

D-link Switch: DGS-3400 Firmware: R3 MIB File: V3

How to use NET-SNMP –IP_MAC Port Binding (DES-3400)

The Location of IP MAC Port Binding OID

The screenshot displays the D-Link MIB Compiler interface. The main window shows a list of MIB files with their corresponding Root IDs. The 'IP-MAC-BIND-MIB' file is highlighted with a red box, showing its Root ID as 1.3.6.1.4.1.171.12.23. To the right, the MIB Tree view shows the hierarchical structure of the MIB file, with the 'swlpMacBindMIB' node and its sub-nodes also highlighted with a red box.

MIB	Root ID
IGMPV3-MIB	1.3.6.1.4.1.171.12.18
IP-MAC-BIND-MIB	1.3.6.1.4.1.171.12.23
IPROUTE-STD-MIB	1.3.6.1.2.1.93
IPV6-STATIC-ROUTE-MIB	1.3.6.1.4.1.171.12.26
Mac-Based-Authentication-MIB	1.3.6.1.4.1.171.12.35
MSTP-MIB	1.3.6.1.4.1.171.12.15
OSPF-MIB	1.3.6.1.2.1.14
P-BRIDGE-MIB	1.3.6.1.2.1.17.6
PIM-MIB	1.3.6.1.3.6.1
PKT-STORM-CTRL-MIB	1.3.6.1.4.1.171.12.25
PoE-MIB	1.3.6.1.4.1.171.12.24
Q-BRIDGE-MIB	1.3.6.1.2.1.17.7
RADIUS-ACC-CLIENT-MIB	1.3.6.1.2.1.67.2.2
RADIUS-AUTH-CLIENT-MIB	1.3.6.1.2.1.67.1.2
RFC1155-SMI	0
RFC-1212	None
RFC1213-MIB	1.3.6.1.2.1.1
RFC-1215	None
RFC1215-MIB	None
RFC1271-MIB	1.3.6.1.2.1.16
RIP-MGMT-MIB	1.3.6.1.4.1.171.12.32
RIPv2-MIB	1.3.6.1.2.1.23
RMON-MIB	1.3.6.1.2.1.16
RSTP-MIB	1.3.6.1.2.1.17.11
SAFE GUARD-ENGINE-MIB	1.3.6.1.4.1.171.12.19
SINGLE-IP-MIB	1.3.6.1.4.1.171.12.8
SNMP-COMMUNITY-MIB	1.3.6.1.6.3.18

MIB Tree structure (highlighted):

- swlpMacBindMIB
 - swlpMacBindingCtrl
 - swlpMacBindingTrapLogState
 - swlpMacBindingACLMode
 - swlpMacBindingInfo
 - swlpMacBindingPortMgmt
 - swlpMacBindingAllPortState
 - swlpMacBindingPortTable
 - swlpMacBindingPortEntry
 - swlpMacBindingPortIndex
 - swlpMacBindingPortState
 - swlpMacBindingMgmt
 - swlpMacBindingTable
 - swlpMacBindingEntry
 - swlpMacBindingIpIndex
 - swlpMacBindingMac
 - swlpMacBindingStatus
 - swlpMacBindingPorts
 - swlpMacBindingAction
 - swlpMacBindingMode
 - swlpMacBindingBlockedTable
 - swlpMacBindingBlockedEntry
 - swlpMacBindingBlockedVID
 - swlpMacBindingBlockedMac
 - swlpMacBindingBlockedVlanName
 - swlpMacBindingBlockedPort
 - swlpMacBindingBlockedType
 - swlpMacBindingNotify

MIB File: IP-MAC-BIND-MIB

OID: 1.3.6.1.4.1.171.12.23

D-link Switch: DGS-3400 Firmware: R3 MIB File: V3

IP MAC Port Binding All Port State

:: Command ::

snmpset -v2c -c private 192.168.0.1 1.3.6.1.4.1.171.12.23.3.1.0 i 2

(Warning: Enable All Port State would cause the switch heavy loading)

Object name	swIpMacBindingAllPortState
Object ID	1.3.6.1.4.1.171.12.23.3.1
Module	IP-MAC-BIND-MIB
Base syntax	Integer
Composed syntax	INTEGER
Access	Read-Write
Status	Current
Value list	1 : other(1) 2 : enable(2) 3 : disable(3)
Parent node	swIpMacBindingPortMgmt
First child	None
Description	This object enable\disable the IP-MAC binding on the all ports of the system. This object is meaningful and take action only while write demand, and 'other(1)' will return while read this object.

