

Configuració de xarxa

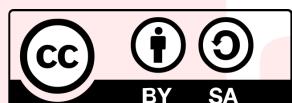
Configuració de xarxa

Exemple d'esquema de xarxa en el model de centre

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Virtualització als centres educatius
amb LliureX i Proxmox



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Valencià

Activitat

L'activitat que vos proposem és crear un esquema de la vostra xarxa, aquest esquema ha de ser semblant a aquest:

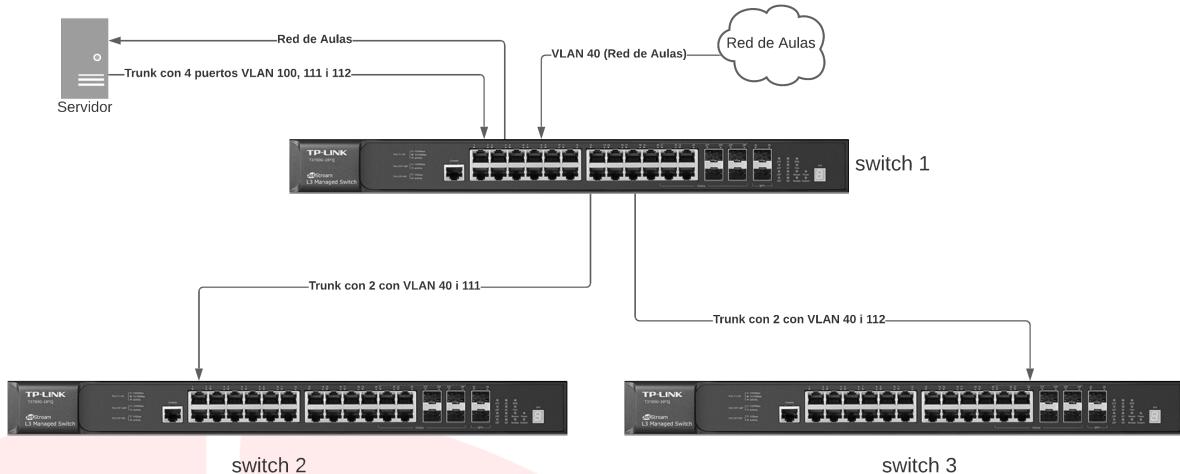


Figura 1: Esquema de xarxa

Si no disposeu de temps o la vostra xarxa del centre és massa complexa, podeu utilitzar l'esquema ací proposat. Podeu utilitzar el switch que vullgueu i la configuració de xarxa que desitgeu.

Característiques de la xarxa

La xarxa ha de tenir al menys les següents característiques:

Switch	Característiques
Router	Servirà la VLAN 40 que es la xarxa de Aules
Switch 1	Entrada de la red d'Aules, trunk amb 4 ports per a l'hipervisor, aquest servirà la VLAN 100, 111 i 112, trunk de 2 ports per als altres dos switchs

Switch	Característiques
Switch 2	Trunk amb 2 ports i donar servei en la resta de ports a ordinadors de la VLAN 40 i 111
Switch 3	Trunk amb 2 ports i donar servei en la resta de ports a ordinadors de la VLAN 40 i 112



Els ports podeu escollir-los vosaltres, el criteri comú és utilitzar els últims ports per a fer el trunk. La resta de ports els heu de deixar configurats per a donar servei als ordinadors. La red d'aules es connecta sempre al port 1 del switch 1 (pista: com untagged 40)

Procediment de l'activitat

1. Organitzar el plantejament. És important que vos feu un esquema abans de començar amb paper i boli. L'activitat no és gens complexa, però cal tenir clar el que es fa.
2. Realitzar el esquema de la xarxa, es pot fer a mà o utilitzar algun programa com lucidchart
3. Configurar els 3 switchs. Es pot utilitzar el switch que vullgueu per a fer la configuració. Si no disposeu de switch podeu utilitzat un emulador de switch. Nosaltres vos proposem aquests:
4. tp-link 3700g
5. tp-link 2600g
6. Realitzar captures de pantalla de cada pas.



Els emuladors no guarden la configuració quan li doneu a apply, per tant heu d'anar fent captura de pantalla abans de sortir de la pàgina.

