

# Configure WDS on a WAP125 or WAP581 Access Point

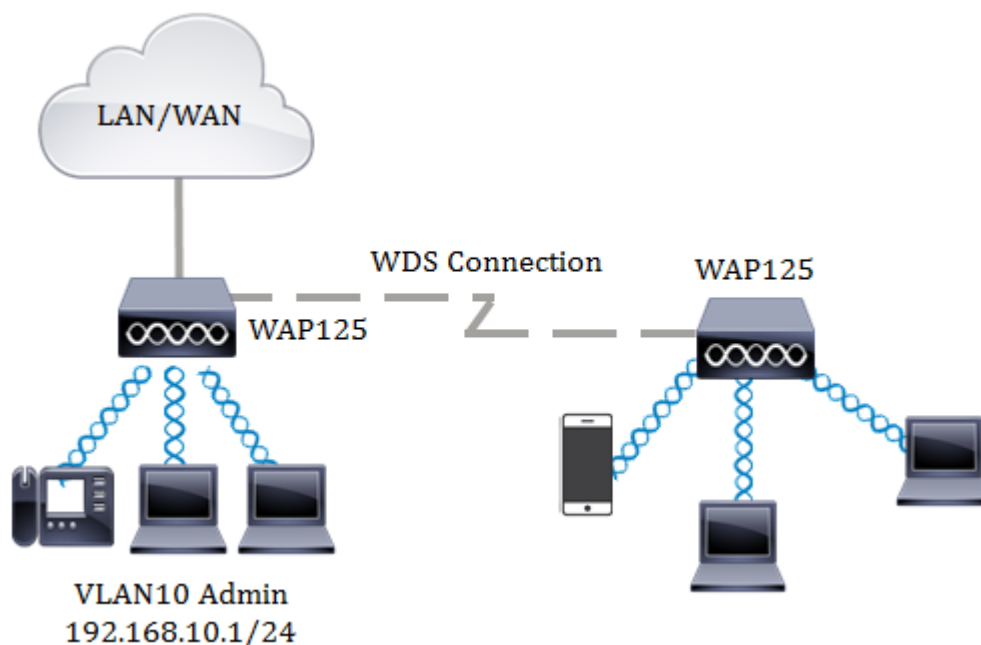
## Introduction

Wireless Distribution System (WDS) lets you connect multiple access points together of the same model wirelessly through a WDS bridge. Mobile users experience seamless connection when roaming within an establishment or infrastructure. WDS allows a user to stay connected to a network without logging in to an access point. This makes it easier to manage multiple wireless networks as well as reduce the amount of cables required to connect the networks.

A Wireless Access Point (WAP) can act as a single point-to-point mode access point, point-to-multipoint bridge, or as a repeater.

- Access Point Mode — A single WAP device accepts connections from clients and other devices in the network.
- Point-to-multipoint bridge mode — A single WAP behaves as a common link between many access points.
- Repeater — It can establish a connection between access points which are far apart from each other. Wireless clients can connect to this repeater.

In the example diagram below, a WDS connection is configured between two WAP125 access points.



## Guidelines in configuring WDS:

1. WDS works only with specific pairs of Cisco WAP devices.
2. You can have only one WDS link between any pair of these devices. That is, a remote Media Access Control (MAC) address may appear only once on the WDS page for a particular WAP.
3. The devices should have the same settings for radio, IEEE 802.11 mode, Channel

Bandwidth, and Channel.

4. Channel selection should be specified and not set to Auto.

**Note:** If you operate a bridge in the 802.11n 2.4GHz band, then set the Channel Bandwidth to 20MHz instead of the default 20/40 MHz. In the 2.4 GHz 20/40 MHz band, the operational bandwidth is to be changed from 40 MHz to 20 MHz in order to detect and 20 MHz WAPs. The mismatched channel bandwidth causes the disconnection of the links. A remote MAC address will appear only once on the WDS page for a WAP and due to this, you are allowed only one WDS link between any pair of WAPs.

## Objective

This article aims to explain how to configure a WDS bridge on your WAP and provide additional network security with Wi-Fi Protected Access (WPA) Personal.

