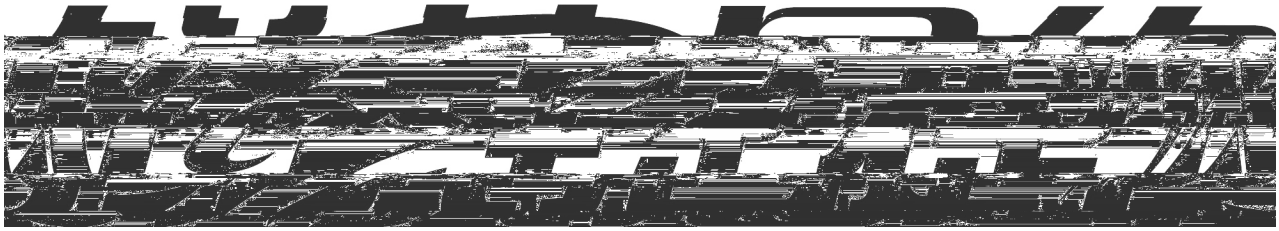

S35

2.4

2004 10

618 20 -22

350002

0591-83057001 0591-83057002

0591-83057315

E-mail: service@I-net.com.cn

http://www.i-net.com.cn

http://www.red-giant.com.cn

й ˆ ЛЬЮ ˜ Ч ˇ è Л Ђu ҳ ˆ CLĨ

ฯ Ո '
Խ ҳ ЛЏЮ '
Խ ҳ Ո ˘ **keyword**
ل ˘ ,
ภ^ []˜ ɬ ل Խ ҳ ˘ **[keyword]**
ภ^ {}˜ ɬ ÿ Խ ҳ ˘ Խ ҳ ^ |˜ ˘ **{keyword1 | keyword2 | keyword3}**
ภ ^ [{ | }]˜˜ ھ ل Խ ҳ ˘ Խ ҳ Â ل Л ɑ ˘ ل ˘ **[{keyword1 | keyword2}]**

ê Ì

ل

Խ ҳ

Խ ҳ ^ CLI˜˜ CLI

CLI ћu ҳ

CLI ћu ҳ ÂCLI ћu ҳ ћu ҳ ǐ ⁄˘ ' **interface gigabitEthernet** ћu ҳ ⁄ ج Ю Â ЛЮ ў ћu ҳ '

User EXEC ^ ~'

Privileged EXEC ^ ~'

Global configuration ^ ~'

Interface configuration ^ ⁄ ~'

Config-vlan ^ VLAN ~'

1-1 ћu ҳ à à à Â ⁄ и Ґ LÂ

1-1 ћu ҳ

ћu ҳ		Ю	
User EXEC ^ ~	″I Â	Switch>	**exit** ћu ҳ Â ˘ **enable** ћu ҳ Â
Privileged EXEC ^ ~	ج Ю˘ **enable** ћu ҳ Â	Switch#	ھ ˘ **disable** ћu ҳ Â ˘ **configure** ћu ҳ Â
Global configuration ^ ~	ج Ю˘ **configure** ћu ҳ Â	Switch(config)#	ھ ˘ **exit** ћu ҳ **end** ћu ҳ˘ **Ctrl+C** ⁄ Â ⁄ ˘ **interface** ћu ҳ Â VLAN ˘ **vlan** ћu ҳ Â
Interface configuration ^ ⁄ ~	ج Ю˘ **interface** ћu ҳ Â	Switch(config-if)#	ھ ˘ **end** ћu ҳ˘ **Ctrl+C** ⁄ Â ھ ˘ **exit** ћu ҳ Â ج **interface** ћu ҳ ف ⁄ Â
Config-vlan ^ VLAN ~	ج Ю˘ **vlan** ћu ҳ Â	Switch(config-vlan)#	ھ ˘ **end** ћu ҳ˘ **Ctrl+C** ⁄ Â ھ ˘ **exit** ћu ҳ Â

˘ ╟ Â ج Ю и ˘ ج Ю и Â Exec ћu ҳ^ ⁄ ћu ҳ~ ⁄ Exec ћu ҳ Â ج Ю˘ ⁄ ˘ Â Exec ћu ҳ ╖ ¤ ˘ ћu ҳ ˘ ج ћu ҳ Ю ⁄

ˆ ?˜ Â
Switch> **?**

ᷣ й Ъυ ҂ ᴎ ˇ ᴎ ҂ ˇ Лυ ÿ
ᴎ ҂ Â Ъυ ҂ ΰ Ъυ ҂ Â
˜ ᴎ ҂ˇ ‡ ᴎ ҂ˇ ᴎ ҂ ج Э a
Â

ʎ ƕ ʎ ╖ ā ˘ ƕ ˘ ج ƕ

ƗO /ʌ ?˜ Â

Switch(config-if)# **?**

ھ ˘ **end** ƕ ˘ **Ctrl+C** ʌ Â ھ ˘ **exit** ƕ Â

VLAN

aaa accounting server	
show accounting	AAA

aaa accounting server

aaa accounting server [backup]

no aaa accounting server [backup]

server	IP
server backup	IP

1.0

show accounting

Switch(config)# **aaa accounting server** 192.1.1.1

aaa accounting	AAA
show accounting	AAA

aaa accounting acc-port

UDP **no**

aaa accounting acc-port

no aaa accounting acc-port

acc-port	UDP

UDP 1813

Ъυ ҳ	∀ Â
	802.1x ╖ и Â
Ъυ ҳ	Â
Ъυ ҳ ∠	
1.0	Ъυ ҳ и ∟ Â
	Ъυ ҳ 802.1x ╖ ˘ Л 802.1x ╖ Â **show dot1x** Ъυ ҳ 802.1x ╖ л Â
	Ю 802.1x ╖ ' Switch(config)# **aaa authentication dot1x**

Ъυ ҳ	Ъυ ҳ
radius-server	RADIUS ┗ Ы Â
show dot1x	802.1x Â

aaa authorization ip-auth-mode

IP Â Ъυ ҳ **no** и Â

aaa authorization ip-auth-mode {disabled | dhcp-server | radius-server | supplicant }

no aaa authorization ip-auth-mode

disabled DISABLE ^ ~

1.0	Ъu ҳ й ч Â

Ь Ю صر'
DISABLE ' л a IP عج л Â ч
Â
DHCP SERVER ' PC DHCP IP فخ سم˘ ˜
DHCP RELAY DHCP SERVER˘ ˘ ч
DHCP SERVER¦ IP л Â
RADIUS SERVER ' PC ش IP˘ RADIUS SERVER
——IP ˘ ч IP Â
show ip-auth-mode Ъu ҳ IP л Â

ЛЫЮ IP й DHCP-SERVER '
Switch#**configure terminal**
Switch(config)# **aaa authorization ip-auth-mode dhcp-v cVer**
Switch(config)#**end**

Ъu ҳ

Ъu ҳ	
show ip-auth-mode	IP л Â

absolute

Ъ ך

accept-lifetime

Â Ъυ ҳ **no** Â

accept-lifetime {**infinite** | | **duration** }

no accept-lifetime

	˘ ' hh:mm:ss-mm/dd/yy
infinite	Â
	˘ ' hh:mm:ss-mm/dd/yy
duration	ÂЛυ ѝ Æ Â

end-time Ո **duration** ѝ **infinite**.

Ъυ ҳ Â

Ъυ ҳ ↓	
1.0	Ъυ ҳ ѝ ↓ Â

show key chain Ъυ ҳ Â

Switch(config-keychain-key)# **accept-lifetime** 00:00:00 08 26 2002 **duration** 100000

	ѫ ѭ ѝ IP ѫ ѭ ˘ MAC ѫ ѭ a ѝ IP ѫ ѭ MAC ˘ Â
	Ю ip ѫ ѭ ѝ 3.3.3.3 Ո mac ѫ ѭ 00d0.f811.1112 Switch(config)#**address-bind** 3.3.3.3 00d0.f811.1112
Ъυ ҳ	**Ъυ ҳ**
	show address-bind ѫ ѭ

aggregateport load-balance

AP Â Ъυ ҳ **no** ѝ Â

aggregateport load-balance {**dst-mac** | **src-mac** | **ip** }

no aggregateport load-balance

dst-mac	MAC ѫ ѭ ѓ Âѿ AP ѧ ˘ MAC ѫ ѭ ѯ ѯ ѧ˘ MAC a ѯ ѓ a ѯ ѧ
src-mac	MAC ѫ ѭ ѓ Â ѿ AP ѧ ˘ a ѯ ѫ ѭ ѓ a ѯ ѧ˘ ѯ ѫ ѭ ѯ ѧ
ip	IP б IP ѓ Â a ѯ IP—— IP a ѯ ѧ ч˘ ѯ IP—— IP ѯ ч˘ è IP—— IP è ч Âѿ Ь ˚ Ю˘ Â

MAC ѫ ѭ ѓ Â

Ъυ ҳ Â

Ъυ ҳ ѯ

1.0	Ъυ ҳ ѝ ч Â

show aggregateport Ъυ ҳ Â

Switch(config)# **aggregateport load-balance dst-mac**

Ъυ ҳ	**Ъυ ҳ**
	show aggregateport aggregateport Â

area authentication

ƕu ʅ ɺ ɲ ɯ ﷼ ˘ ƕu ʅ no ɺ ɲ ɯ ﷼ Â

area **authentication [message-digest]**

no area **authentication**

	ɯ ﷼ ʎ Â ɺ ɲ IP ﷼ Â
message-digest	MD5 Â

ɯ Â

ƕu ʅ

OSPF Â

ƕu ʅ ɺ

1.0	ƕu ʅ ǹ ɺ Â

ج ɯ ﷼ ˘ router ɺ Â

no area ˘ ɯ ﷼ (ɯ ﷼)'

Switch(config-router)# **area** 0 **authentication**

ƕu ʅ

ƕu ʅ	
area nssa	Ѭ nssa ɯ ﷼
area stub	Ѭ stub ɯ ﷼
ip ospf authentication-key	Ѭ key
ip ospf message-digest-key	Ѭ MD5 key
area default-cost	stub nssa metric Â
show ip ospf area	ɯ ﷼ Â

area default-cost

ƕu ʅ stub nssa ɯ ﷼ metric˘ ƕu ʅ no ɺ ɲ Â

area **default-cost**

no area **default-cost**

	ɯ ﷼ ʎ Â ɺ ɲ IP ﷼ Â
	stub nssa ɯ ﷼ metric تن: 1-16777214

1

ƕu ʅ

OSPF Â

Switch(config-router)# **area** 2 **nssa**

ƚυ ϟ	ƚυ ϟ
area stub	⊮ stub Ш ѫ
area authentication	Ш ѫ Â
area default-cost	stub nssa metric Â
show ip ospf area	Ш ѫ Â

area range

ƚυ ϟ ѕм ڤ تن ˘ ƚυ ϟ no ⊿ Л ╖ Â

area range [advertise | not-advertise]

no area range

	Ш ѫ /! Â ⊿ Л IP ѕм ڤ Â
	ip ѕм ڤ Â
	ѕм ڤ Â
advertise	ѝ è صر 3 LSA Â
no-advertise	a ѝ è صر 3 LSA Â

⊮ تن Â

ƚυ ϟ	OSPF Â

ƚυ ϟ ⊿	
1.0	ƚυ ϟ ѝ ⊿ Â

3

no area ˘ Ш ѫ (Ш ѫ) ƚυ ϟ ⊿ جـ

ABR0 Ò'%~ $] õq @àt € . dW $1F ï !` ` 662`3 I@à 6A €2 5 "F

Â

area stub [no-summary]

no area stub [no-summary]

	Ш ююю /! Â Л ЛЦ IP ююю фдз Â
no-summary	Ы Л LSA stub Ш ююю Â

ИЖ stub Ш ююю Â

Ъи ъ	OSPF Â

Ъи ъ Л	
1.0	Ъи ъ ѝ Л Â

no area ˘ Ш ююю (Ш ююю)'

no area stub Ш ѝ Ш ююю Â

Switch(config-router)# **area** 1 **stub**

Ъи ъ
area nssa ИЖ nssa Ш ююю
area authentication

hello-interval	hello 1-65535 10
retransmit-interval	5 1-65535
transmit-delay	1 1-65535
dead-interval	**hello-interval** 1-65535
authentication-key	8
message-digest-key **md5**	MD5 keyid key 1-255 *keyid* *key* 16

OSPF

1.0	

arp

ARP Â ƫ ɜ **no** Â

arp **[ ]**

no arp[ ] [ ] [ ] [ ]

600 Â

Ъυ ҳ	∧ .

Ъυ ҳ ⊿	
1.0	Ъυ ҳ ѝ ⊣ Â

	' ⊣ ѝ Ь ∧ arp timeout Â **show interfaces** Ъυ ҳ Â

Switch(config)#i**nterface vlan** 1
Switch(config-if)#**arp timeout** 400

Ъυ ҳ	Ъυ ҳ
show interfaces	∧ Ո Â

auto-cost

Ъυ ҳ ╟ ҳ' ╖ Ո ⊿ ∧ ˘ ∧ ╟ ∧ ҳ' ˘ Ъυ ҳ no ⊣ Л∪ ╟ ҳ' ╖ ˘ ⊣ Л∪ ∧ Â

bps02 36588.44033bTc238c< 212.4 1.506

class

… ج policy map ˇ Â ъ no ج
Â
class
no class

	class map ك
	Â
ъ	policy-map Â
ъ ك	
	1.0 ъ ى ك Â

show policy-map ъ policy map Â

ЛЮЮ … ك ى class1 $ ˜ ŝ 0 P

Switch(config-ext-ipacl)# **end**
Switch(config)# **class-map** class1
Switch(config-cmap)# **match access-group** acl_1
Switch(config-cmap)# **end**

	Ъυ ҳ Â
Ъυ ҳ	Â
Ъυ ҳ ↓	
1.0	Ъυ ҳ и ↓ Â
	∧ ↓ Л∪ Ъυ ҳ **show interfaces** ˇ ج Ю **clear counters** Ъυ ҳˇ ↓ Л∪ ∧ Â a ∧ˇ ‡ ∧ Ы Â
	Switch#**clear counters gigabitethernet 0/1** Clear "show interface" counters on this interface [confirm] y Switch#
Ъυ ҳ	Ъυ ҳ
show interfaces	∧ Ո Â

clear gvrp statistics

∧ ∧ GVRP

clear gvrp statistics {interface-id | **all**}

∧ ID

clear interface

ㅅ ˇ Æ Â

clear interface

	ㅅ ㅅˇ
	ㅏ ㅋ Â
ㅏ ㅋ	Â
ㅏ ㅋ ㅓ	
1.0	ㅏ ㅋ ㅐ ㅓ Â

ㅏ ㅋ ㅅ Switch Port,L2 Aggregrate port ˘ ㅅ ,Routed port,L3 Aggregate port ˘ ㅅ Â

ㅏ ㅋ ㅅ D ˉ 0 ㅾ D ˉ } Ë ㅣ !

	1.0 Ъυ ҳ ӥ ч Â

show running-config Ъυ ҳ Â

ЛЫЮ ӥ جم فذ سم ӥ 230.0.0.0 '
Switch# **clear ip mroute** 230.0.0.0

Ъυ ҳ	Ъυ ҳ
	show ip mroute ч Â

clear ip route

Â

clear ip route { **[** **] | *}**

	فذ سم فذ سم
	Â
	* Â

Â

Ъυ ҳ	Â

Ъυ ҳ ↓	
	1.0 Ъυ ҳ ӥ ч Â

Ъυ ҳ Â **show ip route** Ъυ ҳ
Â

Switch# **clear ip route**

Ъυ ҳ	Ъυ ҳ
	show ip route Â

clear lldp counters

٨ Э LLDP Ы Â
clear lldp counters [ ]

	٨ ضر ٨ ٨ Â
	٨ ٨ Â

Â

Ъυ ϡ	Â

Ъυ ϡ ⊿	
1.0	Ъυ ϡ ѝ ϟ Â

	Ю Ъυ ϡ ∧ **fa**0/1 Э LLDP Ы '
	Switch#**clear lldp counters fa**0/1

Ъυ ϡ	Ъυ ϡ
show lldp traffic	∧ Э LLDP Â

clear lldp table

LLDP Â

clear lldp table

	Ъυ ϡ ∧ Â
	Â
Ъυ ϡ	Â

Ъυ ϡ ⊿	
1.0	Ъυ ϡ ѝ ϟ Â

	LLDP ˘ Ъυ ϡ ⊿Л Â
	Ю Ъυ ϡ Э LLDP '
	Switch#**clear lldp table**

Ъυ ϡ	Ъυ ϡ
show lldp entry	ў ⊿ LLDP Â
show lldp neighbors	∧ Э LLDP Â

clear logging

Â

clear logging

	Ъυ ҳ ٧ Â
	Ъυ ҳ Â
Ъυ ҳ	Â
Ъυ ҳ ↓	
	1.0 Ъυ ҳ и ↓ Â
	Ъυ ҳ Y˚ Â **show logging** Ъυ ҳ Â
	Switch# **clear logging configure**
Ъυ ҳ	**Ъυ ҳ**
	logging file ˚ Â
	show logging Â

clear mac-address-table dynamic

╟ ѕѫ ƒ Â

clear mac-address-table dynamic[address] [interface] [vlan]

	dynamic ╟ ѕѫ ƒ Â
	address ╟ ѕѫ ƒ Â
	interface ٧ ╟ ѕѫ ƒ Â
	vlan VLAN ╟ ѕѫ ƒ Â
	Ъυ ҳ Â
Ъυ ҳ	Â
Ъυ ҳ ↓	
	1.0 Ъυ ҳ и ↓ Â
	↓ Л **show mac-address-table dynamic** Ъυ ҳ ╟ ѕѫ ƒ Â
	╟ ѕѫ ƒ Switch# **clear mac-address-table dynamic**
Ъυ ҳ	**Ъυ ҳ**

show mac-address-table dynamic	

clear mac-address-table filtering

clear mac-address-table filtering [address][vlan]

filtering	
address	
vlan	VLAN

1.0

show mac-address-table filtering

00d0.f800.0c0c

```
Switch# clear mac-address-table filtering address 00d0.f800.0c0c
```

mac-address-table filtering
show mac-address-table filtering

clear mac-address-table static

clear mac-address-table static [address] [interface] [vlan]

static	
address	
interface	
vlan	VLAN

Ъu ҙ	Â
Ъu ҙ	Â
Ъu ҙ ۶	
1.0	Ъu ҙ и ۶ Â

Ю MAC ѕѫ ф и 00d0.f800.073c ѕѫ ф'

Switch#**clear mac-address-table static address** 00d0.f800.073c

Ъu ҙ	Ъu ҙ
mac-address-table static	ѕѫ ф Â
show mac-address-table static	ѕѫ ф Â

[redacted]

ocols

8 Â

erface]

۸

Ъu ҙ и ۶ Â

clock set

Â

clock set : :

: :	˘ ^ 24 ⁸ ~ ầ† ầ Â
	˘ 1 31 Â
	˘ 1 12 Â
	^ a ~ Â

Ю ҳ Â

Ю ҳ Â

Ю ҳ ↓

1.0 Ю ҳ ӣ ↓ Â

show clock Ю ҳ Â

Switch# **clock set** 10:45:30 22 2 2002

Ю ҳ

Ю ҳ
show clock Â

cluster commander-address

Ю ҳ MAC ѳѕ Â Ю ҳ **no** MAC ѳѕ˘ a ÿ Â
cluster commander-address [**member** **name**]
no cluster commander-address

Ю ҳ MAC ѳѕ˘ † 16 ⁸ Â
╗ ↓ ↓˘ тп 0-19 Â
↓ Â

Â

Ю ҳ

Ю ҳ ↓

1.0 Ю ҳ ӣ ↓ Â

Ю ҳ no Э Â ╗ ˘ Ю ҳ Э
ÿ ˘ ˘ ↓ ӣ ľ down Ł Â ҷ ˘ ҽ

ÿ Ю ћu ҳ no ˇ Л Ą ћu ҳ й
˜ Â Ю ˜ ћu ҳ Э ћu ҳ no cluster member
Â
ћ Ю ћu ҳ **show cluster** Л Л Â

cluster enable

˘ ɻ ˘ ɻ ѝ Ƕ ɂ Ⱥ Ƕ ɂ ѝ Ƕ ɂ Â
Ƕ ɂ **no** ˘ Ƕ ɂ ѝ a Â
cluster enable [ ]
no cluster enable

