



Create a Virtual LAN for Guest Users

Home > [SMB Support Assistant Configuration Overview](#) > Create a Virtual LAN for Guest Users

Create a Virtual LAN for Guest Users

[Introduction](#)

[Requirements](#)

[VLAN Overview](#)

[Supported VLANs](#)

[The Guest VLAN](#)

[Configure the Router](#)

[Enable the VLAN on the Router](#)

[Enable DHCP](#)

[Enable Security](#)

[Configure the Switch](#)

[Enable Guest VLAN on the Root Switch](#)

[Enable the Guest VLAN on a Non-Root Switch](#)

[Enable Wireless Access](#)

[Configure Wireless Access Point](#)

[Add Users](#)

[Add a Wired Guest User](#)

[Add a Wireless Guest User](#)

[Next Step](#)

[Troubleshoot the Procedure](#)

[Related Information](#)

Introduction

This document provides instructions for how to create a virtual LAN (VLAN) for guest users on your network. A Guest VLAN gives guest users access to the Internet and separates them from the rest of the network. If you have a wireless network, you can also provide wireless access to the Guest VLAN.

Note: VLANs are not supported on Cisco 800 series and SB 100 series routers.

Service Requests

[Open a service request](#)

[Update a service request](#)

Feedback

Please rate this site:

++ + +/- - --

Suggestions for improvement:

Download PDF



[Create a Virtual
LAN for Guest
Users](#)

If Cisco may contact you for more details or for future feedback opportunities, please enter your contact information:

Full
Name:

Email:

[Back to Top](#)

Requirements

- You must have completed these worksheets from the [Site Survey](#):
 - LAN Addressing Worksheet
 - Internet Worksheet
 - Firewall Worksheet
- You must have completed the initial configuration of your router, switch, and access point. If you have not configured these devices, refer to the [Site Survey](#).

[Back to Top](#)

VLAN Overview

This section provides an overview of the Guest VLAN and how to use VLANs in your network.

Supported VLANs

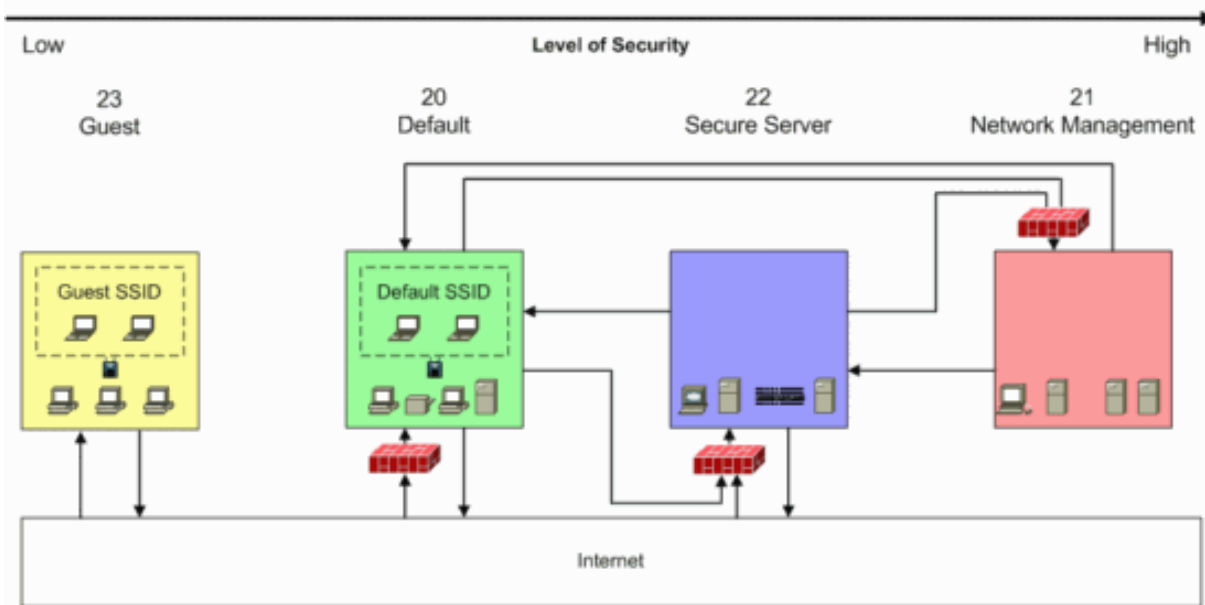
The Site IP Addressing Plan includes subnets for up to four virtual LANs (VLANs) at each site. Each VLAN has a custom level of security for a specific type of computer on the network, and uses firewalls to control access between VLANs.

