

vPC System and Local MAC Address:

These differences are important because the system MAC address is shared and identical on both vPC peer switches to facilitate seamless failover and load balancing, while local MAC addresses are specific to each network interface. The vPC feature allows the devices connected to the vPC domain to appear as a single logical entity to the connected network, simplifying network configuration and providing redundancy. vPC system MAC is used only with vPC attached access devices while vPC local system MAC is used with single attached devices.

vPC System MAC Address:

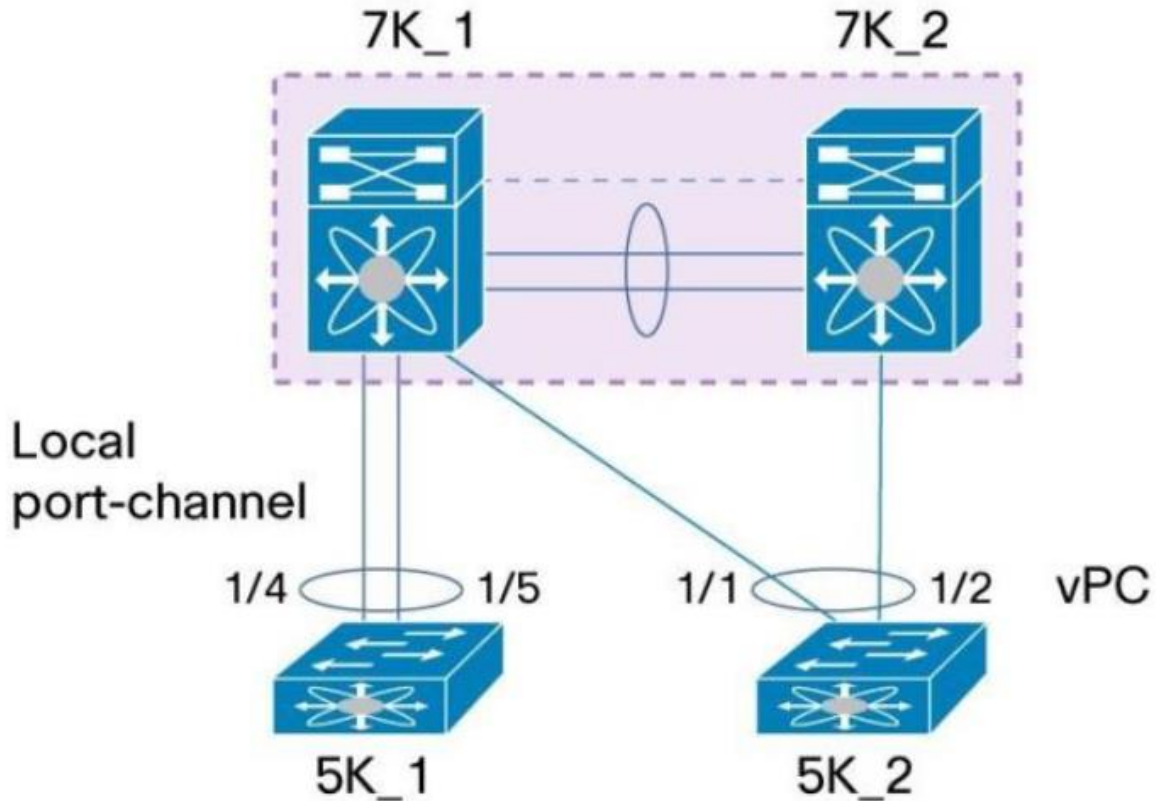
The system MAC address is also known as the "vPC system MAC address" or "vPC peer-link MAC address." It is a shared MAC address used by the vPC peers (Cisco Nexus switches in the vPC domain) for certain control-plane and frame handling purposes. The system MAC address is the same on both vPC peer switches to ensure redundancy and high availability.

The vPC peer devices use the vPC domain ID to automatically assign a unique vPC system MAC address. vPC System MAC address is used to identify the logical switch in the Network Topology. vPC System MAC address= 00:23:04:EE:BE:<vPC domain-id hexadecimal>; vPC system-MAC is used only with vPC attached devices and identify Logical switch (both Peer). It is possible to configure manually vPC system-mac value with the command system-mac inside vPC domain configuration. VPC system MAC is used for communication over VPC, for example, in this case LACP negotiation between pair of 9k.

vPC Local MAC Address:

The local MAC address refers to the MAC address associated with an individual network interface on a Cisco Nexus switch. Each interface, including vPC member interfaces, will have its own unique MAC address. vPC local MAC address is used with single attached devices (Orphan port) and identify each peer devices and it is unique per device. These addresses are used for normal network communication like sending and receiving data. They are specific to each port and are not shared between switches.

vPC system-mac and vPC local system-mac are both used in the LACP protocol as the LACP system ID. However, vPC system-mac is used only with vPC attached access devices while vPC local system-mac is used with single attached devices (orphan port or active/standby with or without STP).



the Cisco Nexus 5000 Series device 1 (5K_1) is forming a local port-channel with the Cisco Nexus 7000 Series device 1 (7K_1). As a result, 7K_1 will use its vPC local system-mac to exchange LACP information with 5K_1.

