

ADANTECH

Embedded  
Design-In Forum

# ePaper Introduction



AE Homer Wang

# Agenda

## Outline

**EPD Solution Architecture**

**ePaper Display advantage**

**Advantech's EPD solution**

**EPD-230,EPD-332 Network Topology**

**Set up steps**

# ePaper Solution Suites Powered by DeviceOn/ePaper

*Accelerating Your ePaper Implementation with Centralized Management*



Inventory Management

Production Cart

Clinic Information Board

Bedside Card

Instruction Signage

Scheduling Card

Bus Stop

Smart Lighting



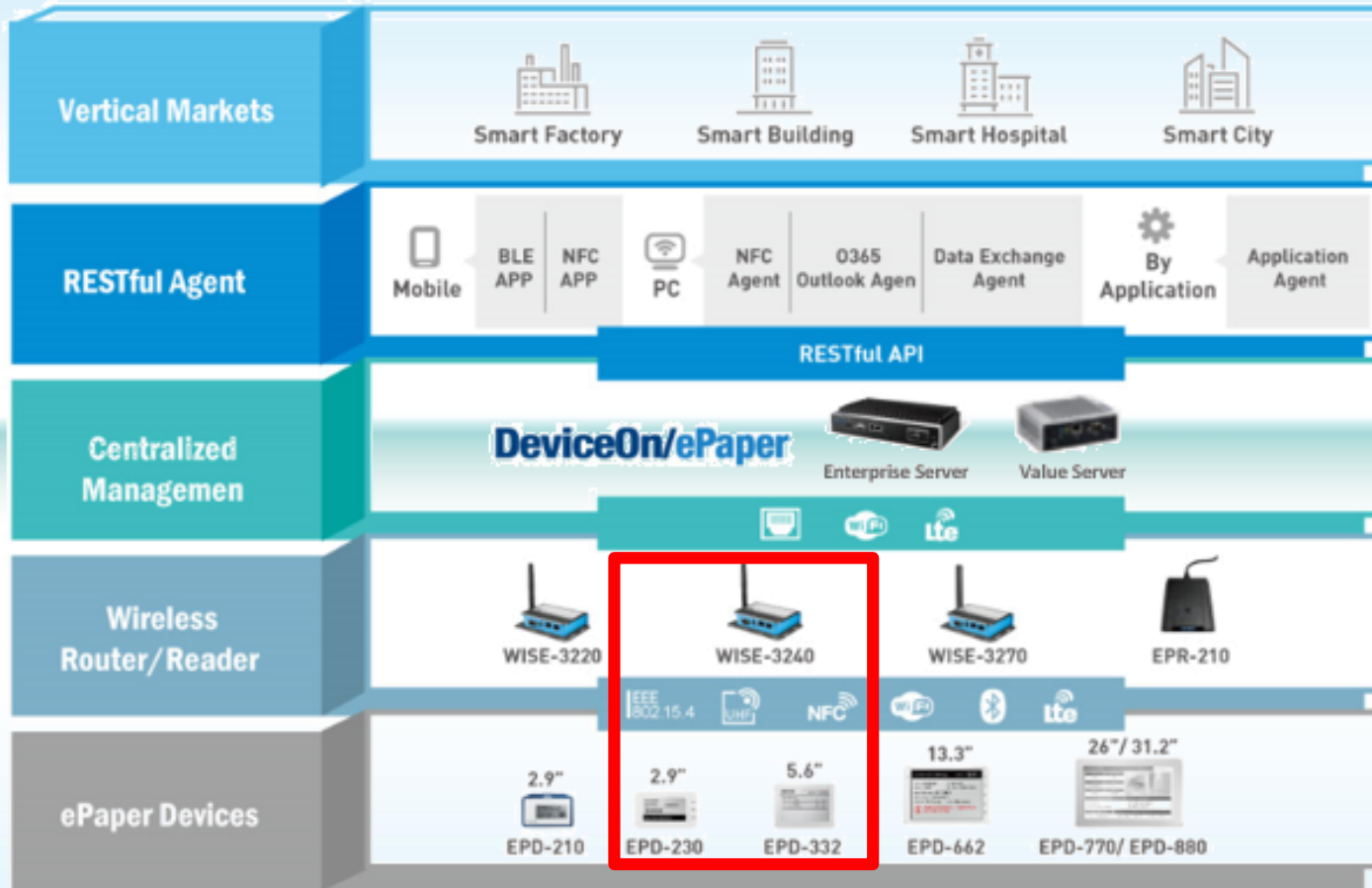
**Smart Factory**

**Smart Hospital**

**Smart Building**

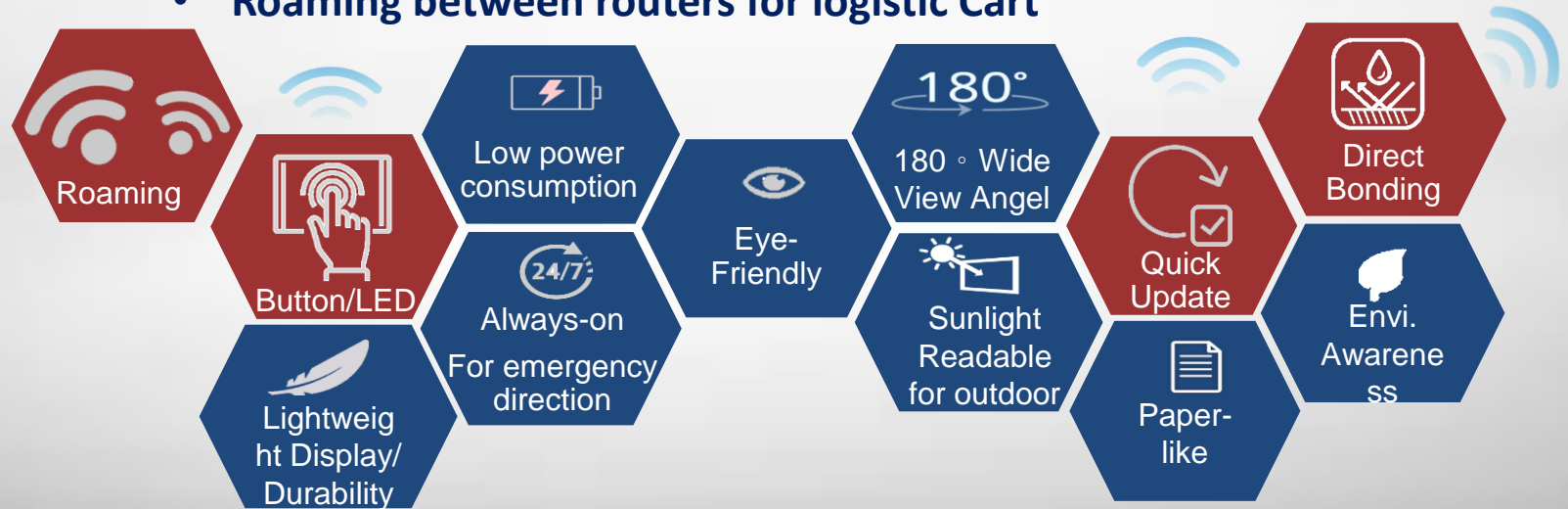
**Smart City**

# EPD Solution Suite Architecture

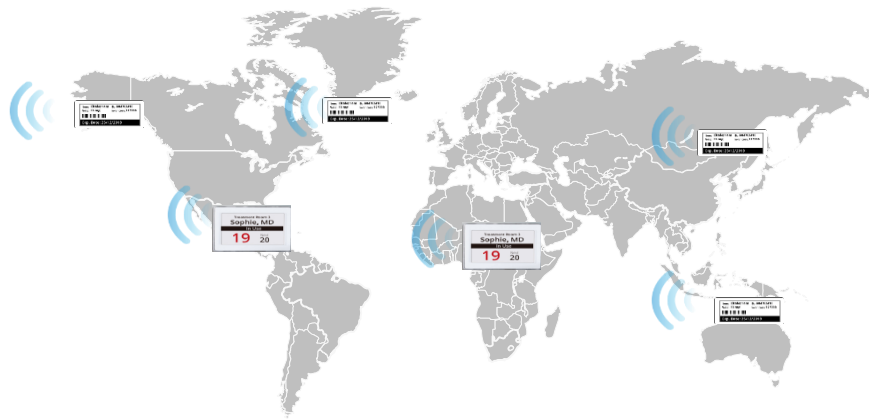
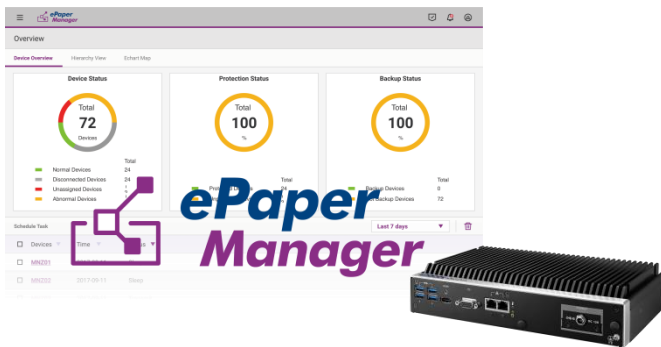


