



Practica 2

Manual Técnico

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Redes de Computadoras 2

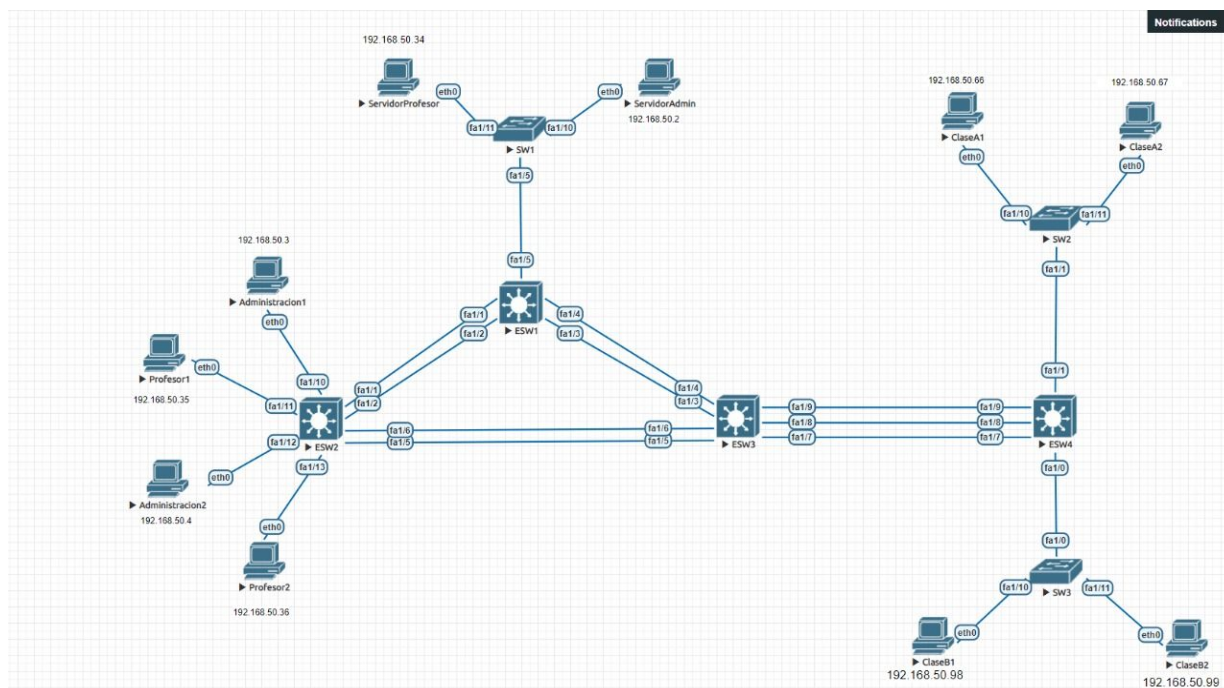
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Configuraciones

Topología



Configuración VTP

VTP son las siglas de VLAN Trunking Protocol, un protocolo de mensajes de nivel 2 usado para configurar y administrar VLANs en equipos Cisco. Permite centralizar y simplificar la administración en un dominio de VLANs, pudiendo crear, borrar y renombrar las mismas, reduciendo así la necesidad de configurar la misma VLAN en todos los nodos. El protocolo VTP nace como una herramienta de administración para redes de cierto tamaño, donde la gestión manual se vuelve inabordable.

VTP opera en 3 modos distintos:

- Servidor
- Cliente
- Transparente

Servidor:

Es el modo por defecto. Desde él se pueden crear, eliminar o modificar VLANs. Su cometido es anunciar su configuración al resto de switches del mismo dominio VTP y sincronizar dicha configuración con la de otros servidores, basándose en los mensajes VTP recibidos a través de sus enlaces trunk. Debe haber al menos un servidor.

Cliente:

En este modo no se pueden crear, eliminar o modificar VLANs, tan sólo sincronizar esta información basándose en los mensajes VTP recibidos de servidores en el propio dominio. Un cliente VTP sólo guarda la información de la VLAN para el dominio completo mientras el switch está activado. Un reinicio del switch borra la información de la VLAN.

VTP Server

```
ena
conf t
vtp domain Grupo10
vtp password Grupo10
vtp mode server
vtp version 2
end
wr
wr mem
show vtp status
```

ESW1

```
Router>ena
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#vtp domain Grupo10
Changing VTP domain name from NULL to Grupo10
Router(config)#vtp password Grupo10
Setting device VLAN database password to Grupo10
Router(config)#vtp mode server
Device mode already VTP SERVER.
Router(config)#vtp version 2
Router(config)#end
Router#w
*Mar  1 00:08:33.631: %SYS-5-CONFIG_I: Configured from console by consol
Router#wr
Building configuration...
[OK]
Router#wr mem
Building configuration...
[OK]
Router#vtp status
      ^
% Invalid input detected at '^' marker.

Router#sh vtp status
VTP Version                : 2
Configuration Revision     : 1
Maximum VLANs supported locally : 36
Number of existing VLANs   : 5
VTP Operating Mode         : Server
VTP Domain Name            : Grupo10
VTP Pruning Mode           : Disabled
VTP V2 Mode                : Enabled
VTP Traps Generation       : Disabled
MD5 digest                 : 0x69 0x81 0xDE 0xD0 0xA3 0x1B 0x37 0xDA
Configuration last modified by 0.0.0.0 at 3-1-02 00:08:06
Local updater ID is 0.0.0.0 (no valid interface found)
```

VTP Client

```
ena
conf t
vtp domain Grupo10
vtp password Grupo10
vtp mode client
vtp version 2
end
wr
wr mem
show vtp status
```

ESW2

```
Router>
Router>ena
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#vtp domain Grupo10
Changing VTP domain name from NULL to Grupo10
Router(config)#vtp password Grupo10
Setting device VLAN database password to Grupo10
Router(config)#vtp version 2
Router(config)#vtp mode client
Setting device to VTP CLIENT mode.
Router(config)#end
Router#w
*Mar 1 00:02:04.067: %SYS-5-CONFIG_I: Configured from console by consoler
Building configuration...
[OK]
Router#wr mem
Building configuration...
[OK]
Router#sh vtp status
VTP Version : 2
Configuration Revision : 1
Maximum VLANs supported locally : 36
Number of existing VLANs : 5
VTP Operating Mode : Client
VTP Domain Name : Grupo10
VTP Pruning Mode : Disabled
VTP V2 Mode : Enabled
VTP Traps Generation : Disabled
MD5 digest : 0x69 0x81 0xDE 0xD0 0xA3 0x1B 0x37 0xDA
Configuration last modified by 0.0.0.0 at 3-1-02 00:01:40
Router#
```

