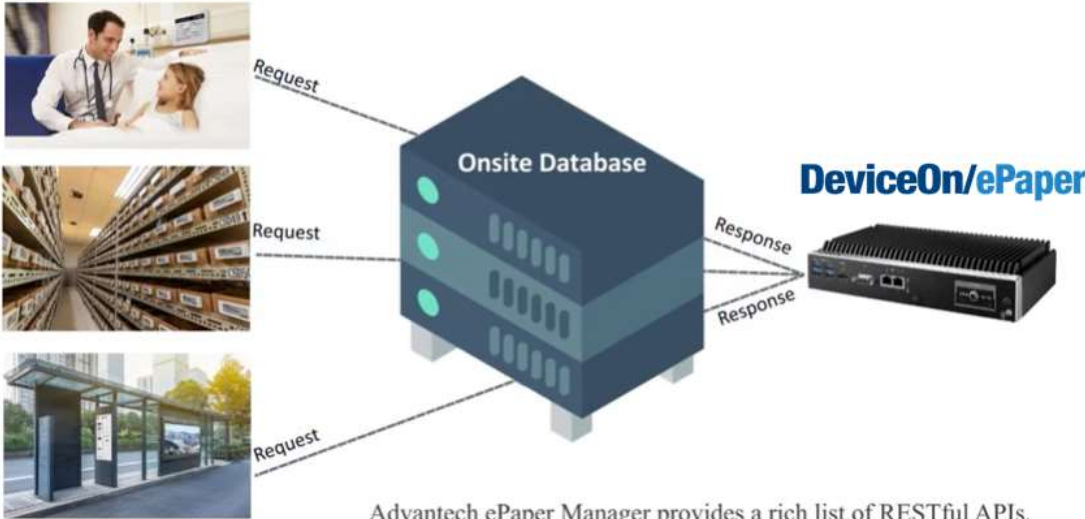


DeviceOn/ePaper RESTful API Quick Start Guide

Use **RESTful APIs** to Design Your Own Working Procedure



Advantech ePaper Manager provides a rich list of RESTful APIs.

Category

1. System Architecture

1.1 Solution Architecture

1.2 DeviceOn/ePaper Software Architecture

1.3 Changing Image on EPD.

1.3.1 What Element to Compose EPD Image?

2. How to Use RESTful API to Push Image

2.1 Transmit Single Image with Data and Template →setImage

2.2 Binding Data, Template and EPD Mac Address →set Bindings

2.3 Update Multi-item Data →items

2.4 Transmit Multi-content with Multi-data and Template →setBatchImage

2.5 Get EPD Status Back →agentid=[Device_Agent_ID]

2.6 Make Dynamic Template with Different Parameters

1. System Architecture

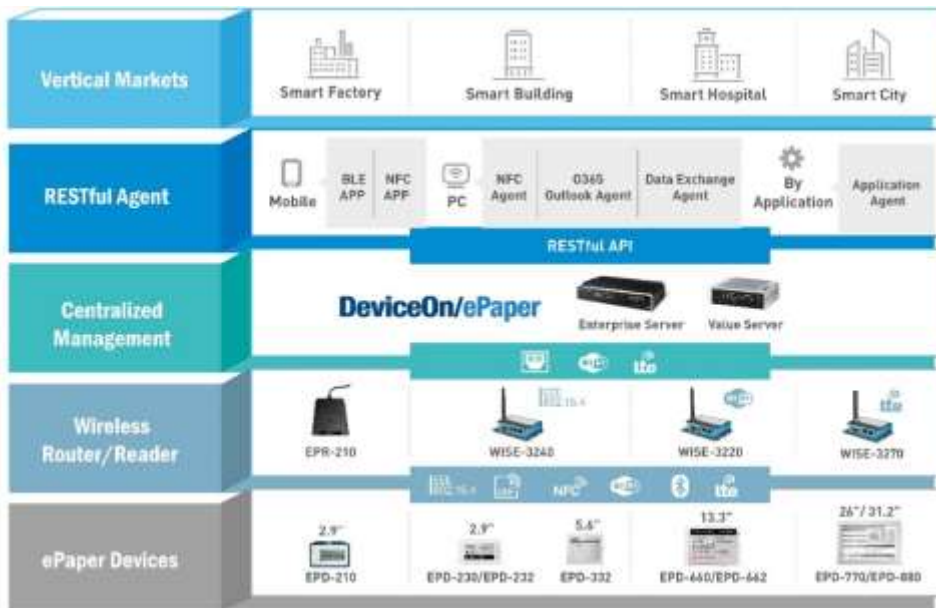
1.1 Solution Architecture

Advantech ePaper solution suit powered by DeviceOn/ePaper, which offer 4 major features to accelerate the maturity for our customer.