The site survey defines these VLANs:

1. Default VLAN (20)
2. Network Management VLAN (21)
3. Secure Server VLAN (22)
4. Guest VLAN (23)

The diagram gives an overview of each VLAN in the network. For more information on other VLANs, refer to the [Configuration Overview](#) page.

VLAN Security



The Guest VLAN

A Guest VLAN gives guest users access to the Internet and separates them from the rest of the network.

The Guest VLAN provides these benefits:

- Guest users can send traffic to the Internet and receive valid responses
- Guest users cannot communicate with other VLANs in the network
- Guest users can only use up to 256k bandwidth of the Internet connection
- If you have a wireless access point or a wireless router, you can allow users to access the Guest VLAN with a wireless connection.

[Back to Top](#)

Configure the Router

Follow these steps to configure the Guest VLAN on the router:

Enable the VLAN on the Router

To enable the Guest VLAN on the router, follow these steps:

1. Follow these steps to create connect to the router with Telnet.
 - a. Click **Start > Run**.
 - b. In the Run dialog box, type **cmd** or **command**, and then click **OK** to open a command prompt window.
 - c. At the command prompt, type **telnet *router-ip-address*** and press **Enter**. For ***router-ip-address***, use the Router IP address that you entered in field L6A of the LAN Addressing Worksheet.
 - d. Log into the router with the router password that you entered in field B11 of the Router Worksheet.
2. Type **enable** and press **Enter** to enter privileged mode. Enter the enable password that you entered in field B12 of the Router Worksheet and press **Enter**.

```
Router>enable
Password:
Router#
```

3. Type **configure terminal** and press **Enter** to enter configuration mode.

```
Router# configure terminal
Router(config)#
```

4. Type **interface *ethernet-interface-name.23*** and press **Enter**. For ***ethernet-interface-name***, use the name of the first Ethernet interface that you entered in field B35 of the Router worksheet.

```
Router(config)#interface FastEthernet0/0.23
```

5. Type **description 256kbps Guest network** and press **Enter**.

```
Router(config-if)#description 256kbps Guest network
```

6. Type **encapsulation dot1Q 23** and press **Enter**.

```
Router(config-if)#encapsulation dot1Q 23
```

7. Type **ip address *router-ip-address* 255.255.255.0** and press **Enter**. For ***router-ip-address***, use the Guest network router IP address that you entered in field L6D of the Guest VLAN Addressing Worksheet.

```
Router(config-subif)#ip address 192.168.13.1 255.255.255.0
```

- Type **rate-limit output 256000 4000 8000 conform-action transmit exceed-action drop** and press **Enter**.

```
Router(config-subif)#rate-limit output 256000 4000 8000 conform-action  
transmit exceed-action drop
```

- Type **rate-limit input 256000 4000 8000 conform-action transmit exceed-action drop** and press **Enter**.

```
Router(config-subif)#rate-limit input 256000 4000 8000 conform-action  
transmit exceed-action drop
```

- Type **ip nat inside** and press **Enter**.

```
Router(config-subif)#ip nat inside
```

- Type **no shutdown** and press **Enter**.

```
Router(config-subif)#no shutdown
```

Enable DHCP

To enable DHCP for the Guest network, follow these steps:

- Type **ip dhcp pool guest** and press **Enter**.

```
Router(config-subif)#ip dhcp pool guest
```

- Type **network *guest-network* 255.255.255.0** and press **Enter**. For ***guest-network***, enter the subnet for the guest network that you entered in field L1D of the Guest VLAN Addressing Worksheet.

```
Router(dhcp-config)#network 192.168.13.0 255.255.255.0
```

- Type **domain-name *yourdomain*** and press **Enter**. For ***yourdomain***, use the domain name that you entered in field B48 of the Internet Worksheet.

```
Router(dhcp-config)#domain-name abcompany.com
```

- Type **dns-server *dns-server-address*** and press **Enter**. For ***dns-server-address***, use the DNS server IP address that you entered in field L4 of the LAN Addressing Worksheet.

```
Router(dhcp-config)#dns-server 198.6.1.1
```