ESW3

```
Router>
Router>ena
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#vtp domain Grupo10
Changing VTP domain name from NULL to Grupo10
Router(config)#vtp password Grupo 10
^
% Invalid input detected at '^' marker.

Router(config)#vtp password Grupo10
Setting device VLAN database password to Grupo10
Router(config)#vtp version 2
Router(config)#vtp mode client
Setting device to VTP CLIENT mode.
Router(config)#end
Router#wr
Building configuration...

*Mar 1 00:04:37.327: %SYS-5-CONFIG_I: Configured from console by console[OK]
Router#wr mem
Building configuration...
[OK]
Router#sh vtp status
VTP Version : 2
Configuration Revision : 1
Maximum VLANs supported locally : 36
Number of existing VLANs : 5
VTP Operating Mode : Client
VTP Domain Name : Grupo10
VTP Pruning Mode : Disabled
VTP V2 Mode : Enabled
VTP Traps Generation : Disabled
MD5 digest : 0x69 0x81 0xDE 0xD0 0xA3 0x1B 0x37 0xDA
Configuration last modified by 0.0.0.0 at 3-1-02 00:04:31
Router#
```

ESW4

```
Router>
Router>ena
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#vtp domain Grupo10
Changing VTP domain name from NULL to Grupo10
Router(config)#vtp password Grupo10
Setting device VLAN database password to Grupo10
Router(config)#vtp version 2
Router(config)#vtp mode client
Setting device to VTP CLIENT mode.
Router(config)#end
Router#wr
*Mar 1 00:05:57.163: %SYS-5-CONFIG_I: Configured from console by console
Building configuration...
[OK]
Router#wr mem
Building configuration...
[OK]
Router#sh vtp status
VTP Version                : 2
Configuration Revision      : 1
Maximum VLANs supported locally : 36
Number of existing VLANs    : 5
VTP Operating Mode         : Client
VTP Domain Name            : Grupo10
VTP Pruning Mode           : Disabled
VTP V2 Mode                : Enabled
VTP Traps Generation       : Disabled
MD5 digest                 : 0x69 0x81 0xDE 0xD0 0xA3 0x1B 0x37 0xDA
Configuration last modified by 0.0.0.0 at 3-1-02 00:05:50
Router#
```

Configuración VLANS

```
conf t
vlan 10
name Administracion
exit
vlan 20
name Profesores
exit
vlan 30
name ClaseA
exit
vlan 40
name ClaseB
exit
```



```
vlan 99
name Management&Native
exit
vlan 999
name BlackHole
exit
wr
wr mem
sh vlan-sw
```

```
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#vlan 10
Router(config-vlan)#name Administracion
Router(config-vlan)#exit
Router(config)#vlan 20
Router(config-vlan)#name Profesores
Router(config-vlan)#exit
Router(config)#vlan 30
Router(config-vlan)#name ClaseA
Router(config-vlan)#exit
Router(config)#vlan 40
Router(config-vlan)#name ClaseB
Router(config-vlan)#exit
Router(config)#vlan 99
Router(config-vlan)#name Management&Native
Router(config-vlan)#exit
Router(config)#vlan 999
Router(config-vlan)#name BlackHole
Router(config-vlan)#exit
Router(config)#exit
Router#ww
*Mar  1 00:28:50.739: %SYS-5-CONFIG_I: Configured from console by consol
% No connections open
Router#wr
Building configuration...
[OK]
Router#wr mem
```

```
Router#sh vlan-sw
```

| VLAN | Name | Status | Ports |
|------|-------------------|-----------|--|
| 1 | default | active | Fal/0, Fal/1, Fal/2, Fal/3 Fal/4, Fal/5, Fal/6, Fal/7 Fal/8, Fal/9, Fal/10, Fal/11 Fal/12, Fal/13, Fal/14, Fal/15 |
| 10 | Administracion | active | |
| 20 | Profesores | active | |
| 30 | ClaseA | active | |
| 40 | ClaseB | active | |
| 99 | Management&Native | active | |
| 999 | BlackHole | active | |
| 1002 | fddi-default | act/unsup | |
| 1003 | trcrf-default | act/unsup | |
| 1004 | fddinet-default | act/unsup | |
| 1005 | trbrf-default | act/unsup | |

| VLAN | Type | SAID | MTU | Parent | RingNo | BridgeNo | Stp | BrdgMode | Trans1 | Trans2 |
|------|-------|--------|------|--------|--------|----------|-----|----------|--------|--------|
| 1 | enet | 100001 | 1500 | - | - | - | - | - | 1002 | 1003 |
| 10 | enet | 100010 | 1500 | - | - | - | - | - | 0 | 0 |
| 20 | enet | 100020 | 1500 | - | - | - | - | - | 0 | 0 |
| 30 | enet | 100030 | 1500 | - | - | - | - | - | 0 | 0 |
| 40 | enet | 100040 | 1500 | - | - | - | - | - | 0 | 0 |
| 99 | enet | 100099 | 1500 | - | - | - | - | - | 0 | 0 |
| 999 | enet | 100999 | 1500 | - | - | - | - | - | 0 | 0 |
| 1002 | fddi | 101002 | 1500 | - | - | - | - | - | 1 | 1003 |
| 1003 | trcrf | 101003 | 4472 | 1005 | 3276 | - | - | srb | 1 | 1002 |
| 1004 | fdnet | 101004 | 1500 | - | - | 1 | ibm | - | 0 | 0 |
| 1005 | trbrf | 101005 | 4472 | - | - | 15 | ibm | - | 0 | 0 |

| VLAN | AREHops | STEHops | Backup | CRF |
|------|---------|---------|--------|-----|
| 1003 | 7 | 7 | off | |

```
Router#
```

Modo Trunk

```
cont f
int range f1/0 - 4
no shut
switchport mode trunk
end
wr
wr mem
```

ESW1

```
Router>ena
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int range f1/1 - 10
Router(config-if-range)#no shut
Router(config-if-range)#switchport mode trunk
Router(config-if-range)#en
*Mar  1 01:43:45.951: %DTP-5-TRUNKPORTON: Port Fa1/1-10 has become dot1q trunkd
Router#w
*Mar  1 01:43:48.855: %SYS-5-CONFIG_I: Configured from console by consoler
Building configuration...
[OK]
Router#wr
Building configuration...
[OK]
Router#wr mem
Building configuration...
[OK]
Router#
```

ESW2

```
Router>ena
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int range f1/1 - 10
Router(config-if-range)#no shut
Router(config-if-range)#switchport mode trunk
Router(config-if-range)#en
*Mar  1 01:43:45.951: %DTP-5-TRUNKPORTON: Port Fa1/1-10 has become dot1q trunkd
Router#w
*Mar  1 01:43:48.855: %SYS-5-CONFIG_I: Configured from console by consoler
Building configuration...
[OK]
Router#wr
Building configuration...
[OK]
Router#wr mem
Building configuration...
[OK]
Router#
```

ESW3

```
trunk FastEthernet1/5 VLAN1.
*Mar 1 01:43:42.695: %SPANTREE-7-BLOCK_PORT_TYPE: Blocking FastEthernet1/5 on V
LAN1. Inconsistent port type.PVST+: restarted the forward delay timer for FastEt
hernet1/5

*Mar 1 01:43:42.715: %SPANTREE-7-RECV_1Q_NON_TRUNK: Received 802.1Q BPDU on non
trunk FastEthernet1/6 VLAN1.
*Mar 1 01:43:42.715: %SPANTREE-7-BLOCK_PORT_TYPE: Blocking FastEthernet1/6 on V
LAN1. Inconsistent port type.PVST+: restarted the forward delay timer for FastEt
hernet1/6

Router>
Router>ena
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int range fa1/3 - 9
Router(config-if-range)#no shut
Router(config-if-range)#switchport mode trunk
Router(config-if-range)#end
*Mar 1 01:45:24.155: %DTP-5-TRUNKPORTON: Port Fa1/3-9 has become dot1q trunk
Router#
*Mar 1 01:45:27.791: %SYS-5-CONFIG_I: Configured from console by console
Router#wr
Building configuration...
[OK]
Router#wr mem
Building configuration...
[OK]
```

