# How to Configure NPort W2x50A/W2x50A-W4 to Connect to a Cisco 2100/2500/4400/5500/Flex 7500 Series Wireless LAN Controller

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### About Moxa

Moxa is a leading provider of edge connectivity, industrial computing, and network infrastructure solutions for enabling connectivity for the Industrial Internet of Things. With 35 years of industry experience, Moxa has connected more than 82 million devices worldwide and has a distribution and service network that reaches customers in more than 80 countries. Moxa delivers lasting business value by empowering industry with reliable networks and sincere service for industrial communications infrastructures. Information about Moxa's solutions is available at <a href="https://www.moxa.com">www.moxa.com</a>.

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# **1** Introduction

This application note describes the corresponding settings of connection authentications for Moxa's wireless NPort W2x50A/W2x50A-W4 Series and a Cisco 2100/2500/4400/ 5500/Flex 7500 Series Wireless LAN Controller.

# 2 Applicable Products

Product Line	Model Names
NPort W2x50A/W2x50A-W4	NPort W2150A, NPort W2250A, NPort W2150A-W4(-T),
Series	NPort W2250A-W4(-T)

# **3** System Requirements

Description	Model / File Name	S/W Ver.
Cisco WLC	WLC 2100/2500/4400/ 5500/Flex 7500 Series	7.0.235.0 or later
Cisco Lightweight AP	AIR-LAP1141N-A-K9 (Boot Version) (IOS Version) (Mini IOS Version)	12.4.23.3 12.4(23c)JA5 3.0.51.0
Moxa NPort W2x50A/ W2x50A-W4 Series	W2x50A, W2x50A-W4	FW Ver 1.7 or later

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## 4 System Overview

The test system architecture is below.



# **5** Basic Configuration of the Cisco Controller

## 5.1 Enable the WLAN Function

1. Log in to the controller's web GUI.



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2. Click the WLANs tab. Select "Create New" to create a new profile for the wireless connection and then click **Go**.

cisco	MCNITOR WLANS CONTROLLER WIRELESS SECURITY MANAGEMENT COMMANDS HELP FEEDBACK
WLANs	WLANS
WLANS	Current Filter: None [Change Filter] [Clear Filter] Create New  Cr
▶ Advanced	WLAN ID Type Profile Name WLAN SSID Admin Status Security Policies

3. Fill in the Profile Name and SSID and then click **Apply**.

	1.		Sa <u>v</u> e Configuration   <u>P</u> ing   Logout <u>R</u> efresh
WLANs	WLANs > New		< Back Apply
WLANs	Туре	WLAN •	
Advanced	Profile Name	test1	
	SSID	TS-TEST	
	ID	2 •	

 Checkmark the "Enabled" checkbox to the right of Status and then click **Apply** to complete the basic wireless settings. At this point, a wireless client should be able to find the AP using SSID TS-TEST.

սիսիս				Save Configuration Pir	ng   Logout   <u>R</u> efresh
WLANs	WLANs > Edit 'te	est1'		< Back	Apply
WLANs	General Secur	ity QoS	Advanced		
Advanced	Profile Name	test1			
	Туре	WLAN			
	SSID	TS-TEST			
	Status	Enabled			
	Security Policies	[WPA2][Auth( (Modifications do	(802.1X)] one under secur	ity tab will appear after applying the changes.)	)

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## 6 Moxa NPort W2x50A/W2x50A-W4 Configuration

## 6.1 Configuring the NPort W2x50A/W2x50A-W4 with the Configuration Wizard

 Connect the NPort W2x50A/W2x50A-W4 to an Ethernet network and then power it on. Use the NPort Search Utility or DSU Utility to locate the NPort W2x50A/W2x50A-W4, and then double click on the selected NPort W2x50A/W2x50A-W4 to enter the web console.

D NPo	rt Search U	Itility									23
<u> </u>	F <u>u</u> nction Vi	ew Help									
<u> </u>	L <b>1</b> it <u>S</u> e	arch Search	iP Lo	tate <u>C</u> on:	l sole /	Assign IP Un-L	<b>r</b> .ock Ug	<b>g</b> rade			
No /	Mi		LAN1 M	AC Address	LAN1	IP Address	LAN2 M/	AC Address	LAN2 IP Address	Status	
Sear	ching										×
					_						
	Searching fr	or NPort					_			• • •	
	Found 1 M	IPort(s), 9 se	cond(s)	eft.				Show IPv6 Ad	dress	Stop	- 1
	No	Model		LAN1 MAC A	Idress	LAN1 IP Addre	ss L	AN2 MAC Add	ress LAN2 IP A	ddress	
	1	NPort W2150	)A.	00:90:E8:41:0	E:00	192.168.126.2	54				
-											
	,										
	_		_		_		_				
Search	Result - 0 (	s)									//

- 2. Click "Wizard" and then take the following steps to configure the NPort W2x50A/W2x50A-W4's wireless connection.
  - a. Step 1: Enter the NPort W2x50A/W2x50A-W4's IP settings and then click **Next**.

