802.1Q Double-Tagging
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Configuring 802.1Q Double-Tagging per Virtual Function
This section describes the configuration of 802.1Q double-tagging support to the hypervisor per Virtual Function (VF). The Virtual Machine (VM) attached to the VF (via SR-IOV) can send traffic with or without C-VLAN. Once a VF is configured to VST encapsulation, the adapter’s hardware will insert C-VLAN to any packet from the VF to the physical port. On the receive side, the adapter hardware will strip the C-VLAN from any packet coming from the wire to that VF.

**Configuring 802.1Q Double-Tagging per Virtual Function**

1. Add the required C-VLAN tag (on the hypervisor) per port per VF. There are two ways to add the C-VLAN:

   1. By using sysfs:

      ```
      echo '100:0:802.1q' > /sys/class/net/ens1f0/device/sriov/0/vlan
      ```

   2. By using the ip link command (available only when using the latest Kernel version):

      ```
      ip link set dev ens1f0 vf 0 vlan 100
      ```

      Check the configuration using the ip link show command:

      ```
      # ip link show ens1f0
      ens1f0: <BROADCAST, MULTICAST, UP, LOWER_UP> mtu 1500 qdisc mq state UP mode DEFAULT qlen 1000
      link/ether ec:0d:9a:44:37:84 brd ff:ff:ff:ff:ff:ff
      vf 0 MAC 00:00:00:00:00:00, vlan 100, spoof checking off, link-state auto, trust off
      vf 1 MAC 00:00:00:00:00:00, spoof checking off, link-state auto, trust off
      vf 2 MAC 00:00:00:00:00:00, spoof checking off, link-state auto, trust off
      vf 3 MAC 00:00:00:00:00:00, spoof checking off, link-state auto, trust off
      vf 4 MAC 00:00:00:00:00:00, spoof checking off, link-state auto, trust off
      ```

2. Create a VLAN interface on the VM and add an IP address.
3. To verify the setup, run ping between the two VMs and open Wireshark or tcpdump to capture the packet.

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