# Advantech Wireless EPD Series Solution

- Strong Protection via IK and IP Mechanical Design
- Direct Bond to avoid the moisture and refraction
- Provide latest Instruction and warning to field operator
- Multi-button, LED and Page for more interaction
- Roaming between routers for logistic Cart



# Content Management Software



## Device Management

- Device monitoring
- Tag battery alert
- Tag status report
- Remote control

## Image Generator

- Generate image file(full and partial) and preview
- Image file transform to system format and zip
- Provide API for tag image update

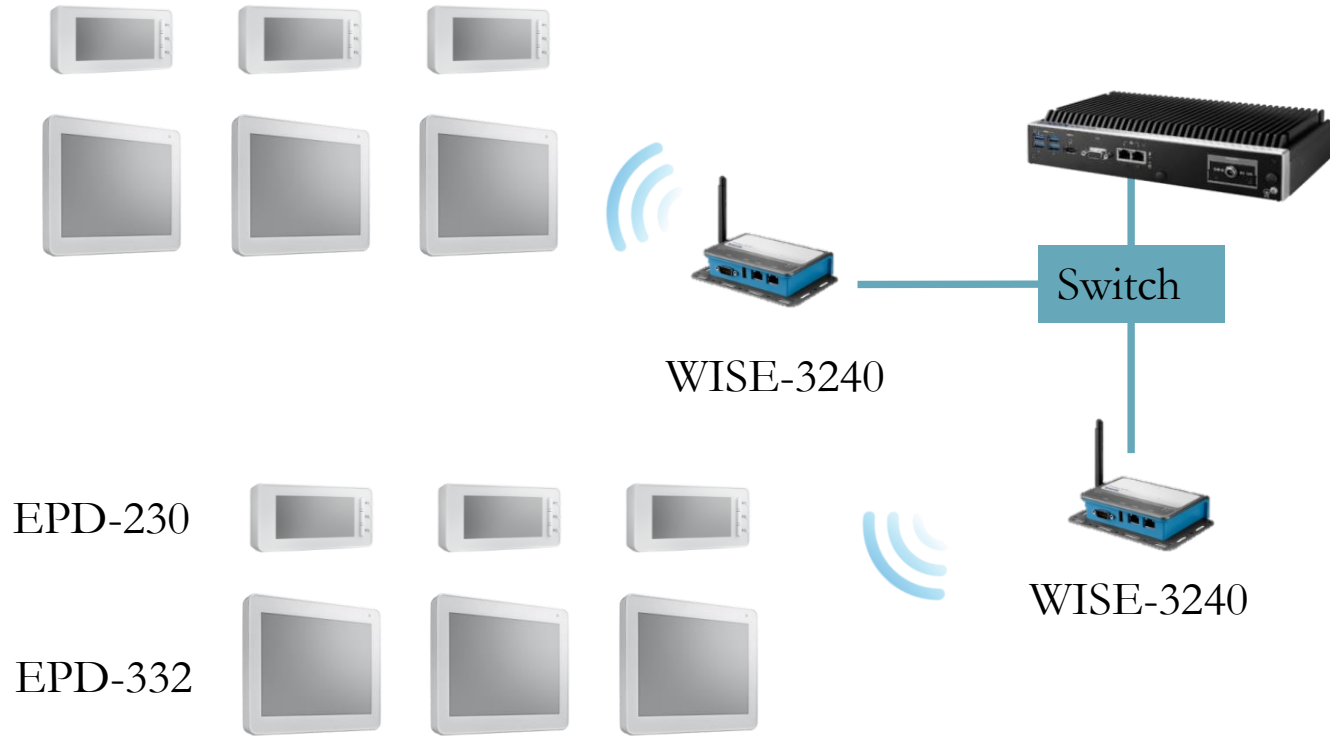
## Account Management

- Account role
- Permission for account and role/group

## Service Management

- FTP: FW/image to device
- Execute action e.g. tag image update: schedule/image generating

# EPD-230,332 Network Topology



## “Set up DeviceOn/ePaper”





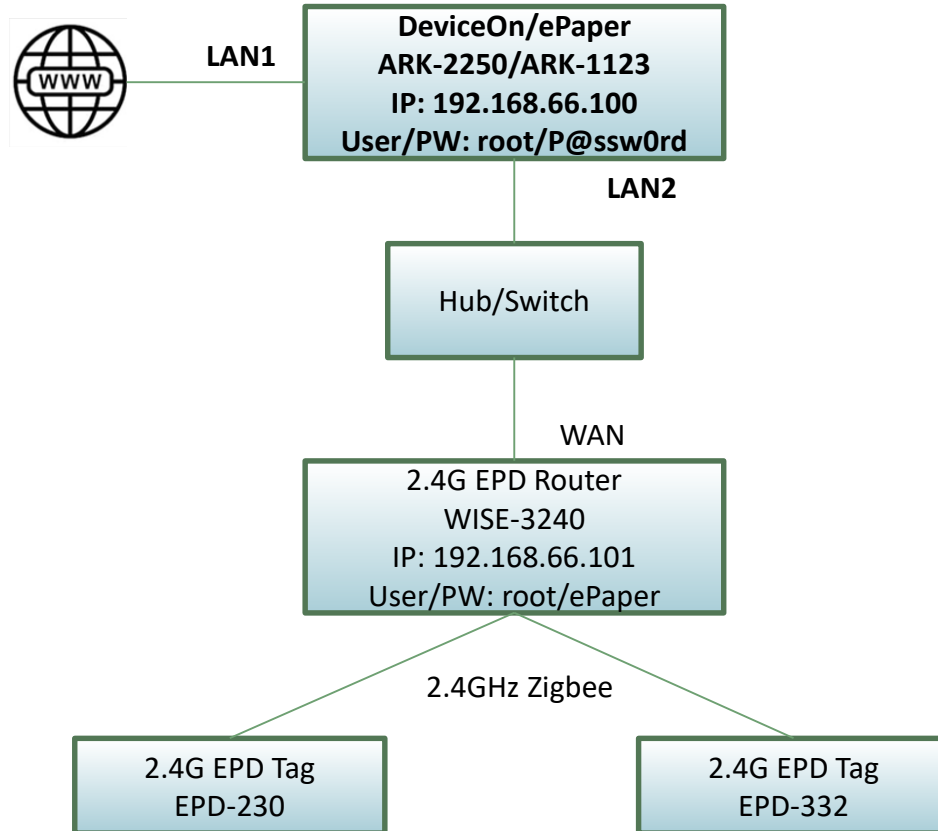
# Agenda

- **Preparation**
  - Hardware Equipment
  - Network Architecture
- **Tag Devices Deployment**
  - EPD system setting
- **Image Generation**
  - Template generation
  - Data Binding
- **Refresh Tag Devices**
  - Image Refresh /Transmit (Device,Group)
- **Firmware upgrade**
- **Resful API & SampleCode**

