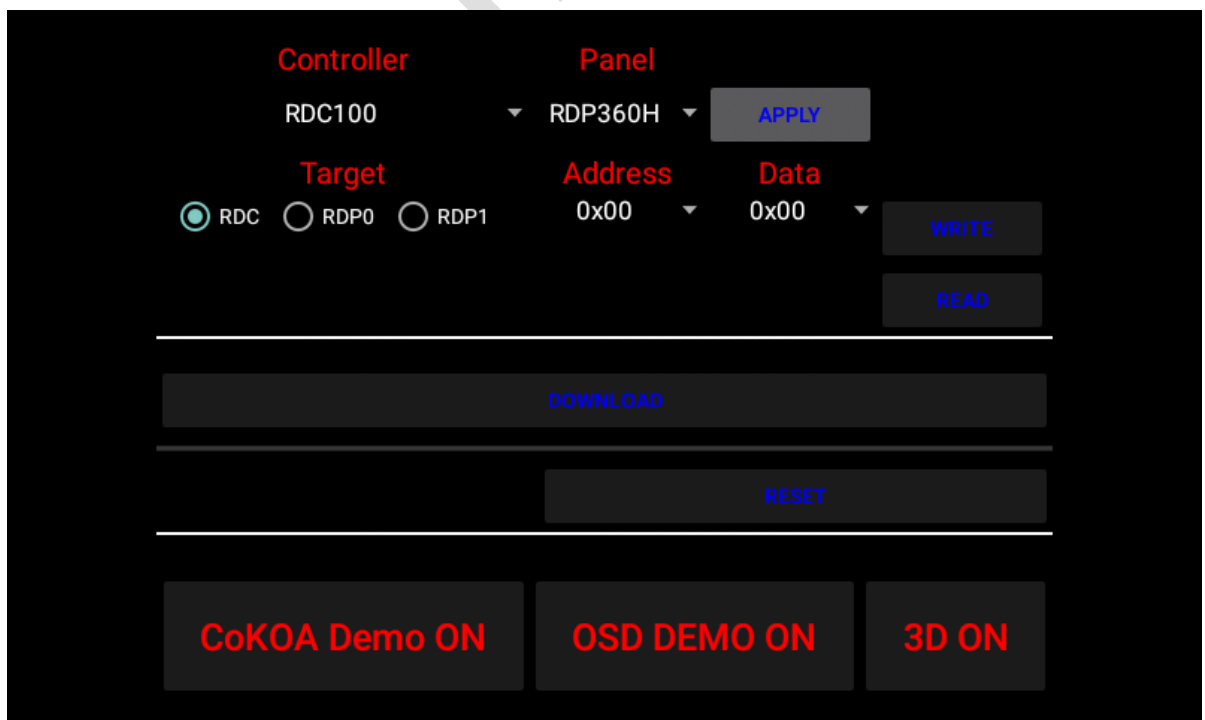
# Panel 0 I2C address (7-bit address)
I2C_addr_panel_0=0x39
.
.
.

```

## 8. Vista Cube™ Download User Guide

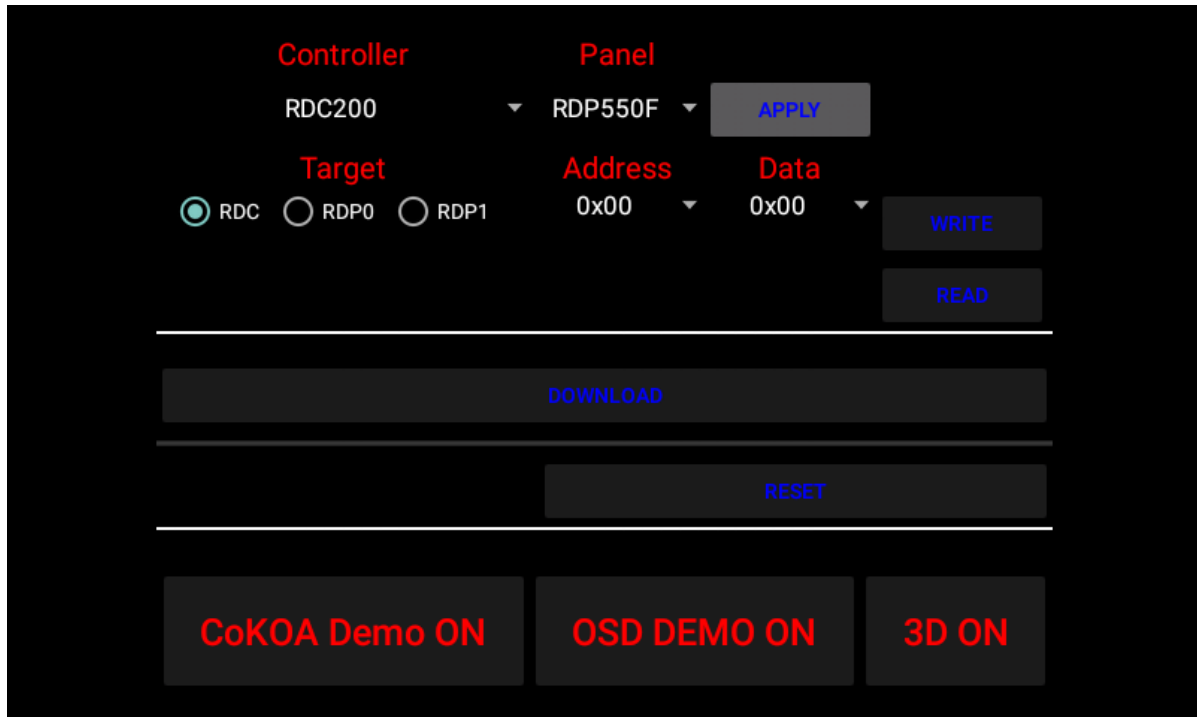
This session describes how to handle Vista Cube™ Download.

1. Run App :

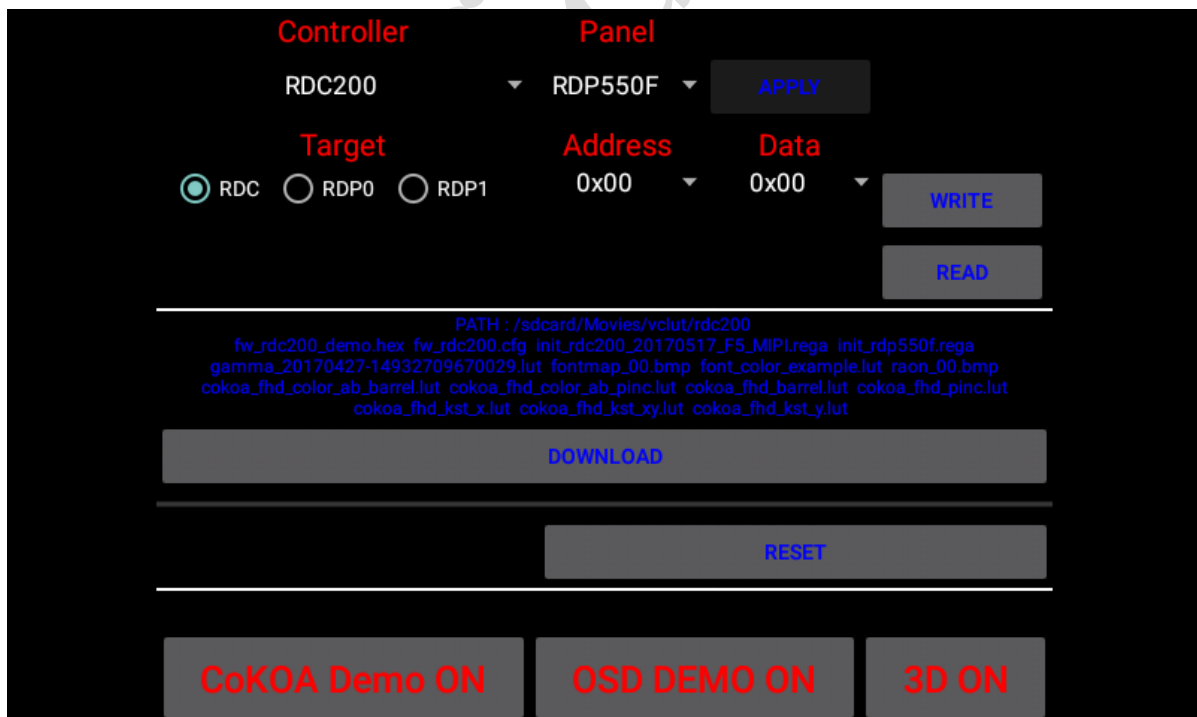




2. Select Device : select correct RDC and RDP device in spinner component



3.. Select Apply button: and then, the device will be show system files



4. Select Download button

**Controller**  
RDC200

**Panel**  
RDP550F

**Target**

RDC  RDP0  RDP1

**Address**  
0x00

**Data**  
0x00

---

PATH : /sdcard/Movies/vclut/rdc200  
fw\_rdc200\_demo.hex fw\_rdc200.cfg init\_rdc200\_20170517\_F5\_MIPI.rega init\_rdp550f.rega  
gamma\_20170427-14932709670029.lut fontmap\_00.bmp font\_color\_example.lut raon\_00.bmp  
cocoa\_fhd\_color\_ab\_barrel.lut cocoa\_fhd\_color\_ab\_pinc.lut cocoa\_fhd\_barrel.lut cocoa\_fhd\_pinc.lut  
cocoa\_fhd\_kst\_x.lut cocoa\_fhd\_kst\_xy.lut cocoa\_fhd\_kst\_y.lut

