

8.5.5. CONFIGURE NAMED STANDARD IPV4 ACLS –ILM

%LINEPROTO-5-UPDOWN: Line protocol on Interface Ethernet0/1/0, changed state to up

R1>

R1>ena

R1#conf t

Enter configuration commands, one per line. End with CNTL/Z. R1(config)#ip access-list standard File_Server_Restrictions

^

% Invalid input detected at '^' marker.

R1(config)#ip access-list standard File_Server_Restrictions

R1(config-std-nacl)#permit host 192.168.20.4

R1(config-std-nacl)#permit host 192.168.100.100

R1(config-std-nacl)#deny any

R1(config-std-nacl)#interface f0/1

R1(config-if)#ip access-group File_Server_Restrictions out

R1(config-if)#end

R1#

Assessment Items	Status	Points	Comp
Network			
R1			
ACL		0	ACL
✓ File_Server_Restrictions	Correct	80	IPv4 S
Ports		0	Other
FastEthernet0/1		0	Other
✓ Access-group Out	Correct	20	IPv4 S

8.5.6. CONFIGURE NUMBERED STANDARD IPV4 ACLS –ILM

R2>ena

R2#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R2(config)#interface GigabitEthernet0/0

R2(config-if)#ip access-group 1 out

R2(config-if)#access-list 1 deny 192.168.11.0 0.0.0.255

R2(config)#access-list 1 permit any

R2(config)#end

R2#

R3>ena

R3#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R3(config)#interface GigabitEthernet0/0

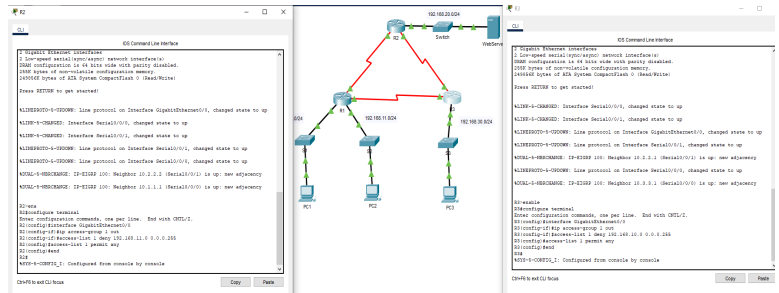
R3(config-if)#ip access-group 1 out

R3(config-if)#access-list 1 deny 192.168.11.0 0.0.0.255

R3(config)#access-list 1 permit any

R3(config)#end
R3#

Assessment Items	Status	Points	Component(s)	Feedback
Network				
R2				
ACL	✓ 1	Correct	0	ACL
Ports		25	0	IPv4 Standard AC...
GigabitEthernet0/0		0	0	Other
Access-group Out	Correct	25	0	IPv4 Standard AC...
R3				
ACL	✓ 1	Correct	0	ACL
Ports		25	0	IPv4 Standard AC...
GigabitEthernet0/0		0	0	Other
Access-group Out	Correct	25	0	IPv4 Standard AC...



8.5.12. CONFIGURE EXTENDED ACLS-ESCENARIO 1 –ILM

R1>ena

R1#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R1(config)#access-list 100 permit tcp 172.22.34.64 0.0.0.31 host 172.22.34.62 eq ftp

R1(config)#access-list 100 permit icmp 172.22.34.64 0.0.0.31 host 172.22.34.62

R1(config)#interface gigabitethernet0/0

R1(config-if)#ip access-group 100 in

R1(config-if)#ip access-list extended HTTP_ONLY

R1(config-ext-nacl)#permit tcp 172.22.4.96 0.0.0.15 host 172.22.34.62 eq www

R1(config-ext-nacl)#permit icmp 172.22.4.96 0.0.0.15 host 172.22.34.62

R1(config-ext-nacl)#interface gigabitethernet0/1

R1(config-if)#ip access-group HTTP_ONLY in

R1(config-if)#end

Overall Feedback

Assessment Items

Connectivity Tests

Expand/Collapse All

Show Incorrect Items

Assessment Items	Status	Points	Component(s)	Feedback
[-] Network				
[-] R1				
[-] ACL				
✓ 100	Correct	40	IPv4 Extended AC...	
✓ HTTP_ONLY	Correct	40	IPv4 Extended AC...	
[-] Ports				
[-] GigabitEthernet0/0		0	Other	
✓ Access-group In	Correct	10	IPv4 Extended AC...	
[-] GigabitEthernet0/1		0	Other	
✓ Access-group In	Correct	10	IPv4 Extended AC...	

