

# EKI-6331 & EKI-6332 AP Repeater mode configuration SOP

Revision Date	Revision	Description	Author
April/2018	V1.0	Initial release	ICG AE Jacky.Lin

# Abstract

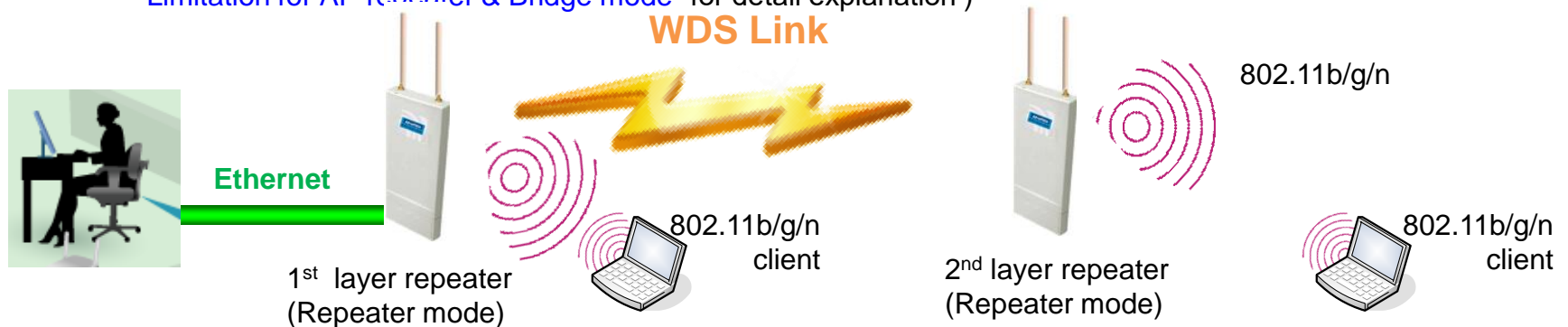
- ❖ **This SOP explains how to configure the EKI-6331 & EKI-6332 in AP repeater mode.**
- ❖ **Related products:**  
EKI-6331, EKI-6332
- ❖ **Requirement:** Two EKI-6331 or EKI-6332 devices
- ❖ **Note :** Please refer the “SOP\_ EKI-6331 & EKI-6332 AP & client mode configuration” for understanding basic setting first.