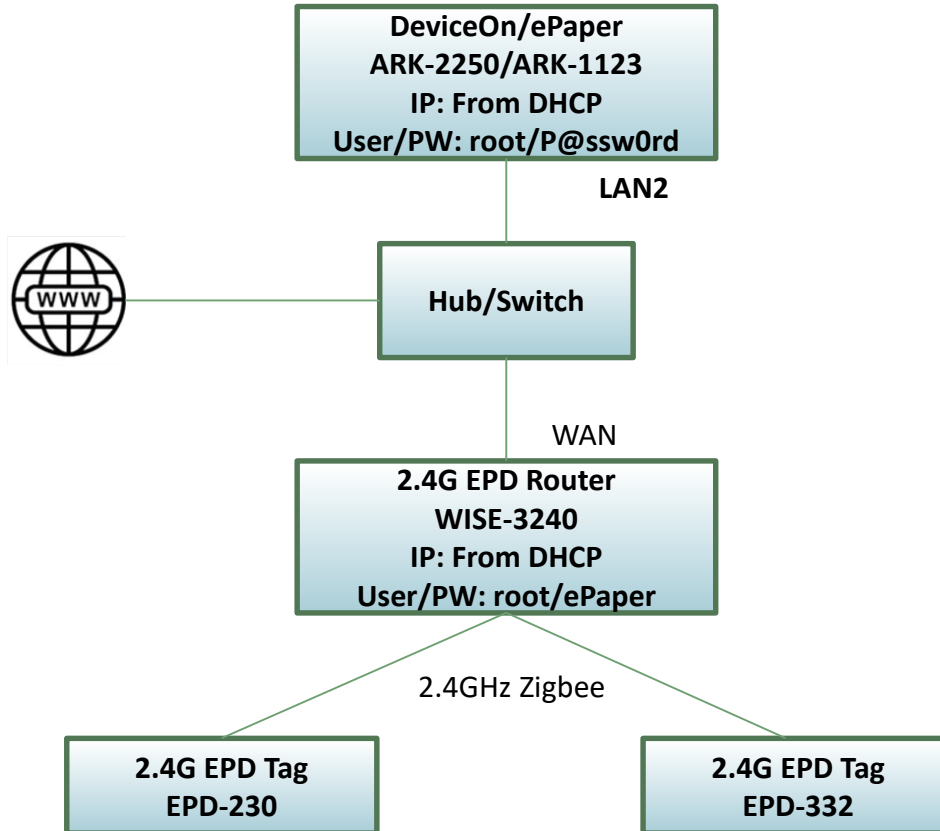
# Preparation- Hardware Equipment

- EPD-230 x1, EPD-332 x1
- WISE-3240
- ARK-1123H ePaper Manager Server x1
- WiFi Hub x1

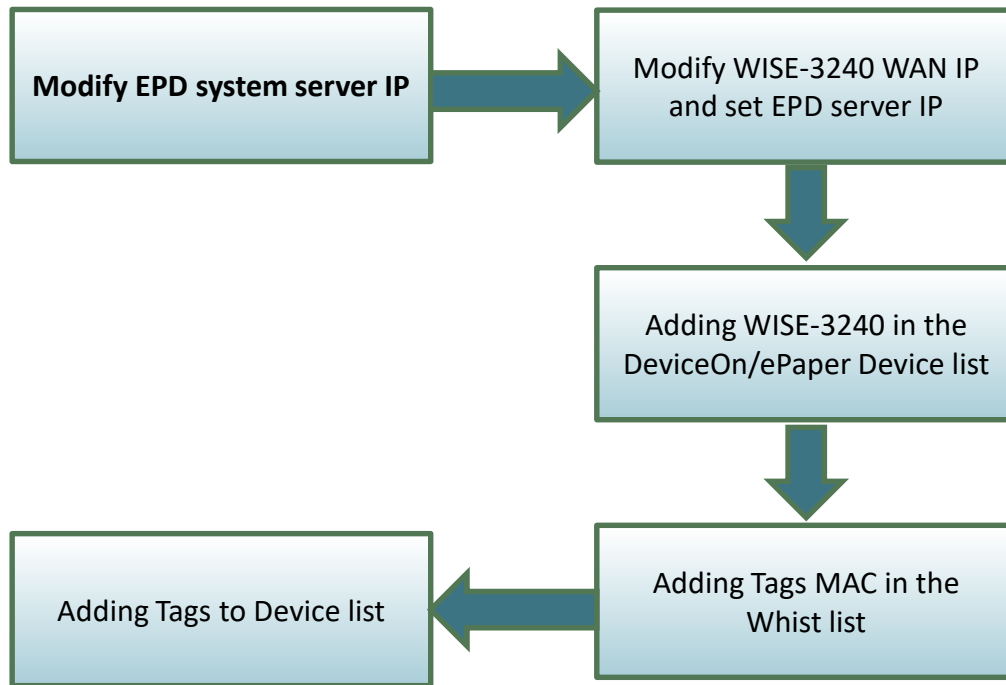
# EPD DemoKit's Network Architecture1



# EPD DemoKit's Network Architecture2



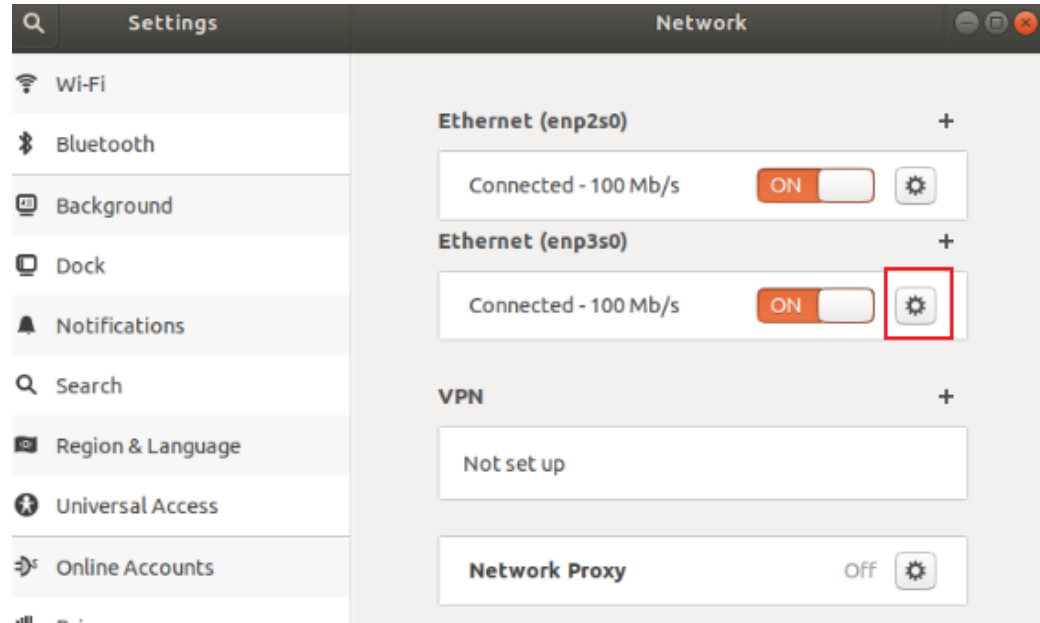
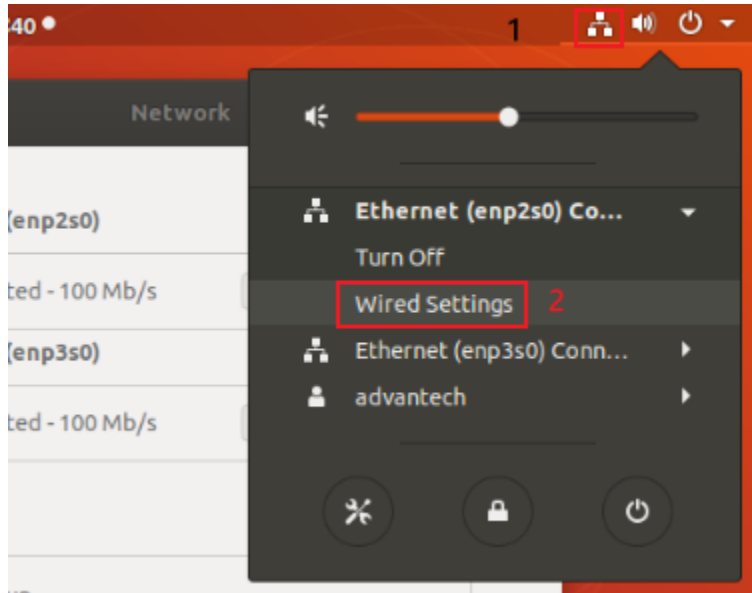
# EPD System setting workflow



# EPD system IP setting

Account: advantech

Password: P@ssw0rd



# EPD system IP setting

The screenshot displays the 'Wired' network configuration window. The 'IPv4' tab is selected and highlighted with a red box. Under 'IPv4 Method', the 'Manual' option is selected with a red radio button. The 'Addresses' section contains a table with two columns: 'Address' and 'Netmask'. The first row is highlighted with a red box and contains the values '192.168.66.100' and '255.255.255.0'. The 'DNS' section at the bottom has an 'Automatic' toggle switch that is turned 'ON'.