8.5.13. CONFIGURE EXTENDED ACLS-ESCENARIO 2 –ILM

```
RT1>ena
RT1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
RT1(config)#ip access-list extended ACL
RT1(config-ext-nacl)#deny tcp host 172.31.1.101 host 64.101.255.254 eq www
RT1(config-ext-nacl)#deny tcp host 172.31.1.101 host 64.101.255.254 eq 443
RT1(config-ext-nacl)#deny tcp host 172.31.1.101 host 64.103.255.254 eq www
RT1(config-ext-nacl)#deny tcp host 172.31.1.101 host 64.103.255.254 eq 443
RT1(config-ext-nacl)#deny tcp host 172.31.1.102 host 64.101.255.254 eq ftp
RT1(config-ext-nacl)#deny tcp host 172.31.1.102 host 64.103.255.254 eq ftp
RT1(config-ext-nacl)#deny icmp host 172.31.1.103 host 64.101.255.254
RT1(config-ext-nacl)#deny icmp host 172.31.1.103 host 64.103.255.254
RT1(config-ext-nacl)#permit ip any any
RT1(config-ext-nacl)#interface gigabitethernet0/0
RT1(config-if)#ip access-group ACL in
RT1(config-if)#end #
```

Expand/Collapse All		Show Incorrect Items		
Assessment Items	Status	Points	Component(s)	Feedback
[-] Network				
[-] RT1				
[-] ACL		0	ACL	
[-] ✓ ACL	Correct	80	IPv4 Extended AC...	
[-] Ports		0	Other	
[-] GigabitEthernet0/0		0	Other	
[-] ✓ Access-group In	Correct	20	IPv4 Extended AC...	

8.6.5. CONFIGURE IP ACLS TO MITIGATE ATTACKS – ILM

User Access Verification

Password:

```
R1>ena
```

Password:

```
R1#conf t
```

Enter configuration commands, one per line. End with CNTL/Z.

```
R1(config)#access-list 10 permit host 192.168.3.3
```

```
R1(config)#line vty 0 4
```

```
R1(config-line)#access-class 10 in
```

```
R1(config-line)#access-list 120 permit udp any host 192.168.1.3 eq domain
```

```
R1(config)#access-list 120 permit tcp any host 192.168.1.3 eq smtp
```

```
R1(config)#access-list 120 permit tcp any host 192.168.1.3 eq ftp
```

```
R1(config)#access-list 120 deny tcp any host 192.168.1.3 eq 443
```

```
R1(config)#access-list 120 permit tcp host 192.168.3.3 host 10.1.1.1 eq 22
```

```
R1(config)#interface s0/0/0
```

```
R1(config-if)#ip access-group 120 in
R1(config-if)#access-list 120 permit icmp any any echo-reply
R1(config)#access-list 120 permit icmp any any unreachable
R1(config)#access-list 120 deny icmp any any
R1(config)#access-list 120 permit ip any any
R1(config)#end
```

User Access Verification

Password:

R2>ena

Password:

R2#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R2(config)#access-list 10 permit host 192.168.3.3

R2(config)#line vty 0 4

R2(config-line)#access-class 10 in

R2(config-line)#end

User Access Verification

Password:

R3>ena

Password:

R3#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R3(config)#access-list 10 permit host 192.168.3.3

R3(config)#line vty 0 4

R3(config-line)#access-class 10 in

R3(config-line)#access-list 100 permit tcp 10.0.0.0 0.255.255.255 eq 22 host 192.168.3.3

