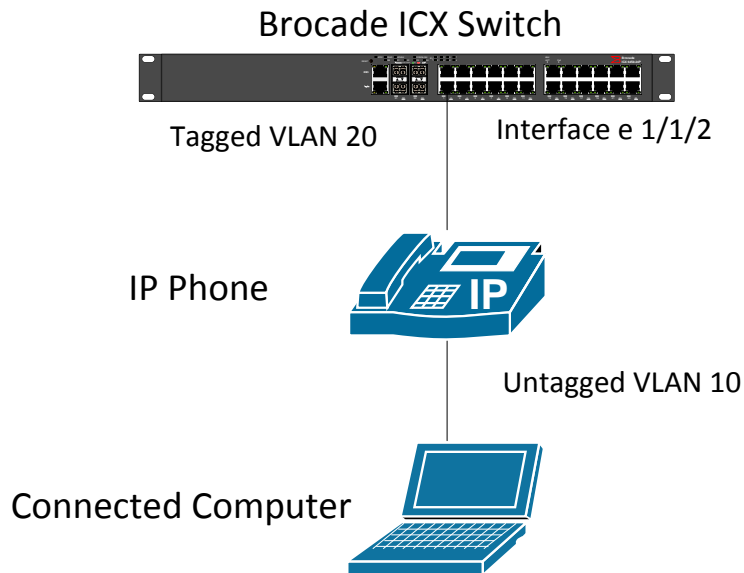


IP Phone to Brocade ICX Configuration

Below is a diagram for the documented configuration. An IP Phone connected to a Brocade ICX switch with a PC behind the phone. For this example, we will use VLAN 10 as the Data VLAN and VLAN 20 for the Voice VLAN. Basic switch configuration is assumed complete.

Figure 1:



1. Login to the switch and enter enable mode.
2. Enter Global Configuration mode:

```
config t
```

3. Create the Data VLAN

```
vlan 10 name Data by port  
tagged e 1/1/2  
exit
```

4. Create the Voice VLAN

```
vlan 20 name Voice by port  
tagged e 1/1/2  
exit
```

5. Enable FDP and LLDP:

```
fdp run  
lldp run
```

Note: These settings are for the IP phone to communicate information with the switch such as PoE negotiation.

6. Configure and enable LLDP-MED network-policy:

LLDP-MED network policy configuration syntax

The CLI syntax for defining an LLDP-MED network policy differs for tagged, untagged, and priority tagged traffic. Refer to the appropriate syntax, below.

For tagged traffic

Syntax: `[no] lldp med network-policy application application type taggedvlan vlan ID priority 0-7 dscp 0-63 ports ethernet port-list | all`

For untagged traffic

Syntax: `[no] lldp med network-policy application application type untagged dscp 0-63 ports ethernet port-list | all`

For priority-tagged traffic

Syntax: `[no] lldp med network-policy application application type priority-tagged priority 0-7 dscp 0-63 ports ethernet port-list | all`

application type indicates the primary function of the applications defined by this network policy. Application type can be one of the following:

- **guest-voice** - Limited voice service for guest users and visitors with their own IP telephony handsets or similar devices that support interactive voice services.
- **guest-voice-signaling** - Limited voice service for use in network topologies that require a different policy for guest voice signaling than for guest voice media.
- **softphone-voice** - Softphone voice service for use with multi-media applications that work in association with VoIP technology, enabling phone calls direct from a PC or laptop. Softphones do

not usually support multiple VLANs, and are typically configured to use an untagged VLAN or a single tagged data-specific VLAN. Note that when a network policy is defined for use with an untagged VLAN, the Layer 2 priority field is ignored and only the DSCP value is relevant.

