🔌 Mapeo Completo de Cableado Físico — Práctica 1, Grupo 34

> **#Grupo = 7** (3+4=7). Todos los cálculos ya están hechos con este valor.

📐 Resumen de la Topología

Elemento	Cantidad
Routers 2901	4 (Router0–Router3)
Switches 2960-24TT	24 (Switch0–Switch23)
PCs	8 (PC0–PC7)
Laptops	2 (Laptop0, Laptop1)
Total de cables	**53**

Puertos disponibles por dispositivo

Dispositivo	Puertos
Router 2901	Gi0/0, Gi0/1
Switch 2960-24TT	Fa0/1–Fa0/24, Gi0/1, Gi0/2
PC / Laptop	FastEthernet0

🔗 1. Conexiones Router ↔ Router

#	Origen	Puerto	← Cable →	Puerto	Destino	Red	Protocolo
1	Router0	**Gi0/0**	Cross-Over	**Gi0/0**	Router1	10.10.10.0/24	EIGRP
2	Router1	**Gi0/1**	Cross-Over	**Gi0/0**	Router2	10.10.9.0/24	RIP
3	Router2	**Gi0/1**	Cross-Over	**Gi0/0**	Router3	10.10.8.0/24	OSPF

IPs de enlaces entre routers

Dispositivo	Interfaz	IP	Protocolo
Router0	Gi0/0	10.10.10.1/24	EIGRP
Router1	Gi0/0	10.10.10.2/24	EIGRP
Router1	Gi0/1	10.10.9.1/24	RIP

Dispositivo	Interfaz	IP	Protocolo
Router2	Gi0/0	10.10.9.2/24	RIP
Router2	Gi0/1	10.10.8.1/24	OSPF
Router3	Gi0/0	10.10.8.2/24	OSPF

🔗 2. Conexiones Router ↔ Switch (Trunk)

#	Origen	Puerto	← Cable →	Puerto	Destino	Modo
4	Router0	**Gi0/1**	Straight-Through	**Gi0/1**	Switch0	Trunk
5	Router3	**Gi0/1**	Straight-Through	**Gi0/1**	Switch12	Trunk

> Router0 Gi0/1 → sub-interfaces para VLANs 17, 27, 37
> Router3 Gi0/1 → sub-interfaces para VLANs 67, 77, 87

🔗 3. EDIFICIO IZQUIERDO — Switch ↔ Switch (19 cables)

Capa 1 → Capa 2 (SW0 baja a SW1, SW2, SW3)

#	Origen	Puerto	← Cable →	Puerto	Destino	Tipo
6	Switch0	**Fa0/1**	Straight-Through	**Gi0/1**	Switch1	Trunk
7	Switch0	**Fa0/2**	Straight-Through	**Gi0/1**	Switch2	Trunk
8	Switch0	**Fa0/3**	Straight-Through	**Gi0/1**	Switch3	Trunk

Capa 2 → Capa 3 (SW1, SW2, SW3 bajan a SW4, SW5, SW6)

#	Origen	Puerto	← Cable →	Puerto	Destino	Tipo
9	Switch1	**Fa0/1**	Straight-Through	**Gi0/1**	Switch4	Trunk
10	Switch1	**Fa0/2**	Straight-Through	**Gi0/1**	Switch5	Trunk ⚡
11	Switch2	**Fa0/1**	Straight-Through	**Gi0/2**	Switch5	Trunk ⚡
12	Switch3	**Fa0/1**	Straight-Through	**Fa0/1**	Switch5	Trunk ⚡
13	Switch3	**Fa0/2**	Straight-Through	**Gi0/1**	Switch6	Trunk

> ⚡ = SW1, SW2 y SW3 **todos** bajan a SW5, creando rutas redundantes (PVST gestiona los loops).

Cross-Links Capa 3 (SW4 ↔ SW5 ↔ SW6)

#	Origen	Puerto	← Cable →	Puerto	Destino	Tipo
14	Switch4	**Fa0/1**	Straight-Through	**Fa0/2**	Switch5	Trunk 🔄

#	Origen	Puerto	← Cable →	Puerto	Destino	Tipo
15	Switch5	Fa0/3	Straight-Through	Fa0/1	Switch6	Trunk ⟳

> ⟳ = Cross-links horizontales entre switches de la misma capa. PVST decidirá cuáles bloquear.