R3(config)#access-list 100 deny ip 10.0.0.0 0.255.255.255 any

R3(config)#access-list 100 deny ip 172.16.0.0 0.15.255.255 any

R3(config)#access-list 100 deny ip 192.168.0.0 0.0.255.255 any

R3(config)#access-list 100 deny ip 127.0.0.0 0.255.255.255 any

R3(config)#access-list 100 deny ip 224.0.0.0 15.255.255.255 any

R3(config)#access-list 100 permit ip any any

R3(config)#interface s0/0/1

R3(config-if)#ip access-group 100 in

R3(config-if)#access-list 110 permit ip 192.168.3.0 0.0.0.255 any

R3(config)#interface g0/1

R3(config-if)#ip access-group 110 in

R3(config-if)#end

R3#

Expand/Collapse All		Show Incorrect Items				
Assessment Items	Status	Points	Component(s)	Feedback		
Serial0/0/0		0	Other			
Access-group In	Correct	1	ACL			
VTY Lines		0	Other			
VTY Line 0		0	Other			
Access Control In	Correct	1	ACL			
VTY Line 1		0	Other			
Access Control In	Correct	1	ACL			
VTY Line 2		0	Other			
Access Control In	Correct	1	ACL			
VTY Line 3		0	Other			
Access Control In	Correct	1	ACL			
VTY Line 4		0	Other			
Access Control In	Correct	1	ACL			
R2		0	ACL			
ACL 10	Correct	1	ACL			
VTY Lines		0	Other			
VTY Line 0		0	Other			
Access Control In	Correct	1	ACL			
VTY Line 1		0	Other			
Access Control In	Correct	1	ACL			
VTY Line 2		0	Other			
Access Control In	Correct	1	ACL			
VTY Line 3		0	Other			
Access Control In	Correct	1	ACL			
VTY Line 4		0	Other			
Access Control In	Correct	1	ACL			
R3		0	ACL			
ACL 10	Correct	1	ACL			
ACL 100	Correct	1	ACL			
ACL 110	Correct	1	ACL			
Ports		0	Other			
GigabitEthernet0/1		0	Other			
Access-group In	Correct	1	ACL			
Serial0/0/1		0	Other			
Access-group In	Correct	1	ACL			
VTY Lines		0	Other			
VTY Line 0		0	Other			
Access Control In	Correct	1	ACL			
VTY Line 1		0	Other			
Access Control In	Correct	1	ACL			
VTY Line 2		0	Other			

8.7.4. CONFIGURE IPV6 ACLS –ILM m

R1>ena

R1#conf

Configuring from terminal, memory, or network [terminal]?

Enter configuration commands, one per line. End with CNTL/Z.

R1(config)#ipv6 access-list BLOCK_HTTP

R1(config-ipv6-acl)#deny tcp any host 2001:db8:1:30::30 eq www

R1(config-ipv6-acl)#deny tcp any host 2001:db8:1:30::30 eq 443

R1(config-ipv6-acl)#permit ipv6 any any

R1(config-ipv6-acl)#interface gigabitethernet0/1

R1(config-if)#ipv6 traffic-filter BLOCK_HTTP in

R1(config-if)#end

R1#

R3>ena

R3#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R3(config)#ipv6 access-list BLOCK_ICMP

R3(config-ipv6-acl)#deny icmp any any

R3(config-ipv6-acl)#permit ipv6 any any

R3(config-ipv6-acl)#interface gigabitethernet0/0

R3(config-if)#ipv6 traffic-filter BLOCK_ICMP out

R3(config-if)#end

R3#

Expand/Collapse All

Show Incorrect Items

Assessment Items	Status	Points	Component(s)	Feedback
[-] Network				
[-] R1				
[-] ACLV6		0	ACL	
✓ BLOCK_HTTP	Correct	40	IPv6 ACL Impleme...	
[-] Ports		0	Other	
[-] GigabitEthernet0/1		0	Other	
✓ IPv6 Traffic Filter In	Correct	10	IPv6 ACL Impleme...	
[-] R3				
[-] ACLV6		0	ACL	
✓ BLOCK_ICMP	Correct	40	IPv6 ACL Impleme...	
[-] Ports		0	Other	
[-] GigabitEthernet0/0		0	Other	
✓ IPv6 Traffic Filter Out	Correct	10	IPv6 ACL Impleme...	

10.3.11. CONFIGURE A ZPF – ILM

User Access Verification

Password:

R3>enable

Password:

R3#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R3(config)#zone security IN-ZONE

R3(config-sec-zone)#zone security OUT-ZONE

R3(config-sec-zone)#access-list 101 permit ip 192.168.3.0 0.0.0.255 any

R3(config)#class-map type inspect match-all IN-NET-CLASS-MAP

R3(config-cmap)#match access-group 101

R3(config-cmap)#policy-map type inspect IN-2-OUT-PMAP

R3(config-pmap)#class type inspect IN-NET-CLASS-MAP

R3(config-pmap-c)#inspect

%No specific protocol configured in class IN-NET-CLASS-MAP for inspection. All protocols will be inspected

R3(config-pmap-c)#zone-pair security IN-2-OUT-ZPAIR source IN-ZONE destination OUT-ZONE