- **streaming-video** - Applies to broadcast- or multicast-based video content distribution and similar applications that support streaming video services requiring specific network policy treatment. Video applications that rely on TCP without buffering would not be an intended use of this application type.
- **video-conferencing** - Applies to dedicated video conferencing equipment and similar devices that support real-time interactive video/audio services.
- **video-signaling** - For use in network topologies that require a separate policy for video signaling than for video media. Note that this application type should not be advertised if all the same network policies apply as those advertised in the video conferencing policy TLV.
- **voice** - For use by dedicated IP telephony handsets and similar devices that support interactive voice services.
- **voice-signaling** - For use in network topologies that require a different policy for voice signaling than for voice media. Note that this application type should not be advertised if all the same network policies apply as those advertised in the voice policy TLV.
- *tagged vlan vlan id* specifies the tagged VLAN that the specified application type will use.
- *untagged* indicates that the device is using an untagged frame format.
- *priority-tagged* indicates that the device uses priority-tagged frames. In this case, the device uses the default VLAN (PVID) of the ingress port.
- *priority 0 -7* indicates the Layer 2 priority value to be used for the specified application type. Enter 0 to use the default priority.
- *dscp 0 - 63* specifies the Layer 3 Differentiated Service codepoint priority value to be used for the specified application type. Enter 0 to use the default priority.

Example:

```
LLDP med network-policy application voice tagged vlan X priority 5 dscp 46 ports  
ethe 1/1/2 to 1/1/24
```

Note: Set VLAN value (X) and port values to the necessary values for your network.

7. Now we must configure the port that connects to the IP Phone and the PC. Below is a description of the commands used:
 - a. `port-name` – Adds a description to the interface.
 - b. `dual-mode` – allows the port to accept tagged or untagged packets on the specified VLAN. If no VLAN is specified, the default-VLAN is assumed.
 - c. `inline power` – turns on inline power for the interface.
 - d. `trust dscp` – Tells the switch to trust Layer 3 DSCP markings from the IP Phone used for QoS.
 - i. *Note: Layer 2 CoS is on by default.*

8. Configure the port where the phone is connected:

```
interface e 1/1/2
port-name IP Phone-PC
dual-mode 10
inline power
trust dscp
```

9. Write the configuration to memory with the write mem command.

10. Verify that IP Phones are receiving power from the switch:

```
show inline power
```

```
Edge-Switch#sh inline power
Power Capacity:      Total is 68000 mWatts. Current Free is 53000 mWatts.
Power Allocations:  Requests Honored 6 times

Port    Admin  Oper  ---Power(mWatts)---  PD Type  PD Class  Pri  Fault/
State   State  State  Consumed  Allocated  n/a      n/a      3    Error
-----
1/1/1   On     On    4507      15000     802.3af  Class 3   3    n/a
1/1/2   On     Off    0         0         n/a      n/a      3    n/a
1/1/3   off    off    0         0         n/a      n/a      3    n/a
1/1/4   off    off    0         0         n/a      n/a      3    n/a
-----
Total           4507      15000
```

11. Verify that IP Phones are showing up on the switch:

```
show fdp neighbor
```

12. Below is a configuration snippet for the above configuration:

```
ver 08.0.20bT311
!
stack unit 1
  module 1 icx6450-24p-poe-port-management-module
  module 2 icx6450-sfp-plus-4port-40g-module
!
vlan 10 name Data by port
  tagged ethe 1/1/2 to 1/1/24
  spanning-tree 802-1w
!
vlan 20 name Voice by port
  tagged ethe 1/1/2 to 1/1/24
  spanning-tree 802-1w
!
vlan 499 name DEFAULT-VLAN by port
!
aaa authentication web-server default local
aaa authentication enable default enable
aaa authentication login default local
aaa authentication login privilege-mode
default-vlan-id 290
enable super-user-password brocade
hostname ICX6450-24P
ip address 10.10.10.2 255.255.255.0
no ip dhcp-client enable
ip default-gateway 10.10.10.1
no telnet server
username admin password brocade
cdp run
fdp run
!
interface ethernet 1/1/2
  loop-detection
  dual-mode 10
  spanning-tree 802-1w admin-edge-port
  inline power
  voice-vlan 20
  trust dscp
!
!
```

```
interface ethernet 1/1/3
 loop-detection
 dual-mode 10
 spanning-tree 802-1w admin-edge-port
 inline power
 voice-vlan 20
 trust dscp

!
-----Removed to conserve space-----
!
interface ethernet 1/1/24
 loop-detection
 dual-mode 10
 spanning-tree 802-1w admin-edge-port
 inline power
 voice-vlan 20
 trust dscp
!
lldp med network-policy application voice tagged vlan 20 priority 5 dscp 46 ports ethe 1/1/1 to
1/1/12
lldp run
!
!
!
!
end
```