**PROGRAM 37% (1/15 Done)**

---

**Controller**  
RDC200

**Panel**  
RDP550F

**Target**

RDC  RDP0  RDP1

**Address**  
0x00

**Data**  
0x00

---

PATH : /sdcard/Movies/vclut/rdc200  
fw\_rdc200\_demo.hex fw\_rdc200.cfg init\_rdc200\_20170517\_F5\_MIPI.rega init\_rdp550f.rega  
gamma\_20170427-14932709670029.lut fontmap\_00.bmp font\_color\_example.lut raon\_00.bmp  
cocoa\_fhd\_color\_ab\_barrel.lut cocoa\_fhd\_color\_ab\_pinc.lut cocoa\_fhd\_barrel.lut cocoa\_fhd\_pinc.lut  
cocoa\_fhd\_kst\_x.lut cocoa\_fhd\_kst\_xy.lut cocoa\_fhd\_kst\_y.lut

**Completed (15/15 Done)**

---

## 9. Vista Cube™ Download (Java Classes) APIs

This session describes JAVA classes API for Vista Cube handling.

### 9.1 Sources

File	Description
VistaCubeNotify.java	Vista Cube Notify Fuction
VistaCubeHandler.java	Vista Cube Interface

### 9.2 Vista Cube Listener Java Class

#### 9.2.1 downloadProgressNotifyMessage ()

This function notifies Download status to UI.

##### 9.2.1.1 Prototype