- Type **default-router *router-ip-address*** and press **Enter**. For ***router-ip-address***, use the router IP address

that you entered in field L6D of the the Guest VLAN Addressing Worksheet.

```
Router(dhcp-config)#default-router 192.168.13.1
```

6. Type **exit** and press **Enter**.

```
Router(dhcp-config)#exit  
Router(config)#
```

7. Type **ip dhcp excluded-address *dhcp-server end-static-range*** and press Enter. For ***dhcp server*** , use the DHCP Server for the Guest network that you entered in field L3D of the Guest LAN Addressing Worksheet. For ***end-static-range*** , use the first three the first three octets of the Guest network followed by .49.

```
Router(config)#ip dhcp excluded-address 192.168.13.1 192.168.13.49
```

8. Type **ip dhcp excluded-address *dhcp-end-range end-guest-range*** and press **Enter**. For ***dhcp-end-range*** use the DHCP End Range for the Guest network that you entered in field L51D of the Guest VLAN Addressing Worksheet. For ***end-guest-range*** , use the first three octets of the Guest network followed by .254.

```
Router(config)#ip dhcp excluded-address 192.168.13.250  
192.168.13.254
```

Enable Security

To enable security for the Guest network, follow these steps:

1. Type **access-list 23 permit *guest-subnet 0.0.0.255*** and press **Enter**. For ***guest-subnet*** , use the subnet that you entered in field L1D of the Guest VLAN Addressing Worksheet.

```
Router(config)#access-list 23 permit 192.168.13.0 0.0.0.255
```

2. Type **ip nat inside source list 23 interface *wan-interface* overload** and press **Enter**. For ***wan-interface*** , use the Internet interface that you entered in field B37 of the Router worksheet.

Note: If you have more than one available Internet interface, choose the Internet interface that will be your primary connection to the Internet.

```
Router(config)#ip nat inside source list 23 interface Ethernet0/1  
overload
```

3. Follow these steps to create firewall rules for the Guest VLAN:

- a. Type **no access-list 123** and press **Enter**.

```
Router(config)#no access-list 123
```

- b. Type **access-list 123 remark Traffic from Guest VLAN** and press **Enter**.

```
Router(config)#access-list 123 remark Traffic from Guest
VLAN
```

- c. Type **access-list 123 permit ip any host 255.255.255.255** and press **Enter**.

```
Router(config)#access-list 123 permit ip any host
255.255.255.255
```

- d. Type **access-list 123 permit udp any any eq bootps** and press **Enter**.

```
Router(config)#access-list 123 permit udp any any eq bootps
```

- e. Type **access-list 123 deny ip any 192.168.0.0 0.0.255.255** and press **Enter**.

```
Router(config)#access-list 123 deny ip any 192.168.0.0 0.0.255.255
```

- f. Type **access-list 123 permit ip *guest-subnet* 0.0.0.255 any** and press **Enter**. For *guest-subnet*, use the subnet that you entered in field L1D of the Guest LAN Addressing Worksheet.

```
Router(config)#access-list 123 permit ip 192.168.13.0 0.0.0.255 any
```

- g. Type **access-list 123 permit ip *guest-subnet* 0.0.0.255 any** and press **Enter**. For *guest-subnet*, use the subnet that you entered in field L1D of the LAN Addressing Worksheet.

```
Router(config)#access-list 123 permit ip 192.168.13.0 0.0.0.255
any
```

- Type **interface *ethernet-interface-name*.23** and press **Enter**. For *ethernet-interface-name*, use the name of the first Ethernet interface that you entered in field B35 of the Router worksheet.

```
Router(config)#interface FastEthernet0/0.23
Router(config-if)#
```

- Type **ip access-group 123 in** and press **Enter**.

```
Router(config-if)#ip access-group 123 in
```

- Type **end** and press **Enter** to exit configuration mode.

```
Router(config-if)#end  
Router#
```

- Type **write memory** and press **Enter** to save your configuration.

```
Router#write memory
```

- Type **exit** and press **Enter** to exit the Telnet session.

```
Router#exit
```

[Back to Top](#)

Configure the Switch

Follow these steps to modify your root switch to support the Guest VLAN:

Enable Guest VLAN on the Root Switch

If you have an external root switch, follow these steps to enable the Guest VLAN on the switch:

Note: This procedure assumes that your router is connected to port 2 of the root switch.

