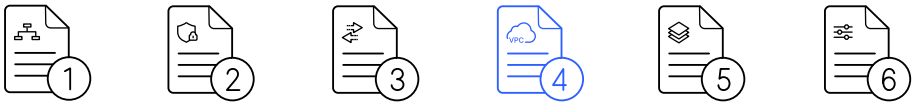
Setup guide: VPC configuration with LANCOM switches

The virtualization feature Virtual Port Channel (VPC) provides redundancies that significantly improve the reliability, high availability, and performance of network infrastructures.

This setup guide gives you step-by-step instructions for configuring your VPC-enabled LANCOM core and aggregation/distribution switches. This document assumes the reader has a general understanding of a switch configuration.

This paper is part of the **series "switching solutions"**.
Click on the icons to find out more about the information available from LANCOM:



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Virtual Port Channel explained in brief

Virtual Port Channel, or VPC for short, is a virtualization technology that makes two interconnected switches appear to devices on the underlying access layer to be a single logical layer-2 node. This is ensured by the "peer link", which is a virtual group of port channels established via VPC. The connected device could be a switch, server, or other network device that supports link aggregation technology. VPC belongs to the Multi-chassis EtherChannel [MCEC] family and is also known as MC-LAG (Multi-Chassis Link Aggregation Group).

Please note that LANCOM VPC is not compatible with implementations from other manufacturers and that simultaneous stacking is not supported on the peer switches. VPC can only consist of two independent switches, which must be configured identically by the administrator. VPC is only controlled by the primary switch.

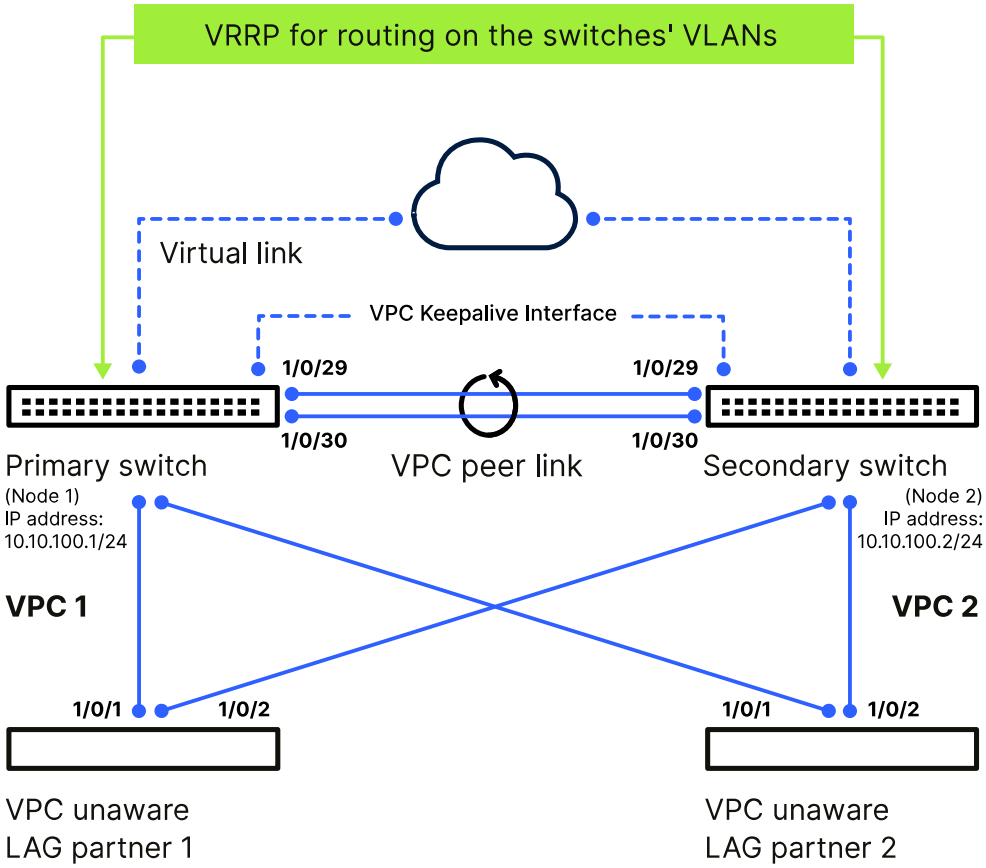

Figure 1:
Virtual Port Channel

The commands below must all be executed in a coordinated manner on both switches. In this example, the configuration is carried out using two LANCOM XS-4530YUP switches.

