



# Mapping Cisco CSR 1000v Network Interfaces to VM Network Interfaces

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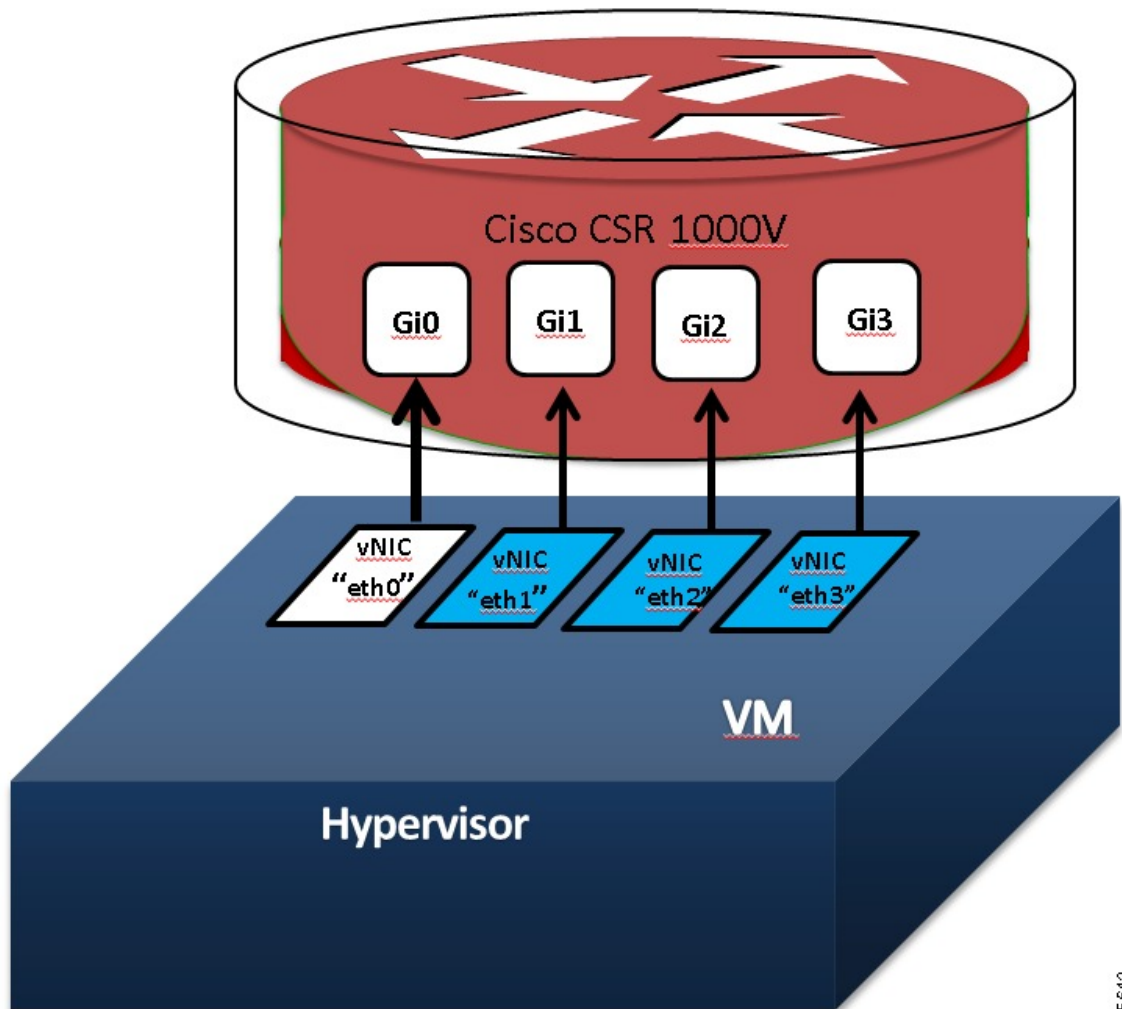
## Mapping Cisco CSR 1000v Network Interfaces to VM Network Interfaces

### Mapping the Router Network Interfaces to vNICs

The Cisco CSR 1000v maps the GigabitEthernet network interfaces to the logical virtual network interface card (vNIC) name assigned by the VM. The VM in turn maps the logical vNIC name to a physical MAC address.