Cancel Apply

Details Identity **IPv4** IPv6 Security

**IPv4 Method**

Automatic (DHCP)  Link-Local Only

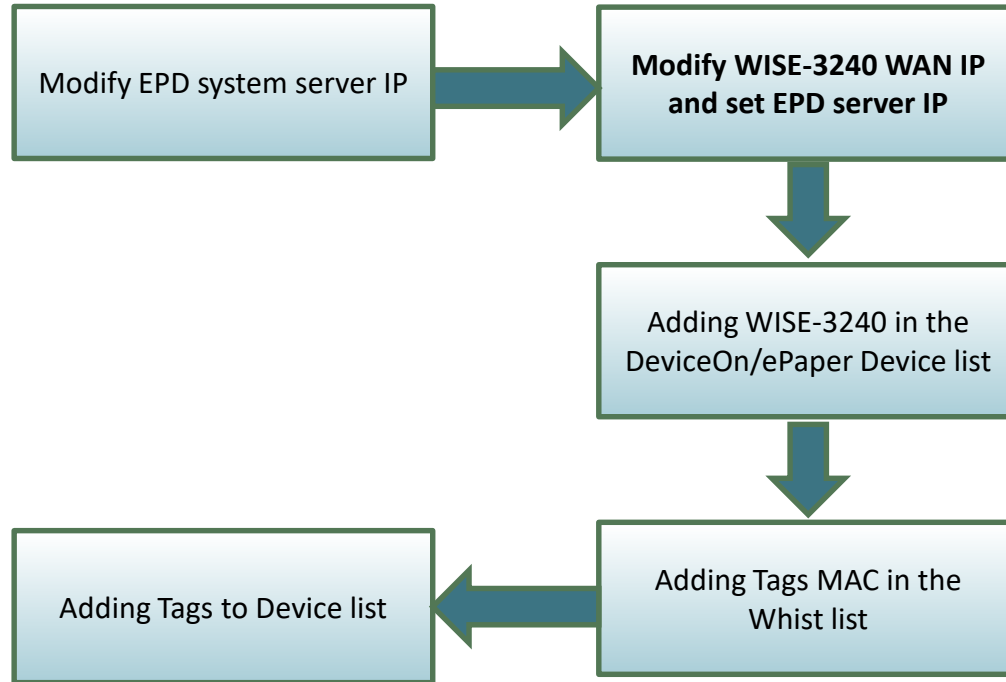
Manual  Disable

**Addresses**

Address	Netmask	Gateway
192.168.66.100	255.255.255.0	

**DNS** Automatic

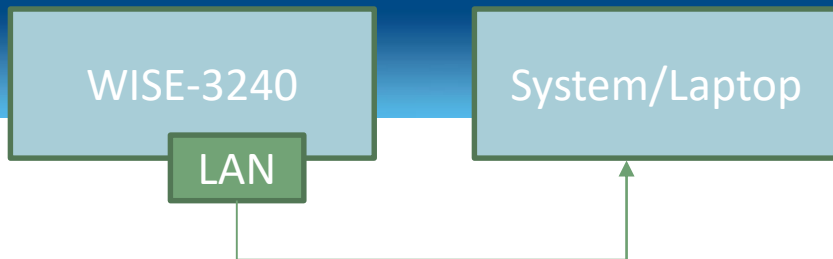
# EPD System setting workflow





# Login WISE-3240

IP: 192.168.1.1  
Account: root  
Password: ePaper



Browser address bar: 192.168.1.1/cgi-bin/luci

ADVANTECH

### Authorization Required

Please enter your username and password.

Username:

Password:

Browser address bar: 192.168.1.1/cgi-bin/luci/stok=...

ADVANTECH Status System Security Network ePaper Manager Logout **AUTO REFRESH ON**

WAN LAN

Network menu: Ethernet (highlighted), Wifi, Diagnostics

### Interfaces

#### Interface Overview

Network	Status	Actions
<b>LAN</b> br-lan	Uptime: 25d 5h 54m 57s MAC-Address: 74:FE:48:55:69:C8 RX: 1.29 MB (13517 Pkts.) TX: 1.57 MB (11802 Pkts.) IPv4: 192.168.1.1/24	<input type="button" value="Connect"/> <input type="button" value="Stop"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>
<b>WAN</b> eth0	Uptime: 25d 5h 54m 57s MAC-Address: 74:FE:48:55:69:C9 RX: 1.50 GB (4329781 Pkts.) TX: 602.95 MB (3840117 Pkts.) IPv4: 192.168.66.101/24	<input type="button" value="Connect"/> <input type="button" value="Stop"/> <input type="button" value="Edit"/> <input type="button" value="Delete"/>

# WISE-3240 WAN Port setting

The screenshot shows a web browser window displaying the ADVANTECH network configuration page. The browser's address bar shows the URL `192.168.1.1/cgi-bin/luci;/stok=...`. The page header includes the ADVANTECH logo and navigation menus for Status, System, Security, Network, ePaper Manager, and Logout. A green "AUTO REFRESH ON" button is visible in the top right corner.

The main content area is titled "Common Configuration" and features four tabs: "General Setup" (selected), "Advanced Settings", "Physical Settings", and "Firewall Settings".

Under the "General Setup" tab, the configuration for the `eth0` interface is shown. The "Status" section displays the following information:

- Uptime: 25d 5h 57m 33s
- MAC-Address: 74:FE:48:55:69:C9
- RX: 1.51 GB (4330071 Pkts.)
- TX: 603.01 MB (3840409 Pkts.)
- IPv4: 192.168.66.101/24

Below the status information, the "Protocol" is set to "Static address". The "IPv4 address" is configured as `192.168.66.101`, and the "IPv4 netmask" is set to `255.255.255.0`.

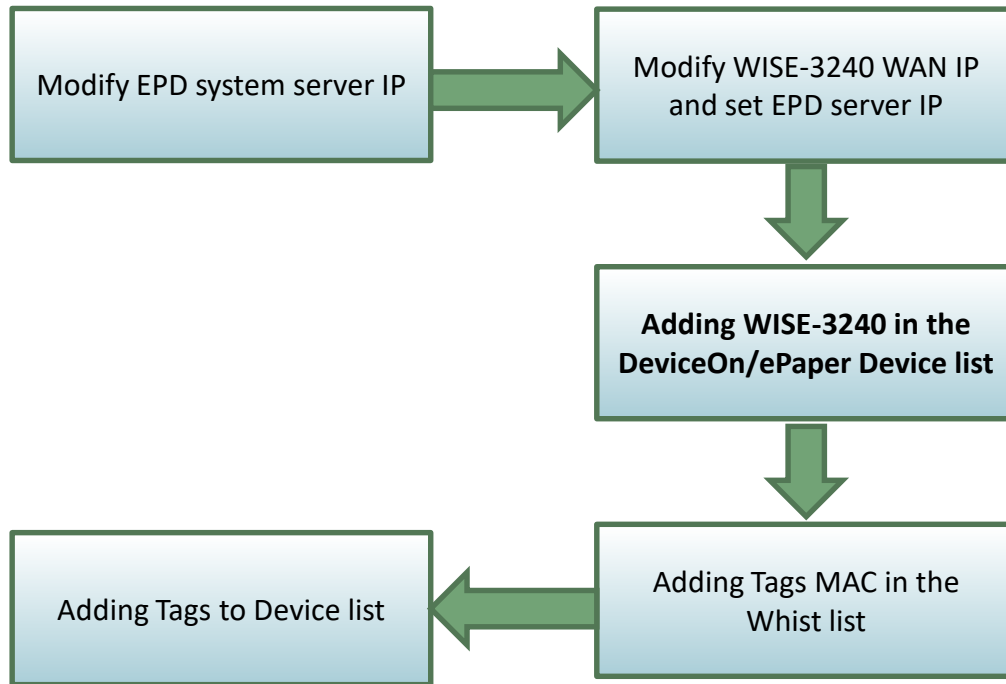
# Set ePaper Manager server IP

The screenshot shows the Advantech ePaper Manager web interface. At the top, there is a navigation bar with the Advantech logo and menu items: Status, System, Security, Network, ePaper Manager, and Logout. Below the navigation bar, the page title is "ePaper Manager" with a subtitle: "User can configure IP address connect to ePaper Manager server." A dropdown menu is open under "ePaper Manager", showing "EPD Hub Configuration" (marked with a red box and "1.") and "EPD Deployment".

