

# Mac Freeze

## Ethernet Switch

ZyNOS 3.7

## Support Notes

Version 3.70

August 2006



## MAC freeze

As an added protection against network intrusion attacks, ZyXEL has implemented the MAC Freeze feature in the ZyXEL management switch series. Security has been one of the focuses of our Ethernet switch design.

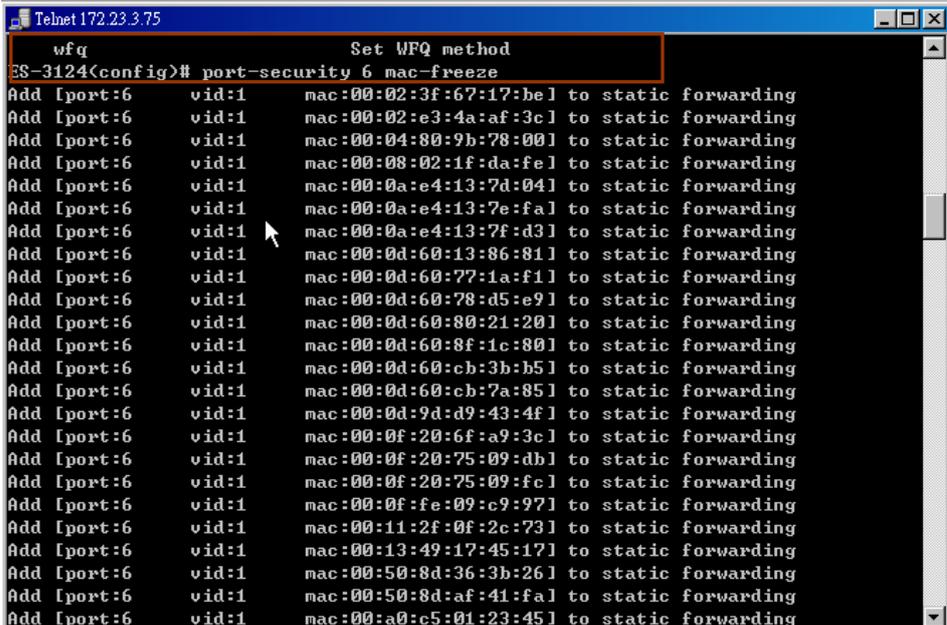
With the MAC freeze feature enabled, dynamic MAC addresses on specified ports are stored in the static MAC address table. At the same time, MAC address learning is disabled on these ports and thus denying network access for computers with unknown MAC addresses.

Without the MAC freeze function, any computer can access the network through a switch port. The port automatically learns the computer's MAC address and stores it to the MAC address table.

Activate the MAC freeze function on a port by entering the CLI command `port-security [port number] MAC-freeze` in the console or telnet.

The following figure shows an example with the MAC freeze feature is enabled on port 6. The switch automatically copies all dynamically learnt MAC address on port 6 to the static MAC address.

Figure 1: Example of enabled MAC Freeze



```
wfq                               Set WPQ method
ES-3124(config)# port-security 6 mac-freeze
Add [port:6 vid:1 mac:00:02:3f:67:17:be] to static forwarding
Add [port:6 vid:1 mac:00:02:e3:4a:af:3c] to static forwarding
Add [port:6 vid:1 mac:00:04:80:9b:78:00] to static forwarding
Add [port:6 vid:1 mac:00:08:02:1f:da:fe] to static forwarding
Add [port:6 vid:1 mac:00:0a:e4:13:7d:04] to static forwarding
Add [port:6 vid:1 mac:00:0a:e4:13:7e:fa] to static forwarding
Add [port:6 vid:1 mac:00:0a:e4:13:7f:d3] to static forwarding
Add [port:6 vid:1 mac:00:0d:60:13:86:81] to static forwarding
Add [port:6 vid:1 mac:00:0d:60:77:1a:f1] to static forwarding
Add [port:6 vid:1 mac:00:0d:60:78:d5:e9] to static forwarding
Add [port:6 vid:1 mac:00:0d:60:80:21:20] to static forwarding
Add [port:6 vid:1 mac:00:0d:60:8f:1c:80] to static forwarding
Add [port:6 vid:1 mac:00:0d:60:cb:3b:b5] to static forwarding
Add [port:6 vid:1 mac:00:0d:60:cb:7a:85] to static forwarding
Add [port:6 vid:1 mac:00:0d:9d:d9:43:4f] to static forwarding
Add [port:6 vid:1 mac:00:0f:20:6f:a9:3c] to static forwarding
Add [port:6 vid:1 mac:00:0f:20:75:09:db] to static forwarding
Add [port:6 vid:1 mac:00:0f:20:75:09:fc] to static forwarding
Add [port:6 vid:1 mac:00:0f:fe:09:c9:97] to static forwarding
Add [port:6 vid:1 mac:00:11:2f:0f:2c:73] to static forwarding
Add [port:6 vid:1 mac:00:13:49:17:45:17] to static forwarding
Add [port:6 vid:1 mac:00:50:8d:36:3b:26] to static forwarding
Add [port:6 vid:1 mac:00:50:8d:af:41:fa] to static forwarding
Add [port:6 vid:1 mac:00:a0:c5:01:23:45] to static forwarding
```

You can display the **Static MAC Address** screen in the web configurator to view the copied MAC addresses.

Figure 2: Displaying the MAC Addresses from the MAC Freeze

**Static MAC Forwarding**

Active

Name

MAC Address  :  :  :  :  :

VID

Port

Index	Active	Name	MAC Address	VID	Port	Delete
1	Yes	00:02:3f:67:17:be	00:02:3f:67:17:be	1	6	<input type="checkbox"/>
2	Yes	00:02:e3:4a:af:3c	00:02:e3:4a:af:3c	1	6	<input type="checkbox"/>
3	Yes	00:04:80:9b:78:00	00:04:80:9b:78:00	1	6	<input type="checkbox"/>
4	Yes	00:08:02:1f:da:fe	00:08:02:1f:da:fe	1	6	<input type="checkbox"/>
5	Yes	00:0a:e4:13:7d:04	00:0a:e4:13:7d:04	1	6	<input type="checkbox"/>
6	Yes	00:0a:e4:13:7e:fa	00:0a:e4:13:7e:fa	1	6	<input type="checkbox"/>
7	Yes	00:0a:e4:13:7f:d3	00:0a:e4:13:7f:d3	1	6	<input type="checkbox"/>
8	Yes	00:0d:60:13:86:81	00:0d:60:13:86:81	1	6	<input type="checkbox"/>

After you enabled MAC freeze on port 6 using the CLI command, the switch automatically disables MAC address learning on that port. Display the **Port Security** screen to verify this.

Figure 3: Example of disabled Automatic MAC Address Learning after activating the MAC Freeze feature

**Port Security**

Active

Port	Active	Address Learning	Limited Number of Learned MAC Address
*	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text"/>
1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>
3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>
4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>
5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>
6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="text" value="0"/>
7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>
8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>
9	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>
10	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>
11	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>
12	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>
13	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>
14	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>