## Applicable Devices

- WAP125
- WAP581

## Software Version

- 1.0.0.4 — WAP581
- 1.0.0.5 — WAP125

## Configure Wireless Distribution System

For two devices to communicate successfully with each other through WDS, they must be of the same model, have the same settings for radio, IEEE 802.11 mode, Channel Bandwidth, and Channel (auto not recommended). If you have other WAPs other than the WAP125 and WAP581, click [here](#) to learn how to connect multiple WAPs together through WDS.

Step 1. Log in to the web-based utility of your WAP. The default username and password is cisco/cisco.



## Wireless Access Point

A login form for a Cisco Wireless Access Point. The form is enclosed in a red rounded rectangle. It contains a text input field with "cisco" entered, a password input field with "\*\*\*\*\*" and a cursor, a language selection dropdown menu currently set to "English", and a blue "Login" button at the bottom.

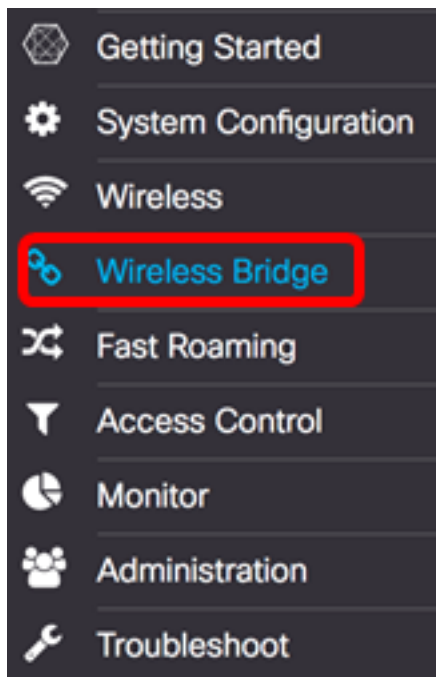
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**Note:** If you already have changed the password or created a new account, enter your new credentials instead.

Step 2. Choose **Wireless Bridge**.

**Note:** The available options may vary depending on the exact model of your device. In this example, WAP125 is used.



Step 3. In the Wireless Bridge Mode area, choose WDS.



Step 4. In the WDS Settings table, check the check box next to the WDS port you want to configure.

**Note:** For this example, WDS0 is used.



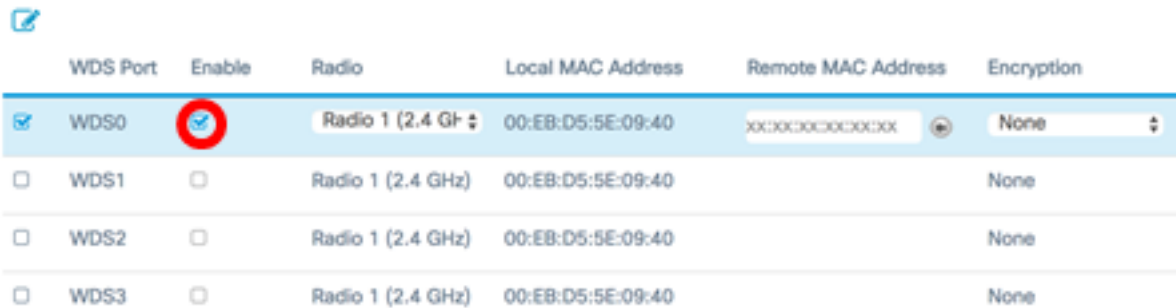
	WDS Port	Enable	Radio	Local MAC Address	Remote MAC Address	Encryption
<input checked="" type="checkbox"/>	WDS0	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None
<input type="checkbox"/>	WDS1	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None
<input type="checkbox"/>	WDS2	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None
<input type="checkbox"/>	WDS3	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None

Step 5. Click the **Edit** button to enable editing of the chosen WDS port or interface.