Capa 3 → Capa 4 Access (bajada a SW7–SW11)

#	Origen	Puerto	← Cable →	Puerto	Destino	Tipo
16	Switch4	Fa0/2	Straight-Through	Gi0/1	Switch7	Trunk
17	Switch4	Fa0/3	Straight-Through	Gi0/1	Switch8	Trunk
18	Switch5	Fa0/4	Straight-Through	Gi0/2	Switch7	Trunk ⚡
19	Switch5	Fa0/5	Straight-Through	Gi0/2	Switch8	Trunk ⚡
20	Switch5	Fa0/6	Straight-Through	Gi0/1	Switch9	Trunk
21	Switch5	Fa0/7	Straight-Through	Gi0/1	Switch10	Trunk
22	Switch5	Fa0/8	Straight-Through	Gi0/1	Switch11	Trunk
23	Switch6	Fa0/2	Straight-Through	Gi0/2	Switch10	Trunk ⚡
24	Switch6	Fa0/3	Straight-Through	Gi0/2	Switch11	Trunk ⚡

> ⚡ = Doble uplink: SW7 y SW8 reciben de SW4 y SW5. SW10 y SW11 reciben de SW5 y SW6. PVST gestiona la redundancia.

🔗 4. EDIFICIO DERECHO — Switch ↔ Switch (19 cables)

Capa 1 → Capa 2 (SW12 baja a SW13, SW14, SW15)

#	Origen	Puerto	← Cable →	Puerto	Destino	Tipo
25	Switch12	Fa0/1	Straight-Through	Gi0/1	Switch13	Trunk
26	Switch12	Fa0/2	Straight-Through	Gi0/1	Switch14	Trunk
27	Switch12	Fa0/3	Straight-Through	Gi0/1	Switch15	Trunk

Capa 2 → Capa 3 (SW13, SW14, SW15 bajan a SW16, SW17, SW18)

#	Origen	Puerto	← Cable →	Puerto	Destino	Tipo
28	Switch13	Fa0/1	Straight-Through	Gi0/1	Switch16	Trunk
29	Switch13	Fa0/2	Straight-Through	Gi0/1	Switch17	Trunk ⚡
30	Switch14	Fa0/1	Straight-Through	Gi0/2	Switch17	Trunk ⚡
31	Switch15	Fa0/1	Straight-Through	Fa0/1	Switch17	Trunk ⚡

#	Origen	Puerto	← Cable →	Puerto	Destino	Tipo
32	Switch15	**Fa0/2**	Straight-Through	**Gi0/1**	Switch18	Trunk

> ⚡ = SW13, SW14 y SW15 **todos** bajan a SW17 (hub central del lado derecho). Rapid PVST gestiona los loops.

Cross-Links Capa 3 (SW16 ↔ SW17 ↔ SW18)

#	Origen	Puerto	← Cable →	Puerto	Destino	Tipo
33	Switch16	**Fa0/1**	Straight-Through	**Fa0/2**	Switch17	Trunk 🔄
34	Switch17	**Fa0/3**	Straight-Through	**Fa0/1**	Switch18	Trunk 🔄

> 🔄 = Cross-links horizontales. Rapid PVST decidirá cuáles bloquear.

Capa 3 → Capa 4 Access (bajada a SW19–SW23)

#	Origen	Puerto	← Cable →	Puerto	Destino	Tipo
35	Switch16	**Fa0/2**	Straight-Through	**Gi0/1**	Switch19	Trunk
36	Switch16	**Fa0/3**	Straight-Through	**Gi0/1**	Switch20	Trunk
37	Switch17	**Fa0/4**	Straight-Through	**Gi0/2**	Switch19	Trunk ⚡
38	Switch17	**Fa0/5**	Straight-Through	**Gi0/2**	Switch20	Trunk ⚡
39	Switch17	**Fa0/6**	Straight-Through	**Gi0/1**	Switch21	Trunk
40	Switch17	**Fa0/7**	Straight-Through	**Gi0/1**	Switch22	Trunk
41	Switch17	**Fa0/8**	Straight-Through	**Gi0/1**	Switch23	Trunk
42	Switch18	**Fa0/2**	Straight-Through	**Gi0/2**	Switch22	Trunk ⚡
43	Switch18	**Fa0/3**	Straight-Through	**Gi0/2**	Switch23	Trunk ⚡