# AP Repeater mode

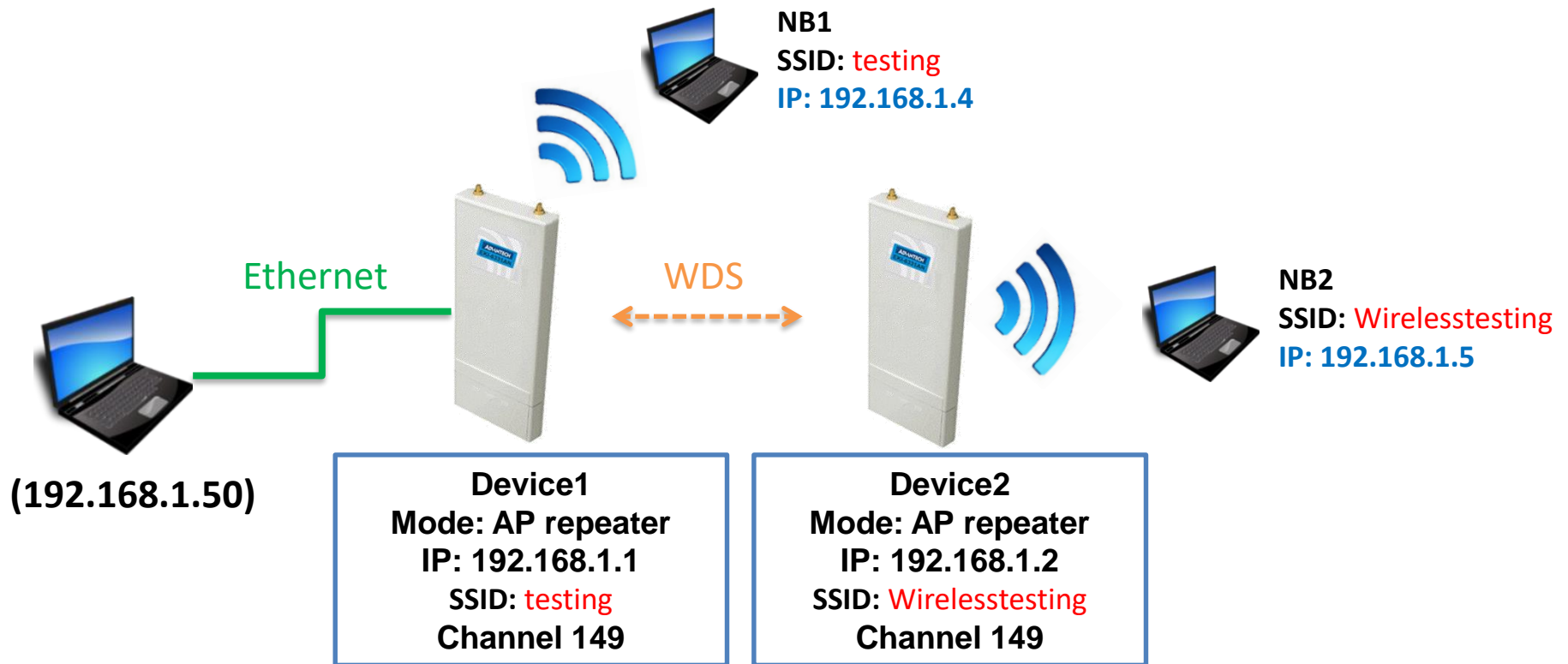
# AP Repeater mode

- **Scenario** : Need to **expand the existing wireless coverage** for 802.11 standard devices
  - By setting as a **AP Repeater** mode, the Access Point can serve as both AP and Bridge at the same time.
- Use the Wireless Distribution System (WDS) to bridge the main AP repeater.
  - IEEE does not have standard to specific the detail mechanism on WDS. So the detailed mechanism is designed by each company.
  - EKI-633x could only **bridge with the same model**.
- **Key concept** : **The bandwidth will cut half while adding one more layer.**
  - The AP repeater must receive the data from wireless client and forwarding to upper layer AP repeater at the same time.
  - So we suggest **no more than three layers of repeater**. (Please refer the “[FAQ\\_EKI-633x\\_Application Limitation for AP repeater & Bridge mode](#)” for detail explanation )



Note: **The channel must be the same for all wireless device** (AP repeaters & clients) while setting AP repeater mode. Too much device in the same channel may result the great pressure and affect the device performance. Based on experience, we suggest no **more than 20 devices**.

# Topology : AP repeater – AP repeater



## WDS setting

Local MAC

00:19:70:c1:3d:ec

Remote AP MAC

00:19:70:c1:3d:e7

00:19:70:c1:3d:e7

00:19:70:c1:3d:ec

# Device 1 – AP Repeater mode setting



Device 1\_ AP repeater (192.168.1.1)

Device 2\_ AP repeater (192.168.1.2)

Status	System	Wireless	Management	Tools
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Basic Settings

Profile Settings

Advanced Settings

Traffic Shaping

Access Control

WDS Settings

## Basic Settings

Use this page to change the wireless mode as well as configure any associated wireless network parameters.

☐ Disable Wireless LAN Interface

Operation Mode: AP Repeater

SSID: testing

Broadcast SSID: ☒ Enabled ☐ Disabled

802.11 Mode: 802.11A/N

Channel Mode: 20 MHz

Channel: 5745MHz (149)

Extension Channel: None

Data Rate: Auto

HT Protect: ☐ Enabled ☒ Disabled

Antenna Gain: 0 dBi

Output Power: 18 dBm

1. Set to AP repeater mode

2. Assign a SSID

3. Have the same Wi-Fi setting as same as device 2

# Device 1 – WDS setting

- Add the Device 2 MAC address in below WDS setting

**WDS Settings**

A Wireless Distribution System allows interconnection of access points in an IEEE 802.11 network. To do this, you must set all interconnected APs in the same channel, input the MAC addresses of the other APs which you want to communicate with in the table below and enable the WDS Separation function. This function will only work in Bridge and AP Repeater modes.