1) Assign system name

In order to clearly identify the switches during configuration, the host name should be set correspondingly. The host name is always displayed on the command line at the beginning of a prompt:

Setting the hostname via CLI

VPC_1_Node_1	VPC_1_Node_2
(XS-4530YUP)>en (XS-4530YUP)#hostname VPC_1_Node_1 (VPC_1_Node_1)#	(XS-4530YUP)>en (XS-4530YUP)#hostname VPC_1_Node_2 (VPC_1_Node_2)#

2) Switch stacking ports to Ethernet ports

Most of the LANCOM VPC-enabled switches are also capable of stacking. However, VPC and stacking are mutually exclusive. A switch that is a member of a VPC domain cannot be a member of a stack at the same time. Stacked switches can of course be redundantly connected to a VPC domain as “VPC Unaware LAG partners” via LACP. If the switch used is stacking-capable, the predefined stacking ports should be put into Ethernet mode. This eliminates accidental stacking (stacks are formed automatically as soon as stacking ports are connected to stacking ports of a compatible switch) and the highest-value stacking ports are available for the VPC interconnect.

Displaying the port mode

VPC_1_Node_1 (example)

```
(VPC_1_Node_1)#show stack-port

                     Configured  Running
                     Stack       Stack       Link         Link
Unit Interface       Mode        Mode        Status       Speed (Gb/s)
---- --------------- ----------  ----------  -----------  ------------
1    0/25            Ethernet    Ethernet    Link Down    25
1    0/26            Ethernet    Ethernet    Link Down    25
1    0/27            Ethernet    Ethernet    Link Down    25
1    0/28            Ethernet    Ethernet    Link Down    25
1    0/29            Stack       Stack       Link Down    100
1    0/30            Stack       Stack       Link Down    100
```

Changing the port mode from Stack to Ethernet

VPC_1_Node_1

```
(VPC_1_Node_1)#conf
(VPC_1_Node_1)(Config)#stack
(VPC_1_Node_1)(Config-stack)#stack-port 1/0/29 ethernet
(VPC_1_Node_1)(Config-stack)#stack-port 1/0/30 ethernet
```

VPC_1_Node_2

```
(VPC_1_Node_2)#conf
(VPC_1_Node_2)(Config)#stack
(VPC_1_Node_2)(Config-stack)#stack-port 1/0/29 ethernet
(VPC_1_Node_2)(Config-stack)#stack-port 1/0/30 ethernet
```

The switch must be restarted to change the port mode. With `show stack-port` you can see that the current mode is still set to `Stack` , but the configured mode is already `Ethernet`. After saving the configuration and restarting the switch, the configuration is now `Ethernet` in both cases.

Check the port mode, save and restart the switch, check again

VPC_1_Node_1

```
(VPC_1_Node_1)>en
(VPC_1_Node_1)#show stack-port

                      Configured  Running
                      Stack       Stack       Link          Link
Unit Interface        Mode        Mode        Status        Speed (Gb/s)
---- ---------------- ----------  ----------  ------------  ------------
1    0/25             Ethernet    Ethernet    Link Down     25
1    0/26             Ethernet    Ethernet    Link Down     25
1    0/27             Ethernet    Ethernet    Link Down     25
1    0/28             Ethernet    Ethernet    Link Down     25
1    0/29             Ethernet    Stack       Link Down     100
1    0/30             Ethernet    Stack       Link Down     100

(VPC_1_Node_1)#write memory confirm
Config file 'startup-config' created successfully .

Configuration Saved!
(VPC_1_Node_1)#reload
Are you sure you want to reload the stack? (y/n) y

[… reboot Ausgabe gekürzt …]

(VPC_1_Node_1)>en
(VPC_1_Node_1)#show stack-p

                      Configured  Running
                      Stack       Stack       Link          Link
Unit Interface        Mode        Mode        Status        Speed (Gb/s)
---- ---------------- ----------  ----------  ------------  ------------
1    0/25             Ethernet    Ethernet    Link Down     25
1    0/26             Ethernet    Ethernet    Link Down     25
1    0/27             Ethernet    Ethernet    Link Down     25
1    0/28             Ethernet    Ethernet    Link Down     25
1    0/29             Ethernet    Ethernet    Link Down     100
1    0/30             Ethernet    Ethernet    Link Down     100
```