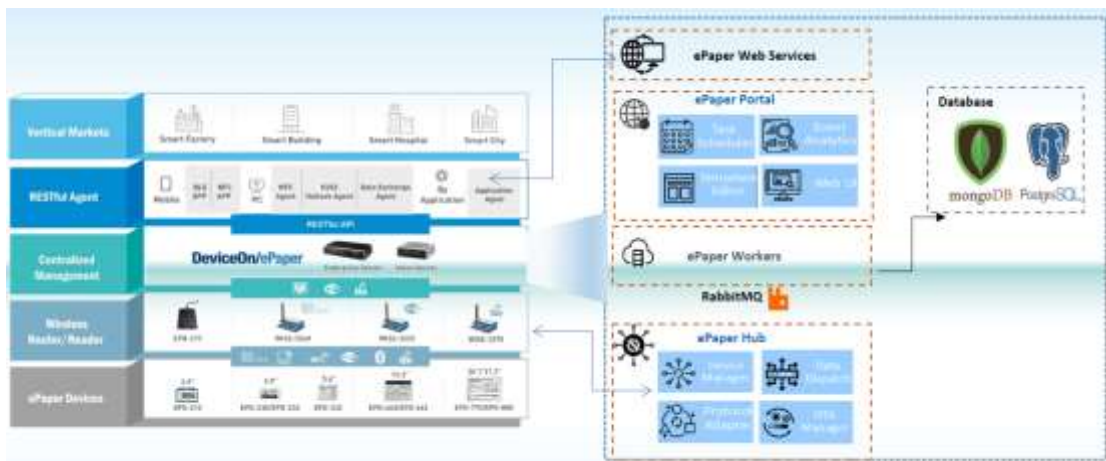


- Device management not only manage EPD but also router and server
- Service management can help EPD content and FW delivery for each single EPD.
- Image generator can provide user UI as windows painter to help design image on EPD
- 2-way communication provide edge device feedback button event.

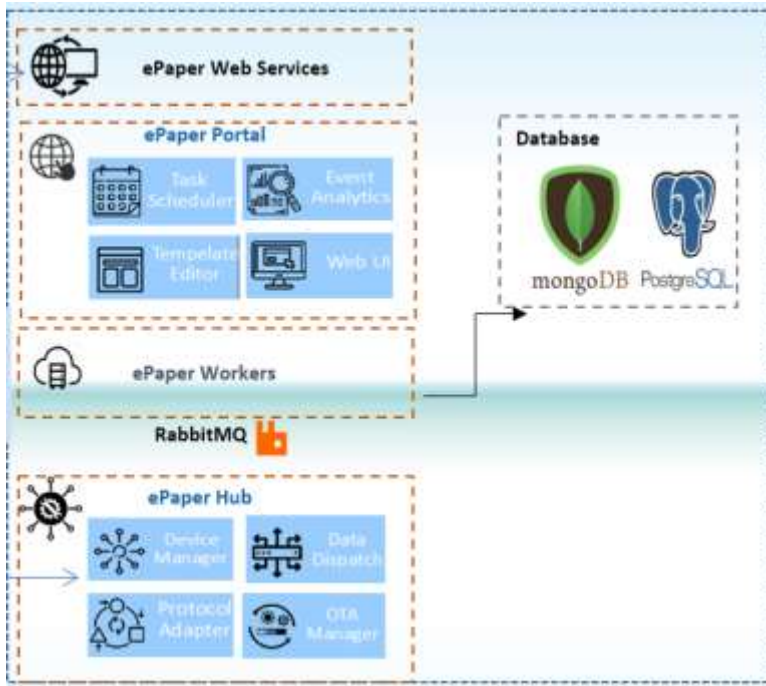
Through DeviceOn/ePaper, we can control different network protocol, ZigBee, UHF, NFC Wi-Fi, BLE and 4G/LTE to different application. As the Solution architecture below, Advantech is in-charge from the bottom edge device to DeviceOn/ePaper. External system can bridge to our ePaper solution through RESTful API on DeviceOn/ePaper.