Local MAC Address:	00:19:70:c1:3d:ec
WDS MAC Address 1:	00:19:70:c1:3d:e7
WDS MAC Address 2:	
WDS MAC Address 3:	
WDS MAC Address 4:	

**1. Fill the device 2 MAC in the blank and press “apply”**

**Apply** **Cancel**

# Device 2 – AP Repeater mode setting



Device 1\_AP repeater (192.168.1.1)

Device 2\_AP repeater (192.168.1.2)

Status	System	Wireless	Management	Tools
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**Basic Settings** ✖  
Security Settings  
Advanced Settings  
Traffic Shaping  
Access Control  
WDS Settings

☐ **Disable Wireless LAN Interface**  
  
Operation Mode: 

AP Repeater

  
SSID: Wirelesstesting  
☒ Enabled ☐ Disabled  
802.11 Mode: 802.11A/N  
Channel Mode: 20 MHz  
Channel: 5745MHz (149)  
Extension Channel: None  
Data Rate: Auto  
HT Protect: ☐ Enabled ☒ Disabled  
Antenna Gain: 0 dBi  
Output Power: 23 dBm

1. Set to AP repeater mode

2. Assign a SSID

3. Have the same wifi setting as same as device 1



# Device 2 – WDS setting

- Add the Device 1 MAC address in below WDS setting

**WDS Settings**

A Wireless Distribution System allows interconnection of access points in an IEEE 802.11 network. To do this, you must set all interconnected APs in the same channel, input the MAC addresses of the other APs which you want to communicate with in the table below and enable the WDS Separation function. This function will only work in Bridge and AP Repeater modes.

Local MAC Address:	<input type="text" value="00:19:70:c1:3d:ec"/>
WDS MAC Address 1:	<input type="text" value="00:19:70:c1:3d:e7"/>
WDS MAC Address 2:	<input type="text"/>
WDS MAC Address 3:	<input type="text"/>
WDS MAC Address 4:	<input type="text"/>

**1. Fill the device 1 MAC in the blank and press “apply”**

# Reboot the device

- Reboot the device1 /device 2
  - Path: Management → configuration file → Reboot

The screenshot shows the Advantech device management web interface. The top navigation bar includes tabs for Status, System, Wireless, Management (selected), and Tools. On the left sidebar, the Configuration File option is highlighted with a red box. The main content area is titled 'Configuration File' and contains instructions: 'This page allows you to save current settings to a file or load the settings from the file which was saved previously. You may also reset the current configuration to factory default or reboot the device.' Below this, there are four sections: 'Save Settings to File:' with a 'Save...' button; 'Load Settings from File:' with a dropdown menu showing '選擇檔案' and '未選擇任何檔案'; 'Reset Settings to Default:' with a 'Reset' button; and 'Reboot The Device:' with a 'Reboot' button. The 'Reboot' button is highlighted with a red box. A yellow arrow points from a red callout box to the 'Reboot' button. The callout box contains the text: 'Reboot the device and wait for starting the WiFi service'. Below the interface, a yellow arrow points down to a message box that says: 'This device has been reboot, you have to login again. Please wait for 36 seconds before attempting to access the device again...'. The browser's address bar shows the URL 'http://192.168.1.100:8080/advantech/'.

**Configuration File**

This page allows you to save current settings to a file or load the settings from the file which was saved previously. You may also reset the current configuration to factory default or reboot the device.

Save Settings to File:

Load Settings from File:  未選擇任何檔案

Reset Settings to Default:

Reboot The Device:

**Reboot the device and wait for starting the WiFi service**

This device has been reboot, you have to login again.  
Please wait for 36 seconds before attempting to access the device again...

# Check the Connection status

Device 1\_AP repeater (192.168.1.1)

Device 2\_AP repeater (192.168.1.2)

## Device 1

Status

System

Wireless

Management

Tools

Information

Connections

Statistics

ARP Table

Bridge Table

### Association List

This table shows the MAC Address,802.11 Mode,Signal Strength and Connected Time for each associated device(s).