When the Cisco CSR 1000v is booted for the first time, the router interfaces are mapped to the logical vNIC interfaces that were added when the VM was created. The figure below shows the relationship between the vNICs and the Cisco CSR 1000v router interfaces.

Figure 1: vNICs Mapped to Cisco CSR 1000v Router Interfaces



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After the Cisco CSR 1000v boots, you need to display the mapping between the logical interface on the router with the vNIC and the vNIC MAC address using the **show platform software vnic-if interface-mapping** command. The display for this command is different depending on your Cisco IOS XE release version. (Note: For Cisco IOS XE Release 3.11 or later, the GigabitEthernet0 interface is no longer supported.)

```
Router# show platform software vnic-if interface-mapping
```

Interface Name	Short Name	vNIC Name	Mac Addr
GigabitEthernet0	Gi0	eth0 (vmxnet3)	000c.2946.3f4d
GigabitEthernet2	Gi2	eth2 (vmxnet3)	0050.5689.0034
GigabitEthernet1	Gi1	eth1 (vmxnet3)	0050.5689.000b

The vNIC name shown in the display is a logical interface that the Cisco CSR 1000v uses to map to the interface on the hypervisor. It does not always map to the corresponding NIC name added during the VM installation. For example, the logical “eth1” vNIC name in the display may not necessarily map to “NIC1” that was added in the VM installation process.



**Caution** It is important that you verify the interface mapping before you begin configuring the Gigabit Ethernet network interfaces on the Cisco CSR 1000v. This ensures that the network interface configuration will apply to the correct physical MAC address interface on the VM host.

If you reboot the router and do not add or delete any vNICs, the interface mapping remains the same as before. If you reboot the router and delete vNICs, special care must be taken to ensure that the configuration for the remaining interfaces remains intact. For more information, see [Adding and Deleting Network Interfaces on the Cisco CSR 1000v, on page 3](#).



**Note** In Cisco IOS XE Release 3.10S and earlier, the first vNIC added is automatically mapped to the GigabitEthernet0 management interface. All subsequent vNICs added are mapped to router interfaces. Support for the GigabitEthernet0 interface was removed in Cisco IOS XE Release 3.11S.

## Adding and Deleting Network Interfaces on the Cisco CSR 1000v

The Cisco CSR 1000v maps the router GigabitEthernet interfaces to the logical vNIC name assigned by the VM, which in turn is mapped to a MAC address on the VM host. You can add or delete vNICs on the VM to add or delete GigabitEthernet interfaces on the Cisco CSR 1000v. You can add vNICs while the router is active.

To delete a vNIC from the VM, you must first power down the VM. If you delete any vNICs, the router must be rebooted. For more information about adding and deleting vNICs, see the [VMware Documentation](#).



**Caution** If you remove a vNIC without first updating the Cisco CSR 1000v network interface configuration, you risk a configuration mismatch when the router reboots. When the router reboots and a vNIC has been removed, the remaining logical vNIC names could get reassigned to different MAC addresses. As a result, the GigabitEthernet network interfaces on the Cisco CSR 1000v can be reassigned to different physical interfaces on the hypervisor.

Before you add or delete network interfaces, first verify the interface-to-vNIC mapping using the **show platform software vnic-if interface-mapping** command.

```
csr1000v# show platform software vnic-if interface-mapping
```

```
-----
Interface Name          Driver Name             Mac Addr
-----
GigabitEthernet3       vmxnet3                000c.2946.3f4d
GigabitEthernet2       vmxnet3                0050.5689.0034
GigabitEthernet1       vmxnet3                0050.5689.000b
GigabitEthernet0       vmxnet3                000c.2946.3f4d
-----
```

After adding or deleting network interfaces on the VM, always verify the new interface-to-vNIC mapping before making configuration changes to the network interfaces. The following example shows the interface mapping after a new vNIC has been added. The new vNIC maps to the GigabitEthernet4 network interface on the Cisco CSR 1000v.

```
csr1000v# show platform software vnic-if interface-mapping
-----
Interface Name          Driver Name             Mac Addr
-----
GigabitEthernet4       vmxnet3                 0010.0d40.37ff
GigabitEthernet3       vmxnet3                 000c.2946.3f4d
GigabitEthernet2       vmxnet3                 0050.5689.0034
GigabitEthernet1       vmxnet3                 0050.5689.000b
GigabitEthernet0       vmxnet3                 000c.2946.3f4d
-----
```

## Removing a vNIC from a Running VM

To remove a vNIC from a running VM, use the `clear platform software` command (described below). Perform this command before removing a vNIC from the hypervisor configuration. This is part of a "two-step hot remove". To see which hypervisors support a two-step hot remove, look for hypervisors with vNIC Two-Step Hot Remove Support = Yes in [Hypervisor Support](#).