	ɻ ˘ 16 Â
	Ƕ ɂ ʌ˘ تن 0-19 Â

Ƕ ɂ ʌ˘ ‡ è ʌ ѝ 0 Â

Ƕ ɂ

Ƕ ɂ ɻ	
1.0	Ƕ ɂ ѝ ɻ Â

ɻ é ѝ Ƕ ɂ ˚ ℼ سم Ƕ ɂ˘ ˚ '
1. ˚ ,
2. a ÿ ,
ʌ ˘ ѝ سم Ո ɻ ˘ '
1. IP سم فذ'
2. LLDP ,
ج Ƕ ɂ Ɔ Ƕ ɂ ɻ ѝ Â
ج **show cluster** ɻƱɂ Â

Ю Ƕ ɂ ˘ ɻ ѝ clus0˘ Ƕ ɂ ʌ ѝ 3'
Switch(config)#**cluster enable clus0 3**

Ƕ ɂ	**Ƕ ɂ**
	show cluster ѧѧ Â
	show cluster candidates Â
	show cluster members ˘ Â

cluster holdtime

holdtime Â Ƕ ɂ Ո ɻ holdtime Â
Ƕ ɂ **no** holdtime ѝ 120 Â
cluster holdtime
no cluster holdtime

	holdtime ˘ تن 1-300˘ Ʊ ѝ Æ Â

120 Â

Ъu ъ

Ъu ъ ⊿

1.0	Ъu ъ и ⊿ Â

Ъu ъ ⊿ ⋒ Ъu ъ Э Â
⋒ Ю Ъu ъ **show cluster** ⊿ Л∪ Â

Ю Ъu ъ holdtime 25 '
Switch(config)#**cluster holdtime 25**

Ъu ъ

Ъu ъ	
show cluster	⋒⋒ Â

cluster member

⊿ ╗ ⊿ ˜ Â Ъu ъ **no** ⊿ ⊿ ˜ Â
cluster member [ ] **mac-address** [**password**]
no cluster member n

˜	⁄ˇ тп 0-19 Â
˜	MAC ⋒⋒ ˇ 16 ⁸ Â
	^ 15 ~ ˇ Â

Â

Ъu ъ

Ъu ъ ⊿

1.0	Ъu ъ и ⊿ Â

Ъu ъ ⊿ ⋒ Ъu ъ Э ˇ ⊿ ╗ ÿ ⊿ ˜ Â ⋒ ╗ ˜ ⊿ a ˜ ⁄ˇ Ъu ъ ╟ ⊿ ⁄ˇ ⋒ ˜ è ⁄ Â
╗ ^ 15 ~ ˇ ‡ a Â
⋒ Ю Ъu ъ **show cluster members** ⊿ Л∪ Â

Ю Ъu ъ MAC ⋒⋒ и 00d0.f8fe.1007 ╗ ˇ и startˇ
è ⁄ и 1 Â
Switch(config)#**cluster member** 1 **mac-address** 00d0.f8fe.1007 **password** start

Switch(config)#**cluster member mac-address** 00d0.f8fe.1007

show cluster	Â
show cluster candidates	Â
show cluster members	Â

cluster run

Â **cluster run**
no cluster run

Â

Â

1.0	Â

Â
Â
Â
show cluster Â
Â

no timer й 12 Â

cluster timer

no cluster timer

	timer ˘ тп 1-300ў Л∪ й Æ Â
	12 Â
h∪ ҂	
h∪ ҂ ≠	
	1.0 h∪ ҂ й ≠ Â
	h∪ ҂ ≠ ж h∪ ҂ Э Â ж Ю h∪ ҂ **show cluster** ≠ Л∪ Â
	Ю h∪ ҂ timer й 5' Switch(config)#**cluster timer 5**
h∪ ҂	**h∪ ҂**
	show cluster ыы Â

compatible

ж ≠ AS ыы ˘ ˘ h∪ ҂ RFC1583 ″I ‡ RFC2328 ″I ‡ Â

commpatible rfc1583

[no | default] commpatible rfc1583

	h∪ ҂ ≠ Â
	RFC1583 ‡ Â
h∪ ҂	OSPF Â
h∪ ҂ ≠	
	1.0 h∪ ҂ й ≠ Â
	h∪ ҂ no RFC2328 ‡, default ‡ ˘ RFC1583 ‡ Â
	Switch(config-router)#**compatible rfc1583**
h∪ ҂	**h∪ ҂**

	show ip ospf	ospf Â

configure

Â

configure [terminal]

	terminal ˘ Â
	Ъυ ҙ Â
Ъυ ҙ	Â
Ъυ ҙ ↓	
	1.0 Ъυ ҙ и ↓ Â
	Ъυ ҙ ˘ ы ˘ **exit** Ъυ ҙ **end** Ъυ ҙ˘ **Ctrl+C** ↓ Â
	Switch# **configure**
Ъυ ҙ	**Ъυ ҙ**
	end ÿ ↓ ы Â
	exit ÿ ↓ ы Â

copy

ÿ ↓ 8 ˚ ˘ ћ Ю **copy** Ъυ ҙ Â

copy

	8 ˚ ↓ URL Â
	8 ˚ ↓ URL Â

1 URL ↰

running-config	ћ Â
xmodem	˚ xmodem Â
tftp:	˚ tftp Â
flash:	˚ Â

startup-config	config.text

1.0	

copy dir

TFTP Xmodem **copy flash: {tftp: | xmodem:}** **copy {tftp: | xmodem:} flash:**

TFTP Xmodem **copy running-config {tftp: | xmodem:}** **copy {tftp: | xmodem} running-config** **copy running-config startup-config**

more

TFTP

```
Switch# copy startup-config tftp:
Address or name of remote host []? 192.168.65.155
Destination filename [config.text]?
!!
2787 bytes copied in 1.320 secs (2787 bytes/sec)
```

delete	
dir	
more	

default-information-originate(OSPF)

no

default-information originate [**always**] [**metric**] [**metric-type**] [**route-map**]

no default-information originate [**always**] [**metric**] [**metric-type**][**route-map**]

always	a Ø Â
metric	Â (1..16777214) 10
metric-type	Â 2
route-map	route-map Â route-map

Â

OSPF Â

1.0

Â

ASBR ASBR OSPF

Â

Switch(config-router)# **default-information originate metric** 100

show ip ospf	ospf Â

default-information originate(RIP)

Rip no

route-map Â

default-information originate [route-map]
no default-information originate [route-map]

	route-map Â

Â

RIP Â

1.0

Â

Switch(config-router)#**default-information originate route-map uuu**
Switch(config-router)# **no default-information originate route-map**
Switch(config-router)# **no default-information originate**

Ъu ҙ	Ъu ҙ
show ip protocols	Â

default-metric(RIP)

RIP metric Â Ъu ҙ **no** Â
default-metric
no default-metric

	RIP metricў ىت ÿ 1 15 Â
1 Â	
Ъu ҙ	RIP Â
Ъu ҙ ۶	
1.0	Ъu ҙ ѝ ۶ Â

show ip protocols Ъu ҙ RIP Â

Switch(config)# **ip routing**
Switch(config)# **router rip**
Switch(config-router)# **default-metric** 2

	Ъu ҙ
	ip routing IP A’5B Ä a Ñ

delete

ھ Ю delete Ъυ ϡ Э ˚ Â

delete flash:

flash:	flash Э ˚ Â
	˚ ɻ Â

Ъυ ϡ Â

Ъυ ϡ Â

Ъυ ϡ ↓

1.0 Ъυ ϡ ѝ ↓ Â

↓ Л υ ″l **dir** Ъυ ϡ Э ھ ˚ ˘
˚ ɻ Â

Switch# **delete flash:** config.text

Ъυ ϡ **A Θ** **ר** **0#**

[aarp |appletalk |decnet-iv| diagnostic |etype-6000|etype-8042| lat | lavc-sca | mop-console|mop-dump | mumps |netbios|vines-echo | xns-idp]	٦ Л Ш IP è Л Ш ص
vid	vlaň trunk port tagged ˇ vid ā ˇ untagged ˇ native vlaň access portˇ acces port vlanÂ Ђ ў IP ФдѕЊ Ո ФдѕЊ Â Э ٦ IP ў IP ФдѕЊˇ ț

host

any

00d0.f800.0044 TCP Â

tcp 192.168.0.0 0.0.255.255 **host** 172.168.12.3

Switch(config)# expert access-list extended expert

Switch(config-ext-macl)# deny tcp **host** 192.168.12.3 **mac** 00d0.f800.0044 **any any**

Switch(config-ext-macl)# permit any any any any

Switch(config-ext-macl)# end

Switch # show access-lists expert

Extended expert access list expert

deny tcp **host** 192.168.12.3 **mac** 00d0.f800.0044 **any any**

permit any any any any

Ъu ҷ	Ъu ҷ
permit(expert access-list extended)	ж ACL denyˆ ˜ Â
show access-list	ACL

deny (ip access-list extended)

(deny) ˚ Л∪ ā ч Âэ ACL Ю˝ Л∪ э ACL Â Ъu ҷ **no** IP ACL Â

deny { | **host** | **any**}[ ]{ | **host** | **any** } [ ] [**time-range** *time-range-name*]

no deny { | **host** | **any**}[ ]{ | **host** | **any** } [ ] [**time-range** *time-range-name*]

	˙ ˇ ч Л∪ **ip** à **tcp** à **udp** à **igmp** à **icmp** Â
	Ђ ў IP ѕф Ո ѕф Â Э ч IP ў IP ѕфˇ ˛ 8 Â ѕф Â
host	**host** ҷ ˄ ў ˇ è source-wildcard и 0.0.0.0 Â
host	**host** ҷ ˄ ў ˇ è destination-wildcard и 0.0.0.0 Â
any	**any** ҷ ў ˇ source и 0.0.0.0˜ source-wild и 255.255.255.255 Â ˄ **any** ҷ ў ˇ destination и 0.0.0.0˜ destination-wild и 255.255.255.255 Â
	Ђ ў IP ѕф Ո ѕф Â Э IP ў IP ѕфˇ ˛ 8 Â ѕф Â

	ЮЖ TCP UDP ∧ Â ∧ **eq**ˆ ˜˜ جھ IP ∧ˇ ר TCP UDP ∧ˇ جھ IP ∧ ר TCP UDP ∧ Â ∧ تن ÿ 0 65535 Â
time-range-name	time-range ∧ .

ACL Â

ЮЧ ACL Â

ЮЧ ∧

1.0 ЮЧ и ∨ Â

Extended IP access listŝ IP ⁸ ˜ Ո IP سھ فخ и
ר ˚ Â
show ip access-lists ЮЧ Â

Ю ˇ IP и 192.1.1.1 ÿ TCP ∧ и 100
Ь˘ ∧ 1 Â '

```
Switch(config)# ip access-list extended 123
Switch(config-ext-nacl)# deny tcp host 192.1.1.1 eq 100 any
Switch(config-ext-nacl)#exit
Switch(config)# interface gigabitethernet 0/1
Switch(config-if)# ip access-group 133 in
```

ЮЧ

ЮЧ	
permit (ip access-list extended)	IP ACL permiť ˜ Â
show ip access-lists	IP ACL Â

deny (ip access-list standard)

(deny) ˚ Л ā ∨ Âجھ ACL Ю˘ Л
جھ ACL Â ЮЧ **no** IP ACL Â

deny { | **host** | **any**} [**time-range** *time-range-name*]
no deny { | **host** | **any**} [**time-range** *time-range-name*]

	ЮЖ ÿ IP سھ فخ Ո سھ فخ Â Э ∨ IP ÿ IP سھ فخˇ ˛ ⁸ Â سھ فخ Â
host	**host** Ҁ ∧ ÿ ˇ è source-wildcard и 0.0.0.0 Â

any	**any** ʔ ÿ ˘ source ì 0.0.0.0˜ source-wild ì 255.255.255.255 Â
time-range-name	time-range ˛ .

ACL Â

ACL Â

1.0 ƫ ʔ ì Ł Â

	host ў فخ سم Â
	aarp |appletalk |decnet-iv| diagnostic Л∪ صر Â ┤Л∪ a |etype-6000|etype-8042| lat | lavc-sca | صر Â mop-console|mop-dump | mumps |netbios|vines-echo | xns-idp*]*
	time-range-name time-range ┘ .

ACL Â

ћ∪ ҳ	MAC ACL Â

ћ∪ ҳ ↓	
	1.0 ћ∪ ҳ и ┤ Â

show mac access-lists ћ∪ ҳ Â

Ю ˘ MAC и 00d0f8000c0c ў ┤ صر и
100 Л∪ ˘ ∧ 1 Â '

```
Switch(config)#mac access-list extended mac1
Switch(config-ext-macl)# deny host 00d0f8000c0c any aarp
Switch(config-ext-macl)#exit
Switch(config)# interface gigabitethernet 0/1
Switch(config-if)# mac access-group mac1 in
```

ћ∪ ҳ	ћ∪ ҳ
	permit (mac access-list externed) MAC ACL permiſ ˜ Â
	show mac access-lists MAC ACL Â

description(interface)

∧ ┘ Â ћ∪ ҳ no Â

description
no description

	∧ ┘ Â

∧ ┘ Â

ћ∪ ҳ	∧ Â

ћ∪ ҳ ↓	
	1.0 ћ∪ ҳ и ┤ Â

1.0	

Switch# **disable**	

enable	
show privilege	

distance

distance
no distance

	1 255

RIP 120
OSPF 110

1.0	

RIP OSPF
show ip protocols RIP OSPF

```
Switch(config)# ip routing
        RIP
Switch(config)# router rip
Switch(config-router)# distance 100
Switch(config-router)# exit
        OSPF
Switch(config)# router ospf
Switch(config-router)# distance 100
Switch(config-router)# exit
```

ip routing	IP

router rip	RIP ╗ ˘ RIP Â
router ospf	OSPF ╗ ˘ OSPF Â
show ip protocols	ج IP Â

distance ospf

Ъυ ϟ ϧ a ل ص a ل ˘ Ъυ ϟ no Ω default ل Л υ è Â

distance ospf {[**intra-area**] [**inter-area**] [**external**]}

no distance ospf

intra-area	Ш Â тп(1..255)
inter-area	Ш Â тп(1..255)
external	Â тп(1..255)

: 110
: 110
: 110

Ъυ ϟ	OSPF Â

Ъυ ϟ ل	
1.0	Ъυ ϟ ϧ ч Â

ϟ ل Â тп 0~255˜ OSPF a ل a ل
˘ Ш ˘ Ш ˘ è ƚ ل Л υƚ Â

Switch(config-router)# **timers spf** 15 20

Ъυ ϟ	
Ъυ ϟ	
show ip ospf	ospf Â

distribute-list

Ъυ ϟ ج ƚ ل Ж ‡˘ Ъυ ϟ no ╗ Â

distribute-list { | **gateway** | **prefix** [**gateway**]} **{ in | out }**
[| **]**

no distribute-list { in | out } [| **]**

dot1x accout-update-interval

ЪU Ъ¦ 802.1X Â ЪU Ъ¦ **no** Â

dot1x accout-update-interval

no dot1x accout-update-interval

	1800S
ЪU Ъ¦	Â
ЪU Ъ¦ Ы	
	1.0 ЪU Ъ¦ Ьй Ы Â
	جم تن <60-65535>
	Switch(config)# **dot1x accout-update-interval 100**
ЪU Ъ¦	ЪU Ъ¦
	show dot1x 802.1X

dot1x auth-address-table

ЪU Ъ¦ 802.1X فخ سم Â ЪU Ъ¦ **no** Ы فخ سم Â

dot1x auth-address-table address interface

no dot1x auth-address-table address interface

	address Ы فخ سم Â
	interface Ы Ы Â
	Ы فخ سم Â
ЪU Ъ¦	Â
ЪU Ъ¦ Ы	
	1.0 ЪU Ъ¦ Ьй Ы Â
	Ы جم فخ سم فخ سم 802.1X Â **show dot1x auth-address table** ЪU Ъ¦ فخ سم Â
	Switch(config)#**dot1x auth-address-table address** 00d0f8000000 **interface gigabitehternet** 0/1

‰ ¾	‰ ¾
show	**dot1x** 802.1X فخ سم Â **auth-address-table**

dot1x auth-mode

802.1x Â

dot1x auth-mode {eap-md5|chap}

no dot1x auth-mode

eap-md5	802.1x	EAP-MD5
chap	802.1x	CHAP

Switch(config)# **dot1x client-probe enable**

Show dot1x	dot1x

dot1x default

dot1x eapol-tag

eapol-tag Â ƫυ ϡ **no** Â

dot1x eapol-tag

no dot1x eapol-tag

	Eapol-tag eapol-tag ╖
ƫυ ϡ	
ƫυ ϡ ↓	
	1.0 ƫυ ϡ ϰ ↓ Â
	eapol-tag ╖
	Switch(config)# **dot1x eapol-tag**
ƫυ ϡ	ƫυ ϡ
	Show dot1x

dot1x max-req

ج Ո ˘ ج ؛ ˘ ‡ Â

ƫυ ϡ Â ƫυ ϡ **no** Â

dot1x max-req

no dot1x max-req

	Â
	ϰ 60 Â
ƫυ ϡ	Â
ƫυ ϡ ↓	
	1.0 ƫυ ϡ ϰ ↓ Â
	↓ Ʌυ **show dot1x** ƫυ ϡ 802.1x Â
	Switch(config)# **dot1x max-req** 30

	Ђυ ҳ ٧ Â
	a Â
Ђυ ҳ	Â
Ђυ ҳ ل	
	1.0 Ђυ ҳ ѝ ٤ Â
	Ђυ ҳ˘ ‡ ل˘ ل Â ل Л υ **show dot1x** Ђυ ҳ 802.1x Â
	Switch(config)# **dot1x re-authentication**

Ђυ ҳ	Ђυ ҳ
	dot1x default 802.1x Â
	dot1x max-req Â
	dot1x port-control auto ٧ ĭ ٧ ╗ Â
	dot1x reauth-max
	dot1x timeout quiet-period ل Â
	dot1x timeout re-authperiod Â
	dot1x timeout server-timeout ∩ Ь ٯ Â
	dot1x timeout supp-timeout ∩ Â
	dot1x timeout tx-period ˘ □ Â
	show dot1x 802.1x Â

dot1x reauth-max

Ђυ ҳ Â Ђυ ҳ **no** Â
dot1x reauth-max [ ]
no dot1x reauth-max

	Ђυ ҳ ٧ Â
	ѝ 2 Â
Ђυ ҳ	Â

Ъυ ҙ ↓	
1.0	Ъυ ҙ ѝ ↓ Â
	Ъυ ҙ˘ ‡ ↓˘ ↓ Â ↓ Л **show dot1x** Ъυ ҙ 802.1x Â
	Switch(config)# **dot1x reauth-max** 5
	Ъυ ҙ **dot1x default** 802.1x Â Ъυ

	ﾉˇ a ﾍ ˇ Â ﾍﾉ
	show dot1x ﾄﾕ ﾇ 802.1x Â

Switch(config)# **dot1x timeout quiet-period** 1000

ﾄﾕ ﾇ	ﾄﾕ ﾇ
	dot1x default 802.1x Â
	dot1x max-req Â
	dot1x port-control auto ﾍ ﾅ ﾍ ﾓ Â
	dot1x reauth-max
	dot1x re-authentication ﾅ Â
	dot1x timeout re-authperiod Â
	dot1x timeout server-timeout Ω ﾚﾉ Â
	dot1x timeout supp-timeout Ω Â
	dot1x timeout tx-period ˇ Â
	show dot1x 802.1x Â

dot1x timeout re-authperiod

ﾈ ﾉˇ ﾄﾕ ﾇ ˇ Â ﾄﾕ ﾇ
no ﾐ Â
dot1x timeout re-authperiod
no dot1x timeout re-authperiod