#	MAC Address	802.11 Mode	Signal Strength	Connected Time
1	00:19:70:c1:3d:e7	802.11A/N	-36 dBm	4s

## Device 2

Status

System

Wireless

Management

Tools

Information

Connections

Statistics

ARP Table

Bridge Table

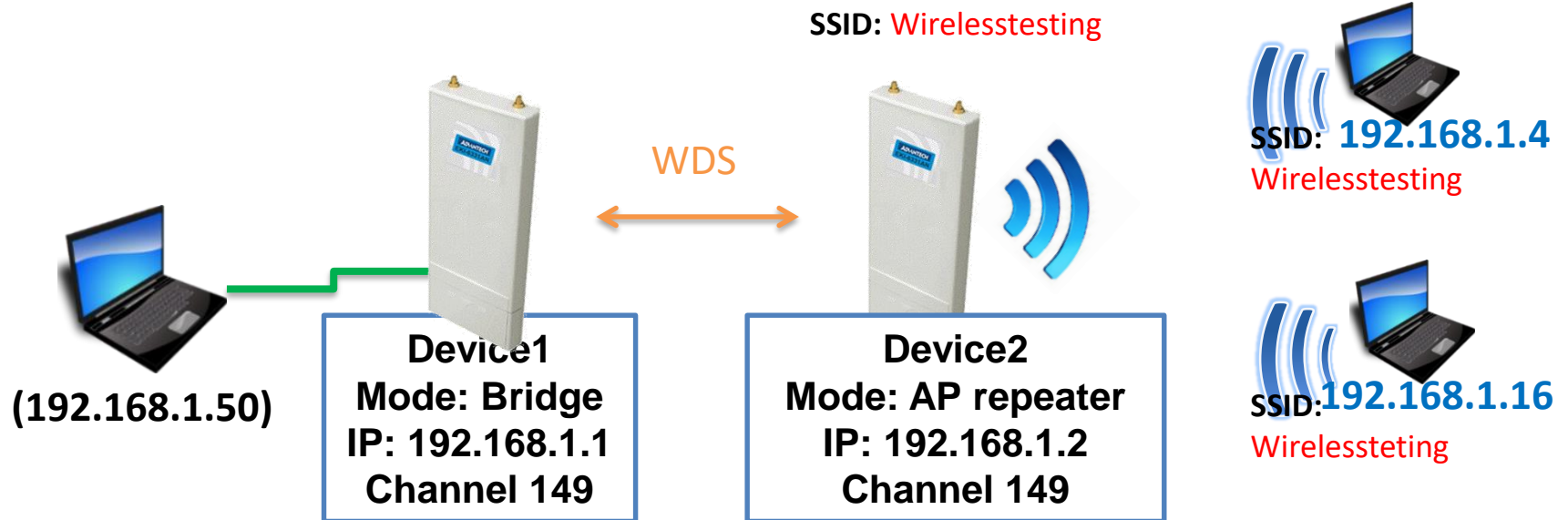
### Association List

This table shows the MAC Address,802.11 Mode,Signal Strength and Connected Time for each associated device(s).