	WDS Port	Enable	Radio	Local MAC Address	Remote MAC Address	Encryption
<input checked="" type="checkbox"/>	WDS0	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None
<input type="checkbox"/>	WDS1	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None
<input type="checkbox"/>	WDS2	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None
<input type="checkbox"/>	WDS3	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None

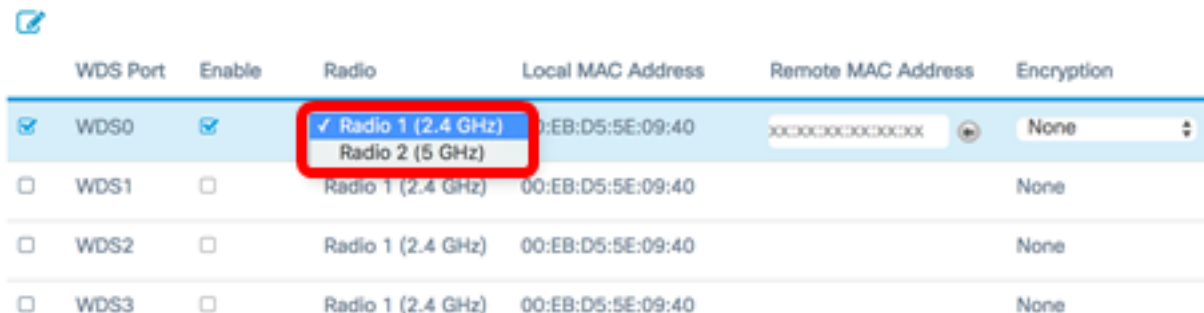
Step 6. Check the **Enable** check box to enable the WDS port.



WDS Port	Enable	Radio	Local MAC Address	Remote MAC Address	Encryption
<input checked="" type="checkbox"/> WDS0	<input checked="" type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40	XXXXXXXXXXXX	None
<input type="checkbox"/> WDS1	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None
<input type="checkbox"/> WDS2	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None
<input type="checkbox"/> WDS3	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None

Step 7. From the Radio drop-down list, choose the radio interface to apply the WDS settings.

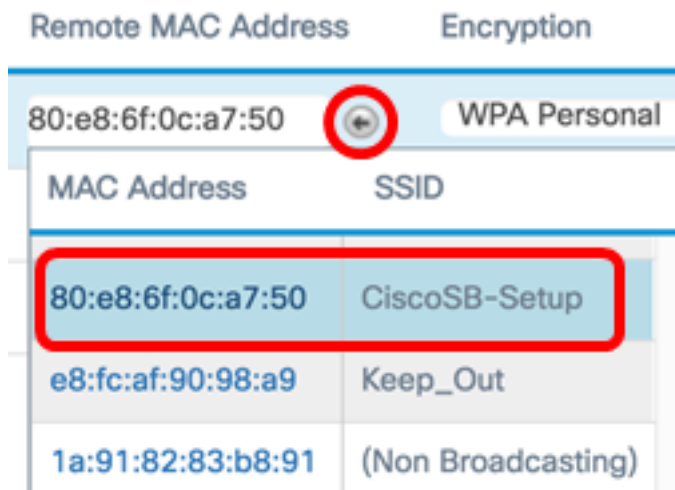
**Note:** For this example, the 2.4 GHz radio interface is chosen.



WDS Port	Enable	Radio	Local MAC Address	Remote MAC Address	Encryption
<input checked="" type="checkbox"/> WDS0	<input checked="" type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40	XXXXXXXXXXXX	None
<input type="checkbox"/> WDS1	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None
<input type="checkbox"/> WDS2	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None
<input type="checkbox"/> WDS3	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None

Step 8. In the *Remote MAC Address* field, enter the remote MAC address of the WDS interface you want to connect to or the device at the other end of the WDS bridge. You can also click the left arrow beside the field.

**Note:** In this example, the left arrow is clicked and CiscoSB-Setup network with MAC address 80:e8:6f:0c:a7:50 is used.