VPC_1_Node_2

```
(VPC_1_Node_2)>en
(VPC_1_Node_2)#show stack-port

                      Configured  Running
                      Stack       Stack       Link          Link
Unit Interface        Mode        Mode        Status        Speed (Gb/s)
---- ---------------- ----------  ----------  ------------  ------------
1    0/25             Ethernet    Ethernet    Link Down     25
1    0/26             Ethernet    Ethernet    Link Down     25
1    0/27             Ethernet    Ethernet    Link Down     25
1    0/28             Ethernet    Ethernet    Link Down     25
1    0/29             Ethernet    Stack       Link Down     100
1    0/30             Ethernet    Stack       Link Down     100
```

VPC_1_Node_2

```
(VPC_1_Node_2)#write memory confirm
Config file 'startup-config' created successfully .

Configuration Saved!
(VPC_1_Node_2)#reload
Are you sure you want to reload the stack? (y/n) y

[… reboot Ausgabe gekürzt …]

(VPC_1_Node_2)>en
(VPC_1_Node_2)#show stack-p

                     Configured  Running
                     Stack       Stack       Link         Link
Unit Interface       Mode        Mode        Status       Speed (Gb/s)
---- --------------- ----------- ----------- ------------ ------------
1    0/25            Ethernet    Ethernet    Link Down    25
1    0/26            Ethernet    Ethernet    Link Down    25
1    0/27            Ethernet    Ethernet    Link Down    25
1    0/28            Ethernet    Ethernet    Link Down    25
1    0/29            Ethernet    Ethernet    Link Down    100
1    0/30            Ethernet    Ethernet    Link Down    100
```

3) Activate feature

Activate VPC: Enables the VPC feature on the switch.

Create VPC VLAN and set up VLAN interface

VPC_1_Node_1

```
(VPC_1_Node_1)#
(VPC_1_Node_1)#config

(VPC_1_Node_1)(Config)#feature vpc

WARNING: VPC is supported only on standalone device; it is not
supported on stacked devices. VPC behavior is undefined if the
device is stacked with one another.

(VPC_1_Node_1)(Config)#
```

VPC_1_Node_2

```
(VPC_1_Node_2)#
(VPC_1_Node_2)#config

(VPC_1_Node_2)(Config)#feature vpc

WARNING: VPC is supported only on standalone device; it is not
supported on stacked devices. VPC behavior is undefined if the
device is stacked with one another.

(VPC_1_Node_2)(Config)#
```

4) Set up the VPC Control Plane

For the VPC keepalive (split-brain detection) of the VPC domain, both switches require a dedicated L3 interface. Use an outband interface (service port / OOB) or an inband interface (VLAN) for this task.

Option 4.1 / alternative 1 (outband)

The out-of-band configuration can be used if the members of the VPC domain are installed close to one another (e.g. in the same rack) or if an out-of-band management network is set up. Without out-of-band management, the service port (OOB, rear of the device) can be connected directly with a patch cable.

In this configuration, a split-brain situation can be detected even if the VPC peer link is down.