> ⚡ = Doble uplink: SW19 y SW20 reciben de SW16 y SW17. SW22 y SW23 reciben de SW17 y SW18. SW21 solo recibe de SW17.

🔗 5. Conexiones Switch → Host (Access — 10 cables)

Edificio Izquierdo

#	Switch	Puerto	← Cable →	Host	Puerto Host	VLAN	Nombre
44	Switch7	**Fa0/1**	Straight-Through	PC0	FastEthernet0	**17**	Primaria 🎞
45	Switch8	**Fa0/1**	Straight-Through	PC1	FastEthernet0	**27**	Básicos 🔒 🩹
46	Switch9	**Fa0/1**	Straight-Through	Laptop0	FastEthernet0	**27**	Básicos 🔒 🩹

#	Switch	Puerto	← Cable →	Host	Puerto Host	VLAN	Nombre
47	Switch10	**Fa0/1**	Straight-Through	PC2	FastEthernet0	**37**	Bachillerato ▨
48	Switch11	**Fa0/1**	Straight-Through	PC3	FastEthernet0	**37**	Bachillerato ▨

Edificio Derecho

#	Switch	Puerto	← Cable →	Host	Puerto Host	VLAN	Nombre
49	Switch19	**Fa0/1**	Straight-Through	PC4	FastEthernet0	**77**	Básicos 🔒 🏷
50	Switch20	**Fa0/1**	Straight-Through	PC5	FastEthernet0	**67**	Primaria ▨
51	Switch21	**Fa0/1**	Straight-Through	Laptop1	FastEthernet0	**67**	Primaria ▨
52	Switch22	**Fa0/1**	Straight-Through	PC6	FastEthernet0	**87**	Bachillerato ▨
53	Switch23	**Fa0/1**	Straight-Through	PC7	FastEthernet0	**87**	Bachillerato ▨

> 🔒 = Requiere **Port-Security** (máx 1 MAC, violation shutdown). Solo VLANs "Básicos" (27 y 77).

🌐 6. Direccionamiento IP de Hosts

Edificio Izquierdo (Gateway = Router0 sub-interfaces Gi0/1)

Host	VLAN	IP	Máscara	Gateway
PC0	17 Primaria	192.178.17.2	255.255.255.0	192.178.17.1
PC1	27 Básicos	192.178.27.2	255.255.255.0	192.178.27.1
Laptop0	27 Básicos	192.178.27.3	255.255.255.0	192.178.27.1
PC2	37 Bachillerato	192.178.37.2	255.255.255.0	192.178.37.1
PC3	37 Bachillerato	192.178.37.3	255.255.255.0	192.178.37.1

Edificio Derecho (Gateway = Router3 sub-interfaces Gi0/1)

Host	VLAN	IP	Máscara	Gateway
PC4	77 Básicos	192.178.77.2	255.255.255.0	192.178.77.1
PC5	67 Primaria	192.178.67.2	255.255.255.0	192.178.67.1
Laptop1	67 Primaria	192.178.67.3	255.255.255.0	192.178.67.1
PC6	87 Bachillerato	192.178.87.2	255.255.255.0	192.178.87.1
PC7	87 Bachillerato	192.178.87.3	255.255.255.0	192.178.87.1

🏷 7. Sub-interfaces Router-on-a-Stick

Router0 — Gi0/1 (Edificio Izquierdo)

Sub-interfaz	VLAN	IP	Encapsulación
Gi0/1.17	17	192.178.17.1/24	dot1Q 17
Gi0/1.27	27	192.178.27.1/24	dot1Q 27
Gi0/1.37	37	192.178.37.1/24	dot1Q 37

Router3 — Gi0/1 (Edificio Derecho)