```
public void downloadProgressNotifyMessage(int type, int count, int total, int progress);
```

##### 9.2.1.2 Paramters

Parameter	Direction	Description
type	Output	0 (NOTI_DOWNLOAD) 1 (NOTI_ERASING) 2 (NOTI_PROGRAM) 3 (NOTI_VERIFY)
count	Output	Applicable to NOTI_DOWNLOAD Number of item that processing completed
total	Output	Applicable to NOTI_DOWNLOAD Number of total items to be downloaded
progress	Output	Process Status (%)

##### 9.2.1.3 Remarks

NOTI\_DOWNLOAD: the status of download start or end

NOTI\_ERASING : the status of erasing operation during download.

NOTI\_PROGRAM : the status of programming operation during download

NOTI\_VERIFY : the status of verification operation during download

##### 9.2.1.4 Return Values

Value	Description
None	

## 9.3 VistaCubeHandler Java Class

### 9.3.1 init ()

This function initializes the Vista Cube.

In this function, Vista Cube opens the interface of the RDC device

#### 9.3.1.1 Prototype

```
public int init ();
```

#### 9.3.1.2 Parameters

Parameter	Direction	Description
None		

#### 9.3.1.3 Return Values

Value	Description
0	Success
else	ETC Error -1 : Initialize Error -2 : OpenDevice Error

### 9.3.2 deinit ()

This function finalizes the Vista Cube.

#### 9.3.2.1 Prototype