Aconseguir Apte en l'activitat

L'activitat es considerarà APTA si es fan tots els punts. S'ha d'entregar un full en format pdf amb les següents captures de pantalla:

- Configuració de cada VLAN amb cada switch
- Configuració del trunk

Exemple de captures de pantalla

Es mostres exemples per a un dels switch (les pantalles no corresponen a la tasca correcta obviament), i haureu de mostrar més pantalles per al switch 1:

The screenshot shows the configuration interface for a TP-Link T3700G-28TQ switch. The left sidebar contains a navigation menu with options like System, Stack, Switching, VLAN, Spanning Tree, Multicast, Routing, Multicast Routing, QoS, ACL, Network Security, SNMP, LLDP, Maintenance, Save Config, Index, and Logout. The main content area has tabs for LAG Table, Static LAG, and LACP Config, with LACP Config selected. The Global Config section shows the System Priority set to 32768. The LACP Config section displays a table for UNIT 1 with 15 ports (Gi1/0/1 to Gi1/0/15). All three ports (Gi1/0/1, Gi1/0/2, and Gi1/0/3) have their Admin Key and Port Priority set to 0 and 128 respectively, and are configured in Passive mode. Their Status is set to Disable. The table includes columns for Select, Port, Admin Key, Port Priority(0-65535), Mode, Status, and LAG. Buttons at the bottom include All, Apply, and Help.

Select	Port	Admin Key	Port Priority(0-65535)	Mode	Status	LAG
<input type="checkbox"/>	Gi1/0/1	0	128	Passive	Disable	---
<input checked="" type="checkbox"/>	Gi1/0/2	0	128	Passive	Disable	---
<input checked="" type="checkbox"/>	Gi1/0/3	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/4	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/5	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/6	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/7	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/8	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/9	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/10	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/11	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/12	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/13	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/14	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/15	0	128	Passive	Disable	---

Note:

1. To avoid any broadcast storm when LACP takes effect, you are suggested to enable Spanning Tree function.
2. LACP function can not be enabled for the port already in a static link aggregation group.

Figura 2: Exemple de trunk

The screenshot shows the 'VLAN Config' tab selected in the T3700G-28TQ web interface. On the left, a navigation menu lists various configuration sections. The 'VLAN' section is expanded, showing options like 802.1Q VLAN, MAC VLAN, Protocol VLAN, VLAN VPN, GVRP, Private VLAN, Spanning Tree, Multicast, Routing, Multicast Routing, QoS, ACL, Network Security, SNMP, LLDP, Maintenance, Save Config, Index, and Logout.

In the main area, under 'VLAN Info', the VLAN ID is set to 170 (2 - 4093) and the name is 'Ordinador' (16 characters maximum). The 'Untagged port' section shows ports 2, 4, 6, 8, 10, 12, 14, 16, 18, 20 assigned to UNIT 1 LAGS. The 'Tagged port' section shows ports 2, 4, 6, 8, 10, 12, 14, 16, 18, 20 assigned to UNIT 1 LAGS. Buttons for 'All', 'Clear', 'Apply', and 'Help' are present. A legend at the bottom indicates: Unselected Port(s) (white), Selected Port(s) (blue), and Not Available for Selection (gray).

Figura 3: Exemple de VLAN

T3700G-28TQ

VLAN Config Port Config

VLAN Info

VLAN ID: (2 - 4093)

Name : (16 characters maximum)