	ﾅ Â تن 0 65535 Â
	3600 Â
ﾄﾕ ﾇ	Â

ﾄﾕ ﾇ ﾍ	
1.0	ﾄﾕ ﾇ ﾐ ﾍ Â

ﾍﾓ **show dot1x** ﾄﾕ ﾇ 802.1x Â

Switch(config)# **dot1x timeout re-authperiod** 1000

ﾄﾕ ﾇ	ﾄﾕ ﾇ
	dot1x default 802.1x Â

dot1x max-req	Â
dot1x port-control auto	˄ ÎÍ ˄╖ Â
dot1x reauth-max	
dot1x re-authentication	ÎÍ Â
dot1x timeout quiet-period	˅ Â
dot1x timeout server-timeout	∩ ┗ ⊻ Â
dot1x timeout supp-timeout	∩ Â
dot1x timeout tx-period	˘ □ Â
show dot1x	

dot1x re-authperiod	**timeout**	Â
dot1x supp-timeout	**timeout**	Ո Â
dot1x	**timeout**	

dot1x timeout tx-period

Л˘ Ъч ˘ Â Ъч **no**
и Â

dot1x timeout tx-period
no dot1x timeout tx-period

	Â тп 0 65535 Â
	30 Â
Ъч	Â
Ъч Л	
	1.0 Ъч и Л Â
	Л Л **show dot1x** Ъч 802.1x Â
	Switch(config)# **dot1x timeout tx-period** 10
Ъч	**Ъч**
	dot1x default 802.1x Â
	dot1x max-req Â
	dot1x port-control auto Н Ї Н ╗ Â
	dot1x reauth-max
	dot1x re-authentication Ї Â
	dot1x timeout quiet-period Л Â
	dot1x timeout re-authperiod Â
	dot1x timeout server-timeout О Ц Л Â
	dot1x timeout supp-timeout О Â
	802.1x Â

duplex

ж Н ЮЎ Ъч Н Л Â Ъч **no** и Â

duplex {**auto** | **full** | **half**

no duplex

auto	↓ ∩ ↓ Â
full	↓ Â
half	↓ Â

↓ ∩ ↓ Â

Ъυ ϟ ∧ Â

Ъυ ϟ ↓

1.0	Ъυ ϟ и ↓ Â

∧ ↓ б ∧ ص Â↓Л **show interfaces** Ъυ ϟ ∧ ↓ Â

Switch(config-if)# **duplex full**

Ъυ ϟ

Ъυ ϟ	
show interfaces	∧ ∩ Â

enable

Ъυ ϟ˘ ج ∩ ⁋ Â ÿ æ ⁋ ∧ ϟ Â

enable [ ]

	⁋ Â

⁋ 15 Â

Ъυ ϟ ∩ Â

Ъυ ϟ ↓

1.0	Ъυ ϟ и ↓ Â

ÿ æ ⁋ ∧ ϟ˘ ÿ ⁋ æ ‡ a ∧ ϟ Â⁋ ˘ ∧ **enable secret** Ъυ ϟ Â ه ˘ **disable** Ъυ ϟ Â **show privilege** Ъυ ϟ Â

10 '

Switch>**enable** 10

Switch#

Ъυ ϡ	Ъυ ϡ
enable secret	ﻩ ﻥ ϡ˘ Â
disable	ÿ ﻫ Â
show privilege	Â

enable secret

ﻩ ﻥ ϡ˘ Â Ъυ ϡ **no** Â
enable secret [level] { **}**
no enable secret [level]

level	ﻥ ϡ Â┘ Л∪ 0 15 16 ˘ a ‡ ﻭ 15 Â
	╕ صر Â0 ﻥ ϡ˘ 5 ﻥ ϡ Â
	ﻥ ϡ Â ╕ صر ﻭ 0˜ ‡ ﻥ ϡ Л∪ ˘ ╕ صر ﻭ 5˜ ‡ ﻥ ϡ Л∪ Â

ﻥ ϡ Â 15 Â

Ъυ ϡ Â

Ъυ ϡ ┘	
1.0	Ъυ ϡ ﻭ ┘ Â

Ъυ ϡ ┘ ﺝ 15 Â ﻥ ϡ˘ ﺝ ˚ ˘ ┘ Л∪ ﻥ ϡ Â ﺝ ┘ ˘ ÿ ˚ Â

ﻥ ϡ'

Switch(config)#**enable secret level** 10 **0** 123456

ﻥ ϡ'

Switch(config)#**enable secret level** 10 **5** $[djf~k!Ja]s!had_98%sjfl=k`)j

Ъυ ϡ	Ъυ ϡ
enable	ﺝ ∩ ⁋
disable	ÿ ﻫ Â

show privilege	Â

	trap صر:
	VirtIfStateChange ٨ ٦
	NbrStateChange ٦
	VirtNbrStateChange ٦
	IfConfigError ٨ ٨
	VirtIfConfigError ٨ ٨
	IfAuthFailure ٨
	VirtIfAuthFailure ٨
	IfRxBadPacket ٨
	VirtIfRxBadPacket ٨
	TxRetransmit ٨ Э ٤
	VirtIfTxRetransmit ٨ Э ٤
	OriginateLsa LSA
	MaxAgeLsa LSA
	LsdbOverflow LSA Э
	LsdbApproachOverflow LSA Э ٭
	IfStateChange. ٨ ٦ Â

trap Â

ƕ ٩ OSPF Â

ƕ ٩ ٦

1.0	ƕ ٩ ٸ ٤ Â

ƕ ٩ a trap صّ trap Â
trap ٨ << IP ف >> Â
:
ج Ю a trap, trap ج ّ ٤ Л
trapّ ج ٸ ٤ trap ؛ّ ٦ ╗ Â

trap
Switch(config-router)#**enable traps**
٤ ٨ trap
Switch(config-router)#**enable traps** IfAuthFailure
trap
Switch(config-router)# **no enable traps**

ƕ ٩

ƕ ٩	
router ospf	ospf
show ip ospf traps status	ospf ٨ trap Â

″ı '

Switch #**show interfaces status**

Interface	Status	vlan	duplex	speed	type
Fa0/1	down	1	Unknown	Unknown	10/100BaseTX
Fa0/2	down	1	Unknown	Unknown	10/100BaseTX
Fa0/3	down	1	Unknown	Unknown	10/100BaseTX
Fa0/4	down	1	Unknown	Unknown	10/100BaseTX

'

Switch(config-if)# **errdisable recovery**

Ъυ ҙ	Ъυ ҙ
show interfaces	٨ Ո- Â

exec-timeout (console,vty)

ص ٨ Â Ъυ ҙ **default** Â

exec-timeout

no exec-timeout

default exec-timeout

	ص ٨ , تن ѝ 0-3600
	,0 a Â

CONSOLE ѝ 10ϳ ,TELNET ѝ 5ϳ .

Ъυ ҙ	Â

Ъυ ҙ ۶	
1.0	Ъυ ҙ ѝ ۶ Â

a ۶Ո ѝ 0. **show line console 0** Ъυ ҙ , **show line vty** telnet .

Ю telnet ѝ 0′

Switch(config)#**line vty**

Switch(config-line)#**timeout login response** 0

Ъυ ҙ	
line	ص˘ Â

exit

ÿ ﻩ ﻩ ˇ ﺟ ЮO ‡ Â

exit

	Ъu ҙ ﻧ Â

	Ъu ҙ Â

Ъu ҙ	Â

Ъu ҙ ﻝ	
1.0	Ъu ҙ ﻩ ﻝ Â

	ﺟ ЮЪu ҙ ﻝˇ Â **end** Ъu ҙ ﻝ Л u ÿ ﻩ ﻩ Â

	ÿ ﻧ ﻩ ' Switch(config-if)#**exit** Switch(config)#

Ъu ҙ	**Ъu ҙ**
	end ÿ ﻩ ﻩ Â

expert access-group

EXPERT ACL ﻧ Â Ъu ҙ **no** ﻝ Â

expert access-group *name* {in|out}

no expert access-group {in|out}

	IP ACL ﻝ Â
in	⁸ .
out	⁸ .

	Ъu ҙ Â

Ъu ҙ	ﻧ Â

Ъu ҙ ﻝ	
1.0	Ъu ҙ ﻩ ﻝ Â

	ACL ㄴ Э˘ è ㄴ ⁸ Âout ㄱ ₂ SVI ㄴ Э Â **show access-group** ĥυ ɂ Â
	ЮO access-list accept_00d0f8xxxxxx_only Gigabit ㄴ 1 Э' **Switch(config)# interface** GigaEthernet 0/1 **Switch (config-if)# expert access-group** accept_00d0f8xxxxxx_only **in**

ĥυ ɂ	ĥυ ɂ
show access-group	ㄴ Э MAC ACL Â

expert access-list

… ж ACL, ɜ Â ĥυ ɂ **no** ㄱ Â

expert access-list extended *name*

no expert access-list extended *name*

	IP ACL ㄱ Â
	ĥυ ɂ Â
ĥυ ɂ	Â
ĥυ ɂ ㄱ	
1.0	ĥυ ɂ ㄴ Â

	on ⁸ Â
	⁸ Â
Ъυ ҳ	ᛋ Â
Ъυ ҳ ↲	
	1.0 Ъυ ҳ ѝ ↳ Â

show interfaces ᛋ ⁸ Ո Â

Л∪ ᛋ 0/1 ⁸'

Switch(config)#**interface gigabitethernet** 0/1

Switch(config-if)# **flowcontrol on**

Ъυ ҳ	**Ъυ ҳ**
	show interfaces ᛋ Ո Â

gvrp applicant state

Ъυ ҳ ᛋ ˆ ˇ ⁸ ᛋ ї̆ ↳ GVRP ˆ Â Ъυ ҳ **no gvrp applicant state** **gvrp applicant state {normal | non-applicant}**

	Ъυ ҳ ᛋ
	ᛋ ↳ GVRP ˆ Â
Ъυ ҳ	ᛋ Â
Ъυ ҳ ↲	
	1.0 Ъυ ҳ ѝ ↳ Â

show gvrp configuration Ъυ ҳ

Switch(config-if)#**gvrp applicant state normal**

Ъυ ҳ	**Ъυ ҳ**
	show gvrp configuration GVRP

gvrp base-vlan-id

ЪU ҳ GVRP VLAN Â ЪU ҳ **no**

gvrp base-vlan-id [ ]

no gvrp base-vlan-id

	ЪU ҳ ٧
	GVRP VLAN 1 Â
ЪU ҳ	Â
ЪU ҳ ٬	
	1.0 ЪU ҳ ٸ ٤ Â

show gvrp configuration ЪU ҳ

Switch(config-if)#**gvrp base-vlan-id**

ЪU ҳ	ЪU ҳ
	show gvrp configuration GVRP

gvrp dynamic-vlan-creation

ЪU ҳ ⁸ ĭ ╟ … vlaň ЪU ҳ **no** Â

gvrp dynamic-vlan-creation enable

no gvrp dynamic-vlan-creation enable

	ЪU ҳ ٧ Â
	╟ … vlan Â
ЪU ҳ	Â
ЪU ҳ ٬	
	1.0 ЪU ҳ ٸ ٤ Â

show gvrp configuration ЪU ҳ

Switch(config)# **gvrp dynamic-vlan-creation enable**

Switch(config)# **gvrp timer join** 200

Ъυ ҳ	Ъυ ҳ
	show gvrp configuration GVRP

help

Ъυ ҳ ╠ Â

help

	Ъυ ҳ ٧ Â
	Ъυ ҳ Â
Ъυ ҳ	Â
Ъυ ҳ ٫	
	1.0 Ъυ ҳ ѝ ٫ Â

ج Ю ٫ Л **help** Ъυ ҳ˘ Ъυ ҳ ٫ ش ˘ ٬ ٧ ê Ъυ ҳ ٧ Ì Ո ê ÌÂ

Switch# **help**

Ъυ ҳ	Ъυ ҳ

hostname

ў ٫ Â Ъυ ҳ no ѝ Â

hostname
no hostname

	ў ٫ Â
	ў ٫ Switch Â
Ъυ ҳ	Â

1.0	Ъу ъй ч Â

ў л Ъу ъ : Â ج

Ъυ ϡ	Ъυ ϡ
	Spanning-tree mst configure mst
	Show ج mst Ю mst
	Show spanning-tree mst configration mst

interface aggregateport

Ъυ ϡ Ъυ ϡ˘ … ⁄ ⁄˘ ⁄ Â Ъυ ϡ no ⁄ Â

interface aggregateport

no interface aggregateport

	Aggregate port ⁄˘ ىن Ո ﻫ ᾱ Â
	aggregate port Â
Ъυ ϡ	Â
Ъυ ϡ ⅄	
	1.0 Ъυ ϡ ὶ ⅄ Â
	⅄ ΠU ‡˘ è ⁄ ╗ aggregate port Âaggregate port ˜ ⁄ ὶ ˘ ˜ ⁄ aggregate port ᾱ Â **show interfaces** **show interfaces aggregateport** Ъυ ϡ ⁄ Â
	Switch(config)#**interface aggregateport** 3 Switch(config-if)#
Ъυ ϡ	Ъυ ϡ
	show interfaces ⁄ Ո Â

interface fastEthernet

Ъυ ϡ Ъυ ϡ˘ ΠU ⁄˘ ⁄ Â

interface fastEthernet

	ﻫ ⁄ / ﻫ Э ⁄ ⁄˘ ىن Ո ﻫ ᾱ Â
	Ъυ ϡ Â

Ъυ ϡ	Â

Ъυ ϡ ↓	
1.0	Ъυ ϡ ϰ ↓ Â

	Ъυ ϡ **no** ˘ ص ∧ a Â **show interfaces show interfaces fastEthernet** Ъυ ϡ ∧ Â

	Switch(config)#**interface fastEthernet**1/2 Switch(config-if)#

Ъυ ϡ	Ъυ ϡ
show interfaces	∧ Ո Â

interface gigabitEthernet

Ъυ ϡ Ъυ ϡ˘ Ɽυ ∧˘ ∧ Â
interface gigabitEthernet

	϶ϰ /ϧ / ϶ϰ Ɔ ∧ /ϧ˘ ϖ Ո ϶ϰ ᾱ Â

	Ъυ ϡ Â

Ъυ ϡ	Â

Ъυ ϡ ↓	
1.0	Ъυ ϡ ϰ ↓ Â

	Ъυ ϡ **no** ˘ ص ∧ a Â **show interfaces show interfaces gigabitEthernet**

interface loopback

ЪЧ ЗЊ ЊЗ ЗЊ ЪЧ no ЗЛ ЗЊ Â

interface loopback
no interface loopback

	loopback ЗЊ ЗЊ (0-255)
	loopback ЗЊ Â
ЪЧ ЗЊ	Â
ЪЧ ЗЊ ЗЛ	
1.0	ЪЧ ЗЊ ЗЛ Â

OSPF ЗЊ Э IP ЗЊ ЗЊ ROTER ID ЗЊ ЗЊ ЗЊ
ROUTER ID ЗЊ Â Loopback ЗЊ OSPF
ЗЊ IP ЗЊ ЗЊ ROTER ID ЗЊ ЗЊ IP ЗЊ Â Loopback
ЗЊ a ЗЊ ЗЊ Â Loopback ЗЊ ЗЊ OSPF ЗЊ ЗЊ
ЗЊ ЗЊ Loopback ЗЊ ЗЊ IP ЗЊ Â
Loopback IP ЗЊ loopback ip ЗЊ ospf ЗЊ ЗЊ ЗЊ ЗЊ
ЗЊ ЗЊ ЗЊ ROUTER ID.

…
loopback ЗЊ
Switch(config)# **interface loopback** 1
Switch(config-if)#

ЪЧ ЗЊ	
router-id	ЗЊ routerID Â
show ip ospf interface	ospf ЗЊ Â

interface range

ЗЛ ЗЊ ЪЧ ЗЛ ЗЊ Â
interface range { | **macro** **}**

	ЗЊ ЗЊ ЗЊ ЗЊ ЗЊ Â ЗЊ ЗЊ ЗЊ ЗЊ ЗЊ Â
macro	ЊЖЧ ЗЊ ЗЊ Â

ЪЧ ЗЊ Â

Ђυ ϡ	Â

Ђυ ϡ ⊿	
1.0	Ђυ ϡ ѝ ⊣ Â

⊿ ΛΟ Ђυ ϡ ⊿ ∧ Â Ω ∧
⊿ Â interface range ˘
ταν ∧ Â
' ⊿ Ђυ ϡ ∧ ταν ∧ ⊿ صر Â
define interface-range Ђυ ϡ ⊮ ∧ ταν ⊮ Â

Switch(config)#**interface range gigabitethernet** 0/1-5,0/7,0/9-10
Switch(config-if-range)#

Ђυ ϡ	Ђυ ϡ
define interface-range	⊮ ∧ ταν ⊮

interface vlan

Ђυ ϡ Ђυ ϡ˘ … ╟ ∧^ switch virtual interface˘ SVI˜˜ ∧ Â Ђυ ϡ **no** SVI Â

interface vlan
no interface vlan

	VLAN ID˘ ταν ᾱ Â

Ђυ ϡ Â

Ђυ ϡ	Â

Ђυ ϡ ⊿	
1.0	Ђυ ϡ ѝ ⊣ Â

show interfaces **show interfaces vlan** Ђυ ϡ ∧ Â

ip access-group

ACL ˆ Â Ђu ‡ **no** ‰ Â

ip access-group {in|out}

no ip access-group {in|out}

	IP ACL ‹ Â
	in ® .
	out ® .

Ђu ‡ Â

Ђu ‡ ˆ Â

Ђu ‡ ‰

1.0 Ђu ‡ ќ ‰ Â

ACL ˆ Э˜ è ˆ

® Â ‰ SVI ˆ **out** ˆ Â **show access-group** Ђu ‡ Â

Ю access-list deny_unknow_device 10/100M ˆ 1 Э'

Switch(config)# interface gigabitethernet 0/1

Switch(config-if)# ip access-group 532as Tc 1.538 0 u5104b83 1 Tf10.4958 0 2 a58 39 4 428.9003w.T5 0 TD

1.0

show_ip_interface	

ip broadcast-address

SVI Routed port no

ip broadcast-address
no ip broadcast-address

	IP
	255.255.255.255
	1.0

SVI Routed port **show interfaces** **show interfaces vlan**

```
Switch(config)#interface vlan 3
Switch(config-if)#ip broadcast-address 255.255.255.0
```

show_ip_interface	

ip default-gateway

no

ip default-gateway
no ip default-gateway

Ъυ ҳ ⊿	
1.0	Ъυ ҳ ӥ ⊣ Â

جم a ⊣ ف فذسم ˘ ⊣
Â **show ip redirects** Ъυ ҳ Â

Switch(config)# **ip default-gateway** 192.168.12.1

Ъυ ҳ	Ъυ ҳ
show ip redirects	Â

ip deny spoofing-source

Ъυ ҳ DOS ╖ Â Ъυ ҳ **no** Â

ip deny spoofing-source

no ip deny spoofing-source

	spoofing-source ∧

Ъυ ҳ ∧ Â

Ъυ ҳ ⊿	
1.0	Ъυ ҳ ӥ ⊣ Â

show running-config Ъυ ҳ Â

Switch(config-if)#ip deny spoofing-source

Ъυ ҳ	Ъυ ҳ
show running-config	Â

ip dhcp relay information option dot1x

Ъυ ҳ DHCP Relay Information Â Ъυ ҳ **no** Â

ip dhcp relay information option dot1x

no ip dhcp relay information option dot1x

dot1x 802.1x ӥ DHCP Relay

ƫ ɜ	Â

ƫ ɜ ɻ	
1.0	ƫ ɜ ɲ ɻ Â

show running-config ƫ ɜ Â

Switch(config)# ip dhcp relay information option dot1x

ƫ ɜ	ƫ ɜ
show running-config	Â

ip dhcp relay information option dot1x access group

ƫ ɜ DHCP Relay Information Â ƫ ɜ **no** Â

ip dhcp relay information option dot1x access-group word

no ip dhcp relay information option dot1x access-group word

word	DHCP Relay Information ACL ɻ

ƫ ɜ	Â

ƫ ɜ ɻ	
1.0	ƫ ɜ ɲ ɻ Â

show running-config ƫ ɜ Â

Switch(config)# ip dhcp relay information option dot1x access-group aclname

ƫ ɜ	ƫ ɜ
show running-config	Â

Switch(config-if)# **ip dvmrp default-information**

ip dvmrp metric	DVMRP

ip dvmrp metric-offset

ip dvmrp metric-offset [**in** | **out**]
no ip dvmrp metric-offset {**in** | **out**|

in	DVMRP
out	DVMRP
	1-31

in **in** 1 **out** 0

1.0

show running-config DVMRP 1 1

Switch(config-if)# **ip dvmrp metric-offset** 10

ip dvmrp reject-non- pruners

DVMRP

ip dvmrp reject-non-pruners
no ip dvmrp reject-non-pruners

reject-non-pruners	

Ъυ ϟ	
1.0	Ъυ ϟ й ч Â

show running-config Ъυ ϟ Â DVMRP ╖ ˘
˘ DVMRP ˘ Â

Switch(config-if)# **ip dvmrp reject-non-pruners**

Ъυ ϟ	Ъυ ϟ

ip dvmrp routehog-notification

Ъυ ϟ ⁸ DVMRP Â Ъυ ϟ no й Ъυ ϟ Â

ip dvmrp routehog-notification

no ip dvmrp routehog-notification

routehog-notification	' ч ˘ тп й 1~2147483647.