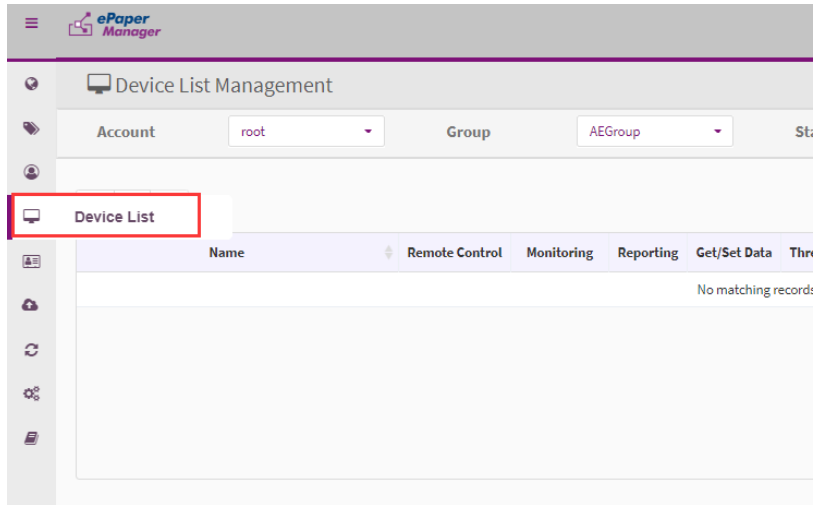
The "Configuration" section contains a "Server IP" label and a text input field containing "192.168.66.100" (marked with a red box and "2.").

At the bottom right, there are three buttons: "Save & Apply" (marked with a red box and "3."), "Save", and "Reset".

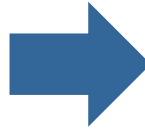
# EPD System setting workflow



# Router Devices Deployment- Add Router

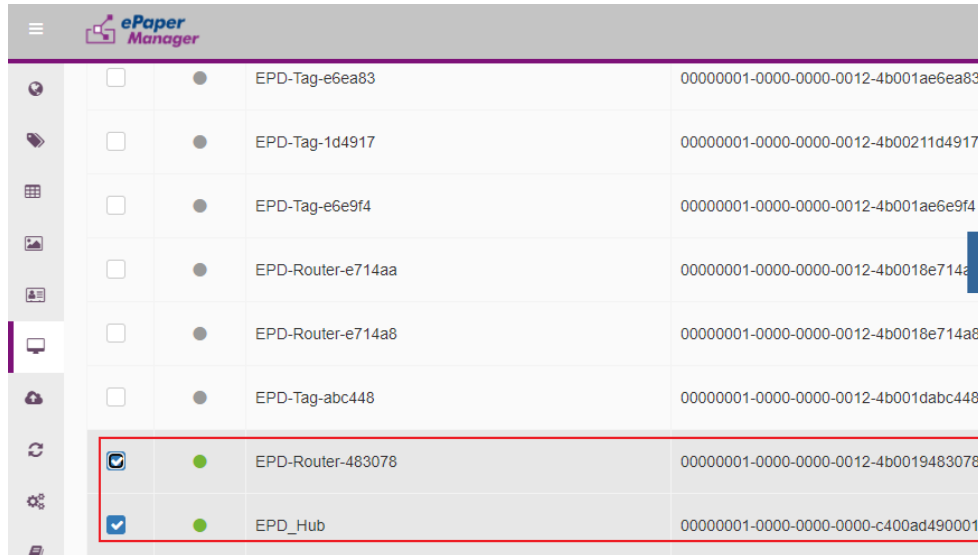


The screenshot shows the 'ePaper Manager' interface. At the top, there is a navigation menu with a hamburger icon and the logo. Below it, the main heading is 'Device List Management'. There are two dropdown menus: 'Account' set to 'root' and 'Group' set to 'AEGroup'. A 'Device List' tab is highlighted with a red box. Below the tab is a table with columns: 'Name', 'Remote Control', 'Monitoring', 'Reporting', 'Get/Set Data', and 'Thru'. The table is currently empty, with the text 'No matching records:' displayed below it.

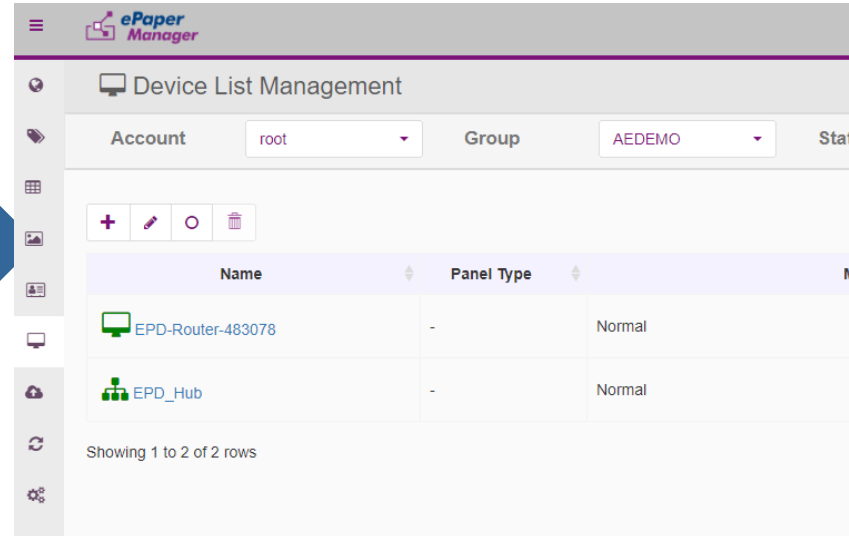


This is a close-up view of the 'Add Device' button in the 'Device List Management' interface. The button is located in the top left corner of the table area, next to a '+' icon, a pencil icon, and a trash icon. A red arrow points to the '+' icon. The table header is visible, showing columns: 'Name', 'Remote Control', 'Monitoring', and 'Reporting'. The table body is empty.

# Router Devices Deployment- Add Router



<input type="checkbox"/>	<input type="checkbox"/>	●	EPD-Tag-e6ea83	00000001-0000-0000-0012-4b001ae6ea83
<input type="checkbox"/>	<input type="checkbox"/>	●	EPD-Tag-1d4917	00000001-0000-0000-0012-4b00211d4917
<input type="checkbox"/>	<input type="checkbox"/>	●	EPD-Tag-e6e9f4	00000001-0000-0000-0012-4b001ae6e9f4
<input type="checkbox"/>	<input type="checkbox"/>	●	EPD-Router-e714aa	00000001-0000-0000-0012-4b0018e714aa
<input type="checkbox"/>	<input type="checkbox"/>	●	EPD-Router-e714a8	00000001-0000-0000-0012-4b0018e714a8
<input type="checkbox"/>	<input type="checkbox"/>	●	EPD-Tag-abc448	00000001-0000-0000-0012-4b001dabc448
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	●	EPD-Router-483078	00000001-0000-0000-0012-4b0019483078
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	●	EPD_Hub	00000001-0000-0000-0000-c400ad490001