ESW4

```
ESW4
*Mar 1 01:45:22.579: %SPANTREE-7-BLOCK_PORT_TYPE: Blocking FastEthernet1/9 on V
LAN1. Inconsistent port type.PVST+: restarted the forward delay timer for FastEt
hernet1/9

Router>
Router>ena
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int range fa1/0 - 9
Router(config-if-range)#no shut
Router(config-if-range)#switchport mode trunk
Router(config-if-range)#
*Mar 1 01:46:38.127: %DTP-5-TRUNKPORTON: Port Fa1/0-9 has become dot1q trunk
Router(config-if-range)#end
Router#wr
*Mar 1 01:46:48.527: %SYS-5-CONFIG_I: Configured from console by console
Building configuration...
[OK]
Router#wr mem
Building configuration...
[OK]
```

SubInterface

```
conf t
interface vlan 10
ip adress 192.168.50.1 255.255.255.224
no shut
exit

conf t
interface vlan 20
ip adress 192.168.50.33 255.255.255.224
no shut
exit

conf t
interface vlan 30
ip adress 192.168.50.65 255.255.255.224
no shut
exit

conf t
interface vlan 40
ip adress 192.168.50.97 255.255.255.224
no shut
exit
```

```
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface vlan 10
Router(config-if)#
*Mar 1 02:10:32.927: %LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan10, changed state to up
Router(config-if)#ip address 192.168.50.1 255.255.255.224
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#interface vlan 20
Router(config-if)#ip address
*Mar 1 02:12:12.315: %LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan20, changed
Router(config-if)#ip address 192.168.50.33 255.255.255.224
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#interface vlan 30
Router(config-if)#
*Mar 1 02:13:14.631: %LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan30, changed state to up
Router(config-if)#ip address 192.168.50.65 255.255.255.224
Router(config-if)#no shut
Router(config-if)#exit
```

```
Router(config)#interface vlan 40
Router(config-if)#ip address 192.168.50.97 255.255.255.224
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#interface vlan 99
Router(config-if)#ip adr
*Mar 1 02:16:12.667: %LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan99, changed state to u
% Incomplete command.

Router(config-if)#ip address 192.168.50.129 255.255.255.224
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#vlan [-B?
% Unrecognized command
Router(config)#vlan [-BB?
% Unrecognized command
Router(config)#interface vlan 999
Router(config-if)#i
*Mar 1 02:16:52.087: %LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan999, changed state to u

Router(config-if)#ip address 192.168.50.161 255.255.255.224
Router(config-if)#no shut
Router(config-if)#exit
Router(config)#exit
Router#wr
*Mar 1 02:17:16.199: %SYS-5-CONFIG_I: Configured from console by console
Building configuration...
[OK]
Router#wr mem
Building configuration...
[OK]
Router#
```

Configuración VPC's

```
ip 192.168.50.35/27 gateway 192.168.50.33
save
```

Servidor Profesor

```
ServidorProfesor

VPCS is free software, distributed under the terms of the "BSD" licence.
Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.
Modified version supporting unetlab by unetlab team

Press '?' to get help.

VPCS> ip192.168.50.34/27 gateway 192.168.50.33
Bad command: "ip192.168.50.34/27 gateway 192.168.50.33". Use ? for help.

VPCS> ip 192.168.50.34/27 gateway 192.168.50.33
Checking for duplicate address...
PC1 : 192.168.50.34 255.255.255.224 gateway 192.168.50.33

VPCS> save
Saving startup configuration to startup.vpc
. done

VPCS> sh ip

NAME      : VPCS[1]
IP/MASK    : 192.168.50.34/27
GATEWAY    : 192.168.50.33
DNS        :
MAC        : 00:50:79:66:68:08
LPORT     : 20000
RHOST:PORT : 127.0.0.1:30000
MTU        : 1500

VPCS>
```

Profesor1

```
Profesor1

Build time: Dec 31 2016 01:22:17
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For more information, please visit wiki.freecode.com.cn.
Modified version supporting unetlab by unetlab team

Press '?' to get help.

VPCS>
VPCS> ip 192.168.50.35/27 gateway 192.168.50.33
Checking for duplicate address...
PC1 : 192.168.50.35 255.255.255.224 gateway 192.168.50.33

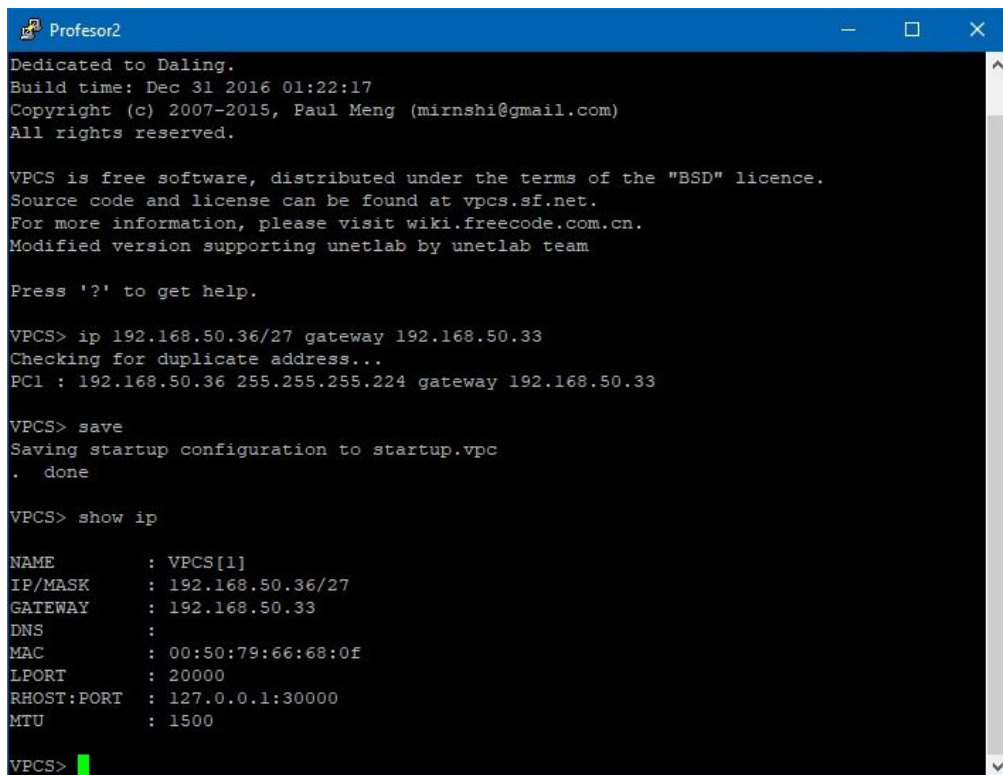
VPCS> save
Saving startup configuration to startup.vpc
. done

VPCS> sh ip

NAME      : VPCS[1]
IP/MASK    : 192.168.50.35/27
GATEWAY    : 192.168.50.33
DNS        :
MAC        : 00:50:79:66:68:0d
LPORT     : 20000
RHOST:PORT : 127.0.0.1:30000
MTU        : 1500

VPCS>
```