IP MAC Port Trap Log State

:: Command ::

Enable Trap Log State

snmpset -v2c -c private 192.168.0.1 1.3.6.1.4.1.171.12.23.1.1.0 i 2

Disable Trap Log State

snmpset -v2c -c private 192.168.0.1 1.3.6.1.4.1.171.12.23.1.1.0 i 3

Object name	swIpMacBindingTrapLogState
Object ID	1.3.6.1.4.1.171.12.23.1.1
Module	IP-MAC-BIND-MIB
Base syntax	Integer
Composed syntax	INTEGER
Access	Read-Write
Status	Current
Value list	1 : other(1) 2 : enabled(2) 3 : disabled(3)
Parent node	swIpMacBindingCtrl
First child	None
Description	when enable(2),whenever there's a new MAC that violates the pre-defined Ip Mac Binding configuration, trap will be sent out and the relevant information will be logged in system.

D-link Switch: DGS-3400 Firmware: R3 MIB File: V3

IP MAC Port Binding ACL Mode

:: Command ::

Enable IP MAC ACL Mode

```
snmpset -v2c -c private 192.168.0.1 1.3.6.1.4.1.171.12.23.1.2.0 i 2
```

Disable IP MAC ACL Mode

```
snmpget -v2c -c private 192.168.0.1 1.3.6.1.4.1.171.12.23.1.2.0 i 3
```

Object name	swIpMacBindingACLMode
Object ID	1.3.6.1.4.1.171.12.23.1.2
Module	IP-MAC-BIND-MIB
Base syntax	Integer
Composed syntax	INTEGER
Access	Read-Write
Status	Current
Value list	1 : other(1) 2 : enabled(2) 3 : disabled(3)
Parent node	swIpMacBindingCtrl
First child	None
Description	when enable(2), Ip Mac Binding will use acl mode

IP MAC Port Binding Port State

Show IP MAC Port Binding Port Index

```
snmpwalk -v2c -c public 192.168.0.1 1.3.6.1.4.1.171.12.23.3.2.1.1
```

Object name	swIpMacBindingPortIndex
Object ID	1.3.6.1.4.1.171.12.23.3.2.1.1
Module	IP-MAC-BIND-MIB
Base syntax	Integer
Composed syntax	INTEGER
Access	Read-Only
Status	Current
Value list	1 : 0..65535
Parent node	swIpMacBindingPortEntry
First child	None
Description	This object indicates the module's port number, (1..Max port number in the module).

D-link Switch: DGS-3400 Firmware: R3 MIB File: V3

:: Command ::

Enable IP MAC Port Binding Port

snmpset -v2c -c private 192.168.0.1 1.3.6.1.4.1.171.12.23.3.2.1.2.10 i 2

Disable IP MAC Port Binding Port

snmpset -v2c -c private 192.168.0.1 1.3.6.1.4.1.171.12.23.3.2.1.2.10 i 3

10 → Port Number

Object name	swIpMacBindingPortState
Object ID	1.3.6.1.4.1.171.12.23.3.2.1.2
Module	IP-MAC-BIND-MIB
Base syntax	Integer
Composed syntax	INTEGER
Access	Read-Write
Status	Current
Value list	1 : other(1) 2 : enable(2) 3 : disable(3)
Parent node	swIpMacBindingPortEntry
First child	None
Description	This object enable\disable the IP-MAC binding on the specified port.

Show IP MAC Port Binding Port State

snmpwalk -v2c -c public 192.168.0.1 1.3.6.1.4.1.171.12.23.3.2.1.2

IP MAC Port Binding Entry

:: Command ::

Show IP MAC Port Binding IP Index

snmpwalk -v2c -c public 192.168.0.1 1.3.6.1.4.1.171.12.23.4.1.1.1

Object name	swIpMacBindingIpIndex
Object ID	1.3.6.1.4.1.171.12.23.4.1.1.1
Module	IP-MAC-BIND-MIB
Base syntax	IP Address
Composed syntax	IpAddress
Access	Read-Only
Status	Current
Parent node	swIpMacBindingEntry
First child	None
Description	The IP address of IP-MAC binding.

D-link Switch: DGS-3400 **Firmware:** R3 **MIB File:** V3

Show IP MAC Port Binding Mac

```
snmpwalk -v2c -c public 192.168.0.1 1.3.6.1.4.1.171.12.23.4.1.1.2
```

Object name	swIpMacBindingMac
Object ID	1.3.6.1.4.1.171.12.23.4.1.1.2
Module	IP-MAC-BIND-MIB
Base syntax	Octet String
Composed syntax	MacAddress
Access	Read-Create
Status	Current
Value list	1 : 6..6
Parent node	swIpMacBindingEntry
First child	None
Description	The MAC address of IP-MAC binding.