Set up VPC Keepalive on the service port

VPC_1_Node_1

```
(VPC_1_Node_1)>en

(VPC_1_Node_1)#serviceport ip 10.10.100.1 255.255.255.0
```

VPC_1_Node_2

```
(VPC_1_Node_2)>en

(VPC_1_Node_2)#serviceport ip 10.10.100.2 255.255.255.0
```

Option 4.2 / Alternative 2 (Inband)

The in-band configuration can be used for stretched VPC domains over long distances when direct cabling via the service port is not possible. It is also an option for VPC-capable switches that do not have a service port. In this case, a device failure of the peer node can be detected. However, the failure of the VPC peer link cannot be compensated because it transports both payload data and the keepalive.

However, it must be ensured in the following configuration that the VLAN used for the keepalive is not present on the VPC peer link, but is instead transmitted via a separate cable path. If the keepalive VLAN is present on the peer link, a potential failure of the peer link might not be detected correctly.

To do this, a new VLAN is first created in the VLAN database (VLAN ID 100 in the following example). The L3 VLAN interface is then created on VLAN 100 and the IP address is assigned according to the network plan. This new VLAN must then be specified as the new network management VLAN.

Turning the VLAN into a network management VLAN

VPC_1_Node_1

```
(VPC_1_Node_1)>network mgmt_vlan 100
```

VPC_1_Node_2

```
(VPC_1_Node_2)>network mgmt_vlan 100
```

Set up VPC Keepalive on a VLAN interface

VPC_1_Node_1

```
(VPC_1_Node_1)>en
(VPC_1_Node_1)#vlan database
(VPC_1_Node_1)(Vlan)#vlan 100
(VPC_1_Node_1)(Vlan)#vlan routing 100
(VPC_1_Node_1)(Vlan)#exit
(VPC_1_Node_1)#configure
(VPC_1_Node_1)(Config)#interface vlan 100
(VPC_1_Node_1)(Interface vlan 100)#ip address 10.10.100.1 /24
(VPC_1_Node_1)(Interface vlan 100)#exit
(VPC_1_Node_1)(Config)#
```

VPC_1_Node_2

```
(VPC_1_Node_2)>en
(VPC_1_Node_2)#vlan database
(VPC_1_Node_2)(Vlan)#vlan 100
(VPC_1_Node_2)(Vlan)#vlan routing 100
(VPC_1_Node_2)(Vlan)#exit
(VPC_1_Node_2)#conf
(VPC_1_Node_2)(Config)#interface vlan 100
(VPC_1_Node_2)(Interface vlan 100)#ip address 10.10.100.2 /24
(VPC_1_Node_2)(Interface vlan 100)#exit
(VPC_1_Node_2)(Config)#
```

In the next step, the VPC domain is set up and the peer keepalive is configured to the IP address of the other switch. The lower role priority sets the switch VPC1_Node_1 as the VPC primary node.

Create VPC VLAN and set up VLAN interface

VPC_1_Node_1

```
(VPC_1_Node_1)>en
(VPC_1_Node_1)#configure
(VPC_1_Node_1)(Config)#vpc domain 1
(VPC_1_Node_1)(Config-VPC 1)#peer-keepalive destination 10.10.100.2
                                                        source 10.10.100.1

This command will not take effect until the peer detection is disabled and
re-enabled.

(VPC_1_Node_1)(Config-VPC 1)#peer detection enable
(VPC_1_Node_1)(Config-VPC 1)#peer-keepalive enable
(VPC_1_Node_1)(Config-VPC 1)#role priority 10
```

VPC_1_Node_2

```
(VPC_1_Node_2)>en
(VPC_1_Node_2)#configure
(VPC_1_Node_2)(Config)#vpc domain 1
(VPC_1_Node_2)(Config-VPC 1)#peer-keepalive destination 10.10.100.1
                                                        source 10.10.100.2

This command will not take effect until the peer detection is disabled and
re-enabled.

(VPC_1_Node_2)(Config-VPC 1)#peer detection enable
(VPC_1_Node_2)(Config-VPC 1)#peer-keepalive enable
(VPC_1_Node_2)(Config-VPC 1)#role priority 20
```

5) Assign system MAC address

Both devices of the VPC group in the VPC LAG role must appear as a single device to non-VPC-capable lower-layer devices, so the same virtual system MAC must be assigned (default 00:00:00:00:00:00). The default MAC should urgently be changed to a single unique address, even if only one VPC domain is currently in use. Otherwise, having more than one VPC domain connected to a lower-layer switch may lead to failures.