Sub-interfaz	VLAN	IP	Encapsulación
Gi0/1.67	67	192.178.67.1/24	dot1Q 67
Gi0/1.77	77	192.178.77.1/24	dot1Q 77
Gi0/1.87	87	192.178.87.1/24	dot1Q 87

🔧 8. VTP y Hostnames

Configuración VTP

Switch	Rol VTP	Dominio	Password secreta
Switch0	**Server**	G7	redes2grupo7
Switch1–Switch11	Client	G7	—
Switch12	**Server**	G7	redes2grupo7
Switch13–Switch23	Client	G7	—

> VTP no cruza routers. Se necesita un server por edificio.

Hostnames

Switch	Hostname	Switch	Hostname
Switch0	SW1_G7	Switch12	SW13_G7
Switch1	SW2_G7	Switch13	SW14_G7
Switch2	SW3_G7	Switch14	SW15_G7
Switch3	SW4_G7	Switch15	SW16_G7
Switch4	SW5_G7	Switch16	SW17_G7
Switch5	SW6_G7	Switch17	SW18_G7
Switch6	SW7_G7	Switch18	SW19_G7

Switch	Hostname	Switch	Hostname
Switch7	SW8_G7	Switch19	SW20_G7
Switch8	SW9_G7	Switch20	SW21_G7
Switch9	SW10_G7	Switch21	SW22_G7
Switch10	SW11_G7	Switch22	SW23_G7
Switch11	SW12_G7	Switch23	SW24_G7

🗺 9. Resumen de Puertos Usados por Switch

Switch0 (4 puertos usados)

```
Gi0/1 ← Router0 Gi0/1 (trunk)
Fa0/1 → SW1 Gi0/1 (trunk)
Fa0/2 → SW2 Gi0/1 (trunk)
Fa0/3 → SW3 Gi0/1 (trunk)
```

Switch1 (3 puertos)

```
Gi0/1 ← SW0 Fa0/1 (trunk)
Fa0/1 → SW4 Gi0/1 (trunk)
Fa0/2 → SW5 Gi0/1 (trunk)
```

Switch2 (2 puertos)

```
Gi0/1 ← SW0 Fa0/2 (trunk)
Fa0/1 → SW5 Gi0/2 (trunk)
```

Switch3 (3 puertos)

```
Gi0/1 ← SW0 Fa0/3 (trunk)
Fa0/1 → SW5 Fa0/1 (trunk)
Fa0/2 → SW6 Gi0/1 (trunk)
```

Switch4 (4 puertos)

```
Gi0/1 ← SW1 Fa0/1 (trunk)
Fa0/1 → SW5 Fa0/2 (trunk) 🔄 cross-link
```

```
Fa0/2 → SW7 Gi0/1 (trunk)
Fa0/3 → SW8 Gi0/1 (trunk)
```

Switch5 — HUB CENTRAL IZQUIERDO (10 puertos)

```
Gi0/1 ← SW1 Fa0/2 (trunk)
Gi0/2 ← SW2 Fa0/1 (trunk)
Fa0/1 ← SW3 Fa0/1 (trunk)
Fa0/2 ← SW4 Fa0/1 (trunk) 🔄 cross-link
Fa0/3 → SW6 Fa0/1 (trunk) 🔄 cross-link
Fa0/4 → SW7 Gi0/2 (trunk) ⚡ dual-uplink
Fa0/5 → SW8 Gi0/2 (trunk) ⚡ dual-uplink
Fa0/6 → SW9 Gi0/1 (trunk)
Fa0/7 → SW10 Gi0/1 (trunk)
Fa0/8 → SW11 Gi0/1 (trunk)
```

Switch6 (4 puertos)

```
Gi0/1 ← SW3 Fa0/2 (trunk)
Fa0/1 ← SW5 Fa0/3 (trunk) 🔄 cross-link
Fa0/2 → SW10 Gi0/2 (trunk) ⚡ dual-uplink
Fa0/3 → SW11 Gi0/2 (trunk) ⚡ dual-uplink
```