Profesor2



```
Profesor2
Dedicated to Daling.
Build time: Dec 31 2016 01:22:17
Copyright (c) 2007-2015, Paul Meng (mirnshi@gmail.com)
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Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.
Modified version supporting unetlab by unetlab team

Press '?' to get help.

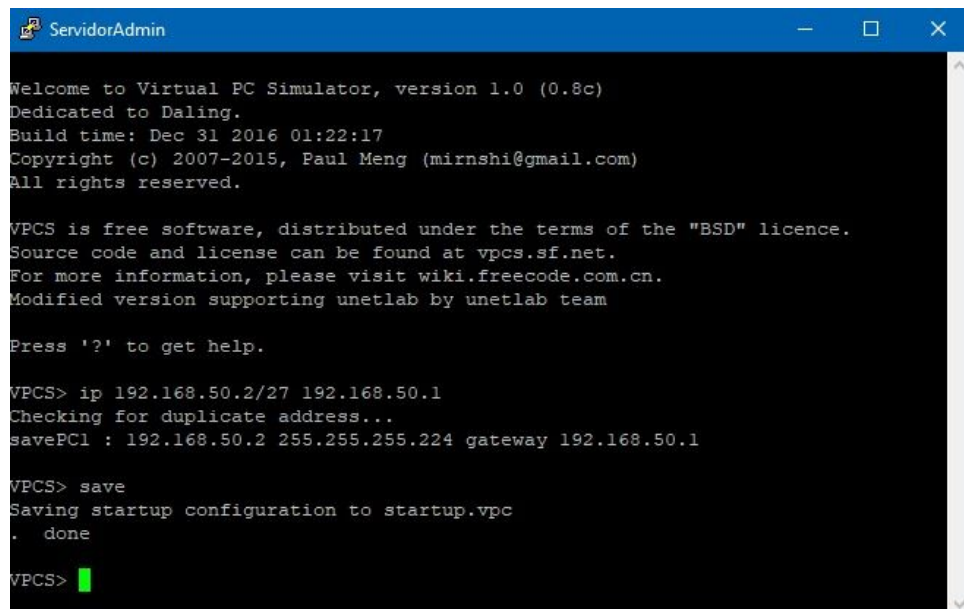
VPCS> ip 192.168.50.36/27 gateway 192.168.50.33
Checking for duplicate address...
PC1 : 192.168.50.36 255.255.255.224 gateway 192.168.50.33

VPCS> save
Saving startup configuration to startup.vpc
. done

VPCS> show ip
NAME      : VPCS[1]
IP/MASK    : 192.168.50.36/27
GATEWAY    : 192.168.50.33
DNS        :
MAC        : 00:50:79:66:68:0f
LPORT     : 20000
RHOST:PORT : 127.0.0.1:30000
MTU        : 1500

VPCS> 
```

Servidor Administrador



```
ServidorAdmin
Welcome to Virtual PC Simulator, version 1.0 (0.8c)
Dedicated to Daling.
Build time: Dec 31 2016 01:22:17
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Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.
Modified version supporting unetlab by unetlab team

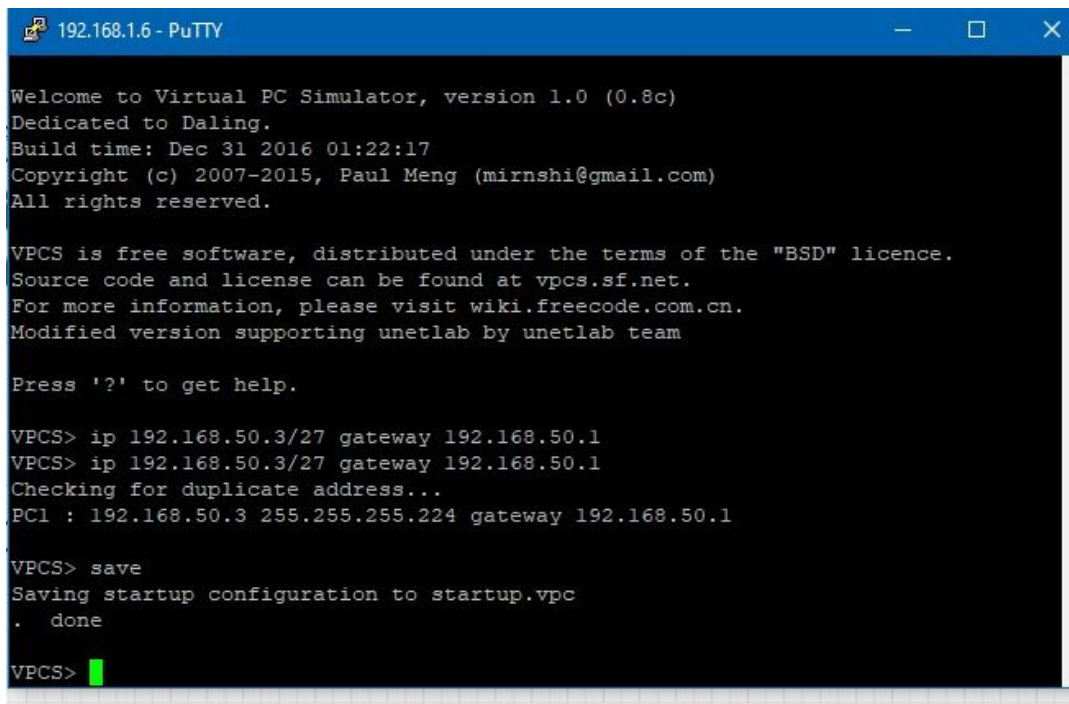
Press '?' to get help.

VPCS> ip 192.168.50.2/27 192.168.50.1
Checking for duplicate address...
savePC1 : 192.168.50.2 255.255.255.224 gateway 192.168.50.1

VPCS> save
Saving startup configuration to startup.vpc
. done

VPCS> 
```