Untagged port

UNIT: LAGS

2	4	6	8	10	12	14	16	18	20	22	24	26
1	3	5	7	9	11	13	15	17	19	21	23	25

All Clear

Tagged port

UNIT: LAGS

2	4	6	8	10	12	14	16	18	20	22	24	26
1	3	5	7	9	11	13	15	17	19	21	23	25

All Clear Apply Help

Unselected Port(s) Selected Port(s) Not Available for Selection

Logout

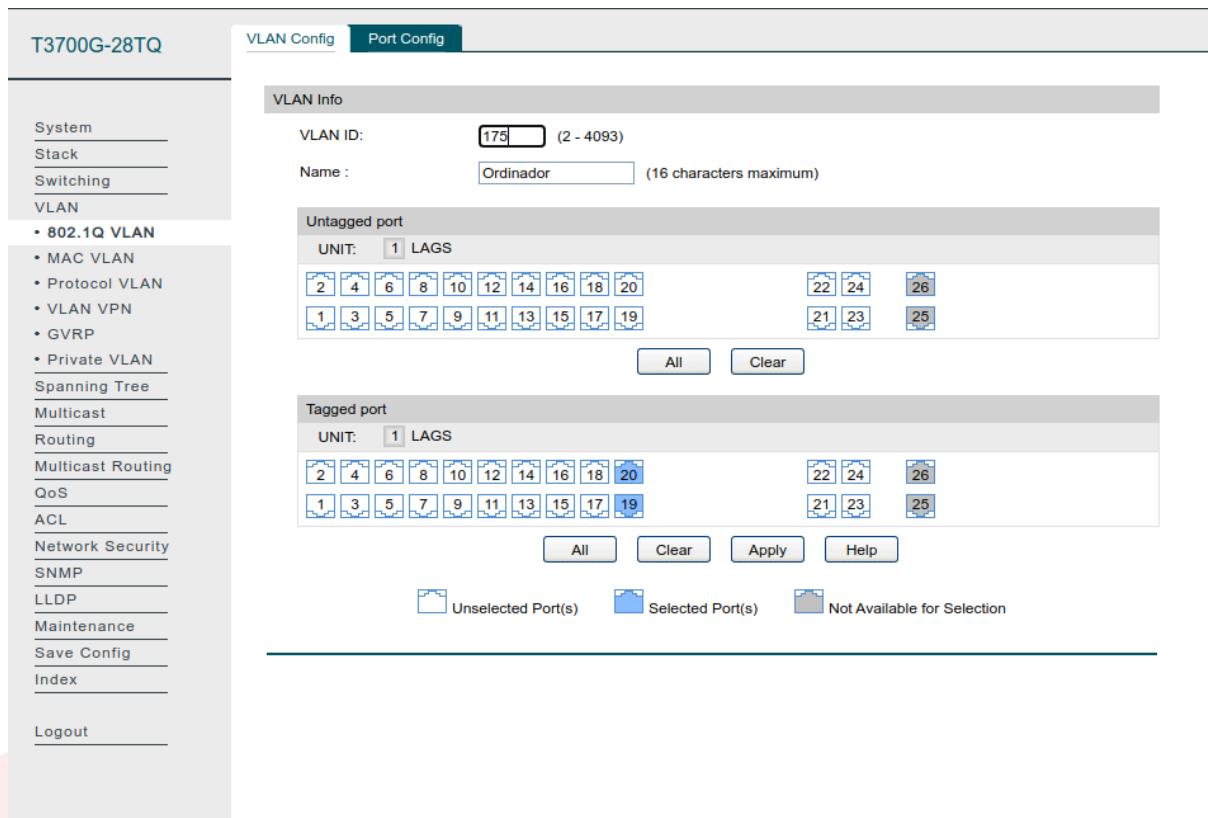


Figura 4: Exemple de VLAN

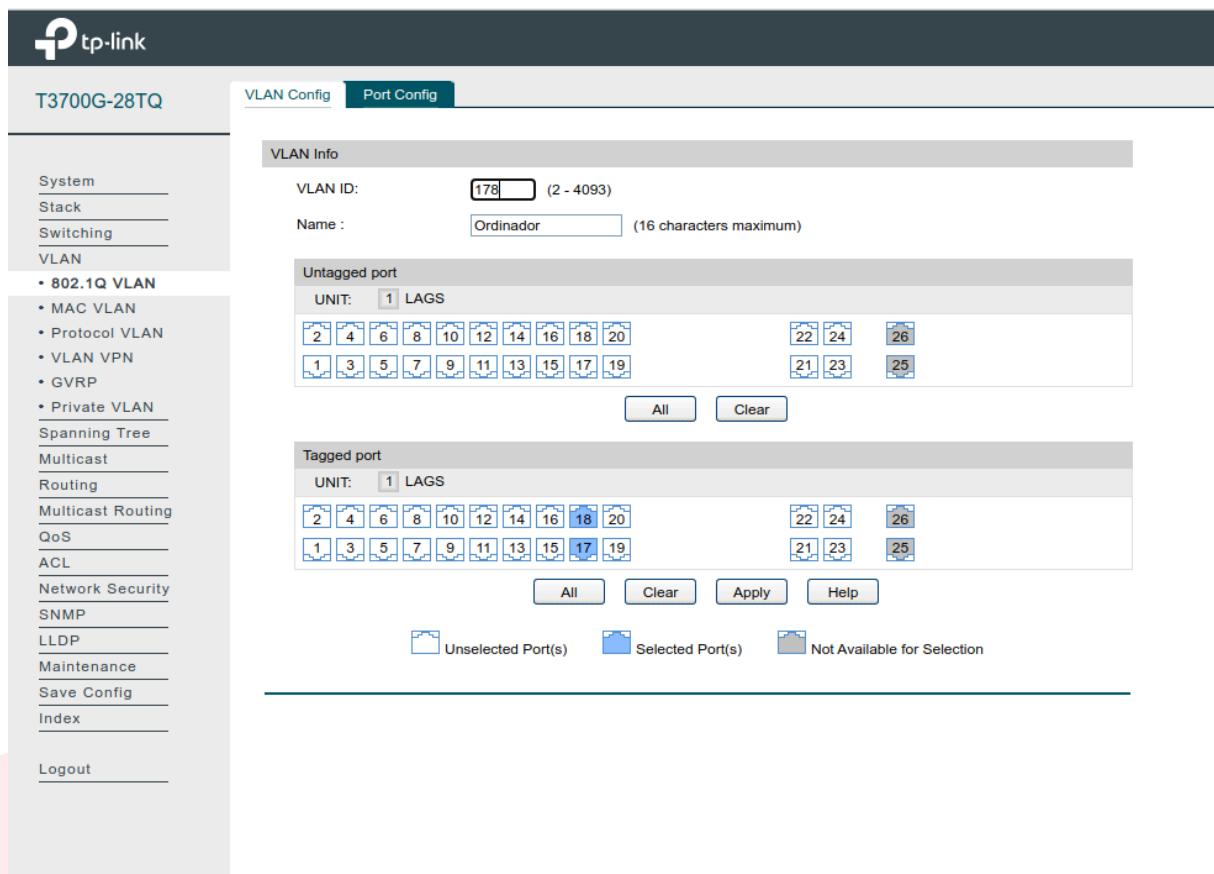


Figura 5: Exemple de VLAN

Global Config

System Priority: 32768 (0-65535)