1. Follow these steps to create connect to the switch with Telnet.
 - a. Click **Start > Run**.
 - b. In the Run dialog box, type **cmd** or **command**, and then click **OK** to open a command prompt window.
 - c. At the command prompt, type **telnet switch-IP-address** and press **Enter**. For **switch-IP-address**, use the switch IP address that you entered in field L8 of the LAN Addressing Worksheet.
 - d. Log into the switch with the password you entered in field S5 of the Switch Port Assignments Worksheet.
2. Type **enable** and press **Enter**. Enter the enable password that you entered in field S5 of the Switch Port Assignments Worksheet and press **Enter**.

```
switch>enable  
switch#
```

3. Type **configure terminal** and press **Enter**.

```
switch#configure terminal  
switch(config)#
```

4. Type **vlan 23** and press **Enter**.

```
switch(config)#vlan 23
```

5. Type **state active** and press **Enter**.

```
switch(config-vlan)#state active
```

6. Type **name guest** and press **Enter**.

```
switch(config-vlan)#name guest
```

7. Type **interface FastEthernet0/2** and press **Enter**.

Note: For the Catalyst 4500, the slot number of the switch module determines the interface number. For example, if the first switch module is installed in slot 2 of the switch, the correct interface is FastEthernet2/2.

```
switch(config-vlan)#interface FastEthernet0/2  
switch(config-if)#
```

8. Type **description Internal router port** and press **Enter**.

```
switch(config-if)#description Internal router port
```

9. Type **switchport trunk allowed vlan add 23** and press **Enter**.

```
switch(config-if)#switchport trunk allowed vlan add  
23
```

10. Type **exit** and press **Enter**.

```
switch(config-if)#exit  
switch(config)#
```

11. Type **spanning-tree vlan 23 root primary** and press **Enter**.

```
switch(config)#spanning-tree vlan 23 root primary
```

12. Type **end** and press **Enter**.

```
switch(config-if)#end  
switch#
```

13. Type **write memory** and press **Enter**.

```
switch#write memory
```

14. Type **exit** and press **Enter**.

```
switch#exit
```

Enable the Guest VLAN on a Non-Root Switch

Follow these steps to enable the Guest VLAN on a non-root switch. Repeat these steps for each non-root switch in your network that uses the Guest VLAN.

Note: This procedure assumes that port 1 of the non-root switch is connected to the root switch.

1. Follow these steps to create connect to the switch with Telnet.
 - a. Click **Start > Run**.
 - b. In the Run dialog box, type **cmd** or **command**, and then click **OK** to open a command prompt window.
 - c. At the command prompt, type **telnet switch-IP-address** and press **Enter**. For **switch-IP-address**, use the switch IP address that you entered in field L9-L12 of the LAN Addressing Worksheet.
 - d. Log into the switch with the password you entered in field S64 of the Switch Port Assignments Worksheet.
2. Type **enable** and press **Enter**. Enter the enable password that you entered in field S64 of the Switch Port Assignments Worksheet and press **Enter**.

```
switch>enable  
switch#
```

3. Type **configure terminal** and press **Enter**.

```
switch#configure terminal
```

```
switch(config)#
```

4. Type **vlan 23** and press **Enter**.

```
switch(config)#vlan 23
```

5. Type **state active** and press **Enter**.

```
switch(config-vlan)#state active
```

6. Type **name guest** and press **Enter**.

```
switch(config-vlan)#name guest
```

7. Type **interface FastEthernet0/1** and press **Enter**.

Note: For the Catalyst 4500, the slot number of the switch module determines the interface number. For example, if the first switch module is installed in slot 2 of the switch, the correct interface is FastEthernet2/1.

```
switch(config-vlan)#interface FastEthernet0/1  
switch(config-if)#
```

8. Type **switchport trunk allowed vlan add 23** and press **Enter**.

```
switch(config-if)#switchport trunk allowed vlan add  
23
```

9. Type **exit** and press **Enter**.

```
switch(config-if)#exit  
switch(config)#
```

10. Type **spanning-tree vlan 23** and press **Enter**.

```
switch(config)#spanning-tree vlan 23
```

11. Type **end** and press **Enter**.

```
switch(config)#end  
switch#
```

12. Type **write memory** and press **Enter**.

```
switch#write memory
```

13. Type **exit** and press **Enter**.

```
switch#exit
```

Enable Wireless Access

To add a wireless access to the guest VLAN, you need to modify the settings of the switch port connected to the wireless AP. Follow these steps to modify your switch settings to support wireless guest access:

Note: You can use this procedure for the root switch or a non-root switch.