#	MAC Address	802.11 Mode	Signal Strength	Connected Time
1	00:19:70:c1:3d:ec	802.11A/N	-32 dBm	2m:25s

# Advanced: Bridge – AP Repeater

- Feasible to ping each other on each node



## WDS setting

Local MAC

00:19:70:c1:3d:ec

Remote AP MAC

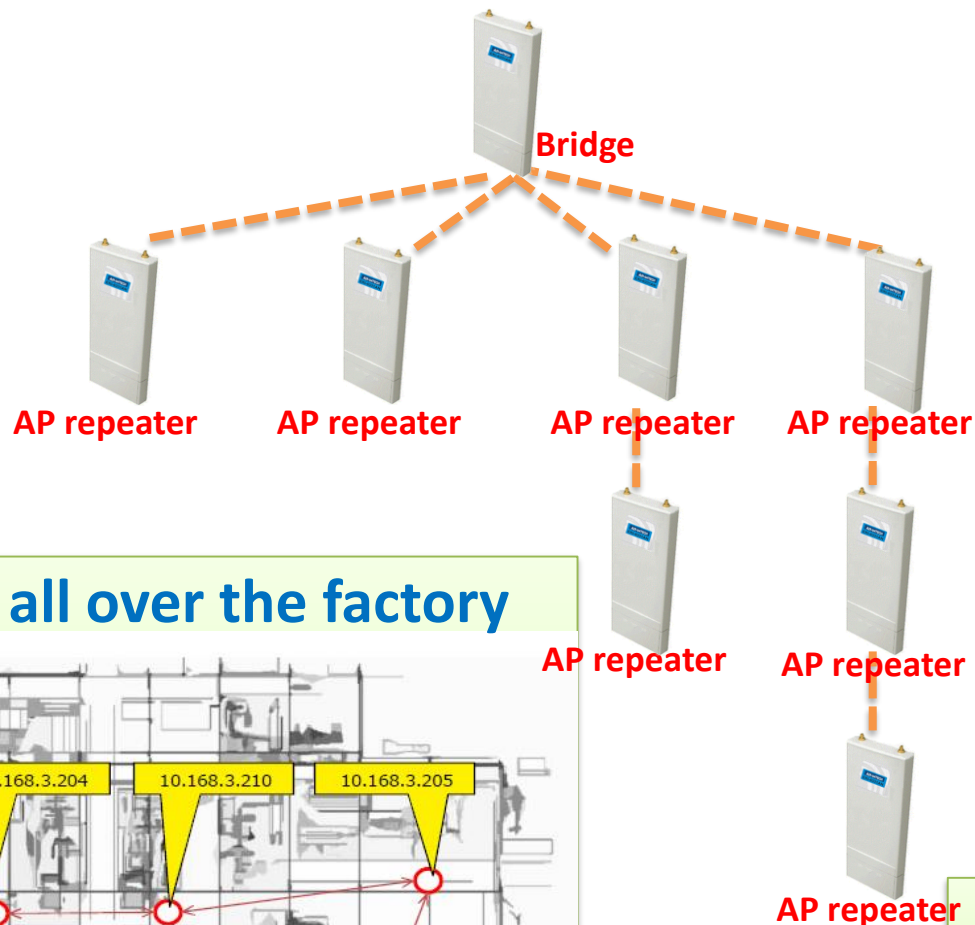
00:19:70:c1:3d:e7

00:19:70:c1:3d:e7

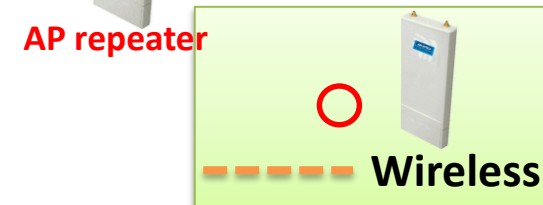
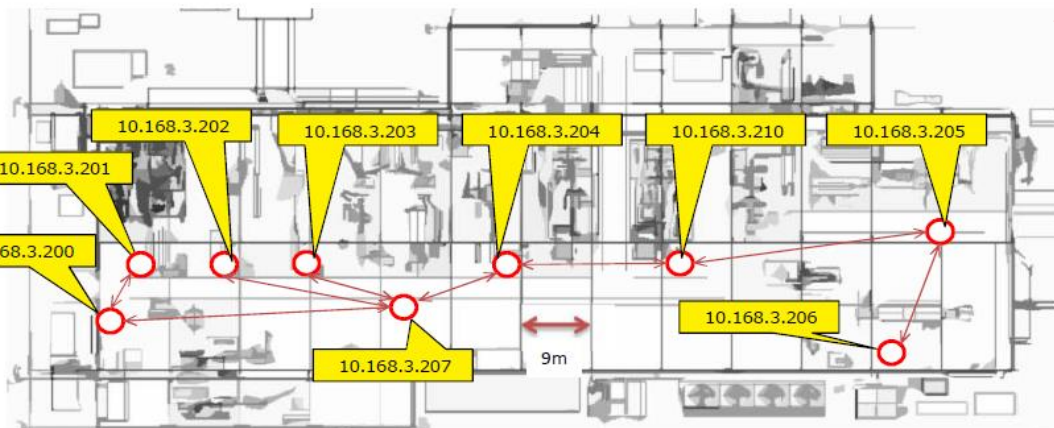
00:19:70:c1:3d:ec

# Case – Bridge & AP repeater mode

Connect to the network everywhere



Wireless network is all over the factory



# Device 1 – Bridge mode setting



Device 1\_ bridge mode (192.168.1.1)

Device 2\_AP repeater (192.168.1.2)

Status	System	Wireless	Management	Tools
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Basic Settings ✕

Security Settings

Advanced Settings

Traffic Shaping

Access Control

WDS Settings

## Basic Settings

Use this page to change the wireless mode as well as configure any associated wireless network parameters.

☐ Disable Wireless LAN Interface

Operation Mode: Bridge

802.11 Mode: 802.11A/N

Channel Mode: 20 MHz

Channel: 5745MHz (149)

Extension Channel: None

Data Rate: Auto

Antenna Gain: 0 dBi

Output Power: 23 dBm

1. Set to Bridge mode

2. Decide the 802.11 type/channel

# Device 1 – WDS setting

- Add the Device 2 MAC address in below WDS setting

**WDS Settings**

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Local MAC Address:	00:19:70:c1:3d:ec
WDS MAC Address 1:	00:19:70:c1:3d:e7
WDS MAC Address 2:	
WDS MAC Address 3:	
WDS MAC Address 4:	

