Dynamic LACP Trunking

The example configurations below provide dynamic trunking between two HP Procurve Series 2500 Switches (Switch A and Switch B) using LACP (802.3ad) as the trunking protocol.

Another benefit, besides dynamic trunk formation, of an LACP trunk is port redundancy. If one of the operational ports fails then one of the redundant "standby" ports becomes operational without any user intervention.

To create a dynamic LACP trunk, configure ports at one end of the link to be LACP active - and ensure that LACP is enabled at the other end.

Switch A is configured to provide six LACP active ports. Since the Series 2500 Switches support one trunk group of up to four ports, the other two ports will be redundant "standby" ports.

Switch B is in its default configuration. As stated above for a dynamic LACP trunk, once one end of the link is configured for LACP active, the only other requirement is that the port at the other end of the link must have LACP enabled. Since the Series 2500 Switches have LACP enabled by default, there is no need to modify Switch B from its default configuration.

This configuration example applies to the following products:

- J4812A HP Procurve Switch 2512
- J4813A HP Procurve Switch 2524

Note: Ports 1, 2, 5, 6, 13, & 17 are LACP active.
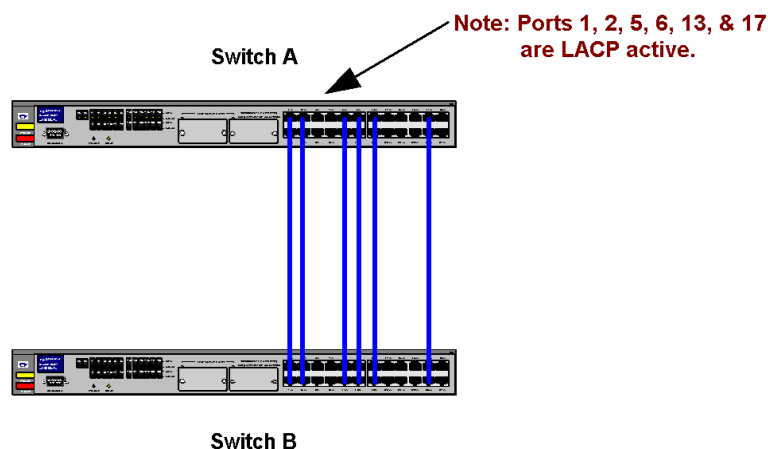
Switch A

Switch B

WARNING:

The example configurations below were created from a factory default configuration on the Series 2500 Switches. The first command in the sequence of CLI commands given below will first reset a Series 2500 Switch back to its factory default settings.   We recommend saving your current configuration if necessary. Otherwise, skip the first command.

NOTES:
1. By default, LACP is enabled (all ports are set to LACP passive) on the Series 2500 Switches. For a dynamic LACP trunk to form, at least one end of the link must be LACP active.
2. The Series 2500 Switches support one trunk group of up to four ports, and the ports need not be consecutive or contiguous on the switch.
3. Dynamic LACP trunks are always created in the DEFAULT_VLAN of Series 2500 Switches. That is because the LACP protocol does not send VLAN information, so the switches have no way to know what VLAN or VLANs to put the trunk into.
4. There is no limit, besides the number of physical ports available on the switch, on the number of "standby" ports in an LACP trunk group.
5. If STP and/or IGMP is enabled in the switch, a dynamic LACP trunk operates only with the default settings for these features and does not appear in the port listings for these features.
6. Port security does not operate on a trunk group.
7. The configuration examples below were created on software version F.01.07.

REQUIREMENTS/RESTRICTIONS:
1. All port trunk links must be point-to-point (i.e., coterminus) connections between the Switch 2512 or 2524 and another switch, router, server, or workstation configured for LACP trunking. No intervening, non-trunking devices are allowed.
2. LACP will only operate on full-duplex links.
3. All ports in a trunk group must have the same media type, mode (speed and duplex) and flow control settings.
4. Always configure port trunking before you connect links to another switch. Otherwise, a network topology loop (i.e., broadcast storm) could occur.