1.2 DeviceOn/ePaper Software Architecture



Above is our solution architecture and its related software component of DeviceOn/ePaper is at below.

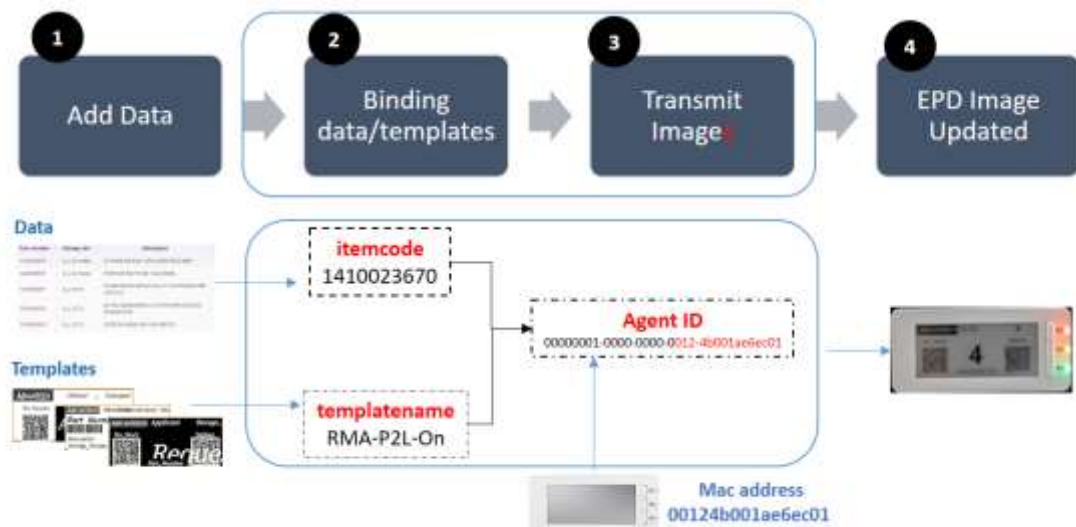


There are web services on our server for different RESTful Agent. Our ePaper workers on RabbitMQ will received the request and execute the related task to show on ePaper portal.

1.3 Changing Image on EPD.

1.3.1 What Element to Compose EPD Image?

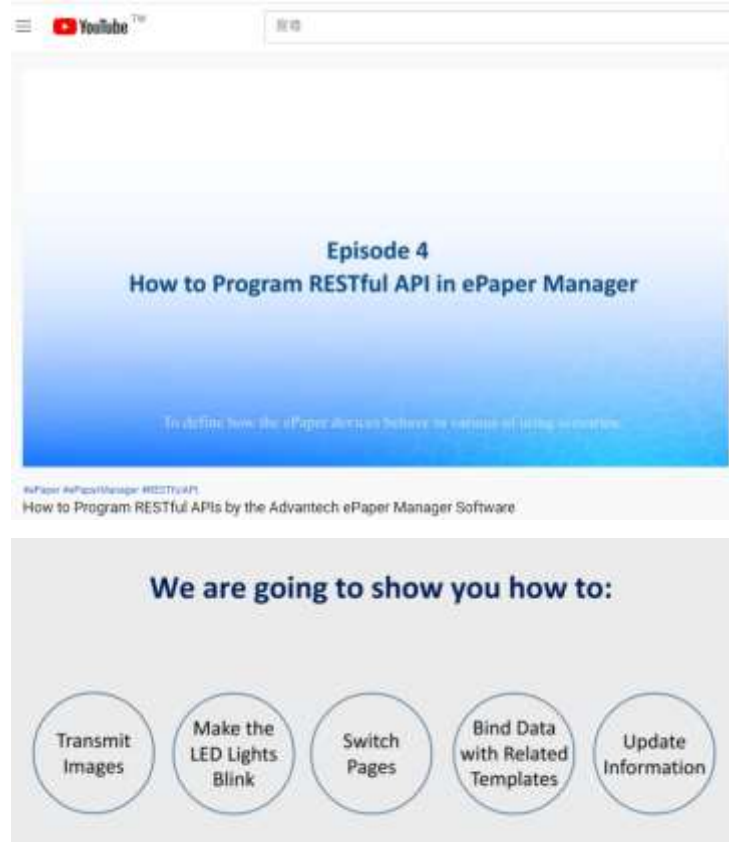
We will need to import the data into DeviceOn/ePaper and make the template to bind with EPD Mac address.