	• Step 1/5	
- Main Menu		
Overview Wizard	WLAN IP Configuration	
Basic Settings	IP configuration	Static 👻
- Network Settings	IP address	192.168.35.111
- Serial Port Settings	Netmask	255 255 255 0
- System Management	Gataway	
- System Monitoring	Gateway	
- Restart		
goahead WEBSERVER Best viewed with IE 5 above at resolution 1024 x 768		Next

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b. Step 2: Enter the SSID for the WLAN setup. This should be the same SSID we configured in the Cisco Controller in Step 5.1.3. Click **Next** to continue.

	:• Step 2/5		
- Main Menu			
Overview			
Wizard	General Properties		
Basic Settings	Network type	Infrastructure Mode 👻	
- Network Settings	SSID	TS-TEST	
- Serial Port Settings			
- System Management			
- System Monitoring		Back Next	
- Restart			

c. Step 3: Choose the authentication and encryption options that match the Cisco Controller settings and then click **Next**.

	:• Step 3/5		
- Main Menu			
Overview			
Wizard	Security Properties		
Basic Settings	Authentication	Open System 👻	
- Network Settings	Encryption	Disable 🔻	
- Serial Port Settings			
- System Management			_
- System Monitoring		Back Next	
- Restart			

(Since we have not yet set up any authentication options in the Cisco Controller, we use Open System here to illustrate.)

d. Step 4: Choose an operation mode for the W2x50A/W2x50A-W4's serial ports and then click **Next**.

	• Step 4/5	
- Main Menu Overview	The settings will be applied to all seria	al ports.
Wizard Basic Settings - Network Settings - Serial Port Settings	Operation Mode Operation mode	Real COM •
- System Management - System Monitoring - Restart		Back Next

e. Step 5: Configure the parameters for the W2x50A/W2x50A-W4's serial ports and then click **Next**.

:•Step &	5/5						
The settings	s will be applied to all serial ports.						
Alias	Bard rate	Parity	Data bit	Stop bit	Flow control	FIFO	Interface
	115200 -	None 👻	8 -	1 -	RTS/CTS -	Enable -	RS-232 -

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3. The wizard will show the settings summary. Click **Submit** to continue.

	Your changes have not been saved. Pleas	e check that your settings in the following and click "Submit" for the updates to take effect or clic				
Main Menu	WLAN IP Configuration					
Overview	IP configuration	static				
Wizard	IP address	192.168.35.111				
Basic Settings	Netmask	255.255.255.0				
- Network Settings	General Properties					
- Serial Port Settings	Network type	Infrastructure Mode				
- System Management	SSID	TS-TEST				
- System Monitoring	Security Properties					
- Restart	Authentication	Onen System				
	Encryption	Disable				
WEB <b>SERVER</b>	Operation Mode					
Best viewed with IE 5 above at resolution 1024 x 768	Port 1					
	Operation mode	Real COM				
	Serial Parameters					
	Bard rate	115200				
	Parity	None				
	Data bit	8				
	Stop bit	1				
	Flow contro	RTS/CTS				
	FIFO	Enable				
	Interface	RS-232				
		Back Submit				

4. Restart the system to activate the settings. Click Restart > Restart System > Submit to perform the reboot. Disconnect the Ethernet cable before booting up to enable the wireless connection.

	System restart
- Main Menu Overview	III Warning III
Wizard	Clicking Restart will disconnect all serial and Ethernet connections and reboot
Basic Settings	NOTE: Unsaved configuration changes will be discarded, and data currently in the middle of
- Network Settings	
- Serial Port Settings	Submit
- System Management	
- System Monitoring	
- Restart Restart System Restart Ports	

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# 7 Configuring Detailed WLAN Security Settings

The following table shows how to map security settings between the Cisco WLC and Moxa W2x50A/W2x50A-W4 series. Match Moxa's Authentication with Cisco's Layer 2 security for basic settings. For more details, refer to the information in the first column of the table.