R3(config-sec-zone-pair)#service-policy type inspect IN-2-OUT-PMAP

R3(config-sec-zone-pair)#INTERFACE GIGABITETHERNET0/1

R3(config-if)#zone-member security IN-ZONE

R3(config-if)#interface s0/0/1

R3(config-if)#zone-member security OUT-ZONE

R3(config-if)#end

Expand/Collapse All		Show Incorrect Items			
Assessment Items	/	Status	Points	Component(s)	Feedback
Network					
R3					
ACL			0	ACL	
101		Correct	1	ACL	
Class Maps					
IN-NET-CLASS-MAP					
Map Type		Correct	1	Other	
Statements			0	Other	
access-group 101		Correct	1	Other	
Policy Maps					
Policy Map List					
Policy Map IN-2-OUT-PMAP					
Inspect Class IN-NET-CLASS-MAP					
Action		Correct	1	Other	
Class Map		Correct	1	Other	
Policy Map Name		Correct	1	Other	
Policy Map Type		Correct	1	Other	
Ports					
GigabitEthernet0/1			0	Other	
Zone Member		Correct	1	Other	
Serial0/0/1			0	Other	
Zone Member		Correct	1	Other	
Zone Based Firewall					
Zone Names					
IN-ZONE		Correct	1	Other	
OUT-ZONE		Correct	1	Other	
Zone Pairs					
Zone Pair IN-2-OUT-ZPAIR					
Destination Zone		Correct	1	Other	
Name		Correct	1	Other	
Service Policy		Correct	1	Other	
Source Zone		Correct	1	Other	

11.4.6. IMPLEMENT A LOCAL SPAN – ILM

S1>en

Password:

S1#conf t

Enter configuration commands, one per line. End with CNTL/Z.

S1(config)#monitor session 1 source interface f0/5

S1(config)#monitor session 1 destination interface f0/6

S1(config)#end #

Congratulations! You have completed the security.					
Overall Feedback	Assessment Items	Connectivity Tests			
Expand/Collapse All		Show Incorrect Items			
Assessment Items	/	Status	Points	Component(s)	Feedback
Network					
S1					
IOS Configuration					
Running Configuration					
LINES					
Item		Correct	1	Other	
Item		Correct	1	Other	

14.3.11. IMPLMENT PORT SECURITY –ILM

Expand/Collapse All Show Incorrect Items

Assessment Items	Status	Points	Component(s)	Feedback
S1				
Ports				
FastEthernet0/1				
Port Security				
Enabled	Correct	8	Port Security Con...	
Maximum Static MACs	Correct	8	Port Security Con...	
Port Security Violation	Correct	8	Port Security Con...	
Sticky Enabled	Correct	7	Port Security Con...	
Sticky MACs		0	Other	
00E0.B027.2245	Correct	7	Port Security Con...	
FastEthernet0/10		0	Other	
Port Status	Correct	1	Port Security Con...	
FastEthernet0/11		0	Other	
Port Status	Correct	1	Port Security Con...	
FastEthernet0/12		0	Other	
Port Status	Correct	1	Port Security Con...	
FastEthernet0/13		0	Other	
Port Status	Correct	1	Port Security Con...	
FastEthernet0/14		0	Other	
Port Status	Correct	1	Port Security Con...	
FastEthernet0/15		0	Other	
Port Status	Correct	1	Port Security Con...	
FastEthernet0/16		0	Other	
Port Status	Correct	1	Port Security Con...	
FastEthernet0/17		0	Other	
Port Status	Correct	1	Port Security Con...	
FastEthernet0/18		0	Other	
Port Status	Correct	1	Port Security Con...	
FastEthernet0/19		0	Other	
Port Status	Correct	1	Port Security Con...	
FastEthernet0/2				
Port Security				
Enabled	Correct	8	Port Security Con...	
Maximum Static MACs	Correct	8	Port Security Con...	
Port Security Violation	Correct	8	Port Security Con...	
Sticky Enabled	Correct	7	Port Security Con...	
Sticky MACs		0	Other	
0001.647C.697E	Correct	7	Port Security Con...	
FastEthernet0/20		0	Other	
Port Status	Correct	1	Port Security Con...	
FastEthernet0/21		0	Other	
Port Status	Correct	1	Port Security Con...	
FastEthernet0/22		0	Other	

14.9.10. IMPLEMENT STP SECURITY – ILM

Central>ena

Password:

Central#conf t

Enter configuration commands, one per line. End with CNTL/Z.

Central(config)#spanning-tree vlan 1 root primary

SW-1>ena

Password:

SW-1#conf t

Enter configuration commands, one per line. End with CNTL/Z.