10000 Â

Ъυ ϟ	Â

Ъυ ϟ ϟ	
1.0	Ъυ ϟ й ч Â

show running-config Ъυ ϟ Â ' Ю˘ ϟ ж ϟ ч Л
⁸ й 10000 Â ж DVMRP ч
Â Л ╖ ˘ ⁸ ж ϟ ч Л DVMRP Â
˘ ˋ Â

Switch(config)# **ip dvmrp routehog-notification** 20000

Ъυ ϟ	Ъυ ϟ

ip dvmrp route-limit

Ъυ ϟ ⁸ ϟ ч Â Ъυ ϟ no й Ъυ ϟ Â

ip dvmrp route-limit

no ip dvmrp route-limit

route-limit	0~2147483647

7000

1.0	

show running-config

DVMRP 7000

Switch(config)# **ip dvmrp route-limit** 8000

ip dvmrp unicast-routing	DVMRP

ip dvmrp unicast-routing

DVMRP no DVMRP

ip dvmrp unicast-routing

no ip dvmrp unicast-routing

unicast-routing	DVMRP

1.0	

show running-config DVMRP

PIM DVMRP

Switch(config-if)# **ip dvmrp unicast-routing**

ip dvmrp route-limit	

ip helper-address

Ъυ ҳ DHCP relay serverў Ъυ ҳ **no** Â

1.0	Ъu ҙ и ч Â

show ip igmp interface Ъu ҙ Â ў ⁸ ў ╗ тп ў
ч Л∪ Â IP ў фдсм тп ў
ч Э Â

ЪОЪu ҙ ⁸ **gigabitethernet**0/1 ч ў ч ╗ 240.1.1.1:

```
Switch(config)#ip access-list standard acc-group
Switch(config-std-nacl)# permit 240.1.1.1 0.0.0.0
Switch(config-std-nacl)#exit
Switch(config)# interface gigabitethernet0/1
Switch(config-if)# ip igmp access-group acc-group
```

Ъu ҙ	Ъu ҙ
ip igmp join-group	и ў Â

ip igmp join-group

Ъu ҙ ч Л∪ и ў Â Ъu ҙ no ч ╗ Â

ip igmp join-group

no ip igmp join-group

join-group	╗ Â

ў ╗ Â

Ъu ҙ	ч Â

Ъu ҙ ч	
1.0	Ъu ҙ и ч Â

show ip igmp interface Ъu ҙ Â ч Л∪ ā ч Â ў
фдсм и фдсм ICMP ECHO ф Â

Switch(config)#i**nterface vlan** 1

Switch(config-if)# **ip igmp join-group** 230.0.0.0

Ъu ҙ	Ъu ҙ
ip igmp access-group	ў ╗ тп Â

ip igmp last-member-query-interval

Switch(config)#i**nterface vlan** 1
Switch(config-if)# **ip igmp query-interval** 150

show ip igmp groups	IGMP **sponse-tjme0(oups)Tj/TT31323f2.2**

Ъu ҙ	↓
1.0	Ъu ҙ и ↓ Â

show ip igmp interface Ъu ҙ ˘
Ъu ҙ ₂ IGMPv2 ЮO Â

Switch(config)#i**nterface vlan** 1
Switch(config-if)#**ip igmp querier-timeout** 300

Ъu ҙ	Ъu ҙ
ip igmp query-interval	Â

ip igmp snooping

Ъu ҙ IGMP-Snooping ˘ IGMP-Snooping˘ è Â Ъu ҙ **no** igmp snooping Â

ip igmp snooping {ivgl | svgl [vlan]}
no ip igmp snooping

ivgl VLAN a IGMP igmA’5B“Ñ@ 2.995 Tf3.4757 0 TD(

ip igmp snooping limit-ipmc	IPMC	ъ

ip igmp snooping mrouter

Ъυ ҳ Ы ᴎ Â Ъυ ҳ **no** Â

ip igmp snooping mrouter interface

no ip igmp snooping mrouter interface

	interface ᴎˇ ┘Л Л ᴎ à Trunk ᴎ Â
	a Ы Â
Ъυ ҳ	Â
Ъυ ҳ ┘	
	1.0 Ъυ ҳ и ┘ Â
	ᴎ и Ы ᴎˇ ᴎ Ыˇ IGMP ' ᴎ и a Ыˇ ᴎ ᴎˇ ᴎ ┘Л IGMP Â **show ip igmp snooping mrouter** Ъυ ҳ Â
	Switch(config)#**ip igmp snooping mrouter interface gigabitethernet** 0/1
Ъυ ҳ	**Ъυ ҳ**
	ip igmp snooping IGMP-Snooping Â
	ip igmp snooping source-check ᴎ / IP ╖ Â
	ip igmp snooping limit-ipmc IPMC Ы IP Â
	show ip igmp snooping igmp snooping Â

ip igmp snooping source-check

Ъυ ҳ igmp snooping ᴎ / IP ╖ Â Ъυ ҳ no igmp snooping ᴎ / IP ╖ Â

ip igmp snooping source-check [port][default-server]

no ip igmp snooping source-check [port] [default-server]

	port ᴎ ╖ Â
	default-server IP ╖ Ո Ы Â
	ᴎ ╖ Â

	٧ ٧ Â ˘ ٧ Л Ъ ѝ ˘ ٧ ٧ Â
	Switch(config)#i**nterface vlan** 1 Switch(config-if)# **ip igmp static-group** 230.0.0.0
ƕ ҁ	ƕ ҁ
	ip igmp join-group ѝ ˝ Â

ip multicast-routing

ƕ ҁ Â ƕ ҁ no Â

ip multicast-routing

no ip multicast-routing

	multicast-routing Â
	Â
ƕ ҁ	Â
ƕ ҁ ٧	
	1.0 ƕ ҁ ѝ ٧ Â
	show running-config ƕ ҁ Â PIM˝ ˝I Â
	Switch(config)# **ip multicast-routing**
ƕ ҁ	ƕ ҁ

ip multicast boundary

ƕ ҁ ٧ Â ƕ ҁ no ٧ Â

ip multicast boundary

no ip multicast boundary

	boundary ˘ 8 ٧ Â
	Â
ƕ ҁ	٧ Â

1.0	

show running-config

fastethernet0/1

224.0.0.0

```
Switch(config)#ip access-list standard mul-boun
Switch(config-std-nacl)# permit 224.0.0.0 0.0.0.0
Switch(config-std-nacl)#exit
Switch(config)# interface fastethernet0/1
Switch(config-if)# ip multicast boundary mul-boun
```

ip multicast ttl-threshold

TTL time-to-live

no

ip multicast ttl-threshold -

no ip multicast ttl-threshold

ttl-threshold -	TTL 0~255

0

1.0	

show running-config TTL TTL TTL

Switch(config-if)# **ip multicast ttl-threshold** 5

ip multicast vlan

Ъυ ҳ ∧ vlan id ∕∧ Â Ъυ ҳ no Ъυ ҳ Â

ip multicast vlan interface

no ip multicast vlan interface

vlan	∧ vlan id Â تن 0~4094 Â
	∧ صر Â
	∧ ∕∧ Â

∧ ѝ native vlan Â

Ъυ ҳ Â

Ъυ ҳ ⊿	
1.0	Ъυ ҳ ѝ ∢ Â

show running-config Ъυ ҳ ÂÂ

Switch(config)# **ip multicast vlan** 5 **interface fastEthernet**0/1

Ъυ ҳ	Ъυ ҳ

ip ospf authentication

Ъυ ҳ ∧ ˘ no ⊿Л ѝ Â

ip ospf authentication [message-digest | null]

no ip ospf authentication

message-digest	ѡ MD5 ╗ Â
null	a Â

ѡ Â

Ъυ ҳ ∧ Â

Ъυ ҳ ⊿	
1.0	Ъυ ҳ ѝ ∢ Â

Ъυ ҳ ∕ a , interface range . ҷ
no ˘ ї ∧ ҷ ѡ Э
ā ˘ ѝ null˘ ‡ a Â

╗

Switch(config-if)#ip ospf authentication

show ip ospf interface	ospf Â

ip ospf authentication-key

Â

ip ospf authentication-key

no ip ospf authentication-key

	, 8

Â

	Â

1.0	Â

interface range

.

Switch(config-if)#**ip ospf authentication-k** M ! !

Ъ ҷ ӌ	
1.0	Ъ ҷ ѝ ӌ Â

a17.05c24176>Tj/q26.507502 0 0 3.06 8023d4192354202c86 e837be087c4f6704cb087336d1182D0d402c867ed1

	1.0 Ъυ ҳ и ч Â
	ч Hello ч ˘ ж л тн л , interface range Â
	Switch(config-if)# **ip ospf hello-interval** 20
Ъυ ҳ	Ъυ ҳ
	show ip ospf interface ospf ч Â

ip ospf message-digest-key

Ъυ ҳ ч md5 ╗ ˘ Ъυ ҳ no ч ЛЬ Â

ip ospf message-digest-key md5
no ip ospf message-digest-key

	MD5 ╗ тн(1..255)
	MD5 ╗ keў и 16
	MD5 Â
Ъυ ҳ	ч Â
Ъυ ҳ ы	
	1.0 Ъυ ҳ и ч Â
	ч ╗ ˘ ж л тн л , interface range .
	ч ╗ Switch(config-if)# **ip ospf message-digest-key** 2 **md5** *aaa* Switch(config-if)# **ip ospf message-digest-key** 21 **md5** *bbb* key Switch(config-if)#**no ip ospf message-digest-key** 2 Switch(config-if)#**no ip ospf message-digest-key** 21
Ъυ ҳ	Ъυ ҳ
	show ip ospf interface ospf ч Â

ip ospf network

ƫυ ʒ ʎ صّ ƫυ ʒ no ɻ ʃυ Â

ip ospf network {broadcast | point-to-point}
no ip ospf network

broadcast	ص
point-to-point	

ʎ صر ʖ صر

ƫυ ʒ ʎ ÂÂ

ƫυ ʒ ɻ

1.0 ƫυ ʒ ʖ ɻ Â

interface range Â

ʎ صر

Switch(config-router)# **ip ospf network point-to-point**

Switch(config-router)#**no ip ospf network**

ƫυ ʒ

ƫυ ʒ	
show ip ospf interface	ospf ʎ Â

ip ospf priority

ƫυ ʒ ʎ ˮl ˇ ƫυ ʒ no ɻ ʃυ Â

ip ospf priority
no ip ospf priority

	ʎ ˮl
	تن : 0..255

1

ƫυ ʒ ʎ Â

	تن 0~255 ̃ ̀ BSR ″I ˇ ̀ BSR’
	″I ˩ˇ ‡ IP فخ سم ̀ BSR’ ̀ 0 Â
	Â
ƕ ϧ	Â
ƕ ϧ ˩	
1.0	**ƕ ϧ** ̀ ˩ Â

show running-config ƕ ϧ Â PIM ϧ ˩ Л BSR Â BSR
б ϧ è سم ˇ 3 جم ў Æ Â

ЛЬЮ ̀ ˇ ̀ 30 ̃ ″I ̀ 10 bsr’
Switch(config)# **ip pim bsr-candidate gigabitethernet**0/2 30 10

ƕ ϧ	**ƕ ϧ**
ip pim rp-candidate	RP Â
show ip pim bsr	BSR Â
show ip pim rp	RP Â

ip pim dr-support-address-bound

ƕ ϧ DR ˩ فخ سم تن ̃ ƕ ϧ no ˩ DR ˩ فخ سم تن Â
ip pim dr-support-address-bound
no ip pim dr-support-address-bound

dr-support-address-bound	Ƽ DR ˩ فخ سم تن Â
	Â
ƕ ϧ	˄ Â
ƕ ϧ ˩	
1.0	**ƕ ϧ** ̀ ˩ Â

show running-config ƕ ϧ Â جم PIM SM PIM SM-DM Ю ̃ DR
ˇ Â ╗ a ˇ ˩ جم
ˇ Л ̃ DR ˩ تن فخ سم ˇ ˩ Л
Ո تن فخ سم Â

ЛЬЮ ̀ ˇ ˄ **vlan**2 جم ̀ DR ˇ ˩ 192.168.10.1/24 ˄ ў ˩

Switch(config)#**ip access-list standard** dr-supp
Switch(config-std-nacl)# **permit** 192.168.10.1 0.0.0.255
Switch(config-std-nacl)#**exit**
Switch(config)#**interface vlan** 2
Switch(config-if)# **ip pim dr-support-address-bound** dr-supp

ip pim lan-delay

LAN Delay no LAN Delay

ip pim lan-delay
no ip pim lan-delay

lan-delay	LAN Delay PIM hello

1.0	

show running-config LAN Delay PIM hello

vlan 2 LAN Delay

Switch(config)#**interface vlan** 2
Switch(config-if)# **ip pim lan-delay**

ip pim override-interval	

ip pim neighbor-filter

no

ip pim neighbor-filter
no ip pim neighbor-filter

neighbor-filter	

Â

Ъυ ϡ	∧ Â

Ъυ ϡ ∠	
1.0	Ъυ ϡ и ∟ Â

	show running-config Ъυ ϡ Â и ╗ PIM ˘ 8 ˘ ∟Л ∧ فخ سم تن 8 Â

	ЛЮ и ˘ ∧ **vlan**2 ∟ 192.168.10.1/24 '
	Switch(config)#**ip access-list standard** neigh-fil
	Switch(config-std-nacl)# **permit** 192.168.10.1 0.0.0.255
	Switch(config-std-nacl)#**exit**
	Switch(config)#i**nterface vlan** 2
	Switch(config-if)# i**p pim neighbor-filte**r neigh-fil

Ъυ ϡ	Ъυ ϡ

ip pim override-interval

Ъυ ϡ Ы ˘ Ъυ ϡ no и Â

ip pim override-interval

no ip pim override-interval

override-interval	Æ' ' ∟ تن 0~65535'

2500 Â

Ъυ ϡ	∧ Â

Ъυ ϡ ∠	
1.0	Ъυ ϡ и ∟ Â

	show running-config Ъυ ϡ ÂPIM Ы ÿ ˘ ∧ Ю Ы˘ Ы 8 Â Ы и 3 Â Ы ˘ ˘ Ю ∧ ˘ Â Ы ˘ ≠ ╗ Â Л˘ ˘ Ы a ∠ ∧ Â ˘ Ы override interval и Ы ∧ Â

	Switch(config-if)# **ip pim override-interval** 1000

Ъυ ϡ	Ъυ ϡ

ip pim lan-delay	LAN Delay Â

ip pim query-interval

Ъυ ϡ PIM Hello ˘ Ъυ ϡ no и Â

ip pim query-interval

no ip pim query-interval

query-interval	Æ' ' ϟ тп 0~65535'

30 Â

Ъυ ϡ ϰ Â

Ъυ ϡ ϟ

1.0	Ъυ ϡ и ϟ Â

show running-configЪυ ϡ Â Ъυ ϡ PIM Hello ϟ Â
ϟ designated routerˆ DR˜ Â

Switch(config-if)# **ip pim query-interval** 1000

Ъυ ϡ	Ъυ ϡ

ip pim rp-address

Ъυ ϡ RP ϕϧ Â Ъυ ϡ no RP Â

ip pim rp-address [**group-list**] [**override**]

no ip pim rp-address

	RP ϕϧ Â
group-list	IP ˘ ⁸ RP тп˜ ˘ ‡ RP Â
override	RP б ╟ ˙ ă ˘ ″I RP Â

ip rip authentication mode

Þ ˇ Ъ ў ╠ RIP ⁸ Â Ъ **no** ⁸ Â

ip rip authentication mode {md5 | text }

no ip rip authentication mode

md5	md5 Â
text	Â

⁸ Â

Ъ Â

Ъ	
1.0	Ъ й Â

Ъ Þ Â

show ip protocols Ъ SVI RIP ˘ ⁸ Â

Switch(config)#**interface vlan** 2

Switch(config-if)# **ip rip authentication mode text**

Ъ	
ip rip authentication key-chain	RIP Â
show ip protocols	⌂ IP Â

ip rip authentication key-chain

Ъ RIP Â Ъ **no** Â

ip rip authentication key-chain

no ip rip authentication key-chain

	⌋ Â

Â

Ъ Â

Ъ	
1.0	Ъ й Â

Ъ Þ Â

ㅓ ㅓ ŭ ╟ RIP ⁸ ㅅˇ Â **show key chain** ƫ ϟ Â **show ip protocols** ƫ ϟ SVI RIP Â

Switch(config)#**interface vlan** 2
Switch(config-if)# **ip rip authentication key-chain** key1

ƫ ϟ	ƫ ϟ
ip rip authentication mode	SVĭ ƫ ϟ ŭ ╟ RIP ⁸ Â
show key chain	Â
show ip protocols	ج IP Â

ip rip receive version

ㅓ Э RIP Â ƫ ϟ **no** ѝ Â
ip rip receive version [1] [2]
no ip rip receive version

1	1 RIP Â
2	2 RIP Â
1 2	ㅓ ч RIP Â

ㅓ ч RIP Â

ƫ ϟ ㅓ Â

ƫ ϟ ㅓ	
1.0	ƫ ϟ ѝ ㅓ Â

ƫ ϟ ㅓ Ь ㅓ Â
ㅓ ᒪ ㅓ ч RIP Â **show ip protocols** ƫ ϟ RIP ˘ Â

ㅓ 2 RIP '
Switch(config)#**interface vlan** 2
Switch(config-if)# **ip rip receive version 2**
ㅓ ᒪ 1 2 '
Switch(config)#**interface vlan** 2
Switch(config-if)# **ip rip receive version 1 2**

ƫ ϟ	ƫ ϟ
ip rip send version	ㅓ RIP ㅓ Â
ip rip v2-broadcast	V2 Â

version	RIP ↓ Ո- Â
show ip protocols	ج IP Â

ip rip send version

↑ Э RIP ↓ Â ƫ ʒ **no** ѝ Â

ip rip send version [**1**] [**2**]

no ip rip send version

1	↓ 1 RIP Â
2	↓ 2 RIP Â
1 2	↵ ↓ 1 Ո- 2 RIP Â

↑ ↓ 1 RIP Â

ƫ ʒ ↑ Â

ƫ ʒ ↵

1.0 ƫ ʒ ѝ ↓ Â

ƫ ʒ ↓ Ь ↑ Â

↓ Л ↑ ↓ ч RIP Â **show ip protocols** ƫ ʒ RIP ˘ ↓ Â

↑ ↓ 2 RIP '

Switch(config)#**interface vlan** 2

Switch(config-if)# **ip rip send version 2**

ƫ ʒ

ƫ ʒ	
ip rip receive version	↑ RIP Â
ip rip v2-broadcast	V2 Â
version	RIP ↓ Ո- Â

showS-10.0rols

Ъυ ϡ	Â

Ъυ ϡ ⊿	
1.0	Ъυ ϡ ϰ ⊿ Â

	show ip route Ъυ ϡ IP Â

	IP ѫ ф ϰ 192.168.65.1˘ ϰ 255.255.255.0˘ Ю IP ѫ ф ϰ 192.168.13.1˘ ϰ 1 '

Switch(config)# **ip route** 192.168.65.1 255.255.255.0 192.168.13.1 1

Ъυ ϡ	Ъυ ϡ
show ip route	IP Â

ip routing

IP Â Ъυ ϡ **no** Â

ip routing

no ip routing

	Ъυ ϡ ϒ Â

	IP Â

Ъυ ϡ	Â

Ъυ ϡ ⊿	
1.0	Ъυ ϡ ϰ ⊿ Â

	IP ˘ 3 Â **show ip protocols** Ъυ ϡ IP Â

	Switch(config)# **ip routing**

Ъυ ϡ	Ъυ ϡ
router	RIP ╖ ˘ RIP
show ip protocols	ج IP Â

ip ssh version

ssh server Â Ъυ ϡ **no** ϰ Â

show ip ttl	ip ttl Â

key

Ⱨ Ⱞ Â Ⱨ Ⱪ **no** Â

key

no key

	Ⱞ ˇ تن Ⱦ 0 2147483647.