Switch7 (3 puertos)

```
Gi0/1 ← SW4 Fa0/2 (trunk)
Gi0/2 ← SW5 Fa0/4 (trunk) ⚡ dual-uplink
Fa0/1 → PC0 Fa0 (access VLAN 17)
```

Switch8 (3 puertos)

```
Gi0/1 ← SW4 Fa0/3 (trunk)
Gi0/2 ← SW5 Fa0/5 (trunk) ⚡ dual-uplink
Fa0/1 → PC1 Fa0 (access VLAN 27) 🔒
```

Switch9 (2 puertos)

```
Gi0/1 ← SW5 Fa0/6 (trunk)
Fa0/1 → Laptop0 Fa0 (access VLAN 27) 🔒
```

Switch10 (3 puertos)

```
Gi0/1 ← SW5 Fa0/7 (trunk)
Gi0/2 ← SW6 Fa0/2 (trunk) ⚡ dual-uplink
Fa0/1 → PC2 Fa0 (access VLAN 37)
```

Switch11 (3 puertos)

```
Gi0/1 ← SW5 Fa0/8 (trunk)
Gi0/2 ← SW6 Fa0/3 (trunk) ⚡ dual-uplink
Fa0/1 → PC3 Fa0 (access VLAN 37)
```

Switch12 (4 puertos)

```
Gi0/1 ← Router3 Gi0/1 (trunk)
Fa0/1 → SW13 Gi0/1 (trunk)
Fa0/2 → SW14 Gi0/1 (trunk)
Fa0/3 → SW15 Gi0/1 (trunk)
```

Switch13 (3 puertos)

```
Gi0/1 ← SW12 Fa0/1 (trunk)
Fa0/1 → SW16 Gi0/1 (trunk)
Fa0/2 → SW17 Gi0/1 (trunk)
```

Switch14 (2 puertos)

```
Gi0/1 ← SW12 Fa0/2 (trunk)
Fa0/1 → SW17 Gi0/2 (trunk)
```

Switch15 (3 puertos)

```
Gi0/1 ← SW12 Fa0/3 (trunk)
Fa0/1 → SW17 Fa0/1 (trunk)
Fa0/2 → SW18 Gi0/1 (trunk)
```

Switch16 (4 puertos)

```
Gi0/1 ← SW13 Fa0/1 (trunk)
Fa0/1 → SW17 Fa0/2 (trunk) 🔃 cross-link
Fa0/2 → SW19 Gi0/1 (trunk)
Fa0/3 → SW20 Gi0/1 (trunk)
```

Switch17 — HUB CENTRAL DERECHO (9 puertos)

```
Gi0/1 ← SW13 Fa0/2 (trunk)
Gi0/2 ← SW14 Fa0/1 (trunk)
Fa0/1 ← SW15 Fa0/1 (trunk)
Fa0/2 ← SW16 Fa0/1 (trunk) 🔃 cross-link
Fa0/3 → SW18 Fa0/1 (trunk) 🔃 cross-link
Fa0/4 → SW19 Gi0/2 (trunk) ⚡ dual-uplink
Fa0/5 → SW20 Gi0/2 (trunk) ⚡ dual-uplink
Fa0/6 → SW21 Gi0/1 (trunk)
Fa0/7 → SW22 Gi0/1 (trunk)
Fa0/8 → SW23 Gi0/1 (trunk)
```

Switch18 (4 puertos)

```
Gi0/1 ← SW15 Fa0/2 (trunk)
Fa0/1 ← SW17 Fa0/3 (trunk) 🔃 cross-link
Fa0/2 → SW22 Gi0/2 (trunk) ⚡ dual-uplink
Fa0/3 → SW23 Gi0/2 (trunk) ⚡ dual-uplink
```

Switch19 (3 puertos)

```
Gi0/1 ← SW16 Fa0/2 (trunk)
Gi0/2 ← SW17 Fa0/4 (trunk) ⚡ dual-uplink
Fa0/1 → PC4 Fa0 (access VLAN 77) 🔒
```

Switch20 (3 puertos)

```
Gi0/1 ← SW16 Fa0/3 (trunk)
Gi0/2 ← SW17 Fa0/5 (trunk) ⚡ dual-uplink
Fa0/1 → PC5 Fa0 (access VLAN 67)
```

