



Create a Secure Server VLAN

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Create a Secure Server VLAN

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Introduction

This document provides instructions for how to create a virtual LAN (VLAN) for Secure Server users on your network. A secure server VLAN gives secure server users protected access to the Internet and access to the default VLAN.

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

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Requirements

- You must have completed these worksheets from the [Site Survey](#):
 - LAN Addressing Worksheet
 - Internet Worksheet

Service Requests

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- o 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](#).

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VLAN Overview

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

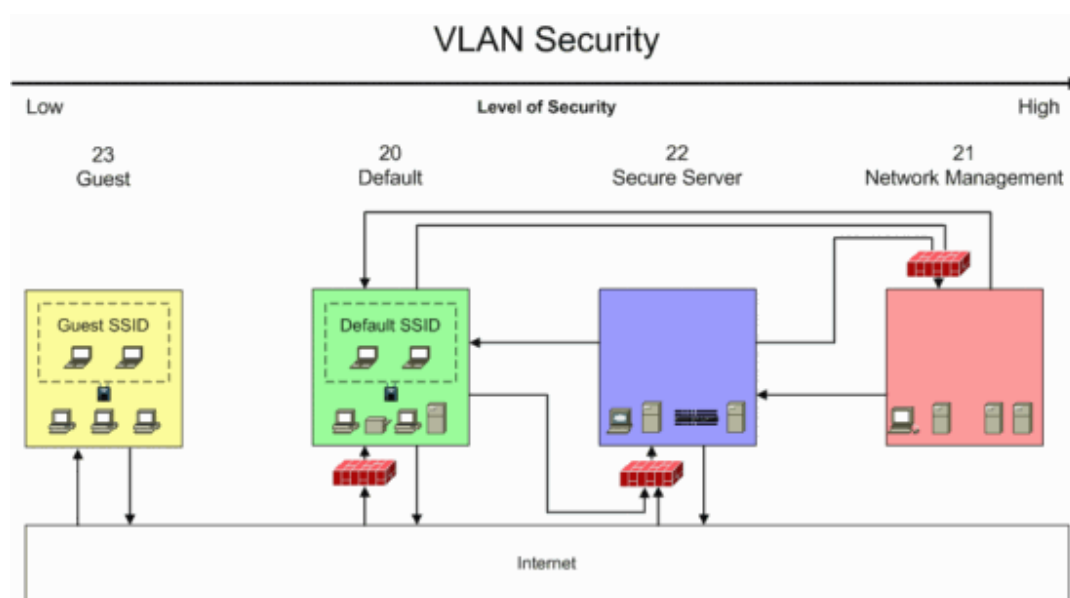
Supported VLANs

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.



The Secure Server VLAN

This document provides instructions for how to create a virtual LAN (VLAN) for Secure Server users on your network. A secure server VLAN gives secure server users protected access to the Internet and access to the default VLAN.

The Secure Server VLAN provides these benefits:

- Secure Server users can send traffic to the Internet and receive valid responses
- Secure Server users can send traffic to the Default VLAN and receive valid responses
- The Secure Server VLAN does not provide wireless access

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Configure the Router

Follow these steps to configure the Secure Server VLAN on the router:

Enable the VLAN on the Router

To enable the Secure Server 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.22** 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 FastEthernet0/0.22
```

5. Type **description Secure Server VLAN** and press **Enter**.

```
Router(config-if)#description Secure Server VLAN
```

6. Type **encapsulation dot1Q 22** and press **Enter**.

```
Router(config-subif)#encapsulation dot1Q 22
```

7. Type **ip address router-ip-address 255.255.255.0** and press **Enter**. For **router-ip-address**, use the Secure Server VLAN router IP address that you entered in field L6C of the Secure Server VLAN Addressing Worksheet.

```
Router(config-subif)#ip address 192.168.12.1 255.255.255.0
```

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

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

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

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

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

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

Enable Security

To enable security for the Secure Server network, follow these steps:

1. Type **access-list 22 permit secure-server-subnet 0.0.0.255** and press **Enter**. For **secure-server-subnet**, use the subnet that you entered in field L1C of the Secure Server VLAN Addressing Worksheet.