To avoid conflicts with other systems, we recommend that you use a Locally Administered MAC Address (LAA). If a MAC address generator is used, make sure that the U/L flag = 1 (LAA).

Create VPC VLAN and set up VLAN interface

VPC_1_Node_1

```
(VPC_1_Node_1)>en
(VPC_1_Node_1)#configure
(VPC_1_Node_1)(Config)#vpc domain 1
(VPC_1_Node_1)(Config-VPC 1)#system-mac 7A:E6:B0:6D:DD:EE !Eigene MAC!

The configured VPC MAC address becomes operational only after both the VPC
devices perform primary role re-election(if primary device already
exists).

(VPC_1_Node_1)(Config-VPC 1)#
```

VPC_1_Node_2

```
(VPC_1_Node_2)>en
(VPC_1_Node_2)#configure
(VPC_1_Node_2)(Config)#vpc domain 1
(VPC_1_Node_2)(Config-VPC 1)#system-mac 7A:E6:B0:6D:DD:EE !Eigene MAC!

The configured VPC MAC address becomes operational only after both the VPC
devices perform primary role re-election(if primary device already
exists).

(VPC_1_Node_2)(Config-VPC 1)#
```

6) Create VPC peer link

Next, a static LAG is created for the VPC peer link and assigned to the physical ports. The Spanning Tree Protocol must be disabled on the VPC Interconnect. The example uses LAG1 and physical ports 1/0/29 and 1/0/30 (see network diagram).

Configuring the VPC Interconnect

VPC_1_Node_1

```
(VPC_1_Node_1)(Config)#interface lag 1
(VPC_1_Node_1)(Interface lag 1)#description "VPC-Peer-Link"
(VPC_1_Node_1)(Interface lag 1)#no spanning-tree port mode
(VPC_1_Node_1)(Interface lag 1)#vpc peer-link
(VPC_1_Node_1)(Interface lag 1)#exit
(VPC_1_Node_1)(Config)#interface 1/0/29-1/0/30
(VPC_1_Node_1)(Interface 1/0/29-1/0/30)#addport lag 1
(VPC_1_Node_1)(Interface 1/0/29-1/0/30)#description "VPC-Peer-Link"
(VPC_1_Node_1)(Interface 1/0/29-1/0/30)#exit
```

VPC_1_Node_2

```
(VPC_1_Node_2)(Config)#interface lag 1
(VPC_1_Node_2)(Interface lag 1)#description "VPC-Peer-Link"
(VPC_1_Node_2)(Interface lag 1)#no spanning-tree port mode
(VPC_1_Node_2)(Interface lag 1)#vpc peer-link
(VPC_1_Node_2)(Interface lag 1)#exit
(VPC_1_Node_2)(Config)#interface 1/0/29-1/0/30
(VPC_1_Node_2)(Interface 1/0/29-1/0/30)#addport lag 1
(VPC_1_Node_2)(Interface 1/0/29-1/0/30)#description "VPC-Peer-Link"
(VPC_1_Node_2)(Interface 1/0/29-1/0/30)#exit
```

Outside of the VPC, the VPC Interconnect functions like a regular uplink. Here, too, all configured VLANs must be able to be transmitted. The VLAN-Range command as shown configures all known VLANs on the LAG. If additional VLANs are created, they must be added subsequently to the Interconnect.