LACP Config

UNIT: 1

Select	Port	Admin Key	Port Priority(0-65535)	Mode	Status	LAG
<input type="checkbox"/>	Gi1/0/12	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/13	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/14	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/15	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/16	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/17	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/18	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/19	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/20	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/21	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/22	0	128	Passive	Disable	---
<input checked="" type="checkbox"/>	Gi1/0/23	0	128	Passive	Disable	---
<input checked="" type="checkbox"/>	Gi1/0/24	0	128	Passive	Disable	---
<input type="checkbox"/>	Te1/0/25	0	128	Passive	Disable	---
<input type="checkbox"/>	Te1/0/26	0	128	Passive	Disable	---

Note:

1. To avoid any broadcast storm when LACP takes effect, you are suggested to enable Spanning Tree function.
2. LACP function can not be enabled for the port already in a static link aggregation group.

Figura 6: Exemple de trunk

The screenshot shows the configuration interface for a TP-Link T3700G-28TQ switch. The left sidebar contains a navigation menu with options like System, Stack, Switching, Port, LAG, Traffic Monitor, MAC Address, VLAN, Spanning Tree, Multicast, Routing, Multicast Routing, QoS, ACL, Network Security, SNMP, LLDP, Maintenance, Save Config, Index, and Logout. The main content area has tabs for LAG Table, Static LAG, and LACP Config, with LACP Config selected. The Global Config section shows 'System Priority: 32768 (0-65535)' with an 'Apply' button. The LACP Config section shows a table for UNIT 1 with columns: Select, Port, Admin Key, Port Priority(0-65535), Mode, Status, and LAG. The table lists ports Gi1/0/12 through Gi1/0/26 and Te1/0/25, Te1/0/26. Ports Gi1/0/21 and Gi1/0/22 have checkboxes checked under 'Select'. The 'Mode' column for all ports is set to 'Passive'. The 'Status' column shows 'Disable' for most ports, except for Gi1/0/21 and Gi1/0/22 which show 'Enable'. The 'LAG' column shows '---' for all ports. At the bottom of the LACP Config section are buttons for All, Apply, and Help.

Figura 7: Exemple de trunk

Select	Port	Admin Key	Port Priority(0-65535)	Mode	Status	LAG
<input checked="" type="checkbox"/>	Gi1/0/1	0	128	Passive	Disable	---
<input checked="" type="checkbox"/>	Gi1/0/2	0	128	Passive	Disable	---
<input checked="" type="checkbox"/>	Gi1/0/3	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/4	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/5	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/6	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/7	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/8	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/9	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/10	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/11	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/12	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/13	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/14	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/15	0	128	Passive	Disable	---

Note:

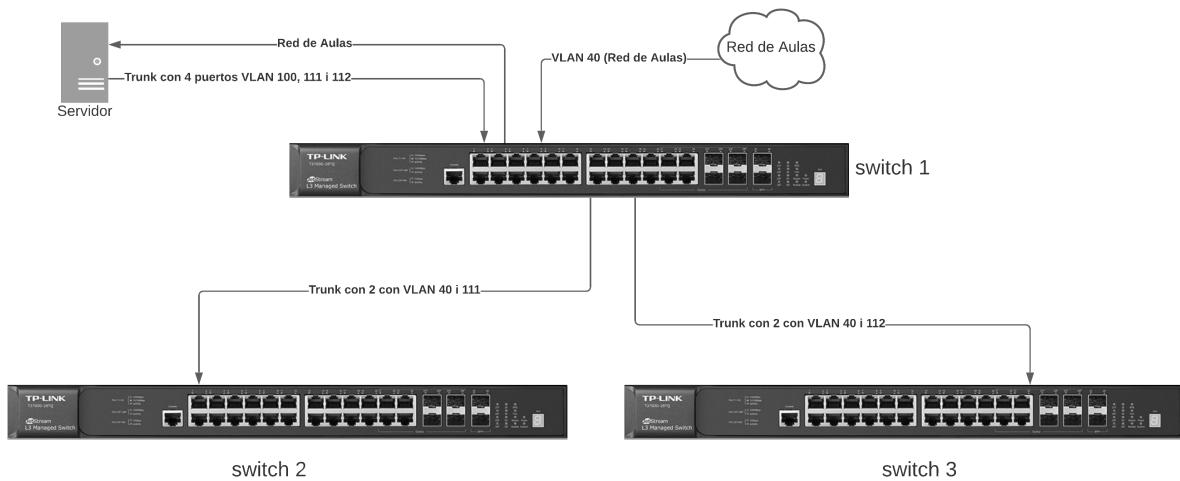
1. To avoid any broadcast storm when LACP takes effect, you are suggested to enable Spanning Tree function.
2. LACP function can not be enabled for the port already in a static link aggregation group.