- Data → Itemcode e.g. Stock Status, WorkingID
- Template → templatename e.g. ePaper Image Arrangement
- EPD Mac Address → AgentID e.g. EPD Unique ID

We can use following API to process the above flow task and the YouTube Video's link is as following.

<https://www.youtube.com/watch?v=84NQfWd8s2w&feature=youtu.be>



2. How to use RESTful API to Push Image

2.1 Transmit Single Image with Data and Template →setImage

Below is the json script sample. Those parameters need to be filled-in and submit by post method to our DeviceOn/ePaper web service.

Transmit Image:

POST

```
/es1/v1/tags/setImage
```

Request Example(json)

```
{
  "agentid": "00000001-0000-0000-0012-4b001ae6ebfd",
  "refresh": 1,
  "page": 0,
  "itemcode": "771-FS32K148UAT0VLQT",
  "templatename": "chip1",
  "ledid": 1,
  "blink_count": 60
}
```

✓ Data →Itemcode `["771-FS32K148UAT0VLQT"]`

- ✓ Template → **templatename** "chip1"
- ✓ EPD Mac Address → **AgentID** "00000001-0000-0000-0012-4b001ae6ebfd"

User can use the API tool on our SDK web page to pass the sample code and put the right URL-Path. After clicking "Send", user can see how the EPD image change by RESTful API.

Test API

URL-Path:

Method: Authorization: Accept-Type: Content-Type:

Request-Body:

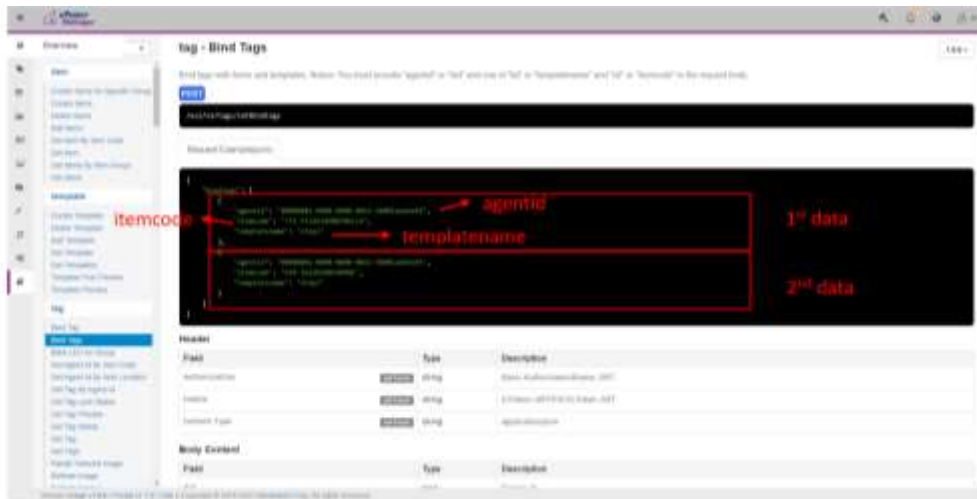
```
{
  "agentid": "00000001-0000-0000-0012-4b001ae6ebfd",
  "refresh": 1,
  "page": 0,
  "itemcode": "771-FS32K148UAT0VLOT",
  "templatename": "chip1",
  "ledid": 1,
  "blink_count": 60
}
```

There are other parameters below. User can setup EPD attributes such as refresh times, EPD pages and Indicator blinking.