```
public int deinit ();
```

#### 9.3.2.2 Parameters

Parameter	Direction	Description
None		

#### 9.3.2.3 Return Values

Value	Description
0	Success
else	ETC Error

### 9.3.3 readReg ()

This function reads a byte form the register of the device.

#### 9.3.3.1 Prototype

```
public byte readReg(int target, byte address);
```

#### 9.3.3.2 Paramters

Parameter	Direction	Description
target	Input	Channel for the path to access the devices RDC : 0 RDP0 : 1 RDP1 : 2
address	Input	Register address to be accessed

#### 9.3.3.3 Return Values

Value	Description
Address	A byte read from device

### 9.3.4 writeReg ()

This function writes N bytes to the register of the device..

#### 9.3.4.1 Prototype

```
public int writeReg(int target, byte address, byte data);
```

#### 9.3.4.2 Paramters

Parameter	Direction	Description
target	Input	Channel for the path to access the devices RDC : 0 RDP0 : 1 RDP1 : 2
address	Input	Register address to be accessed
data	Input	Data value to be written.

#### 9.3.4.3 Return Values

Value	Description
0	Success

else	ETC Error
------	-----------

### 9.3.5 startDownload ()

This function starts downloading system files about LUT(LookUp Table)

#### 9.3.5.1 Prototype

```
public int startDownload ();
```

#### 9.3.5.2 Paramters

Parameter	Direction	Description
None		

#### 9.3.5.3 Return Values

Value	Description
0	Success
else	ETC Error

### 9.3.6 resetDevice ()

This function resets a device.

#### 9.3.6.1 Prototype

```
public int resetDevice ();
```

#### 9.3.6.2 Paramters

Parameter	Direction	Description
None		

#### 9.3.6.3 Return Values

Value	Description
0	Success
else	ETC Error

### 9.3.7 demoCoKOA ()

This function shows CoKOA.

### 9.3.7.1 Prototype

public int demoCoKOA (boolean on);

### 9.3.7.2 Paramters

Parameter	Direction	Description
on	Input	Demo on : true Demo off : false

### 9.3.7.3 Return Values

Value	Description
0	Success
else	ETC Error

### 9.3.8 demoOSD ()

This function shows OSD.

#### 9.3.8.1 Prototype

public int demoOSD (boolean on);

#### 9.3.8.2 Paramters

Parameter	Direction	Description
on	Input	Demo on : true Demo off : false

#### 9.3.8.3 Return Values

Value	Description
0	Success
else	ETC Error

### 9.3.9 demo3D ()

This function shows 3D

#### 9.3.9.1 Prototype

public int demo3D (boolean on);

### 9.3.9.2 Paramters

Parameter	Direction	Description
on	Input	Demo on : true Demo off : false

### 9.3.9.3 Return Values

Value	Description
0	Success
else	ETC Error

### 9.3.10 getPath ()

This function gets a path of LUT files.

#### 9.3.10.1 Prototype

```
public String getPath();
```

#### 9.3.10.2 Paramters

Parameter	Direction	Description
None		

#### 9.3.10.3 Return Values

Value	Description
path	File path



## 10 Callflow

This session describes full Control calling flow of JAVA classes.