Assign the configured VLANs to the VPC peer link
When using out-of-band management as a keep-alive link:

VPC_1_Node_1

```
(VPC_1_Node_1)#conf
(VPC_1_Node_1)(Config)#interface lag 1
(VPC_1_Node_1)(Interface lag 1)#vlan participation include 1-4093
(VPC_1_Node_1)(Interface lag 1)#vlan tagging 2-4093
(VPC_1_Node_1)(Interface lag 1)#exit
(VPC_1_Node_1)(Config)#exit
(VPC_1_Node_1)#
```

VPC_1_Node_2

```
(VPC_1_Node_2)#conf
(VPC_1_Node_2)(Config)#interface lag 1
(VPC_1_Node_2)(Interface lag 1)#vlan participation include 1-4093
(VPC_1_Node_2)(Interface lag 1)#vlan tagging 2-4093
(VPC_1_Node_2)(Interface lag 1)#exit
(VPC_1_Node_2)(Config)#exit
(VPC_1_Node_2)#
```

Assign the configured VLANs to the VPC peer link
When using a VLAN interface as a keep-alive link (VLAN 100 in the current example):

VPC_1_Node_1

```
(VPC_1_Node_1)#conf
(VPC_1_Node_1)(Config)#interface lag 1
(VPC_1_Node_1)(Interface lag 1)#vlan participation include 1-99,101-4093
(VPC_1_Node_1)(Interface lag 1)#vlan tagging 2-99,101-4093
(VPC_1_Node_1)(Interface lag 1)#vlan participation exclude 100
(VPC_1_Node_1)(Interface lag 1)#exit
(VPC_1_Node_1)(Config)#exit
(VPC_1_Node_1)
```

VPC_1_Node_2

```
(VPC_1_Node_2)#conf
(VPC_1_Node_2)(Config)#interface lag 1
(VPC_1_Node_2)(Interface lag 1)#vlan participation include 1-99,101-4093
(VPC_1_Node_2)(Interface lag 1)#vlan tagging 2-99,101-4093
(VPC_1_Node_2)(Interface lag 1)#vlan participation exclude 100
(VPC_1_Node_2)(Interface lag 1)#exit
(VPC_1_Node_2)(Config)#exit
(VPC_1_Node_2)#
```

7) Enable UDLD (optional / if required)

If the VPC domain covers long distances via fiber-optic cables, it can occur that one of the fiber pairs fails at one end (e.g. mechanical damage). In this case, from the perspective of a switch, the transmit direction is disturbed, while the receive direction still works. The switch with a functional receive direction has no way of detecting a failure in the send direction, so it continues to send on this interface, which leads to packet loss. The UDLD (Unidirectional Link Detection) function provides a solution here. This takes the port affected by the fault completely out of service. For short connections (short fiber-optic patch cables within a rack, or DAC cables) this step is usually unnecessary.

Assign the configured VLANs to the VPC peer link

VPC_1_Node_1

```
(VPC_1_Node_1)>en
(VPC_1_Node_1)#conf
(VPC_1_Node_1)(Config)#int 1/0/29-1/0/30
(VPC_1_Node_1)(Interface 1/0/29-1/0/30)#udld enable
(VPC_1_Node_1)(Interface 1/0/29-1/0/30)#udld port aggressive
(VPC_1_Node_1)(Interface 1/0/29-1/0/30)#exit
(VPC_1_Node_1)(Config)#exit
(VPC_1_Node_1)#
```

VPC_1_Node_2

```
(VPC_1_Node_2)>en
(VPC_1_Node_2)#conf
(VPC_1_Node_2)(Config)#int 1/0/29-1/0/30
(VPC_1_Node_2)(Interface 1/0/29-1/0/30)#udld enable
(VPC_1_Node_2)(Interface 1/0/29-1/0/30)#udld port aggressive
(VPC_1_Node_2)(Interface 1/0/29-1/0/30)#exit
(VPC_1_Node_2)(Config)#exit
(VPC_1_Node_2)#
```

8) Connecting a lower-layer switch via LACP (Link-Aggregation Control Protocol)

The redundant connection of a lower-layer switch is shown using the example of a LANCOM GS-3652X. For this example, additional VLANs were created in the VLAN database (10-170) and assigned to the VPC peer link as described above. On the VPC domain side, interfaces 1/0/1 are used on both nodes and interfaces 1/0/1-1/0/2 are used on the GS-3652X on the lower layer.