Figura 8: Exemple de trunk

CASTELLANO

Actividad

La actividad que os proponemos es crear un esquema de vuestra red, este esquema debe ser similar a este:

**Figura 9:** Esquema de red

Si no disponéis de tiempo o vuestra red del centro es demasiado compleja, podéis utilizar el esquema aquí propuesto. Podéis utilizar el switch que queráis y la configuración de red que deseéis.

Características de la red

La red debe tener al menos las siguientes características:

Switch	Características
Router	Servirá la VLAN 40 que es la red de Aulas
Switch 1	Entrada de la red de Aulas, trunk con 4 puertos para el hipervisor, este servirá la VLAN 100, 111 y 112, trunk de 2 puertos para los otros dos switches

Switch	Características
Switch 2	Trunk con 2 puertos y dar servicio en el resto de puertos a ordenadores de la VLAN 40 y 111
Switch 3	Trunk con 2 puertos y dar servicio en el resto de puertos a ordenadores de la VLAN 40 y 112



Los puertos podéis elegirlos vosotros, el criterio común es utilizar los últimos puertos para hacer el trunk. El resto de puertos debéis dejarlos configurados para dar servicio a los ordenadores. La red de aulas se conecta siempre al puerto 1 del switch 1 (pista: como untagged 40)

Procedimiento de la actividad

1. Organizar el planteamiento. Es importante que os hagáis un esquema antes de comenzar con papel y bolígrafo. La actividad no es nada compleja, pero hay que tener claro lo que se hace.
2. Realizar el esquema de la red, se puede hacer a mano o utilizar algún programa como lucidchart.
3. Configurar los 3 switches. Se puede utilizar el switch que queráis para hacer la configuración. Si no disponéis de switch podéis utilizar un emulador de switch. Nosotros os proponemos estos:
4. tp-link 3700g
5. tp-link 2600g
6. Realizar capturas de pantalla de cada paso.



Los emuladores no guardan la configuración cuando le das a apply, por lo tanto debéis ir haciendo captura de pantalla antes de salir de la página.

Conseguir Apto en la actividad

La actividad se considerará APTA si se hacen todos los puntos. Se debe entregar una hoja en formato pdf con las siguientes capturas de pantalla:

- Configuración de cada VLAN con cada switch
- Configuración del trunk

Ejemplo de capturas de pantalla

Se muestran ejemplos para uno de los switches (las pantallas no corresponden a la tarea correcta obviamente), y deberéis mostrar más pantallas para el switch 1:

The screenshot shows the configuration interface for the tp-link T3700G-28TQ switch. The left sidebar contains navigation links for various system and switching functions. The main area is titled 'LAG Config' and displays two tabs: 'Global Config' and 'LACP Config'. Under 'LACP Config', a table lists 15 ports (Gi1/0/1 to Gi1/0/15) with their respective Admin Key, Port Priority, Mode (set to Passive), Status (set to Disable), and LAG (set to ---). The ports Gi1/0/1, Gi1/0/2, and Gi1/0/3 are selected, indicated by checked checkboxes in the 'Select' column.

Select	Port	Admin Key	Port Priority(0-65535)	Mode	Status	LAG
<input type="checkbox"/>	Gi1/0/1	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/2	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/3	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/4	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/5	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/6	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/7	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/8	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/9	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/10	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/11	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/12	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/13	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/14	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/15	0	128	Passive	Disable	---