```
Router(config)#access-list 22 permit 192.168.12.0 0.0.0.255
```

2. Type **ip nat inside source list 22 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 22 interface Ethernet0/1
overload
```

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

- a. Type **no access-list 122** and press **Enter**.

```
Router(config)#no access-list 122
```

- b. Type **access-list 122 remark Traffic from Secure Server VLAN** and press **Enter**.

```
Router(config)#access-list 122 remark Traffic from Secure Server
VLAN
```

- c. Type **access-list 122 permit ip default-subnet 0.0.0.255 secure-server-subnet 0.0.0.255** and press **Enter**. For **default-subnet**, use the subnet you entered in field L1A of the LAN Addressing Worksheet. For **secure-server-subnet**, use the subnet that you entered in field L1C of the Secure Server VLAN Addressing Worksheet.

```
Router(config)#access-list 122 permit ip 192.168.10.0 0.0.0.255 192.168.12.0 0.0.0.255
```

- d. Type **access-list 122 permit ip management-subnet 0.0.0.255 secure-server-subnet 0.0.0.255** and press **Enter**. For **management-subnet**, use the subnet that you entered in field L1B of the Management VLAN Addressing Worksheet.

```
Router(config)#access-list 122 permit ip 192.168.11.0 0.0.0.255 192.168.12.0 0.0.0.255
```

- e. Type **access-list 122 permit tcp any secure-server-subnet 0.0.0.255 established** and press **Enter**. For **secure-server-subnet**, use the subnet that you entered in field L1C of the Secure Server VLAN Addressing Worksheet.

```
Router(config)#access-list 122 permit tcp any 192.168.12.0 0.0.0.255 established
```

- f. Type **access-list 122 permit udp any any eq domain** and press **Enter**.

```
Router(config)#access-list 122 permit udp any any eq domain
```

- g. Type **access-list 122 deny ip ip any** and press **Enter**.

```
Router(config)#access-list 122 deny ip ip any
```

- Type **interface ethernet-interface-name.22** 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 FastEthernet0/0.22
Router(config-if)#
```

- Type **ip access-group 122 out** and press **Enter**.

```
Router(config-if)#ip access-group 122 out
```

- 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
```

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Configure the Switch

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

Enable Secure Server VLAN on the Root Switch

If you have an external root switch, follow these steps to enable the Secure Server 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 22** and press **Enter**.

```
switch(config)#vlan 22
```

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

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

6. Type **name secure-server** and press **Enter**.

```
switch(config-vlan)#name secure-server
```

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 22** and press **Enter**.

```
switch(config-if)#switchport trunk allowed vlan add
22
```

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

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

11. Type **spanning-tree vlan 22 root primary** and press **Enter**.

```
switch(config)#spanning-tree vlan 22 root primary
```

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

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

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

```
switch#write memory
```

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

```
switch#exit
```

Enable the Secure Server VLAN on a Non-Root Switch

Follow these steps to enable the Secure Server VLAN on a non-root switch. Repeat these steps for each non-root switch in your network that uses the Secure Server 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 22** and press **Enter**.

```
switch(config)#vlan 22
```

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

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

6. Type **name secure-server** and press **Enter**.

```
switch(config-vlan)#name secure-server
```

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 22** and press **Enter**.

```
switch(config-if)#switchport trunk allowed vlan add  
22
```

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

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

10. Type **spanning-tree vlan 22** and press **Enter**.

```
switch(config)#spanning-tree vlan 22
```

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
```

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Add Users

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

Add a Wired Guest User

Follow these steps to add a wired user to the Secure Server VLAN:

1. Record the device name in the first available field from fields L8-L35 of the Secure Server VLAN Addressing Worksheet.
2. Configure the device with the IP address in the Secure Server VLAN Addressing Worksheet. For example, the first device in the Secure Server VLAN is configured with the IP address 192.168.12.2. 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 Secure Server VLAN.

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Next Step

You have now set up a Secure Server VLAN on your network.

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

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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 have a Secure Server user that cannot connect to the Secure Server VLAN.	Refer to Move a LAN User Between Groups to move the appropriate switch port to the Secure Server VLAN.

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Related Information

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