Switch21 (2 puertos)

```
Gi0/1 ← SW17 Fa0/6 (trunk)
Fa0/1 → Laptop1 Fa0 (access VLAN 67)
```

Switch22 (3 puertos)

```
Gi0/1 ← SW17 Fa0/7 (trunk)
Gi0/2 ← SW18 Fa0/2 (trunk)  ⚡ dual-uplink
Fa0/1 → PC6 Fa0 (access VLAN 87)
```

Switch23 (3 puertos)

```
Gi0/1 ← SW17 Fa0/8 (trunk)
Gi0/2 ← SW18 Fa0/3 (trunk)  ⚡ dual-uplink
Fa0/1 → PC7 Fa0 (access VLAN 87)
```

📊 10. Conteo Total de Cables

Tipo de Conexión	Cantidad
Router ↔ Router	3
Router ↔ Switch	2
Switch ↔ Switch (Edificio Izquierdo)	19
Switch ↔ Switch (Edificio Derecho)	19
Switch ↔ Host	10
TOTAL	**53 cables**

Leyenda

- 🔄 = Cross-link horizontal (redundancia STP entre switches de la misma capa)
- ⚡ = Dual-uplink (access switch con 2 caminos hacia arriba — STP gestiona redundancia)
- 🔒 = Requiere Port-Security (VLAN Básicos: máx 1 MAC, violation shutdown)

Router0 (Edificio Izquierdo - EIGRP)

```
enable
configure terminal
hostname Router0
!
```

```
! Configuración Enlace WAN a Central
interface GigabitEthernet0/0
 description Conexion a Router1 (WAN)
 ip address 10.10.10.1 255.255.255.0
 no shutdown
!
! Configuración Router-on-a-Stick (LAN Izquierda)
interface GigabitEthernet0/1
 no shutdown
!
interface GigabitEthernet0/1.17
 description Gateway VLAN 17 Primaria
 encapsulation dot1Q 17
 ip address 192.178.17.1 255.255.255.0
!
interface GigabitEthernet0/1.27
 description Gateway VLAN 27 Basicos
 encapsulation dot1Q 27
 ip address 192.178.27.1 255.255.255.0
!
interface GigabitEthernet0/1.37
 description Gateway Gateway VLAN 37 Bachillerato
 encapsulation dot1Q 37
 ip address 192.178.37.1 255.255.255.0
!
! Configuración Enrutamiento EIGRP
router eigrp 7
 network 10.10.10.0 0.0.0.255
 network 192.178.17.0 0.0.0.255
 network 192.178.27.0 0.0.0.255
 network 192.178.37.0 0.0.0.255
 no auto-summary
!
! Redistribución para conectar con RIP
router rip
 version 2
 network 10.10.10.0
 no auto-summary
 redistribute eigrp 7 metric 1
!
! Volvemos a EIGRP para redistribuir RIP hacia adentro
router eigrp 7
 redistribute rip metric 10000 100 255 1 1500
```

Router1 (Central 1 - RIP)

```
enable
configure terminal
hostname Router1
```

```
!
interface GigabitEthernet0/0
 description Conexion a Router0
 ip address 10.10.10.2 255.255.255.0
 no shutdown
!
interface GigabitEthernet0/1
 description Conexion a Router2
 ip address 10.10.9.1 255.255.255.0
 no shutdown
!
router rip
 version 2
 network 10.10.10.0
 network 10.10.9.0
 no auto-summary
```

Router2 (Central 2 - RIP)

```
enable
configure terminal
hostname Router2
!
interface GigabitEthernet0/0
description Conexion a Router1
ip address 10.10.9.2 255.255.255.0
no shutdown
!
interface GigabitEthernet0/1
description Conexion a Router3
ip address 10.10.8.1 255.255.255.0
no shutdown
!
router rip
version 2
network 10.10.9.0
network 10.10.8.0
no auto-summary
```