Figura 10: Ejemplo de trunk

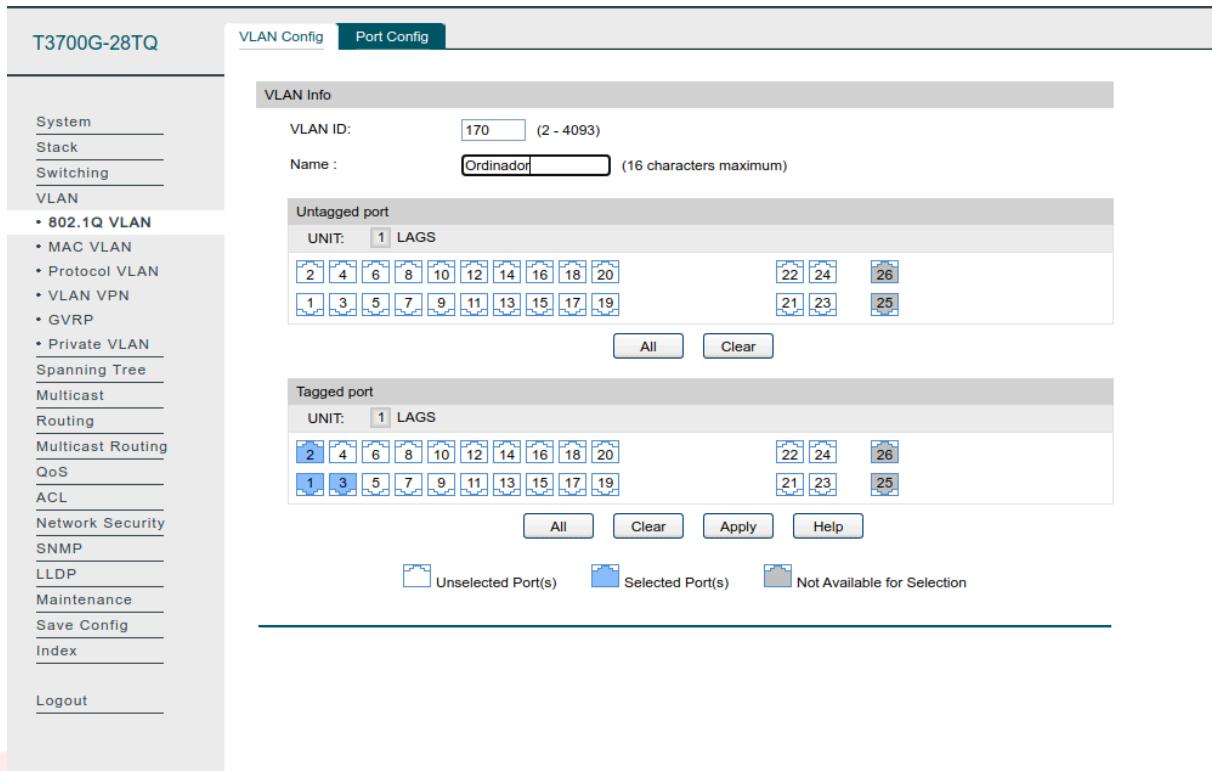


Figura 11: Ejemplo de VLAN

T3700G-28TQ

VLAN Config Port Config

VLAN Info

VLAN ID: (2 - 4093)

Name : (16 characters maximum)