Administrador 1



```
192.168.1.6 - PuTTY

Welcome to Virtual PC Simulator, version 1.0 (0.8c)
Dedicated to Daling.
Build time: Dec 31 2016 01:22:17
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For more information, please visit wiki.freecode.com.cn.
Modified version supporting unetlab by unetlab team

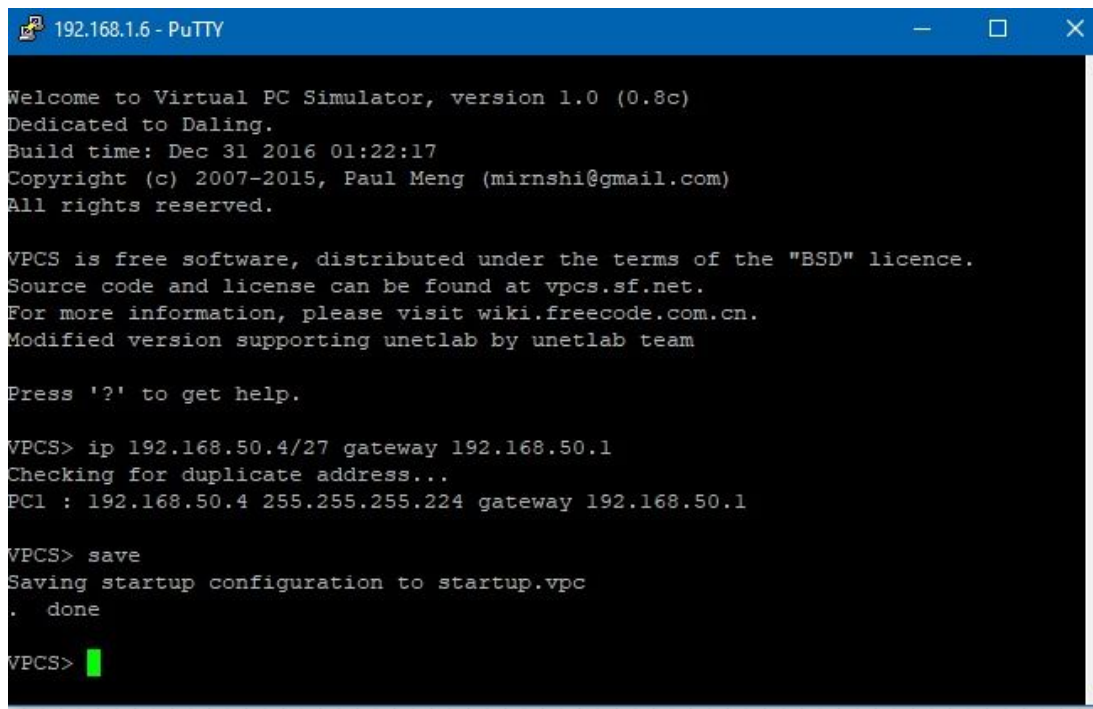
Press '?' to get help.

VPCS> ip 192.168.50.3/27 gateway 192.168.50.1
VPCS> ip 192.168.50.3/27 gateway 192.168.50.1
Checking for duplicate address...
PC1 : 192.168.50.3 255.255.255.224 gateway 192.168.50.1

VPCS> save
Saving startup configuration to startup.vpc
. done

VPCS> 
```

Administrador 2



```
192.168.1.6 - PuTTY

Welcome to Virtual PC Simulator, version 1.0 (0.8c)
Dedicated to Daling.
Build time: Dec 31 2016 01:22:17
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For more information, please visit wiki.freecode.com.cn.
Modified version supporting unetlab by unetlab team

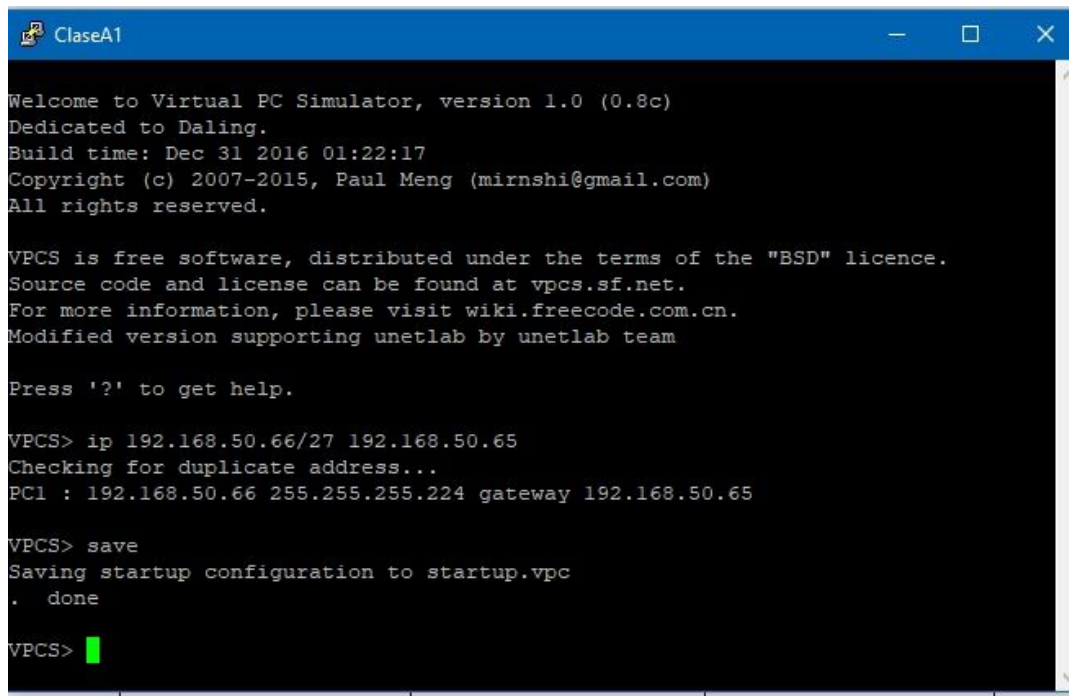
Press '?' to get help.

VPCS> ip 192.168.50.4/27 gateway 192.168.50.1
Checking for duplicate address...
PC1 : 192.168.50.4 255.255.255.224 gateway 192.168.50.1

VPCS> save
Saving startup configuration to startup.vpc
. done

VPCS> 
```

Clase A - 1



```
ClaseA1
Welcome to Virtual PC Simulator, version 1.0 (0.8c)
Dedicated to Daling.
Build time: Dec 31 2016 01:22:17
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Source code and license can be found at vpcs.sf.net.
For more information, please visit wiki.freecode.com.cn.
Modified version supporting unetlab by unetlab team

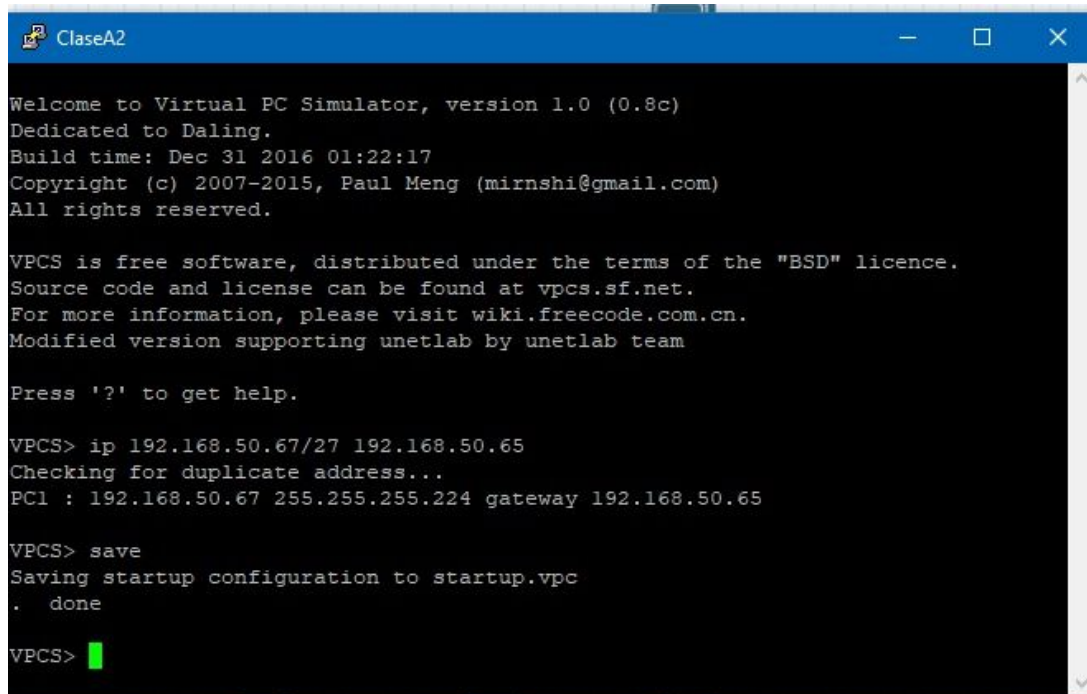
Press '?' to get help.

VPCS> ip 192.168.50.66/27 192.168.50.65
Checking for duplicate address...
PC1 : 192.168.50.66 255.255.255.224 gateway 192.168.50.65

VPCS> save
Saving startup configuration to startup.vpc
. done

VPCS> █
```