1. Follow these steps to create connect to the switch with Telnet.
 - a. Click **Start > Run**.
 - b. In the Run dialog box, type **cmd** or **command**, and then click **OK** to open a command prompt window.
 - c. At the command prompt, type **telnet switch-ip-address** and press **Enter**. For **switch-ip-address**, use the switch IP address that you entered in field L8-12 of the LAN Addressing Worksheet.
 - d. Log into the switch with the admin password that you entered in field S5 of the Switch Port Assignments worksheet.

```
User Access Verification
```

```
Username: admin
```

```
Password:
```

```
Switch#
```

- Type **configure terminal** and press **Enter**.

```
switch#configure terminal
```

```
switch(config)#
```

- Type **interface FastEthernetport-number** and press **Enter**. For **port-number**, use the switch port number that is attached to the AP, such as FastEthernet0/5.

Note: For the Catalyst 4500, the slot number of the switch module determines the interface number. For example, if the first switch module is installed in slot 2 of the switch, the correct interface is FastEthernet2/5.

```
switch(config)#interface FastEthernet0/5
```

```
switch(config-if)#
```

- Type **description Wireless AP** and press **Enter**.

```
switch(config-if)#description Wireless AP
```

- Type **switchport trunk allowed vlan 23** and press **Enter**.

```
switch(config-if)#switchport trunk allowed vlan 23
```

- Type **end** and press **Enter**.

```
switch(config-if)#end  
switch#
```

- Type **write memory** and press **Enter**.

```
switch#write memory
```

- Type **exit** and press **Enter**.

```
switch#exit
```

[Back to Top](#)

Configure Wireless Access Point

If you have a wireless access point, follow these steps to enable the Guest VLAN for wireless users:

Note: The wireless configuration does not provide user authentication. Any wireless computer within range of the Access Point can access the wireless Guest network.

1. Follow these steps to create connect to the AP with Telnet.
 - a. Click **Start > Run**.
 - b. In the Run dialog box, type **cmd** or **command**, and then click **OK** to open a command prompt window.
 - c. At the command prompt, type **telnet ap-ip-address** and press **Enter**. For **ap-ip-address**, use the AP IP address that you entered in field W10 of the Wireless Worksheet.

- d. Log into the AP with the password you entered in field S5 of the Wireless Worksheet.
2. Type **enable** and press **Enter**. Enter the enable password that you entered in field W15 of the Wireless Worksheet and press **Enter**.

```
ap>enable
ap#
```

3. Type **configure terminal** and press **Enter**.

```
ap#configure terminal
ap(config)#
```

4. Follow these steps to configure the first radio interface:

- a. Type **interface dot11Radio0** and press **Enter**.

```
ap(config)#interface dot11Radio0
ap(config-if)#
```

- b. Type **ssid guest** and press **Enter**.

```
ap(config-if)#ssid guest
```

- c. Type **guest-mode** and press **Enter**.

```
ap(config-if-ssid)#guest-mode
```

- d. Type **vlan 23** and press **Enter**.

```
ap(config-if-ssid)#vlan 23
```

- e. Type **authentication open** and press **Enter**.

```
ap(config-if-ssid)#authentication open
```

- f. Type **exit** and press **Enter**.

```
ap(config-if-ssid)#exit
ap(config-if)#
```

- g. Type **interface dot11Radio0.23** and press **Enter**.

```
ap(config-if)#interface dot11Radio0.23
```

- h. Type **encapsulation dot1Q 23** and press **Enter**.

```
ap(config-subif)#encapsulation dot1Q 23
```

- i. Type **no cdp enable** and press **Enter**.

```
ap(config-subif)#no cdp enable
```

- j. Type **bridge-group 23** and press **Enter**.

```
ap(config-subif)#bridge-group 23
```

- If you have an Aironet 1200 series AP with a 5 Ghz radio, follow these steps to configure the second radio interface:

Note: If your AP does not have a 5 Ghz radio, proceed to the next step.