	Cisco WLC Settings	W2x50A/W2x50A-W4 Settings
7.1.1 Open System	General Security QoS Advanced	Security Properties
Cisco: None	Layer 2 Layer 3 AAA Servers	Profile name Infrastructure
W2x50A/W2x50A-W4:	Layer 2 Security 9 None	Authentication Open System -
Open System	<u>10</u> MAC Filtering	Encryption Disable -
7.1.2 Open System	General Security QoS Advanced	Security Properties
Cisco: Stiatic WEP	Layer 2 Layer 3 AAA Servers	Profile name Infrastructure
W2x50A/W2x50A-W4:	Laver 2 Security Static WEP	Authentication Open System -
Open System	<u>10</u> MAC Filtering	Encryption WEP -
7.2 WEP	General Security QoS Advanced	Security Properties
Cisco: Static WEP	Layer 2 Layer 3 AAA Servers	Profile name Infrastructure
W2x50A/W2x50A-W4:	Layer 2 Security Static WEP	Authentication Shared Key -
Shared Key-WEP	<u>10</u> MAC Filtering	Encryption WEP -
	General Security QoS Advanced	
7 3 WDA-DSK/WDA2-	Layer 2 Layer 3 AAA Servers	
PSK	Layer 2 Security <sup>g</sup> WPA+WPA2 -	Security Properties
Cisco: WPA+WPA2 & PSK	20MAC Filtering	Profile name Infrastructure
W2x50A/W2x50A-W4:	WPA+WPA2 Parameters	Authentication WPA-PSK -
WPA-PSK/WPA2-PSK	WPA Encryption V AES TKIP	Encryption AES-CCMP -
	WPA2 Policy	
	Auth Key Mgmt PSK -	
	General Security QoS Advanced	
7 4 WDA /WDA 2	Layer 2 Layer 3 AAA Servers	
Cisco: WPA+WPA2 &	Layer 2 Security 🖉 WPA+WPA2 🔻	Security Properties
802.1X	<u>10</u> MAC Filtering	Profile name Infrastructure
W2x50A/W2x50A-W4:	WPA+WPA2 Parameters	Authentication WPA2 -
WPA/WPA2	WPA Policy	Encryption TKIP -
····· , ··· · · ·		
	Auth Key Mgmt 802.1X	
<b>7.4 WPA/WPA2</b> Cisco: WPA+WPA2 & 802.1X W2x50A/W2x50A-W4: WPA/WPA2	Auth Key Mgmt     PSK       Auth Key Mgmt     PSK       General     Security     QoS     Advanced       Layer 2     Layer 3     AAA Servers       Layer 2     Layer 3     AAA Servers       Layer 2     Layer 3     AAA Servers       WPA+WPA2     •     •       WPA+WPA2 Parameters     •       WPA Policy     Ø       WPA2 Encryption     AES     TKIP       Auth Key Mgmt     802.1X     •	Security Properties         Profile name       Infrastructure         Authentication       WPA2 •         Encryption       TKIP •

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## 7.1 No Security: Open System

1. Enter the Cisco Controller's web GUI and click WLANs > (WLAN ID) > Security > Layer 2, select None for Layer 2 Security.

cisco	MONITOR	<u>W</u> LANs	<u>C</u> ONTROLLER	WIRELESS	<u>s</u> ecurit
WLANs	WLANs >	Edit 'T	S-TEST		
WLANs WLANs Advanced	General	Secur	rity QoS er 3 AAA S	Advanced	
	Laye	r 2 Securi	ty <u>6</u> None	: Filtering	2

 Enter the NPort W2x50A/W2x50A-W4's web console and choose Network Settings > WLAN Settings > Profile > Security; select Open System for Authentication and Disable for Encryption.

	WLAN Profile	Properties
- Main Menu	Security Properties	
Overview		
Wizard	Profile name	Infrastructure
Basic Settings	Authentication	Open System 👻
- Network Settings	Encryption	Disable -
General Settings		
Ethernet/Bridge Settings	E	Submit
- WLAN Settings		
WLAN		
Profile		
Advanced Settings		

3. Save all the settings and restart the NPort W2x50A/W2x50A-W4. Disconnect the Ethernet cable before booting up to enable the wireless connection. From the Cisco Controller, check that the NPort W2x50A/W2x50A-W4 has successfully established a connection with the Cisco AP.