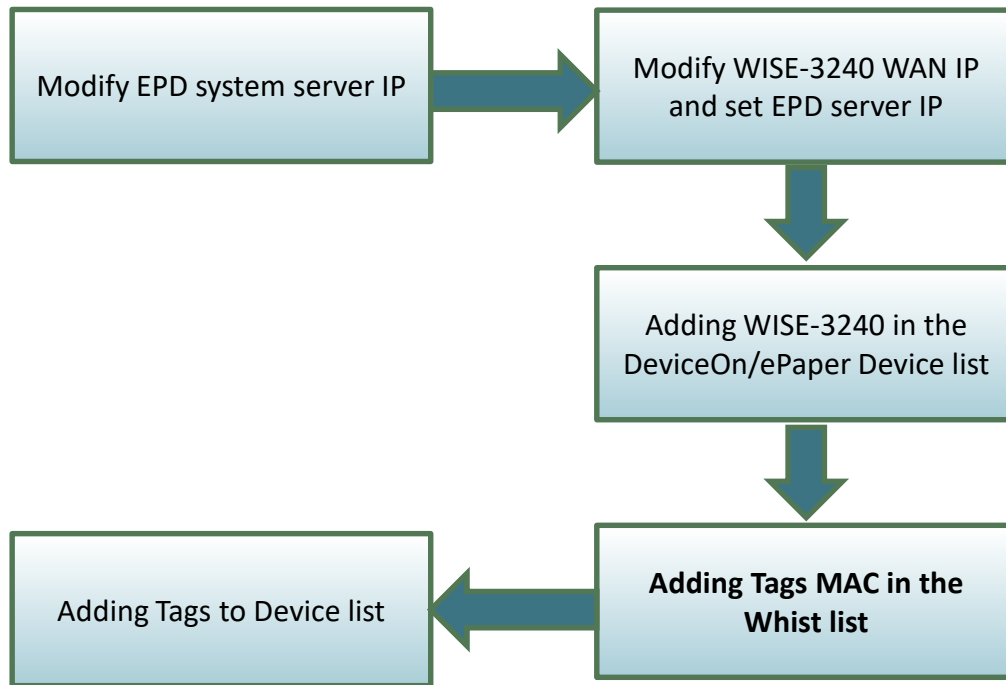
Device List Management

Account: root | Group: AEDEMO

Name	Panel Type	
EPD-Router-483078	-	Normal
EPD_Hub	-	Normal

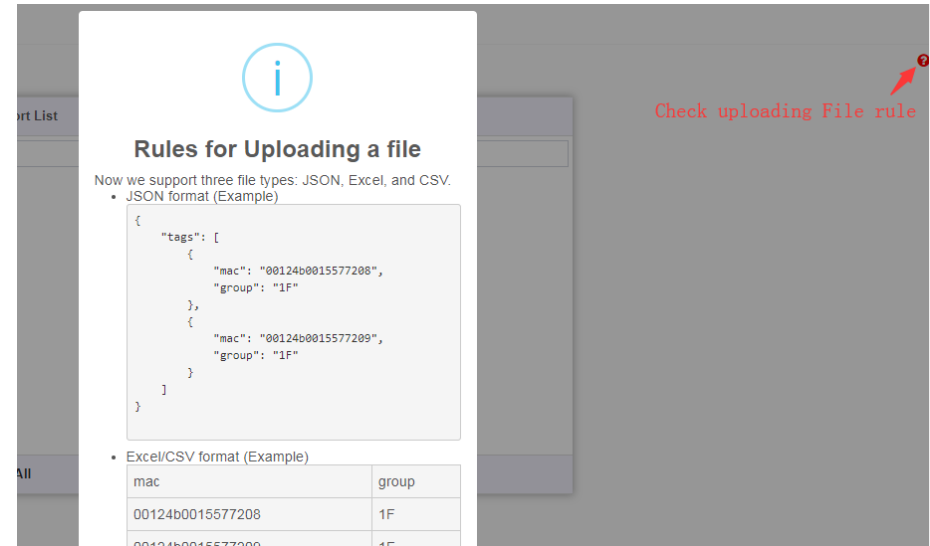
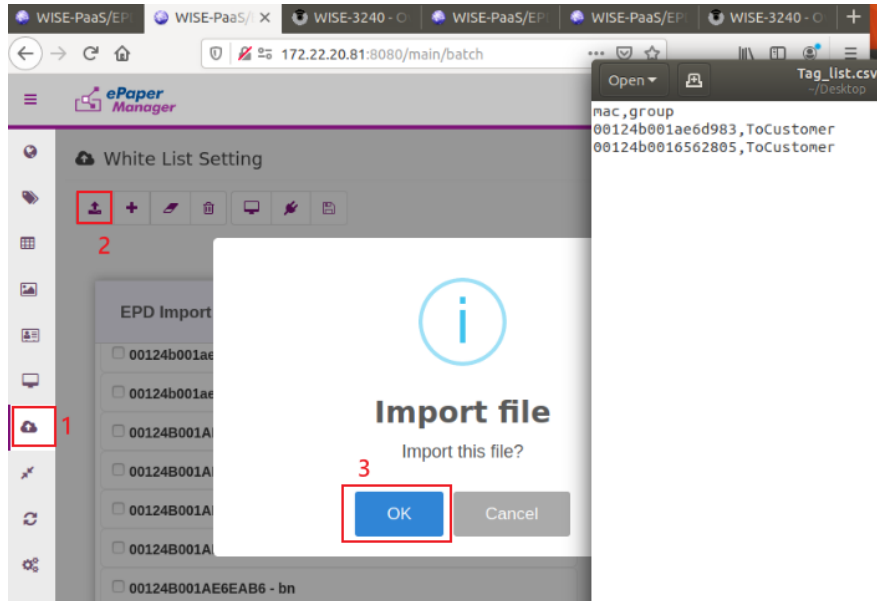
Showing 1 to 2 of 2 rows

# EPD System setting workflow



# White List Setting (EPD-023/EPD-053)

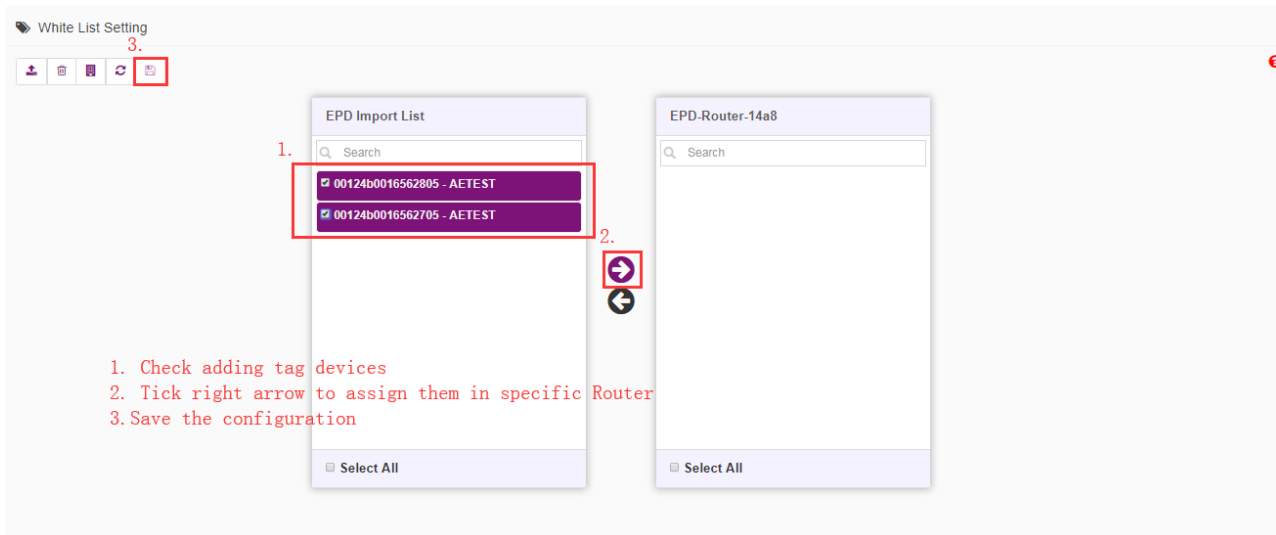
- Import adding tag devices with unique mac address
- File format can be generated by json and CSV file