CONFIGURATION COMMANDS: (created on software version F.01.07)
<u>Switch A</u>

```
HP ProCurve Switch 2524# erase start
   Configuration will be deleted and device rebooted, continue [y/n]?  y
HP ProCurve Switch 2524# config t
HP ProCurve Switch 2524(config)# hostname Switch_A
Switch_A(config)# int e 1-2,5-6,13,17 lacp active
Switch_A(config)# wr mem
Switch_A(config)# end
```

CONFIGURATION COMMANDS: (created on software version F.01.07)
<u>Switch B</u>

None. This switch is left in default configuration (LACP passive on all ports).

RESULTING CONFIGURATION:
<u>Switch A</u>

```
Switch_A# sh config
IN-FLASH CONFIGURATION

; J4813A Configuration Editor; Created on release #F.01.07

time daylight-time-rule None
hostname "Switch_A"
interface 1
   lacp Active
   exit
interface 2
   lacp Active
   exit
interface 5
   lacp Active
   exit
interface 6
   lacp Active
   exit
interface 13
   lacp Active
   exit
interface 17
   lacp Active
   exit
ip timep dhcp
snmp-server community "public" Unrestricted
vlan 1
   name "DEFAULT_VLAN"
   untagged 1-26,Dyn1
   ip address dhcp-bootp
   exit
```

RESULTING CONFIGURATION:
<u>Switch B</u>   (Default configuration.)

```
HP ProCurve Switch 2524# sh config
IN-FLASH CONFIGURATION

; J4813A Configuration Editor; Created on release #F.01.07

time daylight-time-rule None
hostname "HP ProCurve Switch 2524"
ip timep dhcp
snmp-server community "public" Unrestricted
vlan 1
   name "DEFAULT_VLAN"
   untagged 1-26,Dyn1
   ip address dhcp-bootp
   exit
```

VERIFICATION COMMANDS:

The following CLI commands can be used to display LACP information:
- **show lacp**
- **show log lacp**