cisco	MONITOR WLANS	CONTROLLER	WIRELESS	SECURITY	MANAGEMENT	COMMANDS	HELP	EEEDBACK			Sa <u>v</u> e	Configur	atior
Monitor	Clients												
Summary Access Points	Current Filter	None	[Change Fi	lter] [Clear Fi	iter]								
<ul> <li>Cisco CleanAir</li> <li>Statistics</li> <li>CDP</li> </ul>	Client MAC Addr 40:2c:f4:fd:80:70	AP Name APa493.4c81.d	Ъ3	WL tes	AN Profile t1	WLAN SSI TS-TEST	D	Protocol 802.11g	Status Associated	Auth Yes	Port 1	WGB No	
Roques Clients Multicast													

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## 7.2 Lowest Security: WEP

1. Enter the Cisco Controller's web GUI and click WLANs > (WLAN ID) > Security > Layer 2, and select Static WEP. Select Key Size, enter the Encryption Key, and checkmark Enabled to the right of Allow Shared Key Authentication.

cisco	MONITOR WLANS CONTROLLER WIRELESS SECURITY MANAGEMENT COMMANDS HELP FEEDBACK
WLANs	WLANs > Edit 'TS-TEST'
<ul> <li>WLANs</li> <li>WLANs</li> <li>Advanced</li> </ul>	General     Security     QoS     Advanced       Layer 2     Layer 3     AAA Servers
	Layer 2 Security <u>c</u> Static WEP <u>IUMAC Filtering</u>
	802.11 Data Encryption Current Key: None
	Type Key Size         Key Index         Encryption Key         Key Format           WEP         40 bits         1         12345         ASCII
	Allow Shared Key Authentication

#### (12345 is an example)

 Enter the NPort W2x50A/W2x50A-W4's web console, choose Network Settings > WLAN Settings > Profile > Security; select Shared Key for Authentication and WEP for Encryption.

	WLAN Profile	e Properties
Main Menu	Security Properties	
Overview		
Wizard	Profile name	Infrastructure
Basic Settings	Authentication	Shared Key -
Network Settings	Encryption	WEP -
General Settings	WEP key length	64-bits 👻
Ethernet/Bridge Settings	WEP key index	1 -
- WLAN Settings	WEP key source	Manual   Generate WEP keys by passphrase
WLAN	WEP key format	ASCII -
Profile Advanced Settings	WEP key 1	•••••
- Serial Port Settings	WEP key 2	
- System Management	WEP key 3	
- System Monitoring	WEP key 4	
- Restart		

**Note** Choose 64-bit length to match the 40-bit setting in the Cisco Controller.

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3. Save all the settings and restart the NPort W2x50A/W2x50A-W4. Disconnect the Ethernet cable before booting up to enable the wireless connection. From the Cisco Controller, check that the NPort W2x50A/W2x50A-W4 has successfully established a connection with the Cisco AP.

cisco	MONITOR WLANS	CONTROLLER	WIRELESS	SECURITY	MANAGEMENT	C <u>O</u> MMANDS	HELP	EEEDBACK			Sa <u>v</u> e	Configur	atior
Monitor	Clients												
Summary Access Points	Current Filter	None	[Change Fi	lter] [Clear Fi	lter]								
<ul> <li>Cisco CleanAir</li> <li>Statistics</li> <li>CDP</li> </ul>	Client MAC Addr 40:2c:f4:fd:80:70	AP Name APa493.4c81.d	Ъ3	WL tes	AN Profile t1	WLAN SSI	D	Protocol 802.11g	Status Associated	Auth Yes	Port 1	WGB No	
Roques Clients Multicast													

## 7.3 Higher Security: WPA-PSK/WPA2-PSK

1. Enter the Cisco Controller's web GUI, click WLANs > (WLAN ID) > Security > Layer 2, and select WPA+WPA2 for Layer 2 Security.

Four types of security can be configured:

Authentication Encryption	WPA	WPA2			
AES	WPA Policy Enable AES Enable	WPA2 Policy Enable AES Enable			
ТКІР	WPA Policy Enable TKIP Enable	WPA2 Policy Enable TKIP Enable			

The Cisco Controller can enable the above four types simultaneously, so if the wireless client supports any of the above and the key is correct, the wireless client can successfully establish a wireless connection. To enable any of the above, check the appropriate checkbox. In the screenshot below, we illustrate enabling Authentication with WPA and WPA2, and Encryption mode with AES.

Choose "PSK" for Auth Key Mgmt to use Pre-Shared Key security.