- a. Type **interface dot11Radio1** and press **Enter**.

```
ap(config)#interface dot11Radio1  
ap(config-if)#
```

- b. Type **ssid guest** and press **Enter**.

```
ap(config-if)#ssid guest
```

- c. Type **guest-mode** and press **Enter**.

```
ap(config-if-ssid)#guest-mode
```

- d. Type **vlan 23** and press **Enter**.

```
ap(config-if-ssid)#vlan 23
```

- e. Type **authentication open** and press **Enter**.

```
ap(config-if-ssid)#authentication open
```

f. Type **exit** and press **Enter**.

```
ap(config-if-ssid)#exit  
ap(config-if)#
```

g. Type **interface dot11Radio1.23** and press **Enter**.

```
ap(config-if)#interface dot11Radio1.23
```

h. Type **encapsulation dot1Q 23** and press **Enter**.

```
ap(config-subif)#encapsulation dot1Q 23
```

i. Type **no cdp enable** and press **Enter**.

```
ap(config-subif)#no cdp enable
```

j. Type **bridge-group 23** and press **Enter**.

```
ap(config-subif)#bridge-group 23
```

- Type **interface FastEthernet0.23** and press **Enter**.

```
ap(config-subif)#interface FastEthernet0.23
```

- Type **encapsulation dot1Q 23** and press **Enter**.

```
ap(config-subif)#encapsulation dot1Q  
23
```

- Type **bridge-group 23** and press **Enter**.

```
ap(config-subif)#bridge-group 23
```

- Type **end** and press **Enter**.

```
ap(config-subif)#end  
ap#
```

- Type **write memory** and press **Enter**.

```
ap#write memory
```

- Type **exit** and press **Enter**.

```
ap#exit
```

[Back to Top](#)

Add Users

To move users from the Default VLAN to the Guest VLAN, follow these steps:

Add a Wired Guest User

Follow these steps to add a wired guest user:

1. Record the device name in the first available field from fields L8-L35 of the Guest VLAN Addressing Worksheet.
2. Ensure that the guest device is configured to receive an IP address automatically. For more information about how to configure an IP address on a PC, refer to [Configure an IP Address on Your PC](#).
3. Refer to [Move a LAN User Between Groups](#) and follow the instructions to move the user switch port to the Guest VLAN.

Add a Wireless Guest User

Follow these steps to add a wireless guest user:

1. Record the device name in the first available field from fields L8-L35 of the Guest VLAN Addressing Worksheet.
2. Ensure that the guest device is configured to receive an IP address automatically. For more information about how to configure an IP address on a PC, refer to [Configure an IP Address on Your PC](#).
3. To configure the wireless client with the appropriate security, refer to [Configure the Wireless Client Adapter](#). The Guest network uses the SSID "guest" with no encryption or authentication.

[Back to Top](#)

Next Step

You have now set up a Guest VLAN on your network.

To make further changes to your network, refer to the [Configuration Overview](#) page.

[Back to Top](#)

Troubleshoot the Procedure

This section provides information about common problems that you may encounter. If this information does not solve your problem, contact the [SMB Technical Assistance Center \(SMB TAC\)](#) for assistance.

Problem	Cause(s) and Suggested Solution(s)
I cannot connect to the router with Security Device Manager (SDM).	Refer to Configure Your Router with Security Device Manager .
I cannot connect to the switch with Cisco Network Assistant (CNA).	Refer to Configure the Catalyst Switch with Cisco Network Assistant .
I cannot open a Telnet connection to the wireless Access Point (AP).	In the Access Point configuration menu, go to Services > Telnet/SSH to enable Telnet. For more information about how to configure the AP, refer to Configure the Access Point .
I have a guest user that cannot connect to the network on the Guest VLAN	<ul style="list-style-type: none">• For a wired user, refer to Move a LAN User Between Groups to move the appropriate switch port to the Guest VLAN.• For a wireless user, refer to Configure the Wireless Client Adapter to move the user to the Guest VLAN.

[Back to Top](#)

Related Information

- [Site Survey](#)
- [Create a HyperTerminal Connection](#)
- [Configure Your Router with Security Device Manager](#)
- [Configure the Catalyst Switch with Cisco Network Assistant](#)
- [Configure the Access Point](#)
- [Move a LAN User Between Groups](#)
- [Configure the Wireless Client Adapter](#)