Clase A - 2



```
ClaseA2
Welcome to Virtual PC Simulator, version 1.0 (0.8c)
Dedicated to Daling.
Build time: Dec 31 2016 01:22:17
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Modified version supporting unetlab by unetlab team

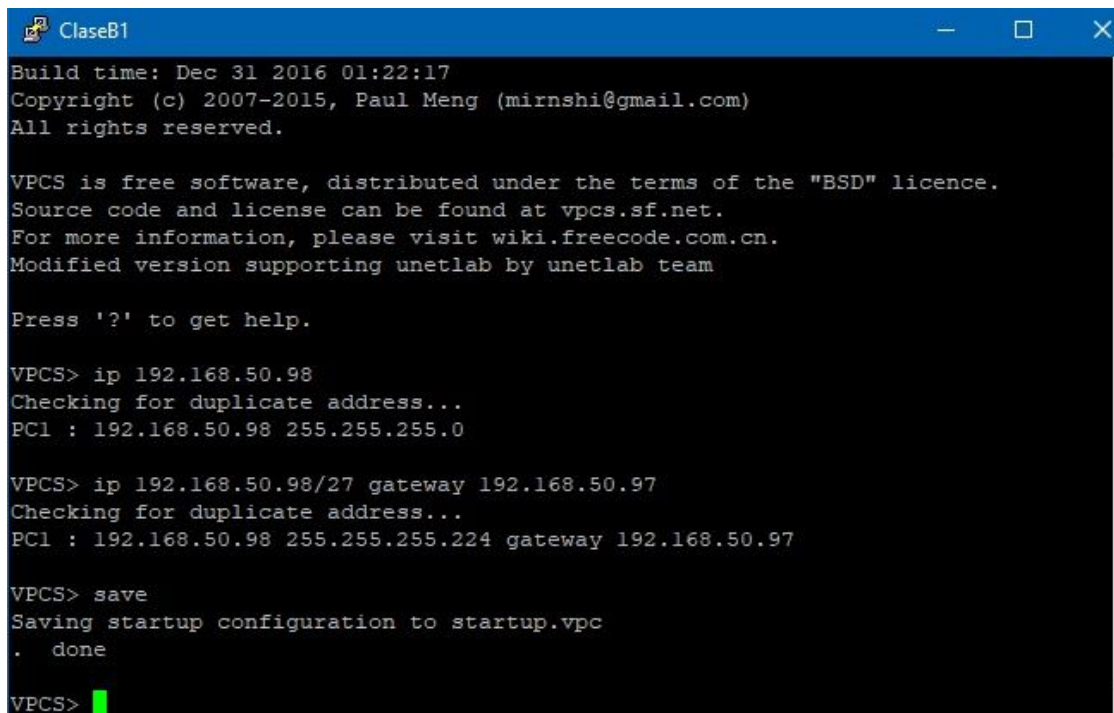
Press '?' to get help.

VPCS> ip 192.168.50.67/27 192.168.50.65
Checking for duplicate address...
PC1 : 192.168.50.67 255.255.255.224 gateway 192.168.50.65

VPCS> save
Saving startup configuration to startup.vpc
. done

VPCS> █
```

Clase B - 1



```
ClaseB1
Build time: Dec 31 2016 01:22:17
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Modified version supporting unetlab by unetlab team

Press '?' to get help.

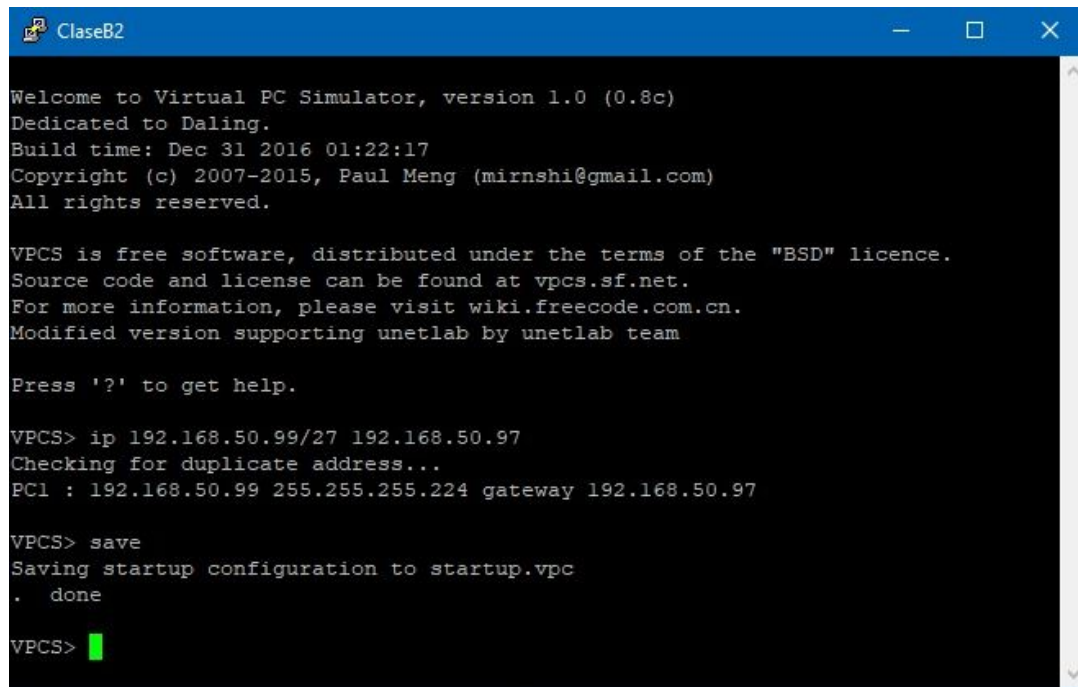
VPCS> ip 192.168.50.98
Checking for duplicate address...
PC1 : 192.168.50.98 255.255.255.0

VPCS> ip 192.168.50.98/27 gateway 192.168.50.97
Checking for duplicate address...
PC1 : 192.168.50.98 255.255.255.224 gateway 192.168.50.97

VPCS> save
Saving startup configuration to startup.vpc
. done

VPCS>
```