**clear platform software vnic-if interface** **GigabitEthernet***interface-number*

*interface-number*—value from 0–32.

Example:

```
csr1000v# clear platform software vnic-if interface GigabitEthernet4
```

Next, remove the vNIC from the hypervisor configuration.



**Note** Starting with the IOS XE 17.1 release, you no longer need to execute the `clear platform software vnic-int interface` command before you remove the vNIC configuration from the hypervisor. This command will be deprecated in a future release.

## Cisco CSR 1000v Network Interfaces and VM Cloning

When first installed, the Cisco CSR 1000v creates a database that maps the vNIC name to the MAC address. This database is used to maintain a persistent mapping between the router interfaces and the vNIC-to-MAC address mapping in case vNICs are added or deleted. The interfaces are mapped to the stored Universal Unique Identification (UUID) maintained by VMware.

The mapping between the router network interfaces and the vNICs only applies to the current VM that the Cisco CSR 1000v is installed on. If the VM is cloned, then the stored UUID will not match the current UUID and the interface mapping will not match the router configuration.

To prevent the interface mapping from becoming mis-matched, you need to perform the following steps on the original VM before cloning:

### SUMMARY STEPS

1. Make sure the original VM includes the number of configured vNICs required on the cloned VM before beginning the cloning process.
2. Enter the **clear platform software vnic-if nvtable** command on the original VM.
3. Reboot the Cisco CSR 1000v.

4. On the cloned VM, verify the interface mapping using the **show platform software vnic-if interface-mapping** command.
5. Configure the router interfaces on the cloned VM accordingly.