On the other side, the Cisco Nexus 5000 Series device 2 (5K_2) is forming a vPC with the Cisco Nexus 7000 Series device 1 (7K_1) and Cisco Nexus 7000 Series device 2 (7K_2). As a result, both 7K_1 and 7K_2 will use their common vPC system-mac to exchange LACP information with 5K_2.

```
NX-1(config)# show vpc role
```

```
vPC Role status
```

```
-----  
vPC role : primary  
Dual Active Detection Status : 0  
vPC system-mac : 00:23:04:ee:be:01  
vPC system-priority : 32667  
vPC local system-mac : 50:01:00:00:1b:08  
vPC local role-priority : 20  
vPC local config role-priority : 20  
vPC peer system-mac : 50:02:00:00:1b:08  
vPC peer role-priority : 30  
vPC peer config role-priority : 30  
NX-1(config)#
```

```
NX-2(config)# show vpc role
```

```
vPC Role status
```

```
-----  
vPC role : secondary  
Dual Active Detection Status : 0  
vPC system-mac : 00:23:04:ee:be:01  
vPC system-priority : 32667  
vPC local system-mac : 50:02:00:00:1b:08  
vPC local role-priority : 30  
vPC local config role-priority : 30  
vPC peer system-mac : 50:01:00:00:1b:08  
vPC peer role-priority : 20  
vPC peer config role-priority : 20  
NX-2(config)#
```

Commands
NX-1(config)# show vpc role
NX-2(config)# show vpc role
NX-1(config)# ethanalyzer local interface port-channel 1 display-filter stp limit-captured-frames 0
NX-1(config)# show spanning-tree vlan 1
NX-1(config)# show spanning-tree vlan 10

```
NX-1(config)# ethanalyzer local interface port-channel 1 display-filter stp limit-captured-frames 0
Capturing on (Po1)
2023-11-04 15:54:47.255623 50:01:00:00:01:01 -> 01:00:0c:cc:cc:cd STP RST. Root
= 32768/10/00:23:04:ee:be:01 Cost = 0 Port = 0x9000
```

```
NX-1(config)# show spanning-tree vlan 1
```

```
VLAN0001
```

```
Spanning tree enabled protocol rstp
```

```
Root ID      Priority      32769
Address      0023.04ee.be01
This bridge is the root
Hello Time   2 sec Max Age 20 sec Forward Delay 15 sec
```

```
Bridge ID    Priority      32769 (priority 32768 sys-id-ext 1)
Address      0023.04ee.be01
Hello Time   2 sec Max Age 20 sec Forward Delay 15 sec
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Po1	Desg	FWD	3	128.4096	(vPC peer-link) Network P2p
Po10	Desg	FWD	1	128.4105	(vPC) P2p Peer(STP)
Eth1/4	Desg	FWD	4	128.4	P2p
Eth1/5	Desg	FWD	4	128.5	P2p

```
NX-2(config)# show spanning-tree vlan 10
```

```
VLAN0010
```

```
Spanning tree enabled protocol rstp
```

```
Root ID      Priority      32778
Address      0023.04ee.be01
This bridge is the root
Hello Time   2 sec Max Age 20 sec Forward Delay 15 sec
```

```
Bridge ID    Priority      32778 (priority 32768 sys-id-ext 10)
Address      0023.04ee.be01
Hello Time   2 sec Max Age 20 sec Forward Delay 15 sec
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Po1	Root	FWD	3	128.4096	(vPC peer-link) Network P2p
Po10	Desg	FWD	1	128.4105	(vPC) P2p Peer(STP)

```
NX-2(config)# show vpc role
```

```
vPC Role status
```

```
-----  
vPC role : secondary  
Dual Active Detection Status : 0  
vPC system-mac : 00:23:04:ee:be:01  
vPC system-priority : 32667  
vPC local system-mac : 50:02:00:00:1b:08  
vPC local role-priority : 30  
vPC local config role-priority : 30  
vPC peer system-mac : 50:01:00:00:1b:08  
vPC peer role-priority : 20  
vPC peer config role-priority : 20
```

```
NX-2(config)# show lacp system-identifier
```

```
32768, 50-2-0-0-1b-8
```

```
NX-2(config)#
```

```
NX-2(config)# show lacp port-channel interface port-channel 1  
port-channel1
```

```
Port Channel Mac=50-2-0-0-1b-8  
Local System Identifier=0x8000, 50-2-0-0-1b-8  
Admin key=0x8000  
Operational key=0x8000  
Partner System Identifier=0x8000, 50-1-0-0-1b-8  
Operational key=0x8000  
Max delay=0  
Aggregate or individual=1  
Member Port List=Eth1/1 Eth1/2
```

```
NX-2(config)#
```

```
NX-2(config)# show lacp neighbor interface port-channel 1
```

```
Flags: S - Device is sending Slow LACPDUs F - Device is sending Fast LACPDUs  
A - Device is in Active mode P - Device is in Passive mode
```

```
port-channel neighbors
```

```
Partner's information
```

Port	Partner System ID	Partner Port Number	Age	Partner Flags
Eth1/1	32768, 50-1-0-0-1b-8	0x101	31589	SA
	LACP Partner Port Priority	Partner Oper Key		Partner Port State
	32768	0x8000		0x3d

```
Partner's information
```

Port	Partner System ID	Partner Port Number	Age	Partner Flags
Eth1/2	32768, 50-1-0-0-1b-8	0x102	31589	SA
	LACP Partner Port Priority	Partner Oper Key		Partner Port State
	32768	0x8000		0x3d

```
ACS#show lacp neighbor
Flags: S - Device is requesting Slow LACPDUs
       F - Device is requesting Fast LACPDUs
       A - Device is in Active mode           P - Device is in Passive mode
```

```
channel group 10 neighbors
```

```
Partner's information:
```

Port	Flags	LACP port Priority	Dev ID	Age	Admin key	Oper Key	Port Number	Port State
Gi0/0	SA	32768	0023.04ee.be01	20s	0x0	0x800A	0x103	0x3D
Gi0/1	SA	32768	0023.04ee.be01	21s	0x0	0x800A	0x4103	0x3D

```
ACS#
```