Clase B - 2



```
ClaseB2
Welcome to Virtual PC Simulator, version 1.0 (0.8c)
Dedicated to Daling.
Build time: Dec 31 2016 01:22:17
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All rights reserved.

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For more information, please visit wiki.freecode.com.cn.
Modified version supporting unetlab by unetlab team

Press '?' to get help.

VPCS> ip 192.168.50.99/27 192.168.50.97
Checking for duplicate address...
PC1 : 192.168.50.99 255.255.255.224 gateway 192.168.50.97

VPCS> save
Saving startup configuration to startup.vpc
. done

VPCS>
```

Configuracion PORT-CHANNEL

```
ena
conf t
interfaces range f1/1 - 2
channel-group 1 mode on
end
```

GRUPO 1 - ESW1

```
*Mar 1 00:04:24.167: %SYS-5-CONFIG_I: Configured from console by console
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int range f1/1 - 2
Router(config-if-range)#channel-group 1 mode on
Creating a port-channel interface Port-channel1
Router(config-if-range)#
*Mar 1 00:04:43.987: %EC-5-BUNDLE: Interface Fa1/1 joined port-channel Po1
*Mar 1 00:04:44.039: %EC-5-BUNDLE: Interface Fa1/2 joined port-channel Po1
*Mar 1 00:04:46.923: %LINEPROTO-5-UPDOWN: Line protocol on Interface Port-chann
ell, changed state to u
^
% Invalid input detected at '^' marker.

Router(config-if-range)#
Router(config-if-range)#
Router(config-if-range)#
Router(config-if-range)#
Router(config-if-range)#end
Router#
```

GRUPO 1 - ESW2

```
Router>
Router>ena
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int range f1/1 - 2
Router(config-if-range)#channel-group 1 mode on
Creating a port-channel interface Port-channel1
Router(config-if-range)#
*Mar 1 00:04:27.559: %EC-5-BUNDLE: Interface Fa1/1 joined port-channel Po1
*Mar 1 00:04:27.603: %EC-5-BUNDLE: Interface Fa1/2 joined port-channel Po1
Router(config-if-range)#
*Mar 1 00:04:30.503: %LINEPROTO-5-UPDOWN: Line protocol on Interface Port-chann
ell, changed state to up
Router(config-if-range)#
Router(config-if-range)#end
Router#wr
Building configuration...
[OK]
Router#wr m
*Mar 1 00:04:35.399: %SYS-5-CONFIG_I: Configured from console by consoleem
Building configuration...
[OK]
Router#
```

Grupo 2 - ESW1

```
Router#
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int range f1/3 - 4
Router(config-if-range)#channel-group 2 mode on
Creating a port-channel interface Port-channel2
Router(config-if-range)#
*Mar 1 00:07:33.771: %EC-5-BUNDLE: Interface Fa1/3 joined port-channel Po2
*Mar 1 00:07:33.847: %EC-5-BUNDLE: Interface Fa1/4 joined port-channel Po2
Router(config-if-range)#
Router(config-if-range)#end
*Mar 1 00:07:36.687: %LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel2, changed s
tate to up
Router#
*Mar 1 00:07:45.851: %SYS-5-CONFIG_I: Configured from console by consolewr
Building configuration...
[OK]
Router#
Router#wr mem
Building configuration...
[OK]
Router#
```

Grupo 2 - ESW3

```
ESW3
*Mar 1 00:00:09.827: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/6, changed state to up
Router>
Router>
Router>ena
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int range f1/3 - 4
Router(config-if-range)#channel-group 2 mode on
Creating a port-channel interface Port-channel2
Router(config-if-range)#
*Mar 1 00:02:04.703: %EC-5-BUNDLE: Interface Fa1/3 joined port-channel Po2
*Mar 1 00:02:04.747: %EC-5-BUNDLE: Interface Fa1/4 joined port-channel Po2
*Mar 1 00:02:07.635: %LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel2, changed state to up
Router(config-if-range)#end
Router#
*Mar 1 00:02:12.987: %SYS-5-CONFIG_I: Configured from console by consolewr
Building configuration...
[OK]
Router#wr mem
Building configuration...
[OK]
Router#
```


Grupo 3 - ESW2

```
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int range f1/5 - 6
Router(config-if-range)#channel-group 3 mode on
Creating a port-channel interface Port-channel3
Router(config-if-range)#int range f1/5 - 6
*Mar 1 00:08:38.419: %EC-5-BUNDLE: Interface Fa1/5 joined port-channel Po3
*Mar 1 00:08:38.479: %EC-5-BUNDLE: Interface Fa1/6 joinchannel-group 3 mode on
*Mar 1 00:08:41.343: %LINEPROTO-5-UPDOWN: Line protocol on Interface Port-chann
eend
Router#
*Mar 1 00:08:47.503: %SYS-5-CONFIG_I: Configured from console by console
Router#
Router#wr
Building configuration...
[OK]
Router#wr mem
Building configuration...
[OK]
Router#
```

Grupo 3 - ESW1

```
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int range f1/5 - 6
Router(config-if-range)#channel-group 3 mode on
Creating a port-channel interface Port-channel3
Router(config-if-range)#end
Router#
*Mar 1 00:04:09.015: %EC-5-BUNDLE: Interface Fa1/5 joined port-channel Po3
*Mar 1 00:04:09.091: %EC-5-BUNDLE: Interface Fa1/6 joined port-channel Po3
*Mar 1 00:04:10.119: %SYS-5-CONFIG_I: Configured from console by console
Router#
*Mar 1 00:04:11.923: %LINEPROTO-5-UPDOWN: Line protocol on Interface Port-chann
el3, changed state to up
Router#
Router#wr
Building configuration...
[OK]
Router#wr mem
Building configuration...
[OK]
Router#
```

Grupo 4 - ESW3

```
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int range f1/7 - 9
Router(config-if-range)#channel-group 4 mode on
Creating a port-channel interface Port-channel4
Router(config-if-range)#end
*Mar 1 00:05:11.807: %EC-5-BUNDLE: Interface Fa1/7 joined port-channel Po4
*Mar 1 00:05:11.883: %EC-5-BUNDLE: Interface Fa1/8 joined port-channel Po4
*Mar 1 00:05:11.907: %EC-5-BUNDLE: Interface Fa1/9 joined port-channel Po4
Router#
*Mar 1 00:05:13.267: %SYS-5-CONFIG_I: Configured from console by consolewr
*Mar 1 00:05:14.711: %LINEPROTO-5-UPDOWN: Line protocol on Interface Port-channel
14, changed state to
Router#
Router#wr
Building configuration...
[OK]
Router#wr mem
Building configuration...
[OK]
Router#
```

Grupo 4 - ESW4

```
ESW4
et1/6, changed state to up
Router>
Router>
Router>ena
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#int range f1/7 - 9
Router(config-if-range)#channel-group 4 mode on
Creating a port-channel interface Port-channel4
Router(config-if-range)#end
Router#
*Mar 1 00:02:13.999: %EC-5-BUNDLE: Interface Fa1/7 joined port-channel Po4
*Mar 1 00:02:14.115: %EC-5-BUNDLE: Interface Fa1/8 joined port-channel Po4
*Mar 1 00:02:14.155: %EC-5-BUNDLE: Interface Fa1/9 joined port-channel Po4
*Mar 1 00:02:15.367: %SYS-5-CONFIG_I: Configured from console by console
Router#
*Mar 1 00:02:16.907: %LINEPROTO-5-UPDOWN: Line protocol on Interface Port-chann
el4, changed state to up
Router#
Router#wr
Building configuration...
[OK]
Router#wr mem
Building configuration...
[OK]
Router#
```