# White List Setting (EPD-023/EPD-053)

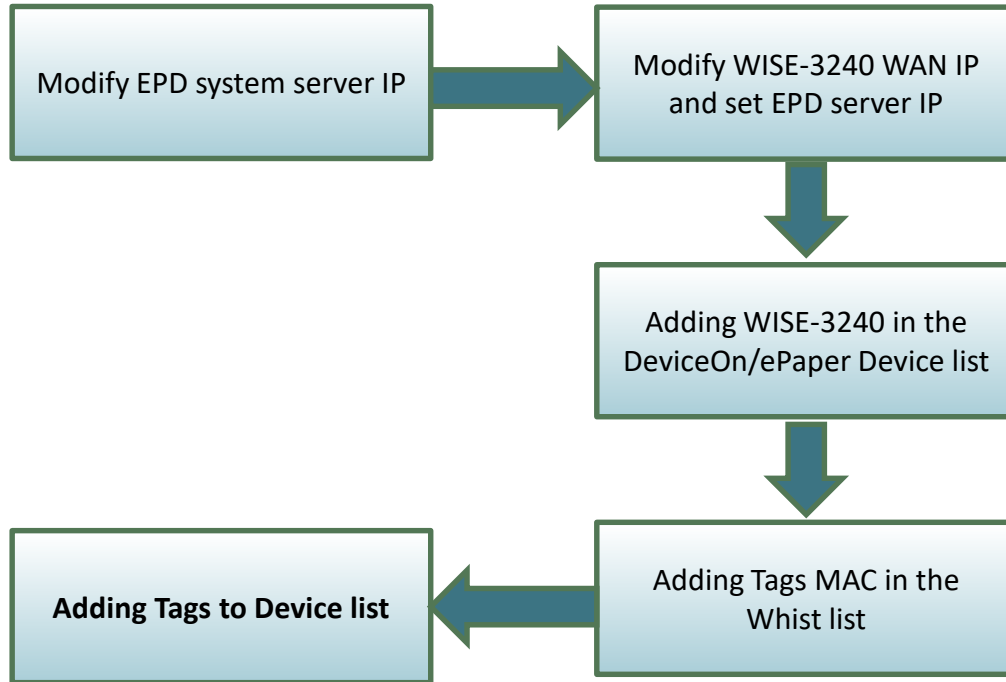
- Import adding tag devices with unique mac address
- File can be generated by json and CSV format
- Assign tag devices to specific Router



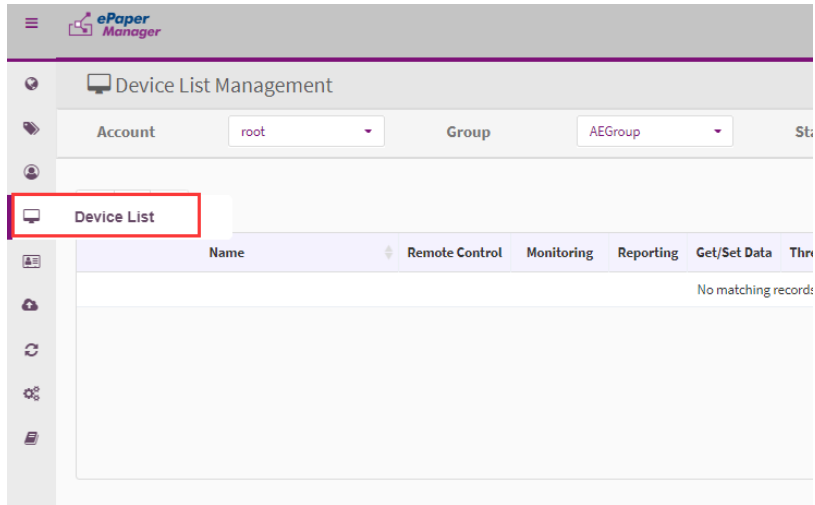
The screenshot displays the 'White List Setting' interface. On the left, the 'EPD Import List' panel contains two entries with checkboxes: '00124b0016562805 - AETEST' and '00124b0016562705 - AETEST'. A red box highlights these entries, with a '1.' next to it. In the center, a red box highlights a right-pointing arrow icon, with a '2.' next to it. On the right, the 'EPD-Router-14a8' panel is empty. A red box highlights a save icon in the top right corner of the main interface, with a '3.' next to it. Below the panels, a list of instructions is provided:

1. Check adding tag devices
2. Tick right arrow to assign them in specific Router
3. Save the configuration

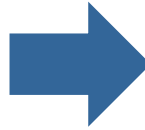
# EPD System setting workflow



# Tag Devices Deployment- Add tag devices



The screenshot shows the 'ePaper Manager' interface. The main heading is 'Device List Management'. Below it, there are dropdown menus for 'Account' (set to 'root') and 'Group' (set to 'AEGroup'). A 'Device List' tab is highlighted with a red box. Below the tab is a table with columns: 'Name', 'Remote Control', 'Monitoring', 'Reporting', 'Get/Set Data', and 'Thru'. The table is currently empty, with the text 'No matching records:' displayed below it.



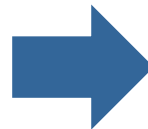
This is a close-up view of the 'Add Device' button in the 'Device List Management' interface. The button is located in the top left corner of the table area, next to a plus sign icon, a pencil icon, and a trash can icon. A red arrow points to the plus sign icon. The table header is visible, showing columns: 'Name', 'Remote Control', 'Monitoring', and 'Reporting'.


# Add tag devices (EPD-023/EPD-053+WISE-3240)

ePaper Manager

<input type="checkbox"/>	EPD-Tag-d876	00000001-0000-0000-0000-e04f4302d876	
<input type="checkbox"/>	EPD-Tag-cb12	00000001-0000-0000-0000-e04f4302cb12	
<input type="checkbox"/>	EPD-Tag-cad2	00000001-0000-0000-0000-e04f4302cad2	
<input type="checkbox"/>	EPD-Tag-cae4	00000001-0000-0000-0000-e04f4302cae4	
<input type="checkbox"/>	EPD-Tag-2805	00000001-0000-0000-0012-4b0016562805	Add EPD-023/EPD-053, Router, WISE-3610Z
<input type="checkbox"/>	EPD-Tag-2705	00000001-0000-0000-0012-4b0016562705	
<input type="checkbox"/>	EPD-Router-14a8	00000001-0000-0000-0012-4b0018e714a8	
<input type="checkbox"/>	EPDGW_023_053	00000001-0000-0000-0000-74FE48250291	

Showing 1 to 16 of 16 rows  rows per page





**Success**  
Add device successfully

# Device List

## Device List Management

Account  Group  Status  Mode



Search

Name	Status Message
EPD-Tag-2805	Disconnected
EPD-Tag-2705	Disconnected
EPD-Router-14a8	Normal
EPDGW_023_053	Normal
EPD-Tag-cc2a	Normal
EPDGW-132	Normal

Showing 1 to 6 of 6 rows  rows per page







# Device List (EPD-023/EPD-053)

- the icon light of tag devices will change from gray to green after few seconds

Device List Management

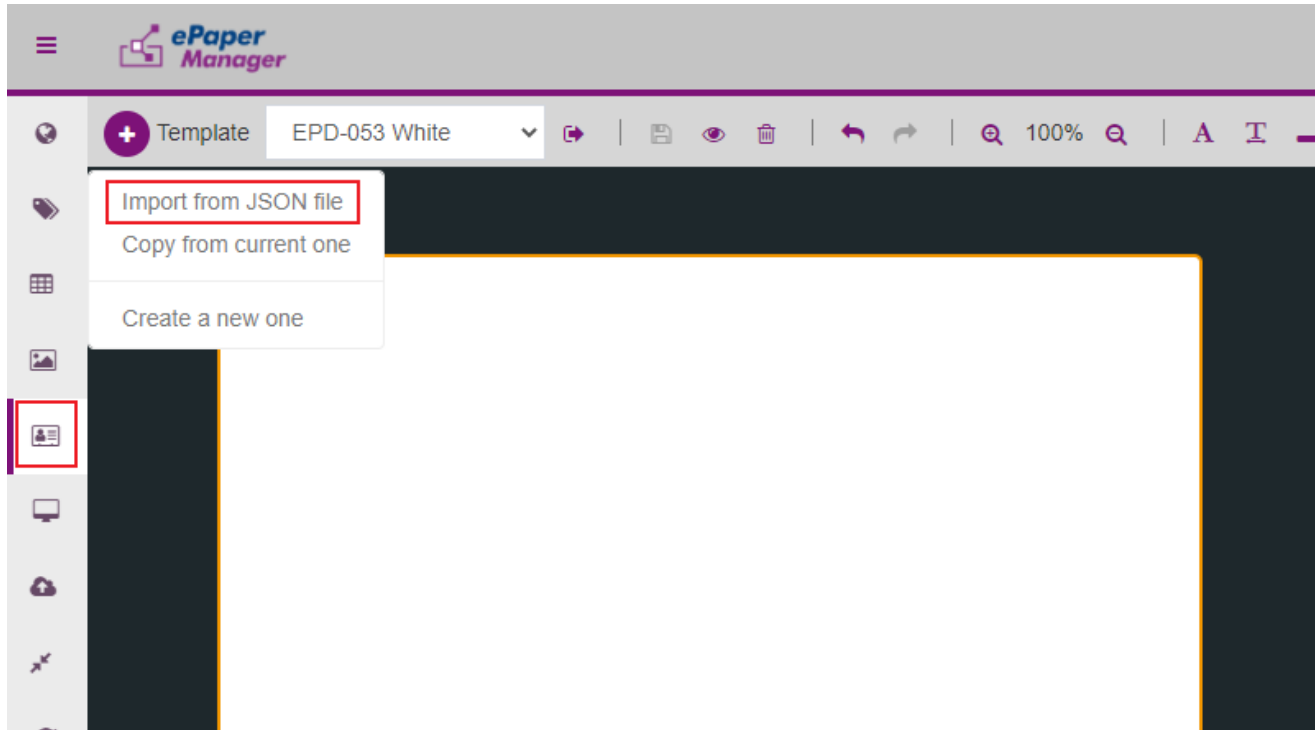
Account: root    Group: AEGROUP    Status: All    Mode: Device