SW-1(config)#spanning-tree vlan 1 root secondary

SW-1(config)#interface range f0/23-24

SW-1(config-if-range)#spanning-tree guard root

SW-1(config-if-range)#end #

SW-2>ena

Password:

SW-2#conf t

Enter configuration commands, one per line. End with CNTL/Z.
SW-2(config)#interface range f0/23-24
SW-2(config-if-range)#spanning-tree guard root
SW-2(config-if-range)#end

SW-A>en
Password:
SW-A#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-A(config)#interface range f0/1-4
SW-A(config-if-range)#spanning-tree portfast
%Portfast has been configured on FastEthernet0/4 but will only
have effect when the interface is in a non-trunking mode.
SW-A(config-if-range)#spanning-tree bpduguard enable
SW-A(config-if-range)#end

SW-B>ena
Password:
SW-B#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-B(config)#interface range f0/1-4
SW-B(config-if-range)#spanning-tree portfast
%Portfast has been configured on FastEthernet0/4 but will only
have effect when the interface is in a non-trunking mode.
SW-B(config-if-range)#spanning-tree bpduguard enable

Expand/Collapse All

Show Incorrect Items

Assessment Items	Status	Points	Component(s)	Feedback
Network				
Central		0	Other	
STP		0	Other	
VLANs		0	Other	
1		0	Other	
✓ Priority	Correct	1	Other	
SW-1				
Ports				
FastEthernet0/23		0	Other	
✓ Root Guard	Correct	1	Switching	
FastEthernet0/24		0	Other	
✓ Root Guard	Correct	1	Switching	
STP		0	Other	
VLANs		0	Other	
1		0	Other	
✓ Priority	Correct	1	Other	
SW-2				
Ports				
FastEthernet0/23		0	Other	
✓ Root Guard	Correct	1	Switching	
FastEthernet0/24		0	Other	
✓ Root Guard	Correct	1	Switching	
SW-A				
Ports				
FastEthernet0/1				
✓ Bpduguard	Correct	1	Switching	
✓ PortFast	Correct	1	Switching	
FastEthernet0/2				
✓ Bpduguard	Correct	1	Switching	
✓ PortFast	Correct	1	Switching	
FastEthernet0/3				
✓ Bpduguard	Correct	1	Switching	
✓ PortFast	Correct	1	Switching	
FastEthernet0/4				
✓ Bpduguard	Correct	1	Switching	
✓ PortFast	Correct	1	Switching	
SW-B				
Ports				
FastEthernet0/1				
✓ Bpduguard	Correct	1	Switching	
✓ PortFast	Correct	1	Switching	
FastEthernet0/2				
✓ Bpduguard	Correct	1	Switching	

14.9.11. LAYER 2 VLAN SECURITY – ILM

Network				
C1			0	Other
Ports			0	Other
FastEthernet0			0	Other
Central				
Ports			0	Other
Vlan20			0	Other
Subnet Mask	Correct		1	Ip
VLANS			0	Other
VLAN 20			1	Switching
VLAN Name	Correct		1	Switching
R1				
Ports				
GigabitEthernet0/0.3				
Encapsulation	Correct		1	Other
IP Address	Correct		1	Ip
SW-1				
Ports				
FastEthernet0/23				
Link to SW-2				
Native VLAN	Correct		1	Switching
Nonegotiate	Correct		1	Switching
Port Mode	Correct		1	Other
Vlan20			0	Other
IP Address	Correct		1	Ip
VLANS			0	Other
VLAN 20			1	Switching
VLAN Name	Correct		1	Switching
SW-2				
Ports				
FastEthernet0/23				
Link to SW-1				
Native VLAN	Correct		1	Switching
Nonegotiate	Correct		1	Switching
Port Mode	Correct		1	Other
Vlan20			0	Other
IP Address	Correct		1	Ip
VLANS			0	Other
VLAN 20			1	Switching
VLAN Name	Correct		1	Switching
SW-A				
Ports				
FastEthernet0/1				
Access VLAN	Correct		1	Switching
Port Status	Correct		1	Physical
Vlan20			0	Other
IP Address	Correct		1	Ip
VLANS			0	Other
VLAN 20			1	Switching
VLAN Name	Correct		1	Switching

SW-A				
Ports				
FastEthernet0/1				
✓ Access VLAN	Correct	1	Switching	
✓ Port Status	Correct	1	Physical	
Vlan20		0	Other	
✓ IP Address	Correct	1	Ip	
VLANS		0	Other	
VLAN 20		1	Switching	
✓ VLAN Name	Correct	1	Switching	
SW-B				
Ports		0	Other	
Vlan20		0	Other	
✓ IP Address	Correct	1	Ip	
VLANS		0	Other	
VLAN 20		1	Switching	
✓ VLAN Name	Correct	1	Switching	