Remote MAC Address	Encryption
80:e8:6f:0c:a7:50	WPA Personal

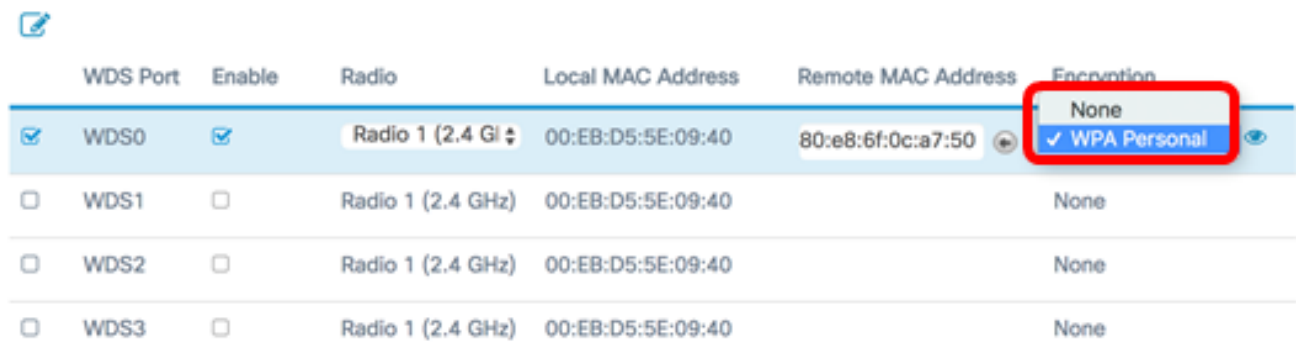
MAC Address	SSID
80:e8:6f:0c:a7:50	CiscoSB-Setup
e8:fc:af:90:98:a9	Keep_Out
1a:91:82:83:b8:91	(Non Broadcasting)

Step 9. From the Encryption drop-down list, choose a method to secure the WDS bridge.


The options are as follows:

- None — No encryption is used. Choose this if you are not concerned with security or have devices that do not support WPA. If you chose this, skip to [Step 14](#).
- WPA Personal — Each user on the network authenticates with a key granted from the password. WPA uses a pre-shared key to authenticate between two points.

## WDS Settings



	WDS Port	Enable	Radio	Local MAC Address	Remote MAC Address	Encryption
<input checked="" type="checkbox"/>	WDS0	<input checked="" type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40	80:e8:6f:0c:a7:50	<div style="border: 2px solid red; padding: 2px;">None ✓ WPA Personal</div>
<input type="checkbox"/>	WDS1	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None
<input type="checkbox"/>	WDS2	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None
<input type="checkbox"/>	WDS3	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None

Step 10. Click the  icon beside the encryption drop-down to configure the Security Settings for the WDS bridge.

Step 11. Enter the WDS ID for authentication of the WAP in the *WDS ID* field. This information should be the same in all the WAP devices that connect to a WDS. The required WDS ID length should be two to 32 characters.

**Note:** In this example, Wap125Disco is used.

### Security Setting

WDS ID: 

Key: 

OK

cancel

Step 12. Enter the authentication key for the WAP in the *Key* field. This information should be the same in all the WAP devices that connect to a WDS. The required key length should be eight to 63 characters.

**Note:** For this example, xXCisc0d1sc0Xx is used as the key.

### Security Setting

WDS ID: 

Key: 

OK

cancel

Step 13. Click **OK** to continue.


## Security Setting

WDS ID: 

Key: 


[Step 14](#). Click the **Save** button to save the configured settings.



### Wireless Bridge

Wireless Bridge Mode:   WDS  WorkGroup

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#### WDS Settings ^



	WDS Port	Enable	Radio	Local MAC Address	Remote MAC Address	Encryption
<input checked="" type="checkbox"/>	WDS0	<input checked="" type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40	80:e8:6f:0c:a7:50 	WPA Personal 
<input type="checkbox"/>	WDS1	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None
<input type="checkbox"/>	WDS2	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None
<input type="checkbox"/>	WDS3	<input type="checkbox"/>	Radio 1 (2.4 GHz)	00:EB:D5:5E:09:40		None

Step 15. A pop-up window will appear to inform you that the wireless settings are about to be updated and that you also may be disconnected. Click **OK** to continue.

## Confirm ×



Your wireless settings are about to be updated. You may be disconnected.

Step 16. Repeat all the steps above for the other WAPs you would like to connect to the WDS Bridge. A maximum of four WDS Interfaces can be added.

You should now have successfully configured WDS on your WAP125 or WAP581 access points.