Sub-Interface

Multiple L3 sub port interfaces, each characterized by a VLAN id in the 802.1q tag, can be created on a physical port or a port channel. Sub port interfaces attaching to the same physical port or port channel can interface to different VRFs, though they share the same VLAN id space and must have different VLAN ids.

Restriction:
There is no L2 bridging between these sub port interfaces; each sub port interface is considered to stay in a separate bridge domain.
The MTU of the sub-interface wont use for normal VLAN.
The name of the sub-interface is not greater than 15 chars(including **). Example, PortChannel01.100 is too long you will face the following error message.**
admin@sonic:~$ sudo config interface ip add PortChannel01.100 10.1.0.2/31
Usage: config interface ip add [OPTIONS]
Try "config interface ip add -h" for help.

Error: Sub port interface name is too long!
Known issue:
[SONIC-3166] The mac learning of the ports which set the subinterface will fail, after doing the "config reload". The issue is fixed in 202012.3.
[SONIC-6931] Containers crash when creating a VLAN that is associated with a sub-port
interface. The issue is fixed in 202111.5
Topology:
subinterface.png
Procedure:
Step 1. Down-speed Ethernet0 to 10G on SW2.(refer to Switch port attributes)

Step 2. On SW2 and SW3 bind Ethernet48 and Ethernet52 to portchannel interface(PortChannel01).(refer LAG)

Step 3.Create VLAN interface as topology(refer VLAN & Inter-VLAN Routing)

Step 4.Create sub-interface as topology

SW1:

```
admin@SW1:~$ sudo config interface ip add Ethernet0.10
192.168.10.2/24
SW2:

admin@SW2:~$ sudo config interface ip add PortChannel01.5
192.168.5.1/24
Result:
Sub-interface and VLAN status
SW1:

admin@SW1:~$ show subinterfaces status
 Sub port interface    Speed    MTU    Vlan    Admin
Type
--------------------  -------  -----  ------  -------
--------------------
       Ethernet0.10      10G   9100      10       up  802.1q-
encapsulation
admin@sonic:~$ show vlan brief
+-----------+-------------+---------+---------------
+----------------------+
| VLAN ID   | IP Address   | Ports   | Port Tagging   | DHCP
Helper Address   |
+===========+=============+=========+================+==========
============+
+-----------+-------------+---------+---------------
+----------------------+
SW2:

admin@SW2:~$ show subinterfaces status
 Sub port interface    Speed    MTU    Vlan    Admin
Type
--------------------  -------  -----  ------  -------
--------------------
    PortChannel01.5     200G   9100       5       up  802.1q-
encapsulation
admin@SW2:~$ show vlan brief
+-----------+----------------+--------------+---------------
+----------------------+
|   VLAN ID | IP Address      | Ports         | Port Tagging   |
DHCP Helper Address   |
+===========+================+==============+================+=
======================+
|        10 | 192.168.10.1/24 | Ethernet0     | tagged         |
|
+-----------+----------------+--------------+---------------
```

```
+----------------------+
|        20 | 192.168.20.1/24 | PortChannel01 | tagged         |
|
+-----------+-----------------+--------------+---------------
+----------------------+
SW3:

admin@SW3:~$ show subinterfaces status
 Sub port interface    Speed    MTU    Vlan    Admin    Type
--------------------  -------  -----  ------  -------  ------
admin@sonic:~$ show vlan brief
+-----------+-----------------+--------------+---------------
+----------------------+
|   VLAN ID | IP Address      | Ports         | Port Tagging   |
DHCP Helper Address   |
+===========+=================+==============+===============+=
======================+
|         5 | 192.168.5.2/24  | PortChannel01 | tagged         |
|
+-----------+-----------------+--------------+---------------
+----------------------+
|        20 | 192.168.20.2/24 | PortChannel01 | tagged         |
|
+-----------+-----------------+--------------+---------------
+----------------------+
SW1(Ethernet0.10) ping to SW2(Vlan10) is ok.
SW2(Vlan20) ping to SW3(Vlan20) is ok
SW2(PortChannel01.5) ping to SW3(Vlan5) is ok
```