Â

Ⱨ Ⱪ

Ⱨ Ⱪ ⱘ

1.0	Ⱨ Ⱪ Ⱦ ⱘ Â

show key chain Ⱨ Ⱪ Â

```
Switch(config-keychain)# key 11
Switch(config-keychain-key)#
```

Ⱨ Ⱪ	Ⱨ Ⱪ
show key chain	key chain Â

key chain

Ⱨ Ⱞ ɜ Â ⱘ Ⱨ Ⱪ no Â

key chain

no key chain

	ⱘ

Ⱨ Ⱪ Â

Ⱨ Ⱪ ⱘ

1.0	Ⱨ Ⱪ Ⱦ ⱘ Â

show key chain Ⱨ Ⱪ Â

Switch(config)# **key chain** key-chain-list1
Switch(config-keychain)#

Ъυ ҳ	Ъυ ҳ
show key chain	key chain Â

key-string

Ⱨ Â Ъυ ҳ **no** Â
key-string
no key-string

	˘ ⅃ Л∪ ΰ 80 Â a ѝ Â
	Â
Ъυ ҳ	
Ъυ ҳ ⅃	
1.0	Ъυ ҳ ѝ ⅃ Â

show key chain Ъυ ҳ Â

Switch(config-keychain-key)# **key-string**

Ъυ ҳ	Ъυ ҳ
show key chain	key chain Â

line

ص˘ ˘ ⅃ Л∪ Ո Â
line {console vty}

console	∧ ∧
vty	TELNET

Ъυ ҳ Â

Ъυ ҳ

1.0	

ค ค∩ telnet Â S35 ค ค Â

	Ю Ъ ђ LLDP ╖ '

Switch(config)# **no lldp run**

Ъ ђ	Ъ ђ
	show lldp LLDP timer Ո holdtime Â

lldp timer

LLDP timer Â Ъ ђ **no** timer и 60 Â

lldp timer

no lldp timer

	timer˘ ت и 5-299˘ Æ и Â
	60 Â
Ъ ђ	Â
Ъ ђ ┘	
	1.0 Ъ ђ и ┘ Â

	ج Ю Ъ ђ **show lldp** ┘ Л Â

1.0	Â

	ن ﻯ · Â
	ﻝ ﻟ 7 Â
ﻫ ﻉ	Â
ﻫ ﻉ ﻝ	
1.0	ﻫ ﻉ ﻯ ﻟ Â

show logging ﻝ ﻢ

ԽՍ Ҳ	ԽՍ Ҳ
	Show logging ╖
	show running-config ╖

logging facility

ԽՍ Ҳ SYSLOG ص ╖ ˇ ԽՍ Ҳ **no**

show run Þ Ó ¶ Ä Â

Switch(config)# **logging source address 1.1.1.1**

Þ Ó	Þ Ó
Show logging	¶
show running-config	¶

logging source interface

Þ Ó SYSLOG Ä Ä ¶ ˇ Þ Ó **no** Â
logging source interface

ћu ҙ	Â
ћu ҙ ↓	
1.0	ћu ҙ и ↓ Â
	Telnet ↑ Э ╖ ˘ ″I RADIUS ┺ ↓
	Ю ج Telnet Э ╖

```
Switch#configure terminal
Switch(config)# radius-server host 192.168.64.10
Switch(config)# radius-server key test
Switch(config)# line vty
Switch(config-line)# login authentication radius
Switch(config-line)#end
```

ћu ҙ	ћu ҙ
line	ر˘ Â
show running-config	Â

loopback

ћu ҙ ╖ Â ћu ҙ **no** Â **loopback**

interface

mac access-group

MAC ACL ㄟ Â ЂU ㄋ **no** ㄠ Â

mac access-group {in|out}

no mac access-group {in|out}

	IP ACL ㄡ Â
in	⁸ .
out	⁸ .

	ЂU ㄋ Â
ЂU ㄋ	ㄟ Â

ЂU ㄋ ㄠ	
1.0	ЂU ㄋ ㄕ ㄣ Â

ACL ㄟ Э˘ è ㄟ ⁸ A · ㄱ ㄏ。

Ъu ϟ ⊿	
1.0	Ъu ϟ й ⊣ Â

	Ъu ϟ ⌂ mac ⌘ ⌫ ACL ⁸˘ **show mac access-lists** Ъu ϟ ACL Â
	Ю … ⊣ MAC extended ACL˘ Л⊔ ⊿ macext Ъu ⊿' **Switch(config)# mac access-list extended** macext

Ъu ϟ	Ъu ϟ
show mac access-lists	MAC ACL Â

mac-address-table aging-time

╟ ⌘ ⌫ Â Ъu ϟ **no** Â
mac-address-table aging-time
no mac-address-table aging-time

	╟ ⌘ ⌫ ˘ Л⊔ й Æ Â ⊂т ¯ α Â
	300 Â
Ъu ϟ	Â

Ъu ϟ ⊿	
1.0	Ъu ϟ й ⊣ Â

	show mac-address-table aging-time Ъu ϟ Â **show mac-address-table dynamic** Ъu ϟ ╟ ⌘ ⌫ Â
	Switch(config)# **mac-address-table aging-time** 150

Ъu ϟ	Ъu ϟ
show mac-address-table aging-time	╟ ⌘ ⌫ Â
show mac-address-table dynamic	╟ ⌘ ⌫ Â

mac-address-table filtering

فخ سم Â ƫ ʒ **no** فخ سم Â
mac-address-table filtering **vlan**
no mac-address-table filtering **vlan**

	فخ سم Â
	vlan VLAN IDˇ تن ā Â
	فخ سم Â
ƫ ʒ	Â
ƫ ʒ ل	
	1.0 ƫ ʒ ѝ ل Â
	فخ سم a ѝ فخ سم Â **show mac-address-table filtering** ƫ ʒ فخ سم Â
	Switch(config)#**mac-address-table filtering** 00d0f8000000 **vlan** 1
ƫ ʒ	ƫ ʒ
	clear mac-address-table filtering فخ سم Â
	show mac-address-table filtering فخ سم Â

mac-address-table notification

MAC فخ سم ╖ Â ƫ ʒ **no** ╖ Â
mac-address-table notification [**interval** | **history-size**]
no mac-address-table notification [**interval** | **history-size**]

	interval ل MAC فخ سم Trap ˘ ѝ 1 Â
	history-size MAC ل ˘ ѝ 1Â
	ѝ 1 ˘ ѝ 1Â
ƫ ʒ	Â

mac-address-table static Ъ ъ ффф Â

Ю ффф 00d0.f800.073c˘ дд VLAN 4
ч ффф Й ффф ˘ ч ч
gigabitethernet 0/1 Э'
Switch(config)#**mac-address-table static** 00d0.f800.073c **vlan** 4 **interface gigabitethernet** 0/1

Ъ ъ	Ъ ъ	
	show mac-address-table static	ффф Â
	clear mac-address-table static	ффф Â

match access-group

… class map ч Â ч Ъ ъ **no** class map ч ’
match access-group e
no match access-group e

e	… ACL ˩ Â

match interface

ƕ ʅ ҡ ˥ ˥ Ю ˇ ƕ ʅ no ⅃ ˥ Â

match interface

no match interface [ ]

	ˆ ⅃ à aggregateport à SVI ˜
	˥ Â
ƕ ʅ	route-map Â
ƕ ʅ	

1.0	ƕ ʅ ỉ Â

ˇ ⅃ Â

˥

Switch(config-route-map)# **match interface vlan** 4

no ƕ ʅ ˥

Switch(config-route-map)# **no match interface**

ƕ ʅ

ƕ ʅ	
show route-map	route-map Â

match ip address

ƕ ʅ ҡ ˥ ˥ ˇ ƕ ʅ no ⅃ ˥ Â

match ip address

no match ip address [ ]

	ACL Â
	˥ Â
ƕ ʅ	route-map Â
ƕ ʅ	

ה ״

Switch(config-route-map)# **match ip address** acl_for_route_map

no ƫט ג ה ״

Switch(config-route-map)# **no match ip address**

ƫט ג	ƫט ג
show route-map	route-map Â

match ip next-hop

ƫט ג ƙ ה ״ ה ƗO ƒ ƫט ג no ל ה ״ Â

match ip next-hop

no match ip next-hop [ ]

	ACL ן Â

ה ״ Â

ƫט ג	route-map Â

ƫט ג ל	
1.0	ƫט ג ט ל Â

ACL ˇ ה ן ACL ACL Â

ה ״

Switch(config-route-map)# **match ip next-hop** acl_for_route_map

no ƫט ג ה ״

Switch(config-route-map)# **no match ip next-hop**

ƫט ג	ƫט ג
show route-map	route-map Â

match ip route-source

ƫט ג ƙ ה ״ ה ‘Ω ˆ ע ƒ ƫט ג no ל ה ״ Â

match ip route-source

no match ip route-source [ ]

	ACL
	route-map
1.0	
	ACL ACL

Switch(config-route-map)# **match ip route-source** acl_for_route_map

no

Switch(config-route-map)# **no match ip route-source**

show route-map	route-map

match metric

match metric

no match metric [ ]

	(1-2147483647)
	route-map
1.0	
	metric metric

Switch(config-route-map)# **match metric** 4

no

Switch(config-route-map)# **no match metric**

show route-map	route-map Â

match route-type

no Â

match route-type { internal | external [type-1 | type-2] }
no match route-type

internal	OSPF OSPF .
external[type-1 | type-2]	BGP OSPF BGP OSPF , OSPF type-1 typ-2 , a extern-type1 extern-type2 .

Â

route-map Â

1.0	Â

Switch(config-route-map)# **match route-type external type-1**

no

Switch(config-route-map)# **no match route-type**

show route-map	route-map Â

match tag

tag no Â

match tag
no match tag [ ]

	tag (0-2147483647)
	٦ ˚ Â
ƫ ٦	route-map Â
ƫ ٦ ل	
	1.0 ƫ ٦ ٮ ٤ Â
	tag˘ Ʌ ٨ tag Â
	٦ ˚ Switch(config-route-map)# **match tag** 4 no ƫ ٦ ٦ ˚ Switch(config-route-map)# **no match tag**
ƫ ٦	ƫ ٦
	show route-map route-map Â

medium-type

٨ ص Â ƫ ٦ **no** Â

medium-type { fiber | copper }

no medium-type

fiber	˝ا ٨
copper	٨

٨

ƫ ٦	٨ ^ ٨˘ a Ap Ո SVI˜
ƫ ٦ ل	
	1.0 ƫ ٦ ٮ ٤ Â

ƫ ٦ ج ٨ ص ل Ʌ ^ S3550-12SFP/GT˜ ˘ ل
٨ ل Ʌ ˝ا ٨ Ո ٨ ч ص˘ ٨ è Â
ص ٨˘ ج ٨ ˘ à ل à ⁸ Ո
˘ ٨ ص Â ل ٨ ص ٨˘ ص
٨ ٮ è ˘ ل Ʌ Â

Switch(config)#**interface gigabitethernet** 0/1
Switch(config-if)#**medium-type copper**

show mls qos interface Ъ ъ Â

ы DSCP ˘ CoS ѝ 4'

```
Switch(config)# interface gigabitEthernet 0/1
Switch(config-if)# mls qos trust cos
Switch(config-if)# mls qos cos 4
```

Ъ ъ	Ъ ъ
show mls qos interface	ы QoS Â

mls qos map

CoS-to-DSCP Map Ґ DSCP-to-CoS Map Â Ъ ъ **no** ѝ Â

mls qos map {cos-dscp | dscp-cos to }

no mls qos map {cos-dscp | dscp-cos}

	CoS 0 7 DSCP ˘ DSCP ы ' 0, 8, 10, 16, 18, 24, 26, 32, 34, 40, 46, 48˝ 56 Â
dscp-cos to	DSCP ˘ DSCP ↑ ˘ DSCP ѝ' 0, 8, 10, 16, 18, 24, 26, 32, 34, 40, 46, 48,56 Â DSCP COS ˘ COS ѝ' 0 7 Â

CoS-to-DSCP Map 1-2˝ DSCP-to-CoS Map 1-3 ÂÂ

1-2 CoS-to-DSCP Map '

CoS	DSCP
0	0
1	8
2	16
3	24
4	32
5	40
6	48
7	56

1-3 DSCP-to-CoS Map '

DSCP	CoS
0	0
8,10	1
16,18	2
24,26	3
32,34	4
40,46	5
48	6
56	7

Ъ ъ Â

1.0	Ъu ҙ и ↓ Â

CoS-to-DSCP Map CoS DSCP ˇ DSCP-to-CoS DSCP CoS ˇ Л∪ и Â **show mls qos maps Ъu ҙ** Â

switch# **configure terminal**
switch(config)#**mls qos map cos-dscp** 56 48 46 40 34 32 26 24
switch(config)# **end**
switch# **show mls qos maps cos-dscp**
cos-dscp map:
cos: 0 1 2 3 4 5 6 7
dscp: 56 48eW n0 58eW n0 5805.2(eW n0 54)-52( )-5.8(3-52(2-0.6( ))-5.8(2)2.2(6)-0.6( )254.8(2)2

show mls qos interface Ъυ ϡ Â

ϰ DSCP '

```
Switch(config)# interface fastEthernet 0/1
Switch(config-if)# mls qos trust dscp
```

Ъυ ϡ	Ъυ ϡ
show mls qos interface	ϰ QoS Â

monitor session

… SPAN ϰˆ ϰ˜ Ո ϰˆ ϰ˜ .Â Ъυ ϡ **no** ϰ ϰ Â

monitor session {source interface [, | -] [both | rx | tx] | destination interface }
no monitor session [source interface [, | -] [both | rx | tx] | destination interface]

	SPAN ϱ˘ ϰ ϧ 1 Â
source interface	ϰ Â ˘ ϰ ϱ˘ ϰ ϧ ϰ˘ a ϟ Л ϧ AP SVI Â
destination interface	ϰ Â ˘ ϰ ϱ˘ ϰ ϧ ϰ˘ a ϟ Л ϧ AP SVI Â
,	ϰ ϱ˘ 1,2,5,8,10 Â
-	تن ϰ ϱ˘ 1-10 Â
both	ϟ Ո Â
rx	ϰ Â
tx	ϰ Â

SPAN Â

Ъυ ϡ Â

Ъυ ϡ ϟ	
1.0	Ъυ ϡ ϧ ϯ Â

ϰ SPAN ˘ Switched port Ո routed port ϟ Л ϧ
ϰ Ո ϰ Â SPAN a ! Â ϟ Л SPAN
ج disabled port Э˘ ˘ SPAN a Э ϯ
Ո ϰ Â
ϰ a ϟ ϰ Ո ϰ Â
ج ˘ a ϰ ϰ˘ ‡ Â

show monitor Ъυ ϡ ϟ Л SPAN Â

ЪЧ ЗЁ	Â

ЪЧ ЗЁ ЛЈ		
	1.0	ЪЧ ЗЁ ЙЬ ЛЉ Â

	Â

	Switch#mrinfo Interface Neighbor Metric Address Address Ttl Offset Querier Status Type --- --- --- --- --- --- --- 0.0.0.0 0.0.0.0 0 1 Yes Down Leaf 192.168.2.5 0.0.0.0 0 1 Yes Down Leaf 2.2.2.2 0.0.0.0 0 1 Yes Down Leaf 192.168.65.124 192.168.65.109 2 1 Yes Up None 192.168.66.66 0.0.0.0 0 1 Yes Down Leaf

ЪЧ ЗЁ	ЪЧ ЗЁ	

name

VLAN ЛЈ Â ЪЧ ЗЁ **no** Â

name

no name

	VLAN ЛЈ
	VLAN ЛЈ Â
ЪЧ ЗЁ	VLAN Â

ЪЧ ЗЁ ЛЈ		
	1.0	ЪЧ ЗЁ ЙЬ ЛЉ Â

show vlan ЪЧ ЗЁ IP Â

Switch(config)# **vlan** 10

name(mst)

MST Â **no** Â

name

no name

	Mst Â 32

Mst Â	

1.0	Â

spanning-tree mst configration

show spanning-tree mst configration	mst Â
spanning-tree mst configration	mst
show	Mst mst Â

neighbor

rip no Â

neighbor

no neighbor

	Â ip

Switch(config-router)# **network** 102.18.66.61
Switch(config-router)# **no network** 102.18.65.11

‰	‰
show ip protocols	Â

network(OSPF)

‰ ‰ ‰ ‰ ‰ no ‰ ‰ ‰ Â
network **area**
no network **area**

‰ ‰ ‰ ospf ‰ Â	
‰ ‰ ‰ ‰ Â	
‰ ‰ ‰ ‰	IP ‰ Â

‰ Â

‰ OSPF Â

‰ ‰

1.0	‰ ‰ Â

‰ ‰ ‰ ‰ .
:
‰ : **network** 0.0.0.0 0.0.0.0 **area** 2 ‡ ‰ ‰ 2 Ə Â
network 192.168.65.123 255.255.255.255 **area** 3 ‡ ‰
192.168.65.123 ‰ ‰ 3 Ə Â

Switch(config-router)#**network** 192.168.65.0 0.0.0.255 **area** 192.168.65.0
Switch(config-router)#**network** 192.168.1.0 0.0.0.255 **area** 1
Switch(config-router)#**network** 0.0.0.0 0.0.0.0 **area** 2

‰	‰
router ospf	ospf
show ip protocols	network Â

network(RIP)

‰ Rip ‰ ‰ no ‰ Â

network
no network

	ﻓﺦﺳﻫ ip ﻶﻵ ﺱﺵ Â
	ﺱﺵ ﺗﻥ Â
ﺱﺵ ﺡ	RIP Â
ﺱﺵ ﺡ ﻝ	
1.0	ﺱﺵ ﺡ ﻯ ﻝ Â

Switch(config-router)#**network** 192.168.65.0
Switch(config-router)# **network** 192.168.66.0
Switch(config-router)# **no network** 192.168.65.0

ﺱﺵ ﺡ	ﺱﺵ ﺡ
show ip protocols	Â

offset-list

ﺱﺵ ﺡ rip ﺱﺵ ﺡ ﺟﻫ ﺱﺵ ﺡ ﺟﻫ Ю Э ╗
, ﺱﺵ ﺡ no ﻝ ﺱﺵ ﺱﺵ ‡ Â

offset-list **{in | out}** [ ]
no offset-list **{in | out}** [ ]

	ACL ﻝ Â
in	ACL ﺟﻫ Э Â
out	ACL ﺟﻫ Э Â
	‡ ف ﻶ ﺱﺵ ﻶ à aggregateport ﻶ à SVI ﻶ Â ﻶ ‡ ﻶ Â

Â

ﺱﺵ ﺡ

time-range˘ ˩ Л Â ˣ

time-range ш ˇ ‡ ج ш . ħu ɮ show time-range .

Switch(config)# **time-range** no-http
Switch(config-time-range)# **periodic weekdays** 8:00 **to** 18:00

ħu ɮ	ħu ɮ
show time-range	time-range Â
absolute	

host	ў ﻓﺦ ﺳﻣ Â
any	ў ﻓﺦ ﺳﻣ Â
	ⅷ ў IP ﻓﺦ ﺳﻣ Ո ﻓﺦ ﺳﻣ Â Э IP ў IP ﻓﺦ ﺳﻣˇ ˚ ⁸ Â ﻓﺦ ﺳﻣ Â
host	**host** ϧ ﻝ ў ˇ è destination-wildcard ﻯ 0.0.0.0 Â
any	**any** ϧ ў ˇ destination ﻯ 0.0.0.0ˇ destination-wild ﻯ 255.255.255.255 Â
host	ў ﻓﺦ ﺳﻣ Â
any	ў ﻓﺦ ﺳﻣ Â
	ⅷ TCP UDP ﻥ Â ﻥ **eq̂** ˜˜ ﺟﻣ IP ﻝˇ ϧ TCP UDP ﻥˇ ﺟﻣ IP ﻝ ϧ TCP UDP ﻥ Â ﻥ ﺗﻥ ÿ 0 65535 Â
time-range-name	time-range ﻝ .

ACL Â

ⅷ ϧ EXPERT ACL Â

ⅷ ϧ ﻝ

1.0 ⅷ ϧ ﻯ ﻍ Â

show access-lists ⅷ ϧ Â

Ю … ﻑ Expert Extended ACLˇ Л ﻝ expert
ⅷ ﻝ Â ж ACL IP ﻓﺦ ﺳﻣ ﻯ 192.168.12.3 з MAC ﻓﺦ ﺳﻣ ﻯ
00d0.f800.0044 TCP Â

```
tcp 192.168.0.0 0.0.255.255 host 172.168.12.3
Switch(config)# expert access-list extended expert
Switch(config-ext-macl)# deny tcp host 192.168.12.3 mac
00d0.f800.0044 any any
Switch(config-ext-macl)# permit any any any any
Switch(config-ext-macl)# end
Switch # show access-lists expert
Extended expert access list expert
    deny tcp host 192.168.12.3 mac 00d0.f800.0044 any any
    permit any any any any
```

ⅷ ϧ

ⅷ ϧ
deny(expertaccess-list extended) ж ACL denŷ ˜ Â

permit (ip access-list extended)

(permit) ˚ Л ā Â ح ACL Ю
Л ح ACL ћ IP ACL Â

permit **{** **| ho** **| any}[** **]{** **| host**
| any } [**| any } [**

Switch(config)# **ip access-list extended** 123
Switch(config-ext-nacl)# **permit tcp host** 192.1.1.1 **eq** 100 **any**
Switch(config-ext-nacl)#**exit**
Switch(config)# **interface gigabitEthernet** 0/1
Switch(config-if)# **ip access-group** 133 **in**

Switch(config-ext-nacl)#**exit**
Switch(config)# **interface gigabitethernet** 0/1
Switch(config-if)# **ip access-group** 133 **in**

deny (ip access-list standard)	IP ACL deny
show ip access-lists	IP ACL

permit (mac access-list extended)

MAC MAC MAC MAC

MAC ACL ACL

no MAC ACL

permit {any | host } {any | host } [aarp |appletalk |decnet-iv| diagnostic |etype-6000|etype-8042| lat | lavc-sca | mop-console|mop-dump | mumps |netbios|vines-echo | xns-idp] [**time-range** *time-range-name*]

no permit {any | host } {any | host } aarp |appletalk |decnet-iv| diagnostic |etype-6000|etype-8042| lat | lavc-sca | mop-console|mop-dump | mumps |netbios|vines-echo | xns-idp] [**time-range** *time-range-name*]

any	
host	
any	
host	
aarp |appletalk |decnet-iv| diagnostic |etype-6000|etype-8042| lat	lavc-sca	mop-console|mop-dump	mumps |netbios|vines-echo	xns-idp]	
time-range-name	time-range .

ACL

MAC ACL

1.0

show mac access-lists

MAC 00d0f8000c0c

100 1

Switch(config)#**mac access-list extended** mac1
Switch(config-ext-macl)# **permit host** 00d0f8000c0c **any type** aarp

Switch(config-ext-macl)#**exit**
Switch(config)# **interface gigabitethernet** 0/1
Switch(config-if)# **mac access-group** mac1 **in**

ЪU ҙ	ЪU ҙ
deny (mac access-list externed)	MAC ACL denyˆ ˜ Â
show mac access-lists	MAC ACL Â

ping

ping Â
ping [ ]

	ў IP فخ سم Â

´ ping ٦ ƇC سم⁄s ظط ٧

police

جـ class Ю Ъ ҷ й Ѭ policerў policer ⁸ Ո ѝ
҂ ╟ Â
police [**exceed-action** {**drop** | **dscp** }]

	⁸ ˘ ↓ تن 1M 1000Mbsp Â
	↓ ⁸ ˘ Æ ˆ byte˜ Â↓ ЛЪЮ ' 16384, 20480 , 28672, 40960 , 77824, 143360, 274432, 536576
exceed-action drop	҂ Â
exceed-action dscp	҂ DSCP Â ↓ تن 0, 8, 10, 16, 18, 24, 26, 32, 34, 40, 46, 48, 56.

policer Â

Ъ ҷ class Â

Ъ ҷ ↓

1.0	Ъ ҷ й ↓ Â

policer ⁸ Ո ѝ ҂ ╟ ' *rate-bps*
⁸ ˘ ↓ تن 1M 1000Mbsp *burst-byte* ↓ ⁸ ˘ Æ
ˆ byte˜ ↓ ЛЪЮ ' 16384, 20480 , 28672, 40960 , 77(96)-5.1(0 d.)]TJ/T.23394 Tw[, .

policy-map

… policy map˘ policy map Â Ъ ҳ **no** policy map Â

policy-map

no policy-map

	policy map ɻ Â
	policy map Â
Ъ ҳ	Â
Ъ ҳ ɻ	
1.0	Ъ ҳ ѝ ɬ Â
	show policy-map Ъ ҳ Â

ЛЬЮ … ɻ ѝ policy1 policy-map' policy-map '

Switch(config)# **policy-map** policy1

Switch(config-pmap)#

Ъ ҳ	Ъ ҳ
show policy-map	QoS policy map Â

port-group

ʌ ѝ Aggregate Port ˜ ʌ Â Ъ ҳ no ʌ Aggregate Port ˜ Â

port-group

no port-group

	Aggregate Port ˜ ʌ ʌ˘ Aggregate Port ʌ ʌ
	ʌ a Aggregate Port ˜ ʌ Â
Ъ ҳ	ʌ Â
Ъ ҳ ɻ	
1.0	Ъ ҳ ѝ ɬ Â

AP ˜ ʌ ҕ ɻ VLAN ˘ trunk port Â

a ɻ native VLAN ʌ a AP Â

Ю Л ʌ 0/3 Ո 0/4 AP 3 ˜ '

Switch(config)#**interface range gigabitethernet 0/3-4**

Switch(config-if-range)#**port-group 3**

ƫ ȝ	ƫ ȝ

priority-queue

ƞ ȴ SP Â ƫ ȝ **no** SP ˘ WRR Â
priority-queue [out]
no priority-queue [out]

out W

reset	Ъu ҙ Â

15 Â 1 Â

Ъu ҙ Â

Ъu ҙ ↓

1.0 Ъu ҙ ѝ ↓ Â

0 æ ˘ ↓ **disable**, **enable**, **exit**, **help**, Ո **logout** Ъu ҙ Â ↓ Л∪ Ъu ҙ æ ˘ … Ї guest Ł ˘ ↓ ↓ Ъu ҙ Â a Ո Ъu ҙ ↓ Л∪ ˘ AAA Ъu ҙ Â **enable secret** Ъu ҙ ѝ ↗ ↓ ҙ Â

Ю configure Ъu ҙ 14 '

Switch(config)#**privilege exec level** 14 configure

configure Ъu ҙ '

Switch(config)# **privilege exec reset** configure

2-2 ↓ Л∪ Ъu ҙ

configure	Â
exec	Â
interface	↓ ^ gigabitEthernet à aggregateport à SVI˜ Â

Ъu ҙ

Ъu ҙ	
enable secret	↗ ↓ ҙ˘ Â

1.0	Ъυ ҙ й ↓ Â

˘ ‡ ɻ (ɻ 22 ˘
‡ ↓ è 22) й ˘ ɻ ↓ ↓
Â ɻ й ˘ ‡ Switch й Â

Switch(config)#**prompt** myswitch
myswitch(config)#

Ъυ ҙ	Ъυ ҙ

redistribute(RIP)

ɬ ↓ Ъυ ҙ˘ ↓ Л∪ ɬ ↑ ˘ Ъυ ҙ no ↓ Л∪
╖ ɬ ↓ ↰

redistribute [metric] [route-map]
no redistribute

radius-server

RADIUS Â **no** IP UDP Â

radius-server [host [backup]][auth-port]

no radius-server [host][auth-port]

	RADIUS IP Â
backup	RADIUS IP
auth-port	UDP Â 0 65535 Â

RADIUS UDP 1812 Â

Â

1.0	Â

show radius-server Â

Switch(config)#**radius-server host** 192.1.1.1 **acct-port** 15

radius-server key	RADIUS Â
show radius-server	RADIUS Â

radius-server key

RADIUS Â Â **no** Â

radius-server key

no radius-server key

	Â

Â

Â

1.0	Â

Ъυ ϡ ⊿	
1.0	Ъυ ϡ и ч Â
	Ъυ ϡ˘ ŭ Â ج ŭ ĭ ˘ Â
	Switch# **reload**
Ъυ ϡ	Ъυ ϡ

rename

Ъυ ⊿ ج ˚ Â
rename flash: **flash:**

	˚ ⊿ Â
	˚ ⊿ Â
	Ъυ ϡ Â
Ъυ ϡ	Â
Ъυ ϡ ⊿	
1.0	Ъυ ϡ и ч Â
	dir Ъυ ϡ ج ˚ Â
	Switch# **rename flash:**aaa.txt **flash:**bbb.txt
Ъυ ϡ	Ъυ ϡ
dir	˚ à à Â

revision

Â Ъυ ϡ no и Â
revision
no revision

	MST Л˘ تن 0 65535

й 0

Ъu ъ	Mst

Ъu ъ ы	
1.0	Ъu ъ й ы Â

Spanning-tree mst configure

Ъu ъ	Ъu ъ
	Spanning-tree mst configure mst
	Show ђ mst Ю mst
	Show spanning-tree mst configration mst

route-map

Ъu ъ … route-map route-map ђ ї ы ў ђ route-map ы Л∪ї Ѭ ч
б ╠ ў л ° ╠ ў ÿ ° ⁸ ч ї ы° ° Ѭ matchЪu ъ°
╠ Ѭ setЪu ъ Â route-map Ѭ ° ў ‡ ° ў й ч Â
Ѭ ╠ ў ‡ a ╠ Â Ъu ъ no ы Л∪ route-map Â

route-map	**[permit | deny]**
no route-map	[ ]

	route map л ў й 32 Â
permit | deny	route map ў **permit** л ° л set ╠ ї ’ **deny** a ї . й permit
	ѓ ы л route-map ђ Æ (0..65535) Â

… route-map Â

Ъu ъ	Â

Ъu ъ ы	
1.0	Ъu ъ й ы Â

	┘Л… route-map ┤ ⁸ , ⁸ 100 route-map ┘Л… 100 a ┘ ┘ route-map˘ route-map Ю ┘Л 100 Â

```
Switch(config)# route-map abc permit 10
                ┐
Switch(config-route-map)#match  tag 7
                ╟
Switch(config-route-map)#set  metric  7
…        é     ┘ ┘     deny  route-map
Switch(config)# route-map abc deny 11
      permit  route-map
Switch(config)# no route-map abc permit 10
          route-map
Switch(config)# no route-map abc
```

Ъυ ҳ	Ъυ ҳ
	show route-map route-map Â

router

	╥ ˘ Â Ъυ ҳ **no** Â
router	
no router	

	صر ч й rip Ո ospf.
	RIP Ո OSPF й Â
Ъυ ҳ	Â
Ъυ ҳ ┘	
	1.0 Ъυ ҳ й ч Â
	show ip protocols Ъυ ҳ RIP Ո OSPF Â

```
Switch(config)# ip routing
Switch(config)# router rip
Switch(config-router)#
Switch(config-router)#exit
Switch(config)# router ospf
Switch(config-router)#
```

缺省情况	缺省情况
ip routing	IP Â
show ip protocols	查看 IP Â

router-id

设置 ID 缺省情况 no 删除 Router ID Router ID Â

router-id

no router-id

	设置 ID ip 分类
	缺省情况 Â
缺省情况	OSPF Â
缺省情况	
1.0	缺省情况 Â

删除 ip 分类 时 router ROUTER ID router ROUTER ID Â

ROUTER ID 删 Â 删 a 改 删 ROUTER ID 删 查看 ospf • 删除 Â 删 ROUTER ID 删 查看 LSA Â

Switch(config-router)#**router-id** 192.168.65.123

缺省情况	缺省情况
router ospf	ospf
interface loopback	… loopback 删 Â
show ip ospf	ospf Â

rmon alarm

RMON Â 删除 缺省情况 **no** Â

rmon alarm {**delta** | **absolute**} **rising-threshold** [ ] **falling-threshold** [ ] [**owner**]

no rmon alarm

	alarm 改 范围 1 65535

	MIB ل ˘ ل صر صر Â
	˘ Æ ﻯ ˘ تن ﻯ 1 ˙ 4294967295 .
delta	ﻯ MIB ل ﺟﻪ ч ﻯ ل
absoulte	MIB ل ﻯ ﻯ

I 1 ˙

Þu ¾ ¼ Â

Þu ¾ ¸

1.0 Ć

rmon event

RMON Y˚ Â ˩ȻȾ ƕʊ ʒ **no** Â

rmon event **[log]** **[trap** **][description** **] [owner** **]**

no rmon event

	alarm ˘ ت 1 ˙ 65535
log	˘ ‡ ˘ Y˚ Â
trap	˘ ‡ ˘ SNMP Trap Â
	˩ Trap ˩
description	Y˚
owner	Y˚

ƕʊ ʒ Â

ƕʊ ʒ ˩	
1.0	ƕʊ ʒ ˥ ˩ Â

˩ȻȾ **show rmon** ƕʊ ʒ

end-time Ո duration ѝ infinite.

Ъυ ҳ Â

Ъυ ҳ ↓	
1.0	Ъυ ҳ ѝ ↰ Â

show key chain Ъυ ҳ Â

Switch(config-keychain-key)# **send-lifetime** 00:00:00-08 26 2002 **duration** 100000

Ъυ ҳ	Ъυ ҳ
show key chain	key chain Â

service-policy

… policy map ↰ Э Â
service-policy input

	… policy map ↓

policy map Â

Ъυ ҳ ↰ Â

Ъυ ҳ ↓	
1.0	Ъυ ҳ ѝ ↰ Â

show mls qos interface Ъυ ҳ Â

ЛЮ … ↓ ѝ policy1 policy-map˘ policy-map ↰
gigabitethernet 1/1
Switch(config)# **policy-map** policy1
Switch(config-pmap)# **class** class1
Switch(config-pmap-c)# **set ip dscp** 48
Switch(config-pmap-c)# **exit**
Switch(config-pmap)# **exit**
Switch(config)#**interface gigabitethernet** 1/1
Switch(config-if)#**switchport mode trunk**
Switch(config-if)#**mls qos trust cos**
Switch(config-if)#**service-policy input** policy1

Ъυ ҳ	Ъυ ҳ
policy-map	… policy map˘ policy map Â
class	… ج policy map ↑ ˘ ↑ Â
set ip descp	ѝ IP ip dscp Â
show mls qos interface	↰ QoS Â

service dhcp

Ъυ ҙ DHCP relay agent Â DHCP relay agentў Ъυ ҙ **no** Â **service dhcp**

no service dhcp

	Ъυ ҙ ٧ Â
	DHCP relay agent Â
Ъυ ҙ	Â
Ъυ ҙ ى	
	1.0 Ъυ ҙ ѝ ٦ Â
	DHCP relay agentў DCHP a ٦ˇ ى ٧ DHCP relay agent Â **show running-config** Ъυ ҙ DHCP relay agent Â
	Switch(config)# **service dhcp**
Ъυ ҙ	**Ъυ ҙ**
	ip helper-address DHCP relay server Â
	show running-config Â

services telnet host

Ъυ ҙ telnet ў ⁸ Â Ъυ ҙ **no** Â

services telnet host *host-ip*

no services telnet host *host-ip*

	host-ip telnet ў IP
Ъυ ҙ	Â

Ъυ ҙ	↓
1.0	Ъυ ҙ й ↓ Â

show running-config Ъυ ҙ Â

Switch(config)# services telnet host 192.168.12.54

Ъυ ҙ	Ъυ ҙ
show running-config	Â

services web host

Ъυ ҙ telnet ў ⁸ Â Ъυ ҙ **no** Â

services web host *host-ip*

no services web host *host-ip*

host-ip	web ў IP

	Ъυ ҙ й ↓ Â

onfig Ъυ ҙ Â

es web host 192.168.12.54

	Â

ip dscp ˇ IP

dscp Â

class Â

1.0	Ъυ ҙ ӣ ↓ Â

IP ˘ a Â
show policy-map Ъυ ҙ Â

ЛЬЮ … ɻ ӣ policy1 policy-map, ip dscp ӣ 48 Â
Switch(config)# **policy-map** policy1
Switch(config-pmap)# **class** class1
Switch(config-pmap-c)# **set ip dscp** 48
Switch(config-pmap-c)#

show route-map	route-map Â

set level

Ъυ ҳ Ьѫ ╟ ˘ ѓ ч ш ضˇ Ъυ ҳ no ч Л∪ ╟ Â

set level {stub-area | backbone }
no set level

stub-area	ѓ ч nssa ш Â
backbone	ѓ ч ў ш Â

ך ˚ Â

Ъυ ҳ	route-map Â

Ъυ ҳ ↓	
1.0	Ъυ ҳ ѝ ч Â

ך ˚

Switch(config-route-map)# **set level stub-area**

no Ъυ ҳ ך ˚

Switch(config-route-map)# **no set level**

Ъυ ҳ	**Ъυ ҳ**
show route-map	route-map Â

set metric

Ъυ ҳ Ьѫ ╟ ˘ ѓ ч ˘ Ъυ ҳ no ч Л∪ ╟ Â

set metric [+ | -]
no set metric

+|-	+: ╗ Э -: ∖
	تن(1-2147483647) Â + - Л جھ ˘ ‡ a Ѧ ˘ ѝ Â

show route-map	route-map Â

setup

Ъυ ϡ Â

setup

	Ъυ ϡ ϰ Â
	Ъυ ϡ Â
Ъυ ϡ	Â
Ъυ ϡ ϟ	
1.0	Ъυ ϡ ѝ ϟ Â
	ѥ ˙ ˘ ╟ ˘ ѧѧ ϰ Â ϰ ᾱ Â ѥ ЮО ≠ ϟ Л υ Ъυ ϡ Â **show running-config** Ъυ ϡ Â

Switch# **setup**

--- System Configuration Dialog ---

At any point you may enter a question mark '?' for help.
Use ctrl-c to abort configuration dialog at any prompt.
Default settings are in square brackets '[]'.
Continue with configuration dialog? [yes/no]: y
Enter IP address: 192.168.65.235
Enter IP netmask: 255.255.255.0
Would you like to enter a default gateway address? [yes/no]: y
IP address of default gateway: 192.168.65.1
Enter host name [Switch]:
The enable secret is a one-way cryptographic secret used
instead of the enable password when it exists.
Enter enable secret: 123456
Would you like to configure a Telnet password? [yes/no]: y
Enter Telnet password: 123456
The following configuration command script was created:
interface VLAN1
ip address 192.168.65.235 255.255.255.0
ip default-gateway 192.168.65.1
enable secret 5 1UNw/$n0DJARPpXRUuoO3aCME6B1
enable secret level 1 5 1xXh1$KgHwtcEbFaG3aulwRH5vb1
!

end

Use this configuration? [yes/no]: y
Building configuration...

Use the enabled mode 'configure' command to modify this configuration.

Press RETURN to get started.

Ъυ ҳ	Ъυ ҳ
	show running-config
	show configuration Â

show

mst Â

show

Ъυ ҳ	Mst Â
Ъυ ҳ ↓	
	1.0 Ъυ ҳ и ↓ Â

Spanning-tree mst configure

Ъυ ҳ		Ъυ ҳ
		show spanning-tree mst MST region
		instance vlan Vlan ╗ MST instance
		name mst ↓
		revision mst И
		show ⇗ mst Ю MST

show access-group

И Э ACL Â

show [ip | mac] access-group [interface]

interface	^ ^

Switch# **show access-lists**
Standard IP access list: ipstd1
Standard IP access list: ipstd2
Standard IP access list: ipstd3
Extended IP access list: ipext001
Extended IP access list: ipext1
Extended IP access list: ipext2
Extended MAC access list: macext1
Extended MAC access list: macext2
Extended MAC access list: macext3

Ъυ ҳ	Ъυ ҳ		
ip access-list	…	IP ACL	IP ACL
mac access-list externded	…	MAC ACL	

show accounting

AAA ╖ Â
show accounting

	Ъυ ҳ ↰ Â
	Ъυ ҳ Â
Ъυ ҳ	Â
Ъυ ҳ ↲	
1.0	Ъυ ҳ ӣ ↰ Â

Switch# **show accounting**
Accounting status : Disabled
Accounting server : 192.168.12.1
Accounting backup server : 192.168.12.2
Accounting UDP port : 1813

Ъυ ҳ	Ъυ ҳ		
aaa accounting server		╖	Ь Ы Ո Ь Ы Â
aaa accounting	AAA ╖	╖	Â

Switch(config)#**show aggregateport summary**

```
AggregatePort MaxPorts SwitchPort Mode   Ports
------------- -------- ---------- ------ ----------------------
Ag1           8        Enabled    Access Gi0/1 , Gi0/2 , Gi0/3
                                         Gi0/4 , Gi0/5 , Gi0/6
                                         Gi0/7 , Gi0/8
```

Switch(config)#**show aggregateport load-balance**

load-balance : Source MAC address

	QoS class map Â
	… class map Â
Ъυ ҳ	Â
Ъυ ҳ ↓	
	1.0 Ъυ ҳ ѝ ↓ Â

Switch# **show class-map**

Ъυ ҳ	Ъυ ҳ
	class-map … class mapˇ class map Â

show clock

Â

show clock

	Ъυ ҳ ↑ Â
	Ъυ ҳ Â
Ъυ ҳ	Â
Ъυ ҳ ↓	
	1.0 Ъυ ҳ ѝ ↓ Â

Switch# **show clock**
System clock : 2002-10-15 20:12:26 Tuesday

Ъυ ҳ	Ъυ ҳ
	clock set Â

show cluster

Â

show cluster

1.0

```
Switch#show cluster
 Cluster:                          clus0 <Command switch>
 Total number of members:          3
 Status:                           1 members are unreachable
 Time of last status change:       0 days, 1 hours, 5 minutes
 Cluster timer:                    12
 Cluster holdtime:                 120
 Cluster discovery hop count:      3
```

```
Switch(config)#show cluster
 Cluster:                          clus0 <Member switch>
 Member number:                    3
 Command switch mac address:       00d0.f8fe.1007
```

cluster enable	
show cluster candidates	
show cluster members	

show cluster candidates

show cluster candidates [detail | mac-address H.H.H]

detail	
	MAC 16

Ъu ҙ	
Ъu ҙ ӈ	
	1.0 Ъu ҙ ѝ ӈ Â
	Ъu ҙ ӈ ѫ Ъu ҙ Э Â
	Switch#**show cluster candidates** MAC Name Hop LcPor UpSN UpMAC UpPort -------------- -------- --- ----- ---- -------------- ------ 00d0.f8fe.43d2 switch-2 1 Fa0/2 0 00d0.f8fe.1007 Fa0/3 00d0.f8fe.a861 switch-3 2 Fa0/5 00d0.f8fe.43d2 Fa0/12
Ъu ҙ	Ъu ҙ
	cluster enable ˘ ӈ Ъu ҙ ˘ ӈ ѝ Л Â
	show cluster members ˜ Â

show cluster members

˜ Â

show cluster members [| **detail**]

	˜ Л Â
	detail ˜ Ӭ Â
	Â
Ъu ҙ	
Ъu ҙ ӈ	
	1.0 Ъu ҙ ѝ ӈ Â
	Ъu ҙ ӈ ѫ Ъu ҙ Э Â
	Switch#**show cluster members** SN MAC Name Hop State LcPor UpSN UpMAC UpPort -- -------------- --------- --- -------- ----- ---- -------------- ----- 0 00d0.f8fe.1007 Switch 0 up<Cmdr> 1 00d0.f8fe.43d2 switch-2 1 up Fa0/2 0 00d0.f8fe.1007 Fa0/3 2 00d0.f8fe.a861 switch-3 2 up Fa0/5 1 00d0.f8fe.43d2 Fa0/12
Ъu ҙ	Ъu ҙ

cluster enable	˘ ɻ ˘ ᷇ ᷅ Ƣ ˘ ɻ ᷅ ᷇ Â
show cluster candidates	Â

show configuration

˚ Â

show configuration

	Ƣ ᷅ ᷇ Â
	Ƣ ᷅ Â
Ƣ ᷅	Â
Ƣ ᷅ ɻ	
	1.0 Ƣ ᷅ ᷅ ᷇ Â
	Ƣ ᷅ **more** Ƣ ᷅ config.text ˚ Â

Switch# **show configuration**

.....

enable secret level 1 5 %3R:>H.YW4_;C,tZ5U0<D+S(Uj9=G1X)

Ъυ ҳ ٧ Â	
Ъυ ҳ Â	
Ъυ ҳ Â	
Ъυ ҳ ل	
1.0	Ъυ ҳ ѝ ل Â

Switch# **show cpu**
CPU utilization for five seconds: 3%

Switch# **show dot1x**
IEEE 802.1X Status : Disabled
Authentication mode : CHAP
Authentication user number : 0
Current user number : 0

reauth-enabled : Enabled
reauth-period : 3600
quiet-period : 5
tx-period : 30
supp-timeout : 30
server-timeout : 30
reauth-max : 2
max-req : 2

Ъu ҳ	Ъu ҳ
dot1x default	802.1x Â
dot1x auth-mode	802.1x Â
dot1x max-req	Â
dot1x port-control auto	٧ ĭ ٧ ╗ Â
dot1x reauth-max	
dot1x re-authentication	ĭ Â
dot1x timeout quiet-period	٨ Â
dot1x timeout re-authperiod	Â
dot1x timeout server-timeout	∩ ┗ ٦ Â
dot1x timeout supp-timeout	∩ Â
dot1x timeout tx-period	˘ □ Â

show dot1x auth-address-table

Ъu ҳ 802.1X فخ سم Â
show dot1x auth-address-table [address][interface]

address	٦ فخ سم Â
interface	٧ ٨ Â

Â

Ъu ҳ Â

Ъu ҳ ٦	

1.0	Ъ ҷ и ч Â

Switch(config)#**show dot1x auth-address-table**

Interface	Address
Gi0/5	00d0.f800.000c
Gi0/2	00d0.f800.1201
Gi0/2	00d0.f800.1a01
Gi0/1	00d0.f800.8899
Gi0/2	00d0.f800.fa0c

Ъ ҷ	Ъ ҷ		
	dot1x auth-address table	802.1X	فخ سم Â

show dot1x statistics

Ъ ҷ 802.1X Â

show dot1x statistics

	Ъ ҷ ٧ Â

Â

Ъ ҷ	Â

Ъ ҷ ۶	
1.0	Ъ ҷ и ч Â

Switch(config)#**show dot1x statistics**

Ъ ҷ	Ъ ҷ		
	show dot1x summary	802.1X	Â

show dot1x summary

Ъ ҷ 802.1X Â

show dot1x summary

	Ъu ҳ ٧ Â
	Â
Ъu ҳ	Â
Ъu ҳ ↓	
	1.0 Ъu ҳ ѝ ↓ Â

Switch(config)#**show dot1x summary**

Ъu ҳ	Ъu ҳ
show dot1x statistics	802.1X Â

show file systems

Ъu ҳ Э Â

show file systems

	Ъu ҳ ٧ Â
	Â
Ъu ҳ	Â
Ъu ҳ ↓	
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Switch#**show file systems**

Size(b)	Free(b)	Type	Flags	State
33472512	23022157	flash	rw	-

show gvrp configuration

GVRP

show gvrp configuration

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Switch# **show gvrp configuration**
Global GVRP Configuration:
GVRP Feature : enabled
GVRP dynamic VLAN creation : enabled
GVRP base vlan id is 1.
Join Timers(ms) : 200
Leave Timers(ms) : 600
LeaveAll Timers(ms) : 1000
Port based GVRP Configuration:

Port	Applicant Status	Registration Status
Gi0/1-2	Disable	Normal
Gi0/3-4	Disable	Disable

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show gvrp statistics

Ñ Ñ GVRP
show gvrp statistics {interface-id | **all}**

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Switch# **show gvrp statistics gigabitethernet** 0/1
Join Empty Received: 0
Join In Received: 0
Empty Received: 0
LeaveIn Received: 0
Leave Empty Received: 0
Leave All Received: 40
Join Empty Transmitted: 156
Join In Transmitted: 0
Empty Transmitted: 0
Leave In Transmitted: 0
Leave Empty Transmitted: 0
Leave All Transmitted: 41
Valid Pdu Received: 1
Invalid Pdu Received: 1
Pdu Transmitted: 1
Join Indicated: 1
Leave Indicated: 1
Join Propagated: 1
Leave Propagated: 1

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clear gvrp statistics	∧ ∧ GVRP

show gvrp status

GVRP ╟ VLAN ˜ ∧ ∩ ╗ VLAN ╟ ˜ ∧

show gvrp status

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show interfaces

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show interfaces [ ] [counters | description | status | switchport | trunk]

	ㄴ^ ∫∪ ㄴ à aggregateport ㄴ à SVI ㄴ à loopback ㄴ˜
counters	ㄴ Â
description	ㄴ ˘ link Â
status	γ ㄴ ㄏ ˘ à ㄱ Â
switchport	γ ㄴ ˘ ㄴ γ ㄴ Â
trunk	trunking port ˘ gigabitethernet à Aggregate port Â

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Switch# **show interfaces gigabitEthernet** 2/1

Interface : GigabitEthernetGBIC 2/1
Description :
AdminStatus : up
OperStatus : down
Medium-type : fiber
Hardware : GBIC
Mtu : 1500
LastChange : 0d:0h:0m:0s
AdminDuplex : Auto
OperDuplex : Unknown
AdminSpeed : Auto
OperSpeed : Unknown
FlowControlAdminStatus : Auto
FlowControlOperStatus : Off
Priority : 0

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	ip access-list ƫυ ҳ … IP ACL IP ACLˇ

show ip arp

ARP Â

show ip arp

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Switch# **show ip arp** Address Age (min) Hardware Addr Type Interface

---

192.168.65.1 0 00d0.f8f9.801e arpa VL1

192.168.65.237 0 0009.b71 2d400 arpa VL1

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Switch# **show ip igmp groups**

Group Address	Interface	Uptime	Expires	Last Reporter
224.1.1.1	FastEthernet 0/12	00:27:41	-	192.168.2.5
230.0.0.0	FastEthernet 0/12	00:27:41	-	192.168.2.5
230.0.0.0	AggreatePort 1	00:27:41	-	2.2.2.2
230.0.0.0	Vlan 1	00:24:46	1d12h	192.168.65.124

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ip igmp query-interval	Â

show ip igmp interface

Ъu ъ ٨ IGMP Â

show ip igmp interface [ ]

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igmp ٨ Â

ЛЬЮ ٪ IGMP '

Switch# **show ip igmp interfaces vlan** 1

Vlan 1 State : up

Internet address : 192.168.65.124/24

IGMP Status : Enabled

Current IGMP host version : 2

Current IGMP router version : 2

IGMP query interval : 65535 (seconds)

IGMP querier timeout : 300 (seconds)

IGMP max query response time: 25 (seconds)

Last member query response interval : 65500(ms)

Inbound IGMP access group :

IGMP activity joins : 2

IGMP activity leaves : 0

Multicast routing Status : Enabled

Multicast TTL threshold : 2

Multicast designated router (DR) : 192.168.65.124

DVMRP unicast routing Status: Enabled
DVMRP routes received : 0
DVMRP poison-reverse routes received : 0
Unicast routes last advertised by DVMRP : 0
DVMRP routes last advertised by DVMRP : 0
DVMRP default route on interface : None
Multicast groups joined :
230.0.0.0

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ip igmp access-group	ў ╕ تن Â
ip igmp query-interval	Â
ip multicast ttl-threshold	٨ TTLˆ time-to-live˜ Â

	ip igmp snooping mrouter

show ip igmp snooping gda-table

igmp snooping GDA ÂÂ

show ip igmp snooping gda-table

	GDA Â
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	″I GDA ˇ ″Ą ˜ vlan-id Ո ip فخ سم è ˜ ɻ Â
	Switch# **show ip igmp snooping gda-table**
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	ip igmp snooping IGMP-Snooping Â
	ip igmp snooping limit-ipmc IPMC Ŀ ɭ IP Â
	ip igmp snooping mrouter ɭ ɻ Â
	show ip igmp snooping igmp snooping Â

show ip mroute

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show ip mroute[[ ] [**summary**]| **summary**]

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	summary Â

show ip mroute Ո Â

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1.0061 Tc<0a5104b8rT3 13 0 0 9 20004 Tc<284d141b94b8095a0940e4f6a20f509b803d7Tj/TT2 1 Tf5.002

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Switch#**Show ip multicast-routing**
The Status of Multicast-routing: Enable

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	ip multicast-routing	IP Â

show ip ospf

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LsaGroupPacing : 240
Administrative distance : 110
Inter-area Distance : 110
Intra-area Distance : 110
External Distance : 110
RFC1583Compatibility flag : Enabled
Default-information originate : Disabled
Neighbor Changes Log : Enabled
Auto-Cost Status : Enabled
Auto-Cost reference-bandwidth : 100 Mbps
Redistribute Default Metric : 20

Area information:
Area : 0.0.0.0
Area type : BackBone Area
Number of interfaces in this area : 2
Area authentication : none
SPF algorithm executed times : 11
Number of LSA : 12
Checksum Sum : 0x60071
Number os Area Border Routers : 0
Number of AS Border Routers : 0

Area Range information:
Area Range Advertising
--- --- ---
Switch#**show ip ospf area**
Area : 0.0.0.0
Area type : BackBone Area
Number of interfaces in this area : 2
Area authentication : none
SPF algorithm executed times : 11
Number of LSA : 12
Checksum Sum : 0x60071
Number os Area Border Routers : 0
Number of AS Border Routers : 0
Switch#**show ip ospf area-range**
Area Range Advertising
--- --- ---
0.0.0.1 192.168.65.0/24 advertise
0.0.0.1 192.168.165.0/24 advertise

show ip ospf border-routers

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show ip ospf border-routes

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Switch#**show ip ospf border-routes**
Type : (Type of Router)
ABR - Area border router , ASBR - Autonomous System boundary router ,
BOTH - ABR and ASBR
RteType : (Type of route)
INTRA - Intra-area pe TD0.03 9ypshow2Tj -rea T ---------- INTRAIntra---- ------- ----------

show ip ospf [ ] **database** [**network**][ ]
show ip ospf [ ] **database** [**network**] [ ] [**adv-router**]
show ip ospf [ ] **database** [**network**] [ ] [**self-originate**]

show ip ospf [ ] **database** [**summary**] [ ]
show ip ospf [ ] **database** [**summary**] [ ] [**adv-router**]
show ip ospf [ ] **database** [**summary**] [ ] [**self-originate**]

show ip ospf [ ] **database** [**asbr-summary**] [ ]
show ip ospf [ ] **database** [**asbr-summary**] [ ] [**adv-router**]
show ip ospf [ ] **database** [**asbr-summary**] [ ] [**self-originate**]

show ip ospf [ ] **database** [**external**] [ ]
show ip ospf [ ] **database** [**external**] [ ] [**adv-router**]
show ip ospf [ ] **database** [**external**] [ ] [**self-originate**]

show ip ospf [ ] **database** [**nssa-external**] [ ]
show ip ospf [ ] **database** [**nssa-external**] [ ] [**adv-router**]
show ip ospf [ ] **database** [**nssa-external**] [ ] [**self-originate**]

area *area-id*	LSA , a LSA *area-id*: ip : **external** LSAs ,
adv-router	LSA
	ID LSA ID IP
self-originate	( ) LSA
database-summary	LSA
router	Router LSAs
network	Network LSAs
summary	Summary LSAs
asbr-summary	ASBR Summary LSAs
external	External LSAs
nssa-external	Nssa External LSAs

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LSA ‡ Ш ﷺ a Â

Switch#**show ip ospf database**

Router Link States (Area 0.0.0.0)

Link ID ADV Router Age Seq# Checksum Link-Count

LS age : 1478
Options : 0x2
LS Type : Router Links
Link State ID : 1.1.1.1
Advertising Router : 1.1.1.1
LS Seq Number : 80000010
Checksum : 0x4CB9
Length : 36
Number of Links : 1

Link connected to : transit network
(Link ID) Network/subnet number: 192.168.65.110
(Link Data) Network Mask : 192.168.65.114
Number of TOS metrics : 0
TOS 0 Metrics : 1

LS age : 1698
Options : 0x2
LS Type : Router Links
Link State ID : 1.1.1.5
Advertising Router : 1.1.1.5
LS Seq Number : 8000000E
Checksum : 0xEA79
Length : 36
Number of Links : 1

Link connected to : transit network
(Link ID) Network/subnet number: 192.168.122.2
(Link Data) Network Mask : 192.168.122.1
Number of TOS metrics : 0
TOS 0 Metrics : 6

LS age : 3317
Options : 0x22
LS Type : Router Links
Link State ID : 1.1.1.6
Advertising Router : 1.1.1.6
LS Seq Number : 80000015
Checksum : 0xC07B
Length : 48
Number of Links : 2

Link connected to : stub network
(Link ID) Network/subnet number: 192.168.120.0
(Link Data) Network Mask : 255.255.255.0
Number of TOS metrics : 0

TOS 0 Metrics : 6

Link connected to : transit network
(Link ID) Network/subnet number: 192.168.125.2
(Link Data) Network Mask : 192.168.125.1
Number of TOS metrics : 0
TOS 0 Metrics : 7

LS age : 1687
Options : 0x2
LS Type : Router Links
Link State ID : 1.1.1.7
Advertising Router : 1.1.1.7
LS Seq Number : 80000018
Checksum : 0x17E8
Length : 36
Number of Links : 1

Link connected to : transit network
(Link ID) Network/subnet number: 192.168.65.110
(Link Data) Network Mask : 192.168.65.100
Number of TOS metrics : 0
TOS 0 Metrics : 1

LS age : 1473
Options : 0x2
LS Type : Router Links
Link State ID : 1.1.1.8
Advertising Router : 1.1.1.8
LS Seq Number : 8000000B
Checksum : 0x648F
Length : 36
Number of Links : 1

Link connected to : transit network
(Link ID) Network/subnet number: 192.168.65.110
(Link Data) Network Mask : 192.168.65.123
Number of TOS metrics : 0
TOS 0 Metrics : 1

LS age : 1421
Options : 0x2
LS Type : Router Links
Link State ID : 1.1.1.10
Advertising Router : 1.1.1.10

LS Seq Number : 80000173
Checksum : 0x3A7A
Length : 60
Number of Links : 3

Link connected to : stub network
(Link ID) Network/subnet number: 1.1.1.10
(Link Data) Network Mask : 255.255.255.255
Number of TOS metrics : 0
TOS 0 Metrics : 1

Link connected to : transit network
(Link ID) Network/subnet number: 192.168.65.110
(Link Data) Network Mask : 192.168.65.110
Number of TOS metrics : 0
TOS 0 Metrics : 1

Link connected to : transit network
(Link ID) Network/subnet number: 192.168.108.2
(Link Data) Network Mask : 192.168.108.1
Number of TOS metrics : 0
TOS 0 Metrics : 3

LS age : 337
Options : 0x2
LS Type : Router Links
Link State ID : 1.1.1.11
Advertising Router : 1.1.1.11
LS Seq Number : 80000006
Checksum : 0xE180
Length : 48
Number of Links : 2

Link connected to : stub network
(Link ID) Network/subnet number: 1.1.1.11
(Link Data) Network Mask : 255.255.255.255
Number of TOS metrics : 0
TOS 0 Metrics : 1

Link connected to : transit network
(Link ID) Network/subnet number: 192.168.108.2
(Link Data) Network Mask : 192.168.108.2
Number of TOS metrics : 0
TOS 0 Metrics : 2

Switch#**show ip ospf dateabase network**

Network Link States(Area 0.0.0.0)

LS age : 1457
Options : 0x2
LS Type : Network Links
Link State ID : 192.168.65.110(address of Designated Router)
Advertising Router : 1.1.1.10
LS Seq Number : 80000004
Checksum : 0xA55D
Length : 40
Network Mask : 255.255.255.0
attached router : 1.1.1.1
attached router : 1.1.1.7
attached router : 1.1.1.8
attached router : 1.1.1.10

LS age : 374
Options : 0x2
LS Type : Network Links
Link State ID : 192.168.108.2(address of Designated Router)
Advertising Router : 1.1.1.11
LS Seq Number : 80000004
Checksum : 0xEa t 2 S e sum r a 8 k 0xE 5 ( ) - 1 . 9 ( ) - 1 . . 1 (8 k) h A Q 3 6 4 7

Advertising Routf : 10

Link State ID: 155.187.245.1 (AS Boundary Router address)
Advertising Router: 155.187.241.5
LS Seq Number: 0x80000072
Checksum: 0x3548
Length: 28

Summary Net	0	0	0
Summary ASBR	0	0	0
Type-7 Ext	0	0	0
Subtotal	9	0	0

Total :

LSA Type	Count	Delete	Maxage
Router	7	0	0
Network	2	0	0
Summary Net	0	0	0
Summary ASBR	0	0	0
type-5 Ext	1	0	0
Type-7 Ext	0	0	0
Total	10	0	0

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	show ip ospf	ospf Â
	show ip protocols	Â

show ip ospf interface

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show ip ospf interface [ ]

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Switch#**show ip ospf interface vlan** 1
FastEthernet 0/48 State : Up
Internet address : 192.168.65.123/24
Area : 0.0.0.0
Router ID : 1.1.1.8

1.1.1.1 1 2Way/DROTHER 00:00:35 192.168.65.114 Fa0/48
Switch#**show ip ospf neighbor detail** 1.1.1.7 **fa** 0/48

Neighbor RouterId : 1.1.1.7
interface address : 192.168.65.100
In the area : 0.0.0.0
via interface : FastEthernet 0/48
Neighbor priority : 1
State : full
State changes times : 5
DR : 192.168.65.100
BDR : 192.168.65.123
Options : 0x2
Dead timer due in : 00:00:35
Neighbor up time : 00:03:46
retransmission queue length : 0
number of retransmission : 0

show ip protocols	Â

show ip ospf summary-address

show ip ospf summary-address

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Switch#**show ip ospf summary-address**
Summary Address Summary Mask Advertise
--- --- ---
192.168.2.0 255.255.255.0 advertise
192.168.5.0 255.255.255.0 not-advertise

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	show ip protocols Â

show ip ospf traps status

ħυ ३ ospf trap Â

show ip ospf traps status

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Switch#**show ip ospf traps status**
ospf trap type status
---------- ----------
IfStateChange Disabled
VirtIfStateChange Disabled
NbrStateChange Disabled
VirtNbrStateChange Disabled
IfConfigError Disabled
VirtIfConfigError Disabled
IfAuthFailure Disabled
VirtIfAuthFailure Disabled
IfRxBadPacket Disabled
VirtIfRxBadPacket Disabled
TxRetransmit Disabled
VirtIfTxRetransmit Disabled
OriginateLsa Disabled
MaxAgeLsa Disabled
LsdbOverflow Enabled
LsdbApproachOverflow Enabled

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	show ip protocols Â

show ip ospf virtual-links

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show ip ospf virtual-links

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Switch#**show ip ospf virtual-links**
Virtual Link to router : 192.168.100.2
Virtual Link state : up
Transit area : 0.0.0.1
Via interface : vlan 1
Interface State : POINT_TO_POINT
Cost of using : 10
Transmit Delay : 1
Hello : 10
Dead : 40
Wait : 40
Retransmit : 5
Authentication : none
Hello due in : 0:00:10

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	show ip protocols Â

show ip pim bsr-router

Ъu ҳ Bootstrap Router (BSR) Â

show ip pim bsr-router

	Bsr-router Bootstrap Router Â

Switch#**show ip pim interface**

Address	Interface	Mode	Nbrs	QueryIntval	DR Address
192.168.2.5	FastEthernet 0/12	Spa-Den	0	30	192.168.2.5
2.2.2.2	AggreatePort 1	Dense	0	30	2.2.2.2
192.168.65.124	Vlan 1	Sparse	1	65535	192.168.65.124

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ip pim	PIM Â
show ip pim neighbor	PIM Â

show ip pim neighbor

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show ip pim neighbor [ ]

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PIM Â

Switch#**show ip pim neighbor**

mapping	Ո RP ˇ з ΐ BSR Â

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PIM RP Â

Switch#sh ip pim rp mapping

Group(s) Or Acl	RP Address	Uptime	Expires	Status
---	---	---	---	---
224.0.0.0/4	192.168.65.109	00:06:19	00:03:14	-
230.0.0.0/24	192.168.65.124	01:03:12	00:02:18	-
abc	1 1.1.1.1	-	-	Static
224.0.0.0/4	2.2.2.2	-	-	IsOverride
224.0.0.0/4	4.4.4.4	-	-	Static
224.0.0.0/4	8.3.3.3	-	-	Static

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show ip prefix-list

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show ip prefix-list [seq |]

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seq	Ո, тп(1-2147483647) Â
	ip Â ip-prefix ѝ <network>/<length>, : 35.0.0.0/8

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Switch(config-router)#**show ip prefix-list**
ip prefix-list name : pre3

ip prefix-list name : pre4

ip prefix-list a1:
seq 5 permit 1.0.0.0/11
seq 10 deny 1.0.0.0/11
seq 15 deny 192.0.0.0/11
seq 20 permit 192.0.0.0/11
seq 25 permit 0.0.0.0/4

Switch(config-router)#**show ip prefix-list** a1
ip prefix-list a1:
seq 5 permit 1.0.0.0/11
seq 10 deny 1.0.0.0/11
seq 15 deny 192.0.0.0/11
seq 20 permit 192.0.0.0/11
seq 25 permit 0.0.0.0/4

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ip prefix-list	… Â

show ip protocols

ج IP Â

show ip protocols [rip | ospf | status] [routing-network | redistribute-info |
| routing-information-source]

rip	rip ospf ,
ospf	status ﻫ ﻝﻮﺑ ip
status	routing ﻲّﻓ .
routing-network	تن
redistribute-info	ﻩ ﻝ
routing-information-source	

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Switch#**show ip protocols**
Routing Protocol : ospf

Distribute-list Configuration
Interface : all interface
Filter Direct : out
Filter Type : access-list

Redistribute Default Metric : 20

Routing for networks

Network Number	Inverse Mask	Area
192.168.65.0	0.0.0.255	0.0.0.0

Routing Information Sources

Gateway	Distance	Last Update
192.168.65.1	120	00:00:24
192.168.65.110	120	00:00:25

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ip rip authentication mode	SVĭ ƫ ȝ ŭ ╟ RIP ⁸ Â
ip rip authentication key-chain	RIP Â
ip rip receive version	RIP Â
ip rip send version	RIP ɬ Â
ip routing	IP Â
router	╖
timer basic	RIP ɯ ⱬ Â
version	RIP ɬ ∩ Â
show ip ospf	ospf Â
show ip rip	rip Â

show ip redirects

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show ip redirects

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	Switch(config)# **show ip redirects**

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ip default-gateway	Â

show ip rip

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show ip rip

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Switch(config-router)#**show ip rip interface**
Interface : VL1
RIP authentication mode : none
Key-chain :

Switch(config-router)#**show ip rip interface**
Interface : VL1
RIP authentication mode : none
Key-chain :
RIP send version : 2
RIP receive version : 1 2
Passive status : Disabled
V2 broadcast : Disabled

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show ip protocols	ج IP

show ip rip neighbor

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show ip rip neighbor

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Switch(config-router)#**show ip rip neighbor**
Neighbor

192.168.68.1

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show ip protocols	ج IP

show ip rip offset-list

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show ip rip offset-list

Type: C - connected, S - static, R - RIP, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2

Type	Destination IP	Next hop	Interface	Distance	Metric	Status
C	20.10.2.0/24	192.168.65.8	VL1	1	0	Active
S	20.10.3.0/24	192.168.65.8	VL1	1	0	Active
R	20.10.4.0/24	192.168.65.8	VL1	1	0	Active
O	192.168.65.0/24	0.0.0.0	VL1	0	0	Active
O N1	192.168.4.0/24	192.168.65.40	VL1	200	21	Active
O N2	192.168.5.0/24	192.168.65.50	VL1	200	21	Active
O IA	192.168.6.0/24	192.168.65.60	VL1	200	21	Active
O E1	192.168.7.0/24	192.168.65.70	VL1	200	21	Active
O E2	192.168.66.0/24	0.0.0.0	VL1	0	0	Active

Ъu ҙ	Ъu ҙ	
ip route	IP	Â

show ip rpf

Ъu ҙ RPF ӌ ӓӓ Â
show ip rpf

	rpf ӻӽ Â
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Ъu ҙ	Â
Ъu ҙ ӌ	
1.0	Ъu ҙ ӣ ӌ Â
	RPF ӌ ӓӓ Â

Switch#**show ip rpf 100.0.0.30**

RPF interface : FastEthernet 0/14

RPF neighbor : 0.0.0.0

RPF route/mask : 100.0.0.0/24

RPF type : Unicast

ЪU ҳ	ЪU ҳ

show ip ttl

ip ttl Â

show ip ttl

ЪU ҳ ৲ Â

ЪU ҳ Â

ЪU ҳ Â

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1.0	ЪU ҳ ৸ ৴ Â

Switch# **show ip ttl**

ЪU ҳ	ЪU ҳ
	ip ttl ৴ IP ˆ time-to-live˘ TTL˜ Â

show ip-auth-mode

IP ৵ Â

show ip-auth-mode

ЪU ҳ ৲ Â

ЪU ҳ

ЪU ҳ Â

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DISABLE ˆ ˜' ج ЮЎ a IP ⁸˘ ٧ ٦ Л∪ Â
DHCP SERVER ' IP DHCP SERVER ˘ ٧ DHCP SERVER ∱ IP ٨ IP Â
RADIUS SERVER ' IP RADIUS SERVER Â ٧ RADIUS SERVER IP Â

Switch#**show ip-auth-mode**
ip authorization mode : radius-server

key chain	Ѝ ˘ 3 Â

show line

ʌ telnet Â

show line {console vty}

Switch# **show lldp**

```
Sending LLDP packets interval(seconds): 10
Sending a holdtime value(seconds):      20
```

ħυ ϡ	ħυ ϡ
show lldp entry	ў ɻ LLDP Â
show lldp neighbors	∧ Э LLDP Â

show lldp entry

ў ɻ LLDP Â

show lldp entry {* | [*]}[**detail**]

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[*] ў ɻ˘ ۾ ў ɻ ɻ ╗ Э * ∧

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show lldp interface

٨ LLDP Â

show lldp interface [ ]

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	٨ ٨ Â
	Â
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ƚu ʒ ٧	
1.0	ƚu ʒ ŕ ٤ Â

	ƗO ƚu ʒ LLDP ٨ **fa**0/3 LLDP '
	Switch# **show lldp interface fa**0/3
	`Interface Status`
	`---------- ---------`
	`Fa0/3 enabled`

ƚu ʒ	ƚu ʒ
lldp enable	ج ٨ Ɔ LLDP Â

hborsefB1.0192-0.0314.86 384.4 164.34 1.5 .3017 0 TD0.0004 Tc<0cf15 Tc( )Tj0 -16

Ю Ъ Ђ Л **fa**0/3 Э '

Switch# **show lldp neighbors fa**0/3 **detail**

```
Local Port:              Fa0/3
  Host Name:             switch-2
  Mac Address:           00d0.f8fe.43d2
  Cluster Name:          clus0
  Cluster Mode:          Member Switch
  Cluster Status:        enabled
  Remote Port:           Fa0/2
```

Ъ Ђ	Ъ Ђ
show lldp	LLDP timer Ո holdtime Â
show lldp entry	ў Ј LLDP Â

show lldp traffic

Л Э LLDP Â

show lldp traffic [ ]

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Ю Ъ Ђ Л **fa**0/3 Э LLDP '

Switch# **show lldp traffic fa**0/3

```
Interface       InGoodPkts        InErrors       OutPkts
-----------     ------------      ---------      ---------
Fa0/3           22                0              16
```

Ъ Ђ	Ъ Ђ
lldp enable	ح Л Э LLDP Â
clear lldp counters	Л Э LLDP Ы Â

show logging

Â

show logging

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Switch#**show logging**
Syslog logging: enabled (0 message flushes)
Console logging: level debugging
Monitor logging: disabled
Buffer logging: level debugging
File logging: enabled
File name: flash:log.text
File max size: 4096
level : warnings(4)

0001:*Mar 1 09:07:26: 5-CONFIG_I: Configured from console by console
0002:*Mar 1 09:08:15: 5-CONFIG_I: Configured from console by console

˚ (log.text)'

Switch#**more flash:**log.text
0001: *Mar 1 10:18:42: %SYS-5-CONFIG_I: Configured from console by console
0002: *Mar 1 10:22:52: %LINK-3-UPDOWN: Interface GigabitEthernet0/9, changed state to down

Ъu ҙ	
clear logging	Â
logging console	⁸ ĭ ل ٧ Â
logging file	˚ Â
logging monitor	⁸ ĭ ل ٧ Â
logging on	

show mac access-lists

MAC ACL Â

show mac access-lists [ ]

Vlan	MAC Address	Type	Interface
1	00d0.f800.1001	STATIC	Gi0/1

‰	‰
show mac-address-table static	¤
show mac-address-table filtering	¤
show mac-address-table dynamic	¤
show mac-address-table interface	¤
show mac-address-table vlan	VLAN ¤
show mac-address-table count	¤ ¤

show mac-address-table aging-time

¤
show mac-address-table aging-time

	‰
	‰
‰	
‰	
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Switch# **show mac-address-table aging-time**
Aging time : 300

‰	‰
mac-address-table aging-time	¤

show mac-address-table count

¤ ¤

show mac-address-table count

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Switch# **show mac-address-table dynamic**

Vlan	MAC Address	Type	Interface
1	0000.0000.0001	DYNAMIC	Gi0/2
1	0001.960c.a740	DYNAMIC	Gi0/2
1	0007.95c7.dff9	DYNAMIC	Gi0/2
1	0007.95cf.eee0	DYNAMIC	Gi0/2
1	0007.95cf.f41f	DYNAMIC	Gi0/2
1	0009.b715.d400	DYNAMIC	Gi0/2
1	0050.bade.63c4	DYNAMIC	Gi0/2

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Q Tf -3.28

1	00d0.f801.1001	FILTER	-
1	00d0.f801.1002	FILTER	-
1	00d0.f801.1003	FILTER	-
1	00d0.f801.1004	FILTER	-
1	00d0.f801.1005	FILTER	-
1	00d0.f801.1006	FILTER	-
1	00d0.f801.1007	FILTER	-
1	00d0.f801.1008	FILTER	-
1	00d0.f801.1009	FILTER	-
1	00d0.f801.1010	FILTER	-
1	00d0.f801.1011	FILTER	-
1	00d0.f801.1012	FILTER	-
1	00d0.f801.1013	FILTER	-
1	00d0.f801.1014	FILTER	-
1	00d0.f801.1015	FILTER	-
1	00d0.f801.1016	FILTER	-
1	00d0.f801.1017	FILTER	-
1	00d0.f801.1018	FILTER	-
1	00d0.f801.1019	FILTER	-

--More--

Ъч ъ	Ъч ъ
clear mac-address-table filtering	ѕѫ ѣѫ Â
mac-address-table filtering	ѕѫ ѣѫ Â

show mac-address-table interface

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show mac-address-table interface [ ] [vlan]

	ѧ (ѧ ЛЪ ѧ AggregatePort) Â
	VLAN Â

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Switch#**show mac-address-table interface gigabitethernet** 0/1

Vlan	MAC Address	Type	Interface
1	00d0.f800.1001	STATIC	Gi0/1
1	00d0.f800.1002	STATIC	Gi0/1
1	00d0.f800.1003	STATIC	Gi0/1
1	00d0.f800.1004	STATIC	Gi0/1

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show mac-address-table static	فخ سم Â
show mac-address-table filtering	فخ سم Â
show mac-address-table dynamic	╠ فخ سم Â
show mac-address-table address	فخ سم صر فخ سم Â
show mac-address-table vlan	VLAN صر فخ سم Â
show mac-address-table count	فخ سم فخ سم Â

show mac-address-table notification

MAC فخ سم ╖ Ո· Â

show mac-address-table notification [interface[ ] | history]

interface	٨ /١ Â ٨ Ɔ MAC ╖ Â
history	MAC ٦ Â

MAC فخ سم ╖ Â

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ЪЧ ЗЊ ٦

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Switch#**show mac-address-table notification interface**
Interface MAC Added Trap MAC Removed Trap

Maximum Number of entries configured in History Table : 1
Current History Table Length : 0
MAC Notification Traps : Enabled

Switch# **show mac-address-table notification history**
History Index : 0
Entry Timestamp : 16715794
MAC Changed Message :
Operation: Added Vlan: 1 MAC Addr: 0007.95cf.f41f Interface: Gi 0/1
Operation: Added Vlan: 1 MAC Addr: 00d0.f800.3c88 Interface: Gi 0/1
Operation: Added Vlan: 1 MAC Addr: 00d0.f808.3d5e Interface: Gi 0/1

History Index : 1
Entry Timestamp : 16718095
MAC Changed Message :
Operation: Deleted Vlan: 1 MAC Addr: 00d0.f808.3d5e Interface: Gi 0/1

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mac-address-table notification	MAC ѳѣ ╖ Â
snmp trap mac-notification	∧ MAC ѳѣ ╖ Â

show mac-address-table static

ѳѣ Â
show mac-address-table static [addr] [interface] [vlan]

	MAC ѳѣ Â
	VLAN Â
	↓ ∧ (↓ ЛU ∧ AggregatePort)

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Switch#**show mac-address-table static**
Vlan MAC Address Type Interface
---------- ------------------- -------- ------------------

1	00d0.f800.1001	STATIC	Gi0/1
1	00d0.f800.1002	STATIC	Gi0/1
1	00d0.f800.1003	STATIC	Gi0/1

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mac-address-table static	ƒфѕ Â
clear mac-address-table static	ƒфѕ Â

show mac-address-table vlan

VLAN ѕ ƒфѕ Â
show mac-address-table vlan [ ]

	VLAN ID Â

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Switch#**show mac-