Untagged port

UNIT: LAGS

2	4	6	8	10	12	14	16	18	20	22	24	26
1	3	5	7	9	11	13	15	17	19	21	23	25

All Clear

Tagged port

UNIT: LAGS

2	4	6	8	10	12	14	16	18	20	22	24	26
1	3	5	7	9	11	13	15	17	19	21	23	25

All Clear Apply Help

Unselected Port(s) Selected Port(s) Not Available for Selection

Logout

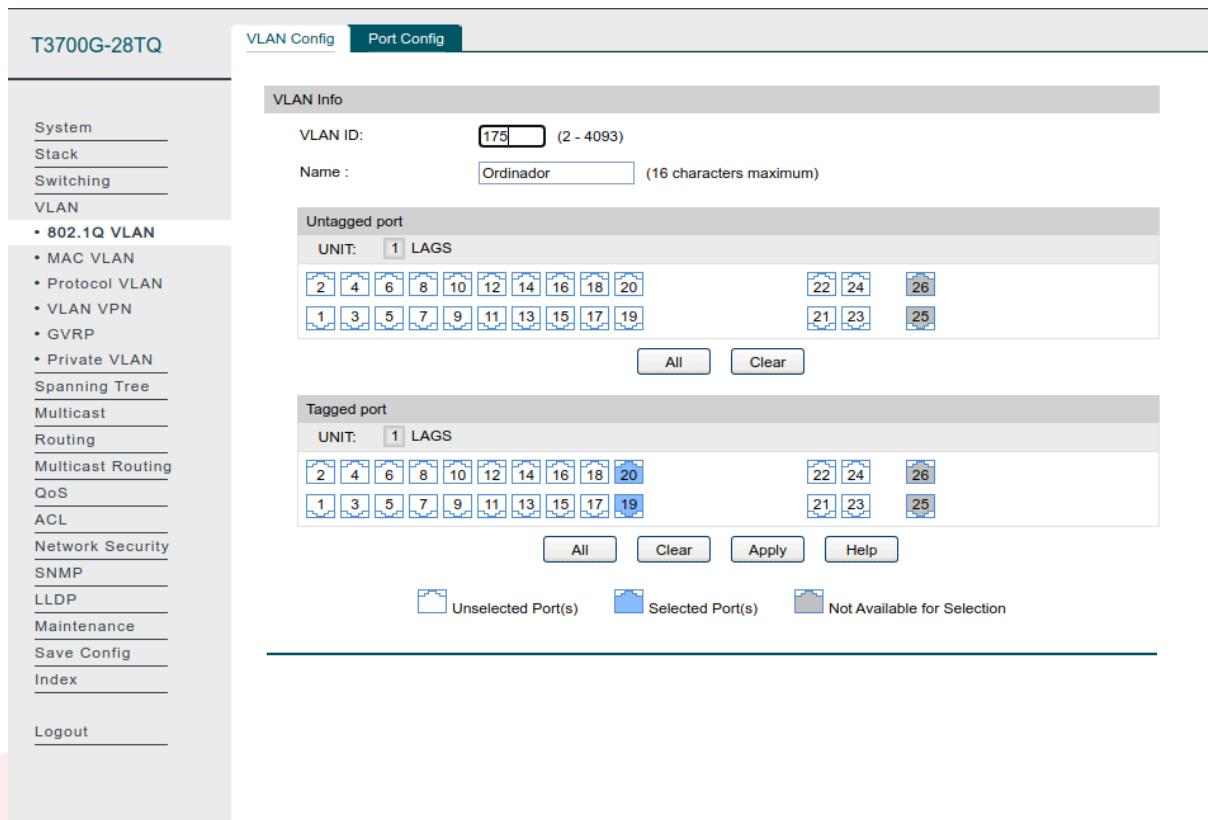


Figura 12: Ejemplo de VLAN

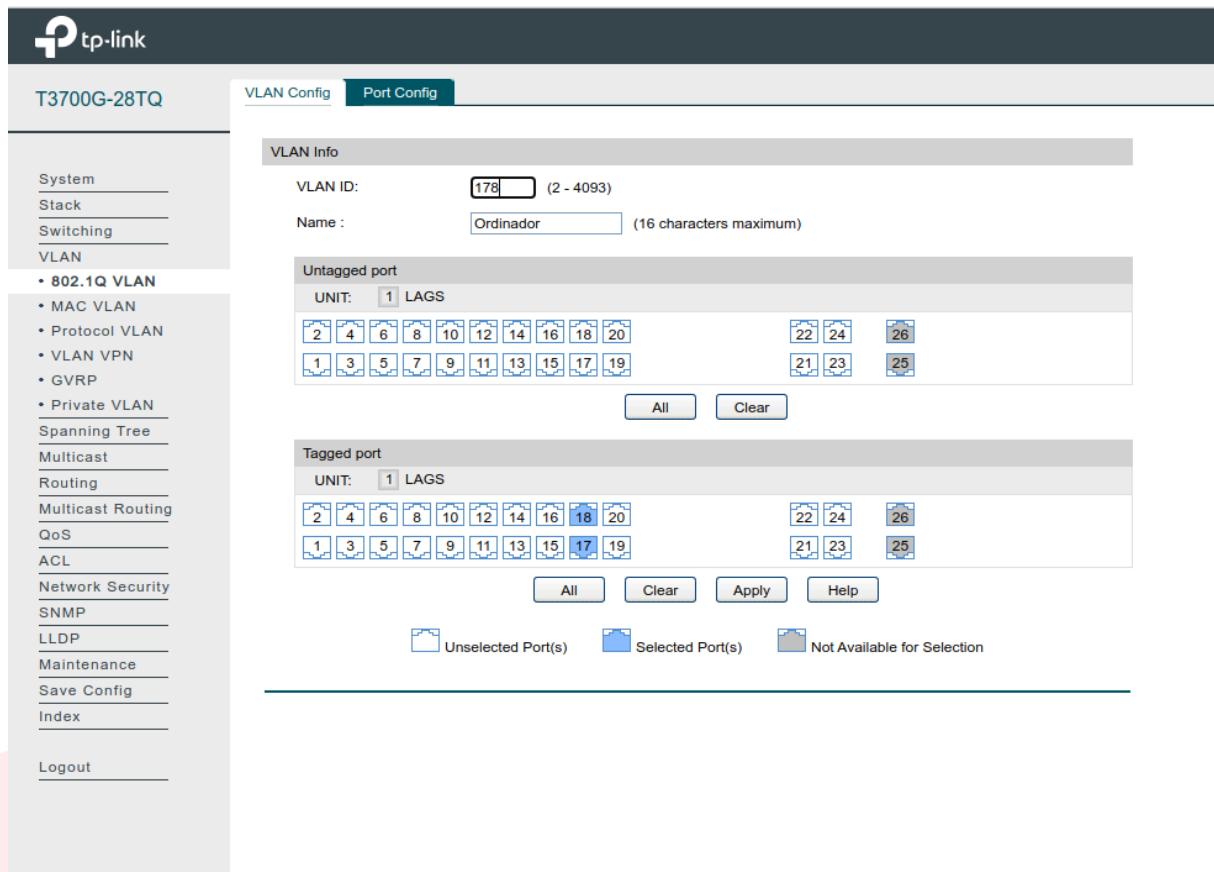


Figura 13: Ejemplo de VLAN

Global Config

System Priority: 32768 (0-65535)