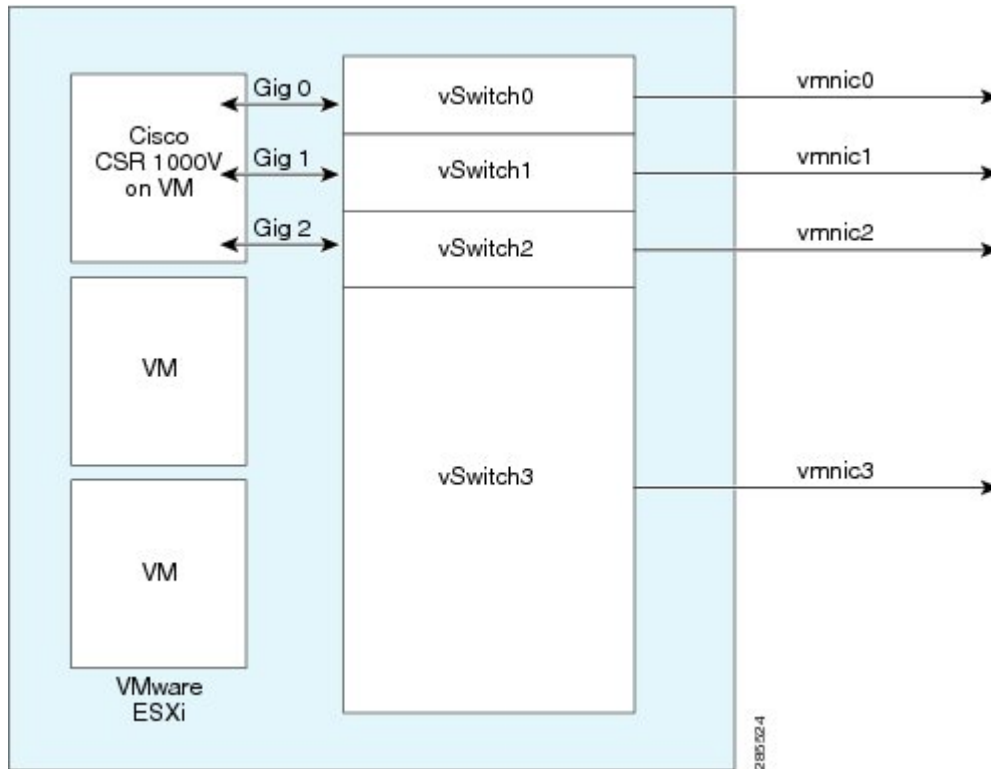
## DETAILED STEPS

- 
- Step 1** Make sure the original VM includes the number of configured vNICs required on the cloned VM before beginning the cloning process.
- Step 2** Enter the **clear platform software vnic-if nvtable** command on the original VM.
- This command clears the persistent interface database on the original VM and updates the interface mapping to the hypervisor.
- Step 3** Reboot the Cisco CSR 1000v.
- Step 4** On the cloned VM, verify the interface mapping using the **show platform software vnic-if interface-mapping** command.
- Step 5** Configure the router interfaces on the cloned VM accordingly.
- If you follow these steps, the router configuration on the cloned VM should match the configuration of the original VM.
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# Mapping Cisco CSR 1000v Network Interfaces with vSwitch Interfaces

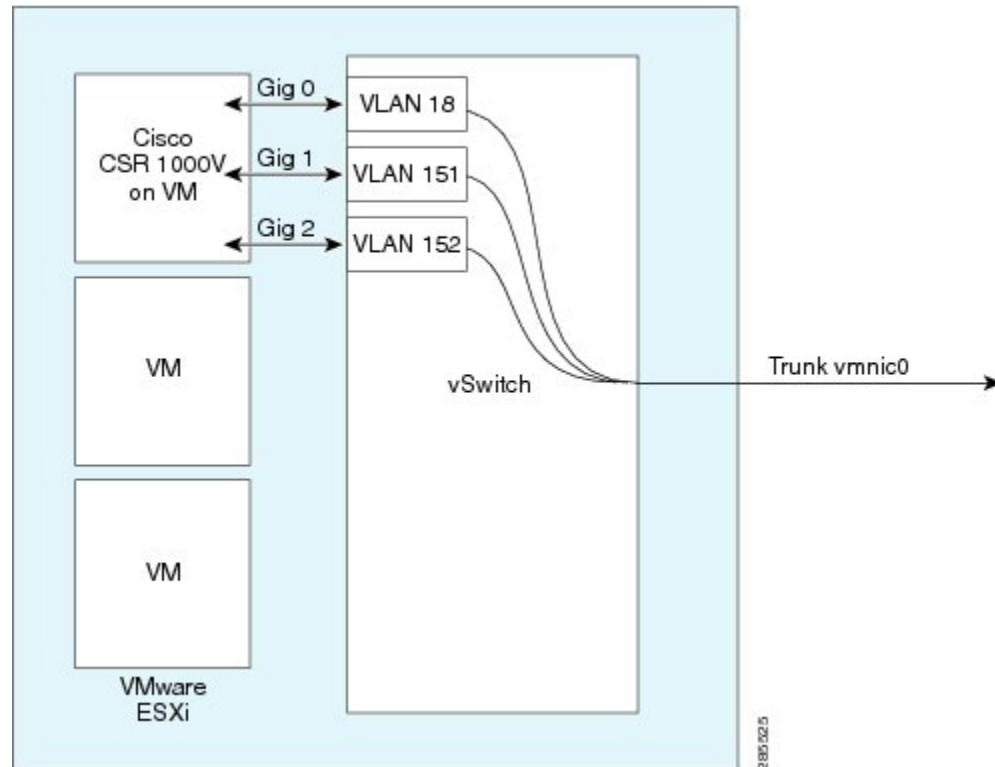
You can configure the network interfaces in ESXi in different ways to accommodate the Cisco CSR 1000v interfaces. The figure below shows an example where each Cisco CSR 1000v router interface is mapped to one host Ethernet interface.

Figure 2: Cisco CSR 1000v Interfaces Mapped to Individual ESXi Host Ethernet Interfaces



The figure below shows an example with multiple Cisco CSR 1000v interfaces sharing one host ESXi Ethernet interface.

Figure 3: Cisco CSR 1000v Interfaces Sharing One ESXi Host Ethernet Interface



The next figure shows one of the Cisco CSR 1000v interfaces mapped directly to a trunk interface on the vSwitch.

Figure 4: Cisco CSR 1000v Interfaces Directly Mapped to vSwitch Trunk