+   🔍   🗑️   Search

<input type="checkbox"/>	Name	Status Message
<input type="checkbox"/>	 EPD-Tag-2805	Normal
<input type="checkbox"/>	 EPD-Tag-2705	Normal
<input type="checkbox"/>	 EPD-Router-14a8	Normal
<input type="checkbox"/>	 EPDGW_023_053	Normal
<input type="checkbox"/>	 EPD-Tag-cc2a	Normal
<input type="checkbox"/>	 EPDGW-132	Normal

# Image Generation- Template Generation

- Import existed template from JSON file
- File can be generated by json and CSV format



# Template Generation

The screenshot displays the ePaper Manager interface. At the top, the logo 'ePaper Manager' is visible. Below it, a toolbar contains icons for save, view, delete, undo, redo, zoom (100%), and text formatting (font size, bold, italic, underline, link, unlink, list, table). The main content area is a red template with white text. A sidebar on the left contains various icons, with the 'MeetingRoom' icon highlighted. Red annotations '1.', '2. Edit template', and '3. Save the template' are overlaid on the interface.

1. *roomID* *date* Whole Day Schedule *time* *status* *appointer* *ext* *subject*

2. Edit template

3. Save the template

Click Me



# Data Binding

**ePaper Manager**

EPD Controlling Management

1 Account: root | Group: ToCustomer | Status: All | Mode: Device

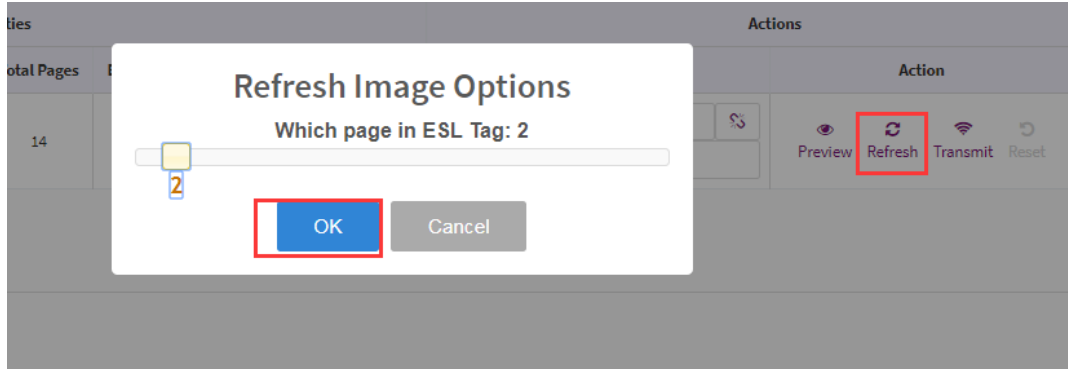
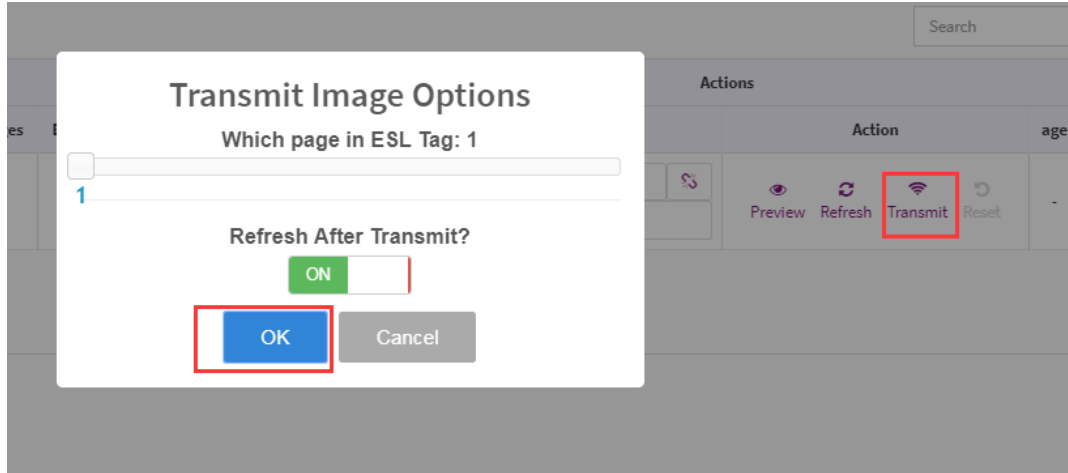
2

Status	Power	RSSI	Mark	Tag Name	Item & Template	Action	Schedule
Success	90%	-25dBm	2019.08.02	EPD-053R EPD-Tag-e6d983 00000001-0000-0000-0012-4b001ae6d983	LK-202(EPD-053) MeetingRoom		0 List
Success	100%	-30dBm	2019.08.02	EPD-053R EPD-Tag-562805 00000001-0000-0000-0012-4b0016562805	LK-202(EPD-053) MeetingRoom		0 List

Showing 1 to 5 of undefined rows | 5 rows per page

3

# Refresh Tag Device- Image Refresh & Transmit



# Firmware Upgrade- OTA

Upgrade Management

↑ Upgrade Operation

Choose Action

Upgrade  Download  Deploy

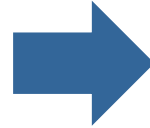
Choose Package

EPD023B						
Version	OS	Arch	Optimized	Storage	Name	
<input checked="" type="radio"/> 0.7.7.0	n/a	n/a	false	OTA	EPD023B-v0.7.7.0-e14d7b9b7dd11e81476d262211cbb176.zip	

EPD053R

Back OK

Total 6 10/page < 1 >



Upgrade Processing Information - EPDGW\_023\_053

Downloading

Name	Stage	Progress	Cancel
EPD023B-v0.7.7.0-e14d7b9b7dd11e81476d262211cbb176.zip	Downloading	<div style="width: 100%;"><div style="width: 100%;"></div></div> 100%	<input type="button" value="Cancel"/>

Deploying

Name	Stage	Message
There are no ongoing deploy tasks		

Downloading

Name	Stage	Progress	Cancel
There are no ongoing download tasks			

Deploying

Name	Stage	Message
EPD053R-v0.7.3.0-1a31b569527e6a540a2e4689ba8b8e.zip	Deploying	Deploy task doing

# Resful API & SampleCode

Step 1. Sign In

Step 2. Single Page Transmit

Step 3. Transmit With LED

Step 4. Transmit Multiple Images

Step 4. Switch Page

Step 5. Update Information

Step 6. Bind Batch Data

## Single Tag Transmit

Test API **Source Code**

API URL:

**RUN**

Method:

Request Parameters:

Device group :

Which EPD device?

Which page?

Refresh or not?  Yes  No

```
{
  "agentid": "00000001-0000-0000-0012-4b0016562185",
  "page": "0",
  "refresh": 1
}
```

Response:

Status Code :

*Go Together,  
We Go Far and Grow Big*