Show IP MAC Port Binding Status

```
snmpwalk -v2c -c public 192.168.0.1 1.3.6.1.4.1.171.12.23.4.1.1.3
```

Object name	swIpMacBindingStatus
Object ID	1.3.6.1.4.1.171.12.23.4.1.1.3
Module	IP-MAC-BIND-MIB
Base syntax	Integer
Composed syntax	RowStatus
Access	Read-Create
Status	Current
Value list	1 : active(1) 2 : notInService(2) 3 : notReady(3) 4 : createAndGo(4) 5 : createAndWait(5) 6 : destroy(6)
Parent node	swIpMacBindingEntry
First child	None
Description	The status of this entry.

D-link Switch: DGS-3400 **Firmware:** R3 **MIB File:** V3

Show IP MAC Port Binding Ports

```
snmpwalk -v2c -c public 192.168.0.1 1.3.6.1.4.1.171.12.23.4.1.1.4
```

Object name	swIpMacBindingPorts
Object ID	1.3.6.1.4.1.171.12.23.4.1.1.4
Module	IP-MAC-BIND-MIB
Base syntax	Octet String
Composed syntax	PortList
Access	Read-Create
Status	Current
Value list	1 : 0..127
Parent node	swIpMacBindingEntry
First child	None
Description	The port members of this entry.

Show IP MAC Port Binding Action

```
snmpwalk -v2c -c public 192.168.0.1 1.3.6.1.4.1.171.12.23.4.1.1.5
```

Object name	swIpMacBindingAction
Object ID	1.3.6.1.4.1.171.12.23.4.1.1.5
Module	IP-MAC-BIND-MIB
Base syntax	Integer
Composed syntax	INTEGER
Access	Read-Only
Status	Current
Value list	1 : inactive(1) 2 : active(2)
Parent node	swIpMacBindingEntry
First child	None
Description	The action of this entry.

D-link Switch: DGS-3400 **Firmware:** R3 **MIB File:** V3

Show IP MAC Port Binding Mode

snmpwalk -v2c -c public 192.168.0.1 1.3.6.1.4.1.171.12.23.4.1.1.6

Object name	swIpMacBindingMode
Object ID	1.3.6.1.4.1.171.12.23.4.1.1.6
Module	IP-MAC-BIND-MIB
Base syntax	Integer
Composed syntax	INTEGER
Access	Read-Create
Status	Current
Value list	1 : arp(1) 2 : acl(2)
Parent node	swIpMacBindingEntry
First child	None
Description	The mode of this entry.

Create a IP MAC Port Binding Rule

Step1. Create a IP Address Entry

snmpset -v2c -c private 192.168.0.1 1.3.6.1.4.1.171.12.23.4.1.1.3.192.168.0.100 i 4
192.168.0.100 → IP Address

IP Index	MAC	Status	Ports	Mode
192.168.0.100	000000000000	active	FFFFFFFF	ARP

Step2. Set up port 1 for the IP Address Entry

snmpset -v2c -c private 192.168.0.1 1.3.6.1.4.1.171.12.23.4.1.1.4.192.168.0.100 x 80000000
80000000 → Port 1
8 → 1000 (Binary) → 1000 1 = port1 000 = port2 – port 4

IP Index	MAC	Status	Ports	Mode
192.168.0.100	000000000000	active	80000000	ARP

Step3. Set up MAC Address (AA-BB-CC-DD-EE-FF) for the IP Address Entry

snmpset -v2c -c private 192.168.0.1 1.3.6.1.4.1.171.12.23.4.1.1.2.192.168.0.100 x
AABBCCDDEEFF

IP Index	MAC	Status	Ports	Mode
192.168.0.100	AABBCCDDEEFF	active	80000000	ARP

Step4. Set up IP MAC Port Binding Mode (ARP mode / ACL mode)

snmpset -v2c -c private 192.168.0.1 1.3.6.1.4.1.171.12.23.4.1.1.6.192.168.0.100 i 2
1 → ARP mode
2 → ACL mode

IP Index	MAC	Status	Ports	Mode
192.168.0.100	AABBCCDDEEFF	active	80000000	ACL

Step 5. Enable Bind Ports

snmpset -v2c -c private 192.168.0.1 1.3.6.1.4.1.171.12.23.3.2.1.2.1 i 2

D-link Switch: DGS-3400 Firmware: R3 MIB File: V3

Delete a IP MAC Port Binding Rule

Object name	swIpMacBindingBlockedTable
Object ID	1.3.6.1.4.1.171.12.23.4.2
Module	IP-MAC-BIND-MIB
Base syntax	Sequence Of swIpMacBindingBlockedEntry
Access	Not_Accessible
Status	Current
Sequence	1:swIpMacBindingBlockedVid - Integer 2:swIpMacBindingBlockedMac - Octet String 3:swIpMacBindingBlockedVlanName - Octet String 4:swIpMacBindingBlockedPort - Integer 5:swIpMacBindingBlockedType - Integer
Parent node	swIpMacBindingMgmt
First child	swIpMacBindingBlockedEntry
Description	The table specifies information of MAC address which was blocked.

We created two IP-MAC port binding records in the switch.

```
create address_binding ip_mac ipaddress 192.168.0.19 mac_address AA-BB-CC-DD-EE-FF  
ports 19 mode acl
```

```
create address_binding ip_mac ipaddress 192.168.0.20 mac_address AA-BB-CC-DD-EE-FF  
ports 20 mode acl
```

Delete Command:

```
snmpset -v2c -c private 192.168.0.1 1.3.6.1.4.1.171.12.23.4.1.1.3.192.168.0.20 i 6
```

```
snmpset -v2c -c private 192.168.0.1 1.3.6.1.4.1.171.12.23.4.1.1.3.192.168.0.19 i 6
```

D-link Switch: DGS-3400 Firmware: R3 MIB File: V3

IP MAC Binding BlockedVID

:: Command ::

Show IP MAC Binding Blocked VID

```
snmpwalk -v2c -c public 192.168.0.1 1.3.6.1.4.1.171.12.23.4.2.1.1
```

Object name	swIpMacBindingBlockedVID
Object ID	1.3.6.1.4.1.171.12.23.4.2.1.1
Module	IP-MAC-BIND-MIB
Base syntax	Integer
Composed syntax	VlanId
Access	Read-Only
Status	Current
Value list	1 : 1..4094
Parent node	swIpMacBindingBlockedEntry
First child	None
Description	The object specifies VLAN ID.

Show IP MAC Binding Blocked Mac

```
snmpwalk -v2c -c public 192.168.0.1 1.3.6.1.4.1.171.12.23.4.2.1.2
```

Object name	swIpMacBindingBlockedMac
Object ID	1.3.6.1.4.1.171.12.23.4.2.1.2
Module	IP-MAC-BIND-MIB
Base syntax	Octet String
Composed syntax	MacAddress
Access	Read-Only
Status	Current
Value list	1 : 6..6
Parent node	swIpMacBindingBlockedEntry
First child	None
Description	The MAC address which was blocked.

D-link Switch: DGS-3400 **Firmware:** R3 **MIB File:** V3

Show IP MAC Binding Blocked Vlan Name

snmpwalk -v2c -c public 192.168.0.1 1.3.6.1.4.1.171.12.23.4.2.1.3

Object name	swIpMacBindingBlockedVlanName
Object ID	1.3.6.1.4.1.171.12.23.4.2.1.3
Module	IP-MAC-BIND-MIB
Base syntax	Octet String
Composed syntax	DisplayString
Access	Read-Only
Status	Current
Parent node	swIpMacBindingBlockedEntry
First child	None
Description	This object specifies VLAN name.

Show IP MAC Binding Blocked Port

snmpwalk -v2c -c public 192.168.0.1 1.3.6.1.4.1.171.12.23.4.2.1.4

Object name	swIpMacBindingBlockedPort
Object ID	1.3.6.1.4.1.171.12.23.4.2.1.4
Module	IP-MAC-BIND-MIB
Base syntax	Integer
Composed syntax	INTEGER
Access	Read-Only
Status	Current
Value list	1 : 0..65535
Parent node	swIpMacBindingBlockedEntry
First child	None
Description	The port with which the MAC is associated.

D-link Switch: DGS-3400 Firmware: R3 MIB File: V3

Show IP MAC Binding Blocked Port

```
snmpwalk -v2c -c public 192.168.0.1 1.3.6.1.4.1.171.12.23.4.2.1.5
```

Object name	swIpMacBindingBlockedType
Object ID	1.3.6.1.4.1.171.12.23.4.2.1.5
Module	IP-MAC-BIND-MIB
Base syntax	Integer
Composed syntax	INTEGER
Access	Read-Write
Status	Current
Value list	1 : other(1) 2 : blockByAddrBind(2) 3 : delete(3)
Parent node	swIpMacBindingBlockedEntry
First child	None
Description	The value is always blockByAddrBind. This entry will be delete by setting value delete(3).

Change IP MAC Binding Blocked Type

Delete the Record

```
snmpset -v2c -c private 192.168.0.1 1.3.6.1.4.1.171.12.23.4.2.1.5.1.0.21.242.169.11.194 i 3  
0.21.242.169.11.194 → MAC Address 0015F2A90BC2
```

00 (Hex) → 0 (Decimal)

15 (Hex) → 21 (Decimal)

F2 (Hex) → 242 (Decimal)

A9 (Hex) → 169 (Decimal)

0B (Hex) → 11 (Decimal)

C2 (Hex) → 194 (Decimal)