LACP Config

UNIT: 1

Select	Port	Admin Key	Port Priority(0-65535)	Mode	Status	LAG
<input type="checkbox"/>	Gi1/0/12	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/13	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/14	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/15	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/16	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/17	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/18	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/19	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/20	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/21	0	128	Passive	Disable	---
<input type="checkbox"/>	Gi1/0/22	0	128	Passive	Disable	---
<input checked="" type="checkbox"/>	Gi1/0/23	0	128	Passive	Disable	---
<input checked="" type="checkbox"/>	Gi1/0/24	0	128	Passive	Disable	---
<input type="checkbox"/>	Te1/0/25	0	128	Passive	Disable	---
<input type="checkbox"/>	Te1/0/26	0	128	Passive	Disable	---

Note:

1. To avoid any broadcast storm when LACP takes effect, you are suggested to enable Spanning Tree function.
2. LACP function can not be enabled for the port already in a static link aggregation group.

Figura 14: Ejemplo de trunk

Global Config

System Priority: 32768 (0-65535)

LACP Config

UNIT:	1	Select	Port	Admin Key	Port Priority(0-65535)	Mode	Status	LAG
<input type="checkbox"/>	Gi1/0/12	0	128	Passive	Disable	---		
<input type="checkbox"/>	Gi1/0/13	0	128	Passive	Disable	---		
<input type="checkbox"/>	Gi1/0/14	0	128	Passive	Disable	---		
<input type="checkbox"/>	Gi1/0/15	0	128	Passive	Disable	---		
<input type="checkbox"/>	Gi1/0/16	0	128	Passive	Disable	---		
<input type="checkbox"/>	Gi1/0/17	0	128	Passive	Disable	---		
<input type="checkbox"/>	Gi1/0/18	0	128	Passive	Disable	---		
<input type="checkbox"/>	Gi1/0/19	0	128	Passive	Disable	---		
<input type="checkbox"/>	Gi1/0/20	0	128	Passive	Disable	---		
<input checked="" type="checkbox"/>	Gi1/0/21	0	128	Passive	Disable	---		
<input checked="" type="checkbox"/>	Gi1/0/22	0	128	Passive	Disable	---		
<input type="checkbox"/>	Gi1/0/23	0	128	Passive	Disable	---		
<input type="checkbox"/>	Gi1/0/24	0	128	Passive	Disable	---		
<input type="checkbox"/>	Te1/0/25	0	128	Passive	Disable	---		
<input type="checkbox"/>	Te1/0/26	0	128	Passive	Disable	---		

Note:

1. To avoid any broadcast storm when LACP takes effect, you are suggested to enable Spanning Tree function.
2. LACP function can not be enabled for the port already in a static link aggregation group.

Figura 15: Ejemplo de trunk

Global Config

System Priority: 32768 (0-65535)

LACP Config

UNIT:	1	Select	Port	Admin Key	Port Priority(0-65535)	Mode	Status	LAG
<input type="checkbox"/>	Gi1/0/1	<input checked="" type="checkbox"/>	0	128	Passive	Disable	---	
<input type="checkbox"/>	Gi1/0/2	<input checked="" type="checkbox"/>	0	128	Passive	Disable	---	
<input type="checkbox"/>	Gi1/0/3	<input checked="" type="checkbox"/>	0	128	Passive	Disable	---	
<input type="checkbox"/>	Gi1/0/4	<input type="checkbox"/>	0	128	Passive	Disable	---	
<input type="checkbox"/>	Gi1/0/5	<input type="checkbox"/>	0	128	Passive	Disable	---	
<input type="checkbox"/>	Gi1/0/6	<input type="checkbox"/>	0	128	Passive	Disable	---	
<input type="checkbox"/>	Gi1/0/7	<input type="checkbox"/>	0	128	Passive	Disable	---	
<input type="checkbox"/>	Gi1/0/8	<input type="checkbox"/>	0	128	Passive	Disable	---	
<input type="checkbox"/>	Gi1/0/9	<input type="checkbox"/>	0	128	Passive	Disable	---	
<input type="checkbox"/>	Gi1/0/10	<input type="checkbox"/>	0	128	Passive	Disable	---	
<input type="checkbox"/>	Gi1/0/11	<input type="checkbox"/>	0	128	Passive	Disable	---	
<input type="checkbox"/>	Gi1/0/12	<input type="checkbox"/>	0	128	Passive	Disable	---	
<input type="checkbox"/>	Gi1/0/13	<input type="checkbox"/>	0	128	Passive	Disable	---	
<input type="checkbox"/>	Gi1/0/14	<input type="checkbox"/>	0	128	Passive	Disable	---	
<input type="checkbox"/>	Gi1/0/15	<input type="checkbox"/>	0	128	Passive	Disable	---	

Note:

1. To avoid any broadcast storm when LACP takes effect, you are suggested to enable Spanning Tree function.
2. LACP function can not be enabled for the port already in a static link aggregation group.

Figura 16: Ejemplo de trunk