Field	Type	Description
site	string	Device ID
agentid	string	Agent ID. For example, mac address: 00124b001ae6ebfd, its agent id: 00000001-0000-0000-0012-4b001ae6ebfd. It's using for EPD-tag.
refresh	number	Do you want to refresh image? 1: Refresh image after transmit. 0: Store image in memory of the tag but not refresh.
page	number	Which page you want to transmit in the tag? Available values: 0 - maxpagecount.
itemcode	string	Item Code
templatename	string	Template Name
ledid	number	Which LED you want to blink? 1: LED1, 2: LED2, 3: LED3.
blink_count	number	How many times LED will blink? Available values: 0 - unlimited.

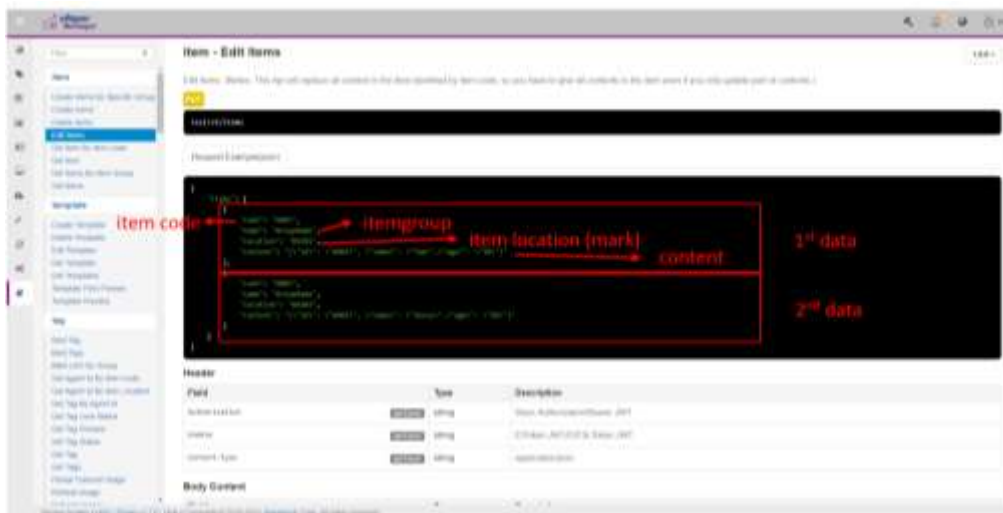
2.2 Binding Data, Template and EPD Mac Address → setBindings

User can bind more than 1 record with json format as below once.



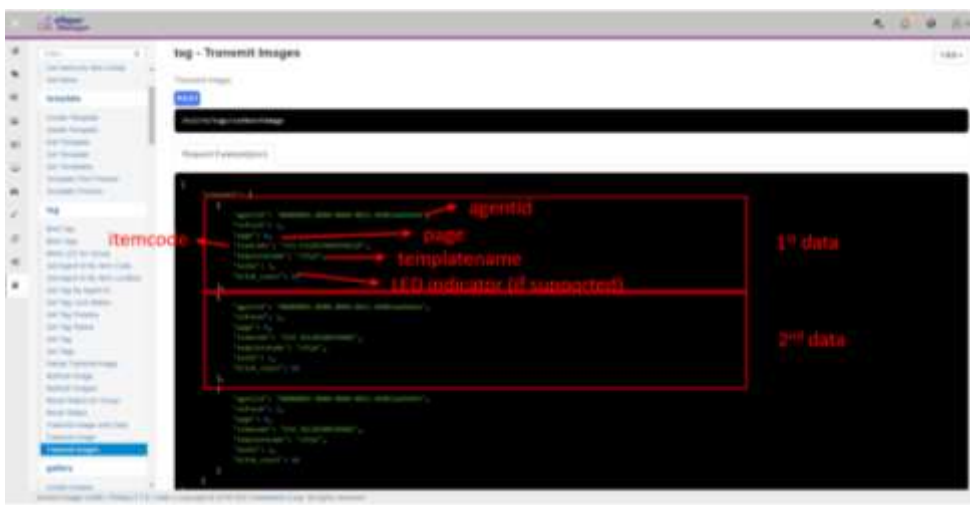
2.3 Update Multi-item Data → items

User can update data with json format as below.