In the LAG 2 configuration, `vpc2` specifies the shared port-channel ID within the VPC domain. For the sake of clarity, it is advisable to use the local port-channel IDs (light blue) on both nodes and also the VPC port-channel ID (electric blue) to match. The local LAG IDs of the VPC nodes do not have to match one another or the VPC

LAG ID. It is important that the connection of a logical VPC LAG to a third-party device always has the same VPC port channel ID.

Create the VPC port channel on the nodes of the VPC domain 1

VPC_1_Node_1

```
(VPC_1_Node_1)>en
(VPC_1_Node_1)#conf
(VPC_1_Node_1)(Config)#interface 1/0/1
(VPC_1_Node_1)(Interface 1/0/1)#description LAG2-Downlink-GS-3652X
(VPC_1_Node_1)(Interface 1/0/1)#addport lag 2
(VPC_1_Node_1)(Interface 1/0/1)#exit
(VPC_1_Node_1)(Config)#interface lag 2
(VPC_1_Node_1)(Interface lag 2)#description Downlink-GS-3652X
(VPC_1_Node_1)(Interface lag 2)#no port-channel static
(VPC_1_Node_1)(Interface lag 2)#vlan participation include 1,10-170
(VPC_1_Node_1)(Interface lag 2)#vlan tagging 10-170
(VPC_1_Node_1)(Interface lag 2)#vpc 2
(VPC_1_Node_1)(Interface lag 2)#exit
(VPC_1_Node_1)(Config)#exit
(VPC_1_Node_1)#write memory con
Config file 'startup-config' created successfully.

Configuration Saved!
(VPC_1_Node_1)#
```

VPC_1_Node_2

```
(VPC_1_Node_2)>en
(VPC_1_Node_2)#conf
(VPC_1_Node_2)(Config)#interface 1/0/1
(VPC_1_Node_2)(Interface 1/0/1)#description LAG2-Downlink-GS-3652X
(VPC_1_Node_2)(Interface 1/0/1)#addport lag 2
(VPC_1_Node_2)(Interface 1/0/1)#exit
(VPC_1_Node_2)(Config)#interface lag 2
(VPC_1_Node_2)(Interface lag 2)#description Downlink-GS-3652X
(VPC_1_Node_2)(Interface lag 2)#no port-channel static
(VPC_1_Node_2)(Interface lag 2)#vlan participation include 10-170
(VPC_1_Node_2)(Interface lag 2)#vlan tagging 10-170
(VPC_1_Node_2)(Interface lag 2)#vpc 2
(VPC_1_Node_2)(Interface lag 2)#exit
(VPC_1_Node_2)(Config)#exit
(VPC_1_Node_2)#write memory confirm
Config file 'startup-config' created successfully.

Configuration Saved!
(VPC_1_Node_2)#
```

The switch on the lower layer can then be configured.

Create the VPC port channel on the nodes of the VPC domain 1

GS-3652X (VPC Unaware LAG Partner)

```
GS-3652X#
GS-3652X# conf
GS-3652X(config)#
GS-3652X(config)# int GigabitEthernet 1/1-2
GS-3652X(config-if)# description LAG-Uplink
GS-3652X(config-if)# aggregation group 1 mode active
GS-3652X(config-if)# switchport mode hybrid
GS-3652X(config-if)# switchport hybrid allowed vlan all
GS-3652X(config-if)# exit
GS-3652X(config)# exit
GS-3652X# copy running-config startup-config
Building configuration...
% Saving 14319 bytes to flash:startup-config
GS-3652X#
```

After successful configuration and cabling, check the configuration with the following commands:

Checking the configuration on VPC_1_Node_1 (example)

```
(VPC_1_Node_1)(Config)#show interfaces status lag 2

                                Link   Physical   Physical   Media      Flow
Port      Name                  State  Mode       Status     Type       Control    VLAN
--------- --------------------- ------ ---------- ---------- ---------- ---------- ----------
0/3/2     Downlink-GS-3652X     Up                                                 1,10-170

(VPC_1_Node_1)(Config)#
```

```
(VPC_1_Node_1)(Config)#show interfaces status all

                                Link   Physical   Physical   Media      Flow
Port      Name                  State  Mode       Status     Type       Control    VLAN
--------- --------------------- ------ ---------- ---------- ---------- ---------- ----------
1/0/1     LAG2-Downlink-GS-3652X Up     Auto       1000 Full  Copper     Inactive   1,10-170

[… Ausgabe gekürzt …]

1/0/29    VPC-Peer-Link         Down   100G Full                        Inactive
1/0/30    VPC-Peer-Link         Up     100G Full  100G Full  Unknown    Inactive   1,10-170
0/3/1     VPC-Peer-Link         Up                                                 1,10-170
0/3/2     Downlink-GS-3652X     Up                                                 1,10-170

[… Ausgabe gekürzt …]
```

```
(VPC_1_Node_1)(Config)#show vpc 2

VPC id# 2
-----------------
Config mode..................................... Enabled
Operational mode................................ Enabled
Port channel.................................... 0/3/2
VPC mode........................................ active-active
VPC revertive mode.............................. Not applicable

Local Members       Status
-----------------   ------
1/0/1               Up

Peer Members        Status
-----------------   ------
1/0/1               Up

(VPC_1_Node_1)(Config)#
```

Checking the configuration on VPC_1_Node_1 (example)

```
(VPC_1_Node_1)(Config)#show lacp partner 1/0/1

        Sys       System        Admin Prt   Prt      Admin
 Intf   Pri         ID          Key   Pri   Id       State
------- ----- ----------------- ----- ----- ----- -----------
1/0/1   32768 00:A0:57:1D:22:DD 1     32768 1     ACT|AGG|STO

(VPC_1_Node_1)(Config)#
```

```
(VPC_1_Node_1)(Config)#show vpc consistency-parameters interface lag 2

Parameter                 Value
------------------------- -------------------------------------------------
Port Channel Mode         Enabled
STP Mode                  Enabled
BPDU Filter Mode          Disabled
BPDU Flood Mode           Disabled
Auto-edge                 True
TCN Guard                 False
Port Cost                 10000
Edge Port                 False
Root Guard                False
Loop Guard                False
Hash Mode                 3
Minimum Links             1
Channel Type              Dynamic
Configured VLANs          1,10-170
MTU                       1518

Active Port    Speed       Duplex
------------   ---------   --------
1/0/1          1000        Full

MST VLAN Configuration

Instance    Associated VLANs
----------  ------------------------------------------------
0           1,10-170

PV(R)STP Configuration:

STP port-priority: 128

VLAN port-priority cost
---- ------------- ---------
1    33795         0
10   0             0
11   0             0
12   0             0
[… Output shortened …]
```

Functional test

GS-3652X (VPC Unaware LAG Partner)

```
GS-3652X# show lacp neighbor details
Aggr ID  Partner System ID  Partner Prio  Partner Key  Last Changed
-------  -----------------  ------------  -----------  ------------
1        7a:e6:b0:6d:dd:ee  32767         1027         00:14:49

Port        State     Aggr ID  Partner Key   Partner Port  Partner Port Prio  Activit
----------  --------  -------  ------------  ------------  -----------------  -------
Gi 1/1      Active    1        1027          1291          128                Active
Gi 1/2      Active    1        1027          1             128                Active

                                  Timeout  Aggregee  Synchro  Collect  Distrib  Default  Expired
                                  -------  -------  -------  -------  -------  -------  -------
                                  Slow     Yes      Yes      Yes      Yes      No       No
                                  Slow     Yes      Yes      Yes      Yes      No       No
GS-3652X#
```

```
GS-3652X# show aggregation
Aggr ID  Name    Type           Speed     Configured Ports          Aggregated Ports
-------  ------  -------------  --------  -----------------------  ----------------------------
1        LLAG1   LACP_ACTIVE    1G        GigabitEthernet 1/1-2    GigabitEthernet 1/1-2
```

VPC is now successfully configured.

Further information

For a full overview of VPC commands, see the CLI Reference Manual LCOS SX 5.20. General configuration instructions and assistance can also be found in the LANCOM Support Knowledge Base under “Articles on Switches & Switching”.

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