Router3 (Edificio Derecho - OSPF)

```
enable
configure terminal
hostname Router3
!
```

```
interface GigabitEthernet0/0
description Conexion a Router2 (WAN)
ip address 10.10.8.2 255.255.255.0
no shutdown
!
interface GigabitEthernet0/1
no shutdown
!
interface GigabitEthernet0/1.67
description Gateway VLAN 67 Primaria
encapsulation dot1Q 67
ip address 192.178.67.1 255.255.255.0
!
interface GigabitEthernet0/1.77
description Gateway VLAN 77 Basicos
encapsulation dot1Q 77
ip address 192.178.77.1 255.255.255.0
!
interface GigabitEthernet0/1.87
description Gateway VLAN 87 Bachillerato
encapsulation dot1Q 87
ip address 192.178.87.1 255.255.255.0
!
! Configuración OSPF (Area 0)
router ospf 1
network 10.10.8.0 0.0.0.255 area 0
network 192.178.67.0 0.0.0.255 area 0
network 192.178.77.0 0.0.0.255 area 0
network 192.178.87.0 0.0.0.255 area 0
!
! Redistribución OSPF <-> RIP
router rip
version 2
network 10.10.8.0
redistribute ospf 1 metric 1
!
router ospf 1
redistribute rip subnets
```

Switch0 (Servidor VTP y Core Izquierdo)

Este switch crea las VLANs y las propaga hacia abajo.

```
enable
configure terminal
hostname SW0_G7
enable secret redes2grupo7
vtp domain G7
vtp mode server
vtp password redes2grupo7
```

```
vlan 17
name Primaria
vlan 27
name Basicos
vlan 37
name Bachillerato
exit
spanning-tree mode pvst
interface GigabitEthernet0/1
switchport mode trunk
interface range FastEthernet0/1-3
switchport mode trunk
```

Switches de Distribución (Capa 2 y 3)

Estos switches son clientes VTP y solo configuran puertos troncales para dejar pasar todas las VLANs

Switch1

```
enable
configure terminal
hostname SW1_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode pvst
interface GigabitEthernet0/1
switchport mode trunk
interface range FastEthernet0/1-2
switchport mode trunk
```

Switch2

```
enable
configure terminal
hostname SW2_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode pvst
interface GigabitEthernet0/1
switchport mode trunk
interface FastEthernet0/1
switchport mode trunk
```

Switch3

```
enable
configure terminal
hostname SW3_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode pvst
interface GigabitEthernet0/1
switchport mode trunk
interface range FastEthernet0/1-2
switchport mode trunk
```

Switch4

```
enable
configure terminal
hostname SW4_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode pvst
interface GigabitEthernet0/1
switchport mode trunk
interface range FastEthernet0/1-3
switchport mode trunk
```

Switch5 (Hub Central Izquierdo - Muchas conexiones)

```
enable
configure terminal
hostname SW5_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode pvst
interface range GigabitEthernet0/1-2
switchport mode trunk
interface range FastEthernet0/1-8
switchport mode trunk
```

Switch6

```
enable
configure terminal
hostname SW6_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode pvst
interface GigabitEthernet0/1
switchport mode trunk
interface range FastEthernet0/1-3
switchport mode trunk
```

Switches de Acceso (Conectan a las PCs)

Aquí asignamos las VLANs a los puertos FastEthernet0/1 y aplicamos la seguridad donde corresponde.

Switch7 (VLAN 17 - Primaria)

```
enable
configure terminal
hostname SW7_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode pvst
interface range GigabitEthernet0/1-2
switchport mode trunk
interface FastEthernet0/1
switchport mode access
switchport access vlan 17
```

Switch8 (VLAN 27 - Básicos + Seguridad)

```
enable
configure terminal
hostname SW8_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode pvst
interface range GigabitEthernet0/1-2
switchport mode trunk
interface FastEthernet0/1
switchport mode access
switchport access vlan 27
switchport port-security
switchport port-security maximum 1
```

```
switchport port-security mac-address sticky
switchport port-security violation shutdown
```

Switch9 (VLAN 27 - Básicos + Seguridad)

```
enable
configure terminal
hostname SW9_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode pvst
interface GigabitEthernet0/1
switchport mode trunk
interface FastEthernet0/1
switchport mode access
switchport access vlan 27
switchport port-security
switchport port-security maximum 1
switchport port-security mac-address sticky
switchport port-security violation shutdown
```