WLANs > Edit 'test1'	
General Security Q	20S Advanced
Layer 2 Layer 3	AAA Servers
Layer 2 Security <u>6</u>	PA+WPA2
WPA+WPA2 Parameters	
WPA Policy	✓
WPA Encryption	✓AES □TKIP
WPA2 Policy	
WPA2 Encryption	✓AES TKIP
Auth Key Mgmt	PSK T
PSK Format	ASCII V
	•••••

 For Moxa's NPort W2x50A/W2x50A-W4, we can only enable one of the above four types at a time. In this example, we select WPA-PSK for Authentication and AES-CCMP for Encryption.

Enter the NPort W2x50A/W2x50A-W4's web console, choose Network Settings > WLAN Settings > Profile > Security, and then select WPA-PSK for Authentication and AES-CCMP for Encryption.

	WLAN Profile Properties				
- Main Menu	Security Properties				
Overview					
Wizard	Profile name	Infrastructure			
Basic Settings	Authentication	WPA-PSK -			
- Network Settings	Encryption	AES-CCMP -			
General Settings	PSK passphrase	•••••			
Ethernet/Bridge Settings					
- WLAN Settings		Submit			
WLAN					
Profile					

3. Save all the settings and restart the NPort W2x50A/W2x50A-W4. Disconnect the Ethernet cable before booting up to enable the wireless connection. From the Cisco controller, check that the NPort W2x50A/W2x50A-W4 has successfully established a connection with the Cisco AP.

cisco	MONITOR	<u>w</u> lans	CONTROLLER	WIRELESS	SECURITY	MANAGEMENT	C <u>O</u> MMANDS	HELP	EEEDBACK			Sa <u>v</u> e	Configu	ration
Monitor	Clients													
Summary Access Points	Current Fil	ter	None	[Change Fi	ter] [Clear Fil	iter]								
Cisco CleanAir	Client MAG	C Addr	AP Name		WL	AN Profile	WLAN SSI	)	Protocol	Status	Auth	Port	WGB	
Statistics     CDP	40:2c:f4:fo	1:80:70	APa493.4c81.df	b3	test	:1	TS-TEST		802.11g	Associated	Yes	1	No	
Roques Clients Multicast														

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## 7.4 Highest Security: WPA/WPA2

- 1. Using a RADIUS server for the wireless client can provide greater security on the wireless network. We use a FreeRADIUS server under Linux to illustrate; the main settings are shown below.
  - a. Add Username and User-Password in the file "users".

#DEFAULT # #	Group == "disabled", Auth-T Reply-Message = "Your accou
moxa_admin	User-Password == "moxa123"

b. Add RADIUS server client(AP) & RADIUS key(secret) in the file "clients.conf".

.92.168.34.41 { secret = 1111111 shortname = cisco_ap	
---	--

c. Set the EAP method in file "EAP.conf".

# #default_eap_type = md5 #default_eap_type = tle	
<pre>default_eap_type = peap</pre>	
<pre>#default_eap_type = leap</pre>	

peap {	
<pre>private_key_password = subca1234 private_key_file = \${raddbdir}/sublection</pre>	bca/private/cakey.
<pre>certificate_file = \${raddbdir}/sub CA_file = \${raddbdir}/myca/demoCA/ dh_file = \${raddbdir}/certs/dh random_file = \${raddbdir}/certs/ra</pre>	bca/cacert.pem /cacert.pem andom
# The tunneled EAP session needs # EAP type which is separate from # the non-tunneled EAP module. I # PEAP tunnel, we recommend using # as that is the default type sup # Windows slients	a default m the one for Inside of the g MS-CHAPv2, pported by
<pre>default_eap_type = mschapv2</pre>	
#default_eap_type = md5	

 Enter the Cisco controller's web GUI, click WLANs > (WLAN ID) > Security tab > Layer 2, and select WPA+WPA2 for Layer 2 Security. A more detailed explanation is given in step 7.3.1.

Here we use WPA2 for Authentication and TKIP for Encryption as an example. Choose "802.1X" for Auth Key Mgmt to select an associate a RADIUS server with the wireless client.

WLANs > Ed	it 'test1'							
General	Security	QoS Advanced						
Layer 2	Layer 3	AAA Servers						
Layer 2	Layer 2 Security <u>6</u> WPA+WPA2							
WPA+WPA	2 Paramete	e <b>r</b> 5						
WPA Pol	icy							
WPA2 Po	olicy							
WPA2 Er	ncryption	🗆 AES 🕑 TKIP						
Auth Key	/ Mgmt	802.1X •						

- 3. Add RADIUS Server in the Cisco controller.
  - a. Click SECURITY > RADIUS > Authentication, and then click New...



b. Create a new RADIUS Authentication Server. Enter the RADIUS server's IP Address and RADIUS key (the same key used in step 7.4.1.b; we use 1111111 to illustrate).