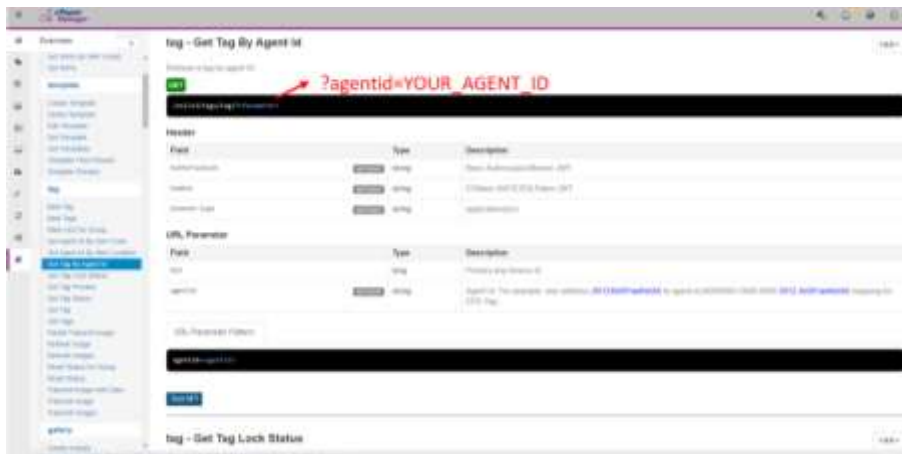
2.4 Transmit Multi-content with Multi-data and Template → setBatchImage

User can update push image and bind info for EPD by below json format.



2.5 Get EPD Status Back →agentid=[Device_Agent_ID]

Since we offer 2-way communication, thus user can have the response code below get the EPD status back.



Response Example(json)

```
{
  "status": "set_image okay"
}
```

The response code's description is as below.

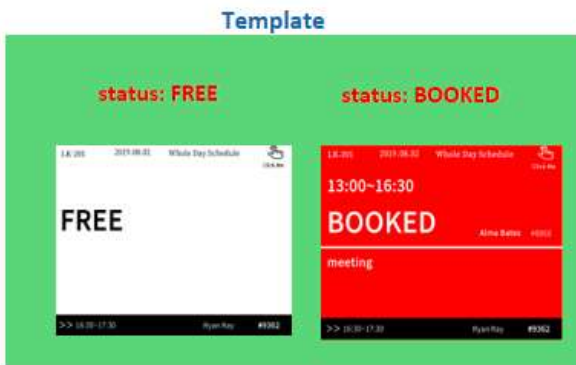
1. idle: Tag idle. Tag online in the first time or people manually reset it to idle.
2. sending command: Server sending the command to gateway.
3. command timeout: Gateway has not response to the command.
4. setting image: Gateway has received the command, and setting image to tag device.
5. refreshing image: Gateway has received the command, and refreshing image to tag device.
6. set image okay: Tag set image successfully.
7. set image error: Tag set image failed.
8. refresh image okay: Tag refresh image successfully.
9. refresh image error: Tag refresh image failed.
10. update data okay: Tag update data successfully (EPD322B/327B only).
11. update data error: Tag update data failed (EPD322B/327B only).
12. tag offline: Tag offline when you send the command.
13. hub shutdown error: EPD Hub (Gateway) shutdown error.
14. portal shutdown error: EPD Portal (Worker) shutdown error.
15. generate package error: [OTA] Server packs image and script file failed.
16. upload package error: [OTA] Server uploads the package file to FTP server failed.
17. upload package timeout: [OTA] Server uploads the package file to FTP server timeout.

18. download package error: [OTA] Gateway downloads the package file from FTP server failed.
19. download package timeout: [OTA] Gateway downloads the package file from FTP server timeout.

2.7 Make Dynamic Template with Different Parameters

Some scenario would like to have same template but different color setting for different criteria or condition.

Take the Meeting room signage as the example. When the meeting is booked and we would like to refer to different template.



So we need to setup “Show condition” at tool bar.

1. Choose “Status” data field as the criteria
2. Select “Option”
3. Modify “Criteria” text as below picture



4. Update the data as below.

roomId	room	date	ext	subject	startTime	endTime	meetingName	line	appointer	status
101-001	101-001	2019-08-01	00000	meeting	13:00-16:30	16:30-17:30	Meeting Room	11-00-16:30	Anna Bates	FREE

5. After DeviceOn/ePaper push image, user can see the different result on the EPD according to different parameter value.