Physical CLI Attributes

IOS Command Line Interface

Press RETURN to get started:

```
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/24, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed state to up

SW-1>ena
Password:
SW-1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-1(config)#interface f0/23
SW-1(config-if)#switchport mode trunk
SW-1(config-if)#switchport trunk native vlan 15
SW-1(config-if)#switchport nonegotiate
SW-1(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/23, changed state to down
SW-1(config-if)#vlan 20
SW-1(config-vlan)#exit
SW-1(config)#interface vlan 20
SW-1(config-if)#ip address 192.168.20.3 255.255.255.0
%LINK-5-CHANGED: Interface Vlan20, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan20, changed state to up

SW-1(config-if)#end
SW-1#
%SYS-5-CONFIG_I: Configured from console by console
```

Ctrl+F6 to exit CLI focus

Copy Paste

Top

SW-2

Physical CLI Attributes

IOS Command Line Interface

Press RETURN to get started:

```
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/24, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed state to up

SW-2>ena
Password:
SW-2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-2(config)#interface f0/23
SW-2(config-if)#switchport mode trunk
SW-2(config-if)#switchport trunk native vlan 15
SW-2(config-if)#switchport nonegotiate
SW-2(config-if)#no shutdown

%LINK-5-CHANGED: Interface FastEthernet0/23, changed state to down
SW-2(config-if)#vlan 20
SW-2(config-vlan)#exit
SW-2(config)#interface vlan 20
SW-2(config-if)#ip address 192.168.20.4 255.255.255.0
%LINK-5-CHANGED: Interface Vlan20, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan20, changed state to up

SW-2(config-if)#end
SW-2#
%SYS-5-CONFIG_I: Configured from console by console
```

Ctrl+F6 to exit CLI focus

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Physical CLI Attributes

IOS Command Line Interface

Press RETURN to get started:

```
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/24, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed state to up

SW-A>ena
Password:
SW-A#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-A(config)#vlan 20
SW-A(config-vlan)#exit
SW-A(config)#interface vlan 20
SW-A(config-if)#ip address 192.168.20.1 255.255.255.0
SW-A(config-if)#interface f0/1
SW-A(config-if)#switchport access vlan 20
SW-A(config-if)#no shutdown
%LINK-5-CHANGED: Interface Vlan20, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan20, changed state to up

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to down
SW-A(config-if)#end
SW-A#
%SYS-5-CONFIG_I: Configured from console by console
```

Ctrl+F6 to exit CLI focus

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Physical CLI Attributes

IOS Command Line Interface

Press RETURN to get started:

```
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/4, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/4, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/24, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/24, changed state to up

SW-B>ena
Password:
SW-B#conf t
Enter configuration commands, one per line. End with CNTL/Z.
SW-B(config)#vlan 20
SW-B(config-vlan)#
SW-B(config-vlan)#exit
SW-B(config)#interface vlan 20
SW-B(config-if)#ip address 192.168.20.2 255.255.255.0
%LINK-5-CHANGED: Interface Vlan20, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan20, changed state to up

SW-B(config-if)#end
SW-B#
%SYS-5-CONFIG_I: Configured from console by console
```

Ctrl+F6 to exit CLI focus

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Physical CLI Attributes

IOS Command Line Interface

Press RETURN to get started:

```
%LINK-5-CHANGED: Interface Serial0/0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/0/0, changed state to up

R1>ena
Password:
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#interface GigabitEthernet0/0.1
R1(config-subif)#ip access-group 101 in
R1(config-subif)#interface GigabitEthernet0/0.2
R1(config-subif)#ip access-group 101 in
R1(config-subif)#interface g0/0.3
R1(config-subif)#encapsulation dot1q 20
R1(config-subif)#ip address 192.168.20.100 255.255.255.0
R1(config-subif)#access-list 101 deny ip any 192.168.20.0 0.0.0.255
R1(config)#access-list 101 permit ip any any
R1(config)#access-list 102 permit ip host 192.168.20.50 any
R1(config)#line vty 0 4
R1(config-line)#access-class 102 in
R1(config-line)#end of document
%LINK-5-CHANGED: Interface GigabitEthernet0/0.3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0.3, changed state to up

% Invalid input detected at '^' marker.

R1(config-line)#end
R1#
%SYS-5-CONFIG_I: Configured from console by console
```

Ctrl+F6 to exit CLI focus

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