RADIUS Authentication Servers > New								
Server Index (Priority) Server IP Address Shared Secret Format Shared Secret	1 V 192.168.35.96 ASCII V							
Confirm Shared Secret								
Key Wrap	(Designed for FIPS customers and requires a key wrap compliant RADIUS server)							
Port Number	1812							
Server Status	Enabled 🔻							
Support for RFC 3576	Enabled 🔻							
Server Timeout	2 seconds							
Network User	Enable							
Management	Enable							
IPSec	Enable							

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4. Go to WLANs > (WLAN ID) > Security tab > AAA Servers and select which RADIUS server should be used for this WLAN profile.

cisco	<u>M</u> ONITOR <u>W</u> LANs	<u>C</u> ONTROLLER	WIRELESS	<u>S</u> ECURITY	M <u>A</u> NAGEMENT	C <u>O</u> MMANDS
WLANs	WLANs > Edit 'T	S-TEST				
WLANs	General Secur	ity QoS	Advanced			
Advanced	Layer 2 Lay	er 3 🔰 AAA Se	rvers			
	Select AAA server Radius Servers Radius Server Server 1 Server 2 Server 3 Local EAP Authe Local EAP Authe	overwrite interf	Authenti C Enable Authenti Enable 1P:192: nabled	lefault serve ed 168.35.96, P	ers Acco prt:1812	N ounting Server Enabled ne ▼ ne ▼ ne ▼

5. Enter the NPort W2x50A/W2x50A-W4's web console, choose Network Settings > WLAN Settings > Profile > Security, and select WPA2 for Authentication and TKIP for Encryption (the same settings as step 7.4.2 for the Cisco Controller). Next, configure EAP method as PEAP and Tunneled authentication as MSCHAPV2 (the same settings as step 7.4.1.3 for the RADIUS server). Finally, input the Username moxa\_admin and password moxa123 (the same settings as step 7.4.1.a for the RADIUS server).

•WLAN Profile Properties								
Security Properties								
Profile name	Infrastructure							
Authentication	WPA2 -							
Encryption	TKIP 🗸							
EAP method	PEAP 👻							
Tunneled authentication	MSCHAPV2 -							
Username	moxa_admin							
Password	•••••							
Verify server certificate	Disable 👻							
Trusted server certificate	Not Installed							

6. We also need to add the RADIUS server to the NPort W2x50A/W2x50A-W4. Choose System Management > Misc. Network Settings > Authentication Server and add relative information, and then configure IP address, RADIUS key (also called secret key, which is configured in step 7.4.1.b), and UDP port (default = 1812).

Ethernet/Bridge Settings	Authentication Server	r
- WLAN Settings		
WLAN	RADIUS	
Profile	DADING.	
Advanced Settings	RADIUS server	192.168.35.96
- Serial Port Settings	RADIUS key	•••••
- System Management	UDP port	1812 -
- Misc. Network Settings	RADIUS accounting	Disable 👻
Accessible IP List		
SNMP Agent		Submit
User Table		
Authentication Server		

 Save all the settings and restart the NPort W2x50A/W2x50A-W4. Disconnect the Ethernet cable before booting up to enable the wireless connection. From the Cisco Controller, check that the NPort W2x50A/W2x50A-W4 has successfully established a connection with the Cisco AP.

ululu cisco	MONITOR WLANs	<u>C</u> ontroller	WIRELESS	<u>s</u> ecurity	M <u>A</u> NAGEMENT	C <u>o</u> mmands	HELP	<u>F</u> EEDBACK			Sa <u>v</u> e	Configu	iratior
Monitor	Clients												
Summary Access Points	Current Filter	None	[Change F	ilter] [Clear F	<u>ilter]</u>								
<ul> <li>Cisco CleanAir</li> <li>Statistics</li> <li>CDP</li> </ul>	Client MAC Addr 40:2c:f4:fd:80:70	AP Name APa493.4c81.d	fb3	WI tes	AN Profile t1	WLAN SSI TS-TEST	D	Protocol 802.11g	Status Associated	Auth Yes	Port 1	WGB No	
<ul> <li>Roques</li> <li>Clients</li> <li>Multicast</li> </ul>													