Switch10 (VLAN 37 - Bachillerato)

```
enable
configure terminal
hostname SW10_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode pvst
interface range GigabitEthernet0/1-2
switchport mode trunk
interface FastEthernet0/1
switchport mode access
switchport access vlan 37
```

Switch11 (VLAN 37 - Bachillerato)

```
enable
configure terminal
hostname SW11_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
```

```
spanning-tree mode pvst
interface range GigabitEthernet0/1-2
switchport mode trunk
interface FastEthernet0/1
switchport mode access
switchport access vlan 37
```

LADO DERECHO

Switch12 (Servidor VTP y Core Derecho)

```
enable
configure terminal
hostname SW12_G7
enable secret redes2grupo7
vtp domain G7
vtp mode server
vtp password redes2grupo7
vlan 67
name Primaria
vlan 77
name Basicos
vlan 87
name Bachillerato
exit
spanning-tree mode rapid-pvst
interface GigabitEthernet0/1
switchport mode trunk
interface range FastEthernet0/1-3
switchport mode trunk
```

Switch13

```
enable
configure terminal
hostname SW13_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode rapid-pvst
interface GigabitEthernet0/1
switchport mode trunk
interface range FastEthernet0/1-2
switchport mode trunk
```

Switch14

```
enable
configure terminal
hostname SW14_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode rapid-pvst
interface GigabitEthernet0/1
switchport mode trunk
interface FastEthernet0/1
switchport mode trunk
```

Switch15

```
enable
configure terminal
hostname SW15_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode rapid-pvst
interface GigabitEthernet0/1
switchport mode trunk
interface range FastEthernet0/1-2
switchport mode trunk
```

Switch16

```
enable
configure terminal
hostname SW16_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode rapid-pvst
interface GigabitEthernet0/1
switchport mode trunk
interface range FastEthernet0/1-3
switchport mode trunk
```

Switch17 (Hub Central Derecho)

```
enable
configure terminal
```

```
hostname SW17_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode rapid-pvst
interface range GigabitEthernet0/1-2
switchport mode trunk
interface range FastEthernet0/1-8
switchport mode trunk
```

Switch18

```
enable
configure terminal
hostname SW18_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode rapid-pvst
interface GigabitEthernet0/1
switchport mode trunk
interface range FastEthernet0/1-3
switchport mode trunk
```

Switch19 (Acceso VLAN 77 Básicos + Seguridad)

```
enable
configure terminal
hostname SW19_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode rapid-pvst
interface range GigabitEthernet0/1-2
switchport mode trunk
interface FastEthernet0/1
switchport mode access
switchport access vlan 77
switchport port-security
switchport port-security maximum 1
switchport port-security mac-address sticky
switchport port-security violation shutdown
```

Switch20 (Acceso VLAN 67 Primaria)

```
enable
configure terminal
hostname SW20_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode rapid-pvst
interface range GigabitEthernet0/1-2
switchport mode trunk
interface FastEthernet0/1
switchport mode access
switchport access vlan 67
```

Switch21 (Acceso VLAN 67 Primaria)

```
enable
configure terminal
hostname SW21_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode rapid-pvst
interface GigabitEthernet0/1
switchport mode trunk
interface FastEthernet0/1
switchport mode access
switchport access vlan 67
```

Switch22 (Acceso VLAN 87 Bachillerato)

```
enable
configure terminal
hostname SW22_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode rapid-pvst
interface range GigabitEthernet0/1-2
switchport mode trunk
interface FastEthernet0/1
switchport mode access
switchport access vlan 87
```

Switch23 (Acceso VLAN 87 Bachillerato)

```
enable
configure terminal
hostname SW23_G7
vtp domain G7
vtp mode client
vtp password redes2grupo7
spanning-tree mode rapid-pvst
interface range GigabitEthernet0/1-2
switchport mode trunk
interface FastEthernet0/1
switchport mode access
switchport access vlan 87
```