**1. Fill the device 2 MAC in the blank and press “apply”**

**Apply** **Cancel**



# Device 2 – AP repeater mode setting



Device 1\_ bridge mode (192.168.1.1)



Device 2\_ AP repeater (192.168.1.2)

Status	System	Wireless	Management	Tools
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Basic Settings ✕

Security Settings

Advanced Settings

Traffic Shaping

Access Control

WDS Settings

☐ Disable Wireless LAN Interface

Operation Mode:

AP Repeater

SSID:

Wirelesstesting

Broadcast SSID:

☒ Enabled ☐ Disabled

802.11 Mode:

802.11A/N

Channel Mode:

20 MHz

Channel:

5745MHz (149)

Extension Channel:

None

Data Rate:

Auto

HT Protect:

☐ Enabled ☒ Disabled

Antenna Gain:

0

11

0

 dBi

Output Power:

12

23

23

 dBm

1. Set to AP repeater mode

2. Assign a SSID

3. Have the same wifi setting as same as device 1



# Device 2 – WDS setting

- Add the Device 1 MAC address in below WDS setting

**WDS Settings**

A Wireless Distribution System allows interconnection of access points in an IEEE 802.11 network. To do this, you must set all interconnected APs in the same channel, input the MAC addresses of the other APs which you want to communicate with in the table below and enable the WDS Separation function. This function will only work in Bridge and AP Repeater modes.

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WDS MAC Address 1:	00:19:70:c1:3d:e7
WDS MAC Address 2:	
WDS MAC Address 3:	
WDS MAC Address 4:	

**1. Fill the device 1 MAC in the blank and press “apply”**

**Apply** **Cancel**

# Reboot the device

- Reboot the device1 /device 2
  - Path: Management → configuration file → Reboot

The screenshot shows the Advantech device management web interface. The top navigation bar includes tabs for Status, System, Wireless, Management (selected), and Tools. On the left sidebar, the Configuration File option is highlighted with a red box. The main content area is titled 'Configuration File' and contains instructions: 'This page allows you to save current settings to a file or load the settings from the file which was saved previously. You may also reset the current configuration to factory default or reboot the device.' Below this, there are four sections: 'Save Settings to File:' with a 'Save...' button; 'Load Settings from File:' with a button labeled '選擇檔案' (Select File) and the text '未選擇任何檔案' (No file selected); 'Reset Settings to Default:' with a 'Reset' button; and 'Reboot The Device:' with a 'Reboot' button. The 'Reboot' button is highlighted with a red box. A yellow arrow points from a red callout box to the 'Reboot' button. The callout box contains the text: 'Reboot the device and wait for starting the WiFi service'. Below the interface, a yellow arrow points down to a message box that says: 'This device has been reboot, you have to login again. Please wait for 36 seconds before attempting to access the device again...'. The browser's address bar shows various bookmarks including Youtube, Google 地圖, Facebook, ICIBA, Advantech, AD employee, AD mail, Yahoo 奇摩, and Agile Product Lifec....

**Configuration File**

This page allows you to save current settings to a file or load the settings from the file which was saved previously. You may also reset the current configuration to factory default or reboot the device.

Save Settings to File:

Load Settings from File:  未選擇任何檔案

Reset Settings to Default:

Reboot The Device:

**Reboot the device and wait for starting the WiFi service**

This device has been reboot, you have to login again.  
Please wait for 36 seconds before attempting to access the device again...

# Check the Connection status

Device 1\_ bridge mode (192.168.1.1)

Device 2\_AP repeater (192.168.1.2)

## Device 1

Status

System

Wireless

Management

Tools

Information

Connections

Statistics

ARP Table

Bridge Table

### Association List

This table shows the MAC Address,802.11 Mode,Signal Strength and Connected Time for each associated device(s).

#	MAC Address	802.11 Mode	Signal Strength	Connected Time
1	00:19:70:c1:3d:e7	802.11A/N	-36 dBm	4s

## Device 2

Status

System

Wireless

Management

Tools

Information

Connections

Statistics

ARP Table

Bridge Table

### Association List

This table shows the MAC Address,802.11 Mode,Signal Strength and Connected Time for each associated device(s).

#	MAC Address	802.11 Mode	Signal Strength	Connected Time
1	00:19:70:c1:3d:ec	802.11A/N	-32 dBm	2m:25s



# Enabling an Intelligent Planet