Configuracion Access List

-ADMINISTRACION

```
conf t
access-list 110 permit icmp 192.168.50.0 0.0.0.31 192.168.50.0 0.0.0.31
access-list 110 permit icmp 192.168.50.0 0.0.0.31 192.168.50.32 0.0.0.31
exit
```

-PROFESORES

```
conf t
access-list 120 permit icmp 192.168.50.32 0.0.0.31 192.168.50.0 0.0.0.31
access-list 120 permit icmp 192.168.50.32 0.0.0.31 192.168.50.32 0.0.0.31
access-list 120 permit icmp 192.168.50.32 0.0.0.31 192.168.50.64 0.0.0.31
access-list 120 permit icmp 192.168.50.32 0.0.0.31 192.168.50.96 0.0.0.31
exit
```

-CLASEA

```
conf t
access-list 130 permit icmp 192.168.50.64 0.0.0.31 192.168.50.64 0.0.0.31
access-list 130 permit icmp 192.168.50.64 0.0.0.31 192.168.50.96 0.0.0.31
access-list 130 permit icmp 192.168.50.64 0.0.0.31 192.168.50.32 0.0.0.31
exit
```

-CLASEB

```
conf t
access-list 140 permit icmp 192.168.50.96 0.0.0.31 192.168.50.64 0.0.0.31
access-list 140 permit icmp 192.168.50.96 0.0.0.31 192.168.50.96 0.0.0.31
access-list 140 permit icmp 192.168.50.96 0.0.0.31 192.168.50.32 0.0.0.31
exit
```


Access List - Administración

```
Router#
Router#
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# 110 permit icmp 192.168.50.0 0.0.0.31 192.168.50.0 0.0.0.31
Router(config)# 110 permit icmp 192.168.50.0 0.0.0.31 192.168.50.32 0.0.0.31
Router(config)#exit
Router#
```

Access List - Profesores

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# 120 permit icmp 192.168.50.32 0.0.0.31 192.168.50.0 0.0.0.31
Router(config)#t icmp 192.168.50.32 0.0.0.31 192.168.50.32 0.0.0.31
Router(config)#t icmp 192.168.50.32 0.0.0.31 192.168.50.64 0.0.0.31
Router(config)#t icmp 192.168.50.32 0.0.0.31 192.168.50.96 0.0.0.31
Router(config)#exit
Router#
*Mar  1 00:25:40.819: %SYS-5-CONFIG_I: Configured from console by console
Router#
Router#
```

Access List - ClaseA

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#t icmp 192.168.50.64 0.0.0.31 192.168.50.64 0.0.0.31
Router(config)#t icmp 192.168.50.64 0.0.0.31 192.168.50.96 0.0.0.31
Router(config)#t icmp 192.168.50.64 0.0.0.31 192.168.50.32 0.0.0.31
Router(config)#exit
```

Access List - ClaseB

```
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#t icmp 192.168.50.64 0.0.0.31 192.168.50.64 0.0.0.31
Router(config)#t icmp 192.168.50.64 0.0.0.31 192.168.50.96 0.0.0.31
Router(config)#t icmp 192.168.50.64 0.0.0.31 192.168.50.32 0.0.0.31
Router(config)#exit
```

```

ESW1
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#t icmp 192.168.50.96 0.0.0.31 192.168.50.64 0.0.0.31
Router(config)#t icmp 192.168.50.96 0.0.0.31 192.168.50.96 0.0.0.31
Router(config)#t icmp 192.168.50.96 0.0.0.31 192.168.50.32 0.0.0.31
Router(config)#exit
Router#
*Mar 1 00:26:59.271: %SYS-5-CONFIG_I: Configured from console by console
Router#
Router#
Router#wr
Building configuration...
[OK]
Router#wr mem
Building configuration...
[OK]
Router#sh access-list
Extended IP access list 110
 10 permit icmp 192.168.50.0 0.0.0.31 192.168.50.0 0.0.0.31
 20 permit icmp 192.168.50.0 0.0.0.31 192.168.50.32 0.0.0.31
Extended IP access list 120
 10 permit icmp 192.168.50.32 0.0.0.31 192.168.50.0 0.0.0.31
 20 permit icmp 192.168.50.32 0.0.0.31 192.168.50.32 0.0.0.31
 30 permit icmp 192.168.50.32 0.0.0.31 192.168.50.64 0.0.0.31
 40 permit icmp 192.168.50.32 0.0.0.31 192.168.50.96 0.0.0.31
Extended IP access list 130
 10 permit icmp 192.168.50.64 0.0.0.31 192.168.50.64 0.0.0.31
 20 permit icmp 192.168.50.64 0.0.0.31 192.168.50.96 0.0.0.31
 30 permit icmp 192.168.50.64 0.0.0.31 192.168.50.32 0.0.0.31
Extended IP access list 140
 10 permit icmp 192.168.50.96 0.0.0.31 192.168.50.64 0.0.0.31
 20 permit icmp 192.168.50.96 0.0.0.31 192.168.50.96 0.0.0.31
 30 permit icmp 192.168.50.96 0.0.0.31 192.168.50.32 0.0.0.31
Router#

```

Tabla Subredes

| VLAN | Dirección de Red | Primera dirección asignable | Última dirección asignable | Dirección de broadcast | Máscara de subred |
|------|------------------|-----------------------------|----------------------------|------------------------|-------------------|
| 10 | 192.168.50.0 | 192.168.50.1 | 192.168.50.30 | 192.168.50.31 | 255.255.255.224 |
| 20 | 192.168.50.32 | 192.168.50.33 | 192.168.50.62 | 192.168.50.63 | 255.255.255.224 |
| 30 | 192.168.50.64 | 192.168.50.65 | 192.168.50.94 | 192.168.50.95 | 255.255.255.224 |
| 40 | 192.168.50.96 | 192.168.50.97 | 192.168.50.126 | 192.168.50.127 | 255.255.255.224 |
| 99 | 192.168.50.128 | 192.168.50.129 | 192.168.50.158 | 192.168.50.159 | 255.255.255.224 |
| 999 | 192.168.50.160 | 192.168.50.161 | 192.168.50.180 | 192.168.50.181 | 255.255.255.224 |

IPs asignada

| VPC | IP |
|------------------------|---------------|
| ServidorAdministracion | 192.168.50.2 |
| Administracion1 | 192.168.50.3 |
| Administracion2 | 192.168.50.4 |
| ServidorProfesor | 192.168.50.34 |
| Profesor1 | 192.168.50.35 |
| Profesor2 | 192.168.50.36 |
| ClaseA1 | 192.168.50.66 |
| ClaseA2 | 192.168.50.67 |
| ClaseB1 | 192.168.50.98 |
| ClaseB2 | 192.168.50.99 |

VLANS

| VLAN | Número VLAN |
|-------------------|-------------|
| Administración | 10 |
| Profesores | 20 |
| Clase A | 30 |
| Clase B | 40 |
| Management&Native | 99 |
| BlackHole | 999 |