Switch_A# sh lacp

```
                         LACP

    PORT    LACP      TRUNK     PORT      LACP      LACP
    NUMB    ENABLED   GROUP     STATUS    PARTNER   STATUS
    ----    -------   -------   -------   -------   -------
    1       Active    Dyn1      Up        Yes       Success
    2       Active    Dyn1      Up        Yes       Success
    3       Passive   3         Down      No        Success
    4       Passive   4         Down      No        Success
    5       Active    Dyn1      Up        Yes       Success
    6       Active    Dyn1      Up        Yes       Success
    7       Passive   7         Down      No        Success
    8       Passive   8         Down      No        Success
    9       Passive   9         Down      No        Success
    10      Passive   10        Down      No        Success
    11      Passive   11        Down      No        Success
    12      Passive   12        Down      No        Success
    13      Active    Dyn1      Standby   Yes       Success
    14      Passive   14        Down      No        Success
    15      Passive   15        Down      No        Success
    16      Passive   16        Down      No        Success
    17      Active    Dyn1      Standby   Yes       Success
    18      Passive   18        Down      No        Success
    19      Passive   19        Down      No        Success
    20      Passive   20        Down      No        Success
    21      Passive   21        Down      No        Success
    22      Passive   22        Down      No        Success
    23      Passive   23        Down      No        Success
    24      Passive   24        Down      No        Success
    25      Passive   25        Down      No        Success
    26      Passive   26        Down      No        Success
```

```
HP ProCurve Switch 2524# sh lacp

                        LACP

  PORT    LACP      TRUNK     PORT      LACP      LACP
  NUMB    ENABLED   GROUP     STATUS    PARTNER   STATUS
  ----    -------   -------   -------   -------   -------
  1       Passive   1         Down      No        Success
  2       Passive   2         Down      No        Success
  3       Passive   3         Down      No        Success
  4       Passive   4         Down      No        Success
  5       Passive   5         Down      No        Success
  6       Passive   6         Down      No        Success
  7       Passive   Dyn1      Up        Yes       Success
  8       Passive   Dyn1      Up        Yes       Success
  9       Passive   9         Down      No        Success
  10      Passive   10        Down      No        Success
  11      Passive   Dyn1      Up        Yes       Success
  12      Passive   Dyn1      Up        Yes       Success
  13      Passive   13        Down      No        Success
  14      Passive   14        Down      No        Success
  15      Passive   15        Down      No        Success
  16      Passive   16        Down      No        Success
  17      Passive   17        Down      No        Success
  18      Passive   18        Down      No        Success
  19      Passive   Dyn1      Standby   Yes       Success
  20      Passive   20        Down      No        Success
  21      Passive   21        Down      No        Success
  22      Passive   22        Down      No        Success
  23      Passive   Dyn1      Standby   Yes       Success
  24      Passive   24        Down      No        Success
  25      Passive   25        Down      No        Success
  26      Passive   26        Down      No        Success
```

```
Switch_A# sh log lacp
 Keys:   W=Warning   I=Information
         M=Major     D=Debug
----   Event Log listing: Events Since Boot   ----
I 01/01/90 00:00:09 lacp: Passive Dynamic LACP enabled on all ports
I 01/01/90 00:00:22 lacp: Port 1 is blocked - negotiation
I 01/01/90 00:00:22 lacp: Port 2 is blocked - negotiation
I 01/01/90 00:00:22 lacp: Port 5 is blocked - negotiation
I 01/01/90 00:00:22 lacp: Port 6 is blocked - negotiation
I 01/01/90 00:00:22 lacp: Port 13 is blocked - negotiation
I 01/01/90 00:00:22 lacp: Port 17 is blocked - negotiation
I 01/01/90 00:00:26 lacp: Port 13 is moved to trunk Dyn1
I 01/01/90 00:00:26 lacp: Port 17 is moved to trunk Dyn1
I 01/01/90 00:00:27 lacp: Dynamic LACP trunk Dyn1 is now on-line
I 01/01/90 00:00:28 lacp: Port 1 is moved to trunk Dyn1
I 01/01/90 00:00:29 lacp: Port 2 is moved to trunk Dyn1
I 01/01/90 00:00:30 lacp: Port 5 is moved to trunk Dyn1
I 01/01/90 00:00:30 lacp: Port 17 is blocked - re-negotiation
I 01/01/90 00:00:30 lacp: Port 6 is moved to trunk Dyn1
I 01/01/90 00:00:30 lacp: Port 13 is blocked - re-negotiation
I 01/01/90 00:00:34 lacp: Port 17 is blocked - negotiation
I 01/01/90 00:00:35 lacp: Port 17 is moved to trunk Dyn1
I 01/01/90 00:00:35 lacp: Port 13 is blocked - negotiation
I 01/01/90 00:00:36 lacp: Port 13 is moved to trunk Dyn1
----   Bottom of Log : Events Listed = 20   ----
```

```
HP ProCurve Switch 2524# sh log lacp
 Keys:    W=Warning    I=Information
          M=Major      D=Debug
----  Event Log listing: Events Since Boot  ----
I 01/01/90 00:00:09 lacp: Passive Dynamic LACP enabled on all ports
I 01/01/90 00:00:19 lacp: Port 7 is blocked - negotiation
I 01/01/90 00:00:19 lacp: Port 8 is blocked - negotiation
I 01/01/90 00:00:19 lacp: Port 11 is blocked - negotiation
I 01/01/90 00:00:19 lacp: Port 12 is blocked - negotiation
I 01/01/90 00:00:19 lacp: Port 19 is blocked - negotiation
I 01/01/90 00:00:19 lacp: Port 23 is blocked - negotiation
I 01/01/90 00:00:20 lacp: Port 7 is moved to trunk Dyn1
I 01/01/90 00:00:20 lacp: Port 8 is moved to trunk Dyn1
I 01/01/90 00:00:21 lacp: Dynamic LACP trunk Dyn1 is now on-line
I 01/01/90 00:00:22 lacp: Port 11 is moved to trunk Dyn1
I 01/01/90 00:00:23 lacp: Port 12 is moved to trunk Dyn1
I 01/01/90 00:00:23 lacp: Port 19 is moved to trunk Dyn1
I 01/01/90 00:00:23 lacp: Port 23 is moved to trunk Dyn1
I 01/01/90 00:00:31 lacp: Port 23 is blocked - negotiation
I 01/01/90 00:00:31 lacp: Port 23 is moved to trunk Dyn1
I 01/01/90 00:00:32 lacp: Port 19 is blocked - negotiation
I 01/01/90 00:00:32 lacp: Port 19 is moved to trunk Dyn1
----   Bottom of Log : Events Listed = 18   ----
```

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