

The Gratuitous ARP is used to enable/disable updating the ARP cache based on the received gratuitous ARP packets. If the switch receives a gratuitous ARP packet and the sender's IP address in its ARP table, it updates the ARP table.

For example, a network card had been changed recently(changing the IP address to MAC address mapping) and other hosts still had the old mapping in their ARP cache. Below is an example:

a.> Network topology

PC(10.90.90.200)---DGS34xx(10.90.90.100)

b.> Now, change the PC's IP from 10.90.90.200 to 10.90.90.100. The PC will send a **gratuitous_arp** to switch.

No. .	Time	Source	Destination	Protocol	Info
1	2009-04-27 17:48:31.803770	10.90.90.150	10.255.255.255	BROWSER	Domain/workgroup Announcement WORKGROUP.
2	2009-04-27 17:48:37.563412	KreateIC_34:56:78	Broadcast	ARP	Gratuitous ARP for 10.90.90.100 (Request)
3	2009-04-27 17:48:37.592840	10.90.90.100	224.0.0.22	IGMP	v3 Membership Report

Frame 2 (42 bytes on wire, 42 bytes captured)
 Ethernet II, Src: KreateIC_34:56:78 (00:02:9b:34:56:78), Dst: Broadcast (ff:ff:ff:ff:ff:ff)
 Destination: Broadcast (ff:ff:ff:ff:ff:ff)
 Source: KreateIC_34:56:78 (00:02:9b:34:56:78)
 Type: ARP (0x0806)
 Address Resolution Protocol (request/gratuitous ARP)

c.> The result of gratuitous_arp **Disable** or **Enable** would be following:

```
>config gratuitous_arp learning [enable|disable]
```

1. with **gratuitous_arp learning disable**, the APR table & IPFDB table will not change immediately even if the switch received the gratuitous_arp packet from PC.

```
DGS-3427:5#show arpentry
Command: show arpentry
ARP Aging Time : 20
```

Interface	IP Address	MAC Address	Type
System	10.0.0.0	FF-FF-FF-FF-FF-FF	Local/Broadcast
System	10.90.90.90	00-13-46-FD-19-8B	Local
System	10.90.90.200	00-02-9B-34-56-78	Dynamic
System	10.255.255.255	FF-FF-FF-FF-FF-FF	Local/Broadcast

Total Entries: 4

```
DGS-3427:5#show ipfdb
Command: show ipfdb
```

Interface	IP Address	Port	Learned
System	10.90.90.200	1	Dynamic

Total Entries: 1

2. with gratuitous_arp learning enable, the APR table & IPFDB table will change immediately

```
DGS-3427:5#show arp
Command: show arpentry
```

ARP Aging Time : 20

Interface	IP Address	MAC Address	Type
System	10.0.0.0	FF-FF-FF-FF-FF-FF	Local/Broadcast
System	10.90.90.90	00-13-46-FD-19-8B	Local
System	10.90.90.100	00-02-9B-34-56-78	Dynamic
System	10.90.90.200	00-02-9B-34-56-78	Dynamic
System	10.255.255.255	FF-FF-FF-FF-FF-FF	Local/Broadcast

Total Entries: 5

DGS-3427:5#show ipfdb
 Command: show ipfdb

Interface	IP Address	Port	Learned
System	10.90.90.100	1	Dynamic
System	10.90.90.200	1	Dynamic

Total Entries: 2

d.> Side effect: if you enable the Gratuitous_arp function on switch, it will pick up all the Gratuitous_arp packet. And CPU have to process it. If there are too much Gratuitous_arp packet onto switch, it will consume CPU resource. So, this function is disabled by default.