

Binding IP and MAC addresses to core switches



Overview

IP MAC binding prevents clients from using IP addresses that are not associated with their MAC addresses.

Key Takeaways

IP-MAC binding can be configured on a core switch either statically or dynamically to ensure that each IP address is associated with a specific MAC address, enhancing network security and preventing spoofing.

Overview of IP-MAC Binding

IP-MAC binding is a network security feature that binds an IP address to a specific MAC address. When enabled, the switch or firewall checks incoming packets and allows only those that match the binding table. Packets with mismatched IP or MAC addresses are dropped, preventing unauthorized access or IP spoofing. This feature is particularly useful in environments with sensitive devices like IP phones or servers.

Methods to Configure IP-MAC Binding

1. Static Binding

- Manually assign IP-MAC pairs on the switch or DHCP server.
- Each entry is permanent and does not change unless manually updated.
- Steps (generalized for most switches):
- Access the switch CLI or management interface.
- Navigate to the IP-MAC binding configuration section.

- Enter the IP address and corresponding MAC address.
 - Apply the binding to the desired interface or VLAN.
 - Static binding is reliable but administratively intensive for large networks .
- ### 2. Dynamic Binding via DHCP
- Some switches or firewalls can learn IP-MAC pairs from DHCP leases.
 - The switch maintains a DHCP binding database, which includes the client MAC, leased IP, VLAN, and port number.
 - Dynamic binding allows automatic enforcement without manually entering each device, but it requires DHCP snooping or DHCP server integration .
 - Steps:
 - Enable DHCP snooping on the switch.
 - Configure the switch to record IP-MAC bindings from DHCP leases.
 - Optionally, enable enforcement to block clients not in the binding table.

3. Port-Based Binding

- Bind IP-MAC pairs to specific switch ports.
- Useful for IP phones or endpoint devices to ensure they only connect through designated ports.
- Steps:
 - Identify the port where the device connects.
 - Configure the port with the IP-MAC binding.
 - Enable enforcement to block mismatched devices .

Enforcement and Monitoring

- Default action: You can configure the switch to either permit or deny packets that do not match any binding entry.
- Violation logs: Enable logging to monitor blocked clients and detect unauthorized access attempts.
- Bulk import: For large networks, many switches allow importing a list of IP-MAC pairs to simplify configuration .

Best Practices

- Use static binding for critical devices (servers, IP phones) to ensure reliability.
- Use dynamic binding for general endpoints to reduce administrative overhead.
- Regularly audit the binding table to remove obsolete entries.

- Combine with DHCP snooping and ARP inspection for enhanced security. By following these methods, a core switch can effectively enforce IP-MAC binding, preventing unauthorized devices from accessing the network and maintaining consistent IP assignments .

Article Content

Configuring IP-MAC Address Binding

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MAC Binding for Industrial Switches: Thwart ARP spoofing via static ...

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I want to do IP+MAC binding on Cisco L3 3650 switch without DHCP server. Single IP with Single MAC so that no one

Support

With this feature globally enabled, the device compares the source IP address and source MAC address in packets with existing IP

How Do I Bind an IP address and a MAC Address to an Interface?

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Adding a static binding

To add the static configuration of an IP-to-MAC binding for a port to the database, enter the ip source-binding command at the global

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IP-MAC binding | FortiSwitch 7.4.3 | Fortinet Document Library

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Support

I S3610&S5510 Series Ethernet Switches differentiate binding through "MAC address + IP address + port". You can bind a MAC

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How to Enable IP Device Tracking in Cisco Switch • How to Enable IP Device Tracking in Cisco ... How To Make

MAC to IP Address Binding in cisco 3560 Switch

You will have to configure one DHCP pool for every mac-to-IP address binding. If I can advise you, at first assign IP

IP DHCP Mac Address Binding Configuration on Web GUI 9300

Hi all, I wanna configure ip dhcp binding client ip to mac address using web gui. We're using 9300 and DHCP server

Support

Configuring IP-MAC binding About IP-MAC binding The device prevents user spoofing attacks by using an IP-MAC binding table to

Bind a Static IP Address to a MAC Address

You will need a managed switch that allows you to assign MAC addresses to ports. This will prevent any device

Solved: MAC binding

Now for this I am looking for the command which can bind ip address and a mac address of a computer, eg. 50

How Do I Bind an IP address and a MAC Address to an Interface?

S2750, S5700, and S6700 V200R005 (C00, C01, C02, and C03) Configuration Guide - Security How Do I Bind an IP

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Solved: Binding of IP to MAC in a Vlan?

IP Port Security addresses the above mentioned issues by allowing IP address/Mac address bindings learned

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Adding an IP-to-MAC binding to the DHCP database

If your network does not use DHCP or if some network devices have fixed, user-configured IP addresses, you can enter static IP-to

Bind IP address to switch port without Learning the MAC address

I was told the IP Source guard would be an option, but that saves the MAC address on the port, and it would be

Solved: IP binding

Should I do this by binding the router leased IP addresses for these devices to their MAC address so I know their IP

How can i bind ip address to the respective mac address of a PC?

Dear all, How can i bind ip address to the respective mac address of a PC in a dhcp enabled network? wat are all the

Solved: Manual binding Mac to IP

Hi, client-identifier 08ed.b94d.8cfe this is not a valid client-identifier but a MAC address so the correct identifier is

IP-MAC binding | FortiSwitch 7.6.1 | Fortinet Document Library

The port accepts a packet only if the source IP address and source MAC address in the packet match an entry in the IP-MAC binding

Static MAC-to-IP Address Assignment in 3750X DHCP Server

I also tried using the hardware-address option instead of client-identifier while creating the static DHCP pools with the

IP-MAC binding | FortiSwitch 7.2.8 | Fortinet Document Library

The port accepts a packet only if the source IP address and source MAC address in the packet match an entry in the IP

IP and MAC binding for static ip address

Of course, first, we need to configure the IP-to-Mac binding on a DHCP server system, this will make sure that each

Cisco 2960 IP to MAC Binding

I just want to bind the one IP with MAC Address so that i could Allow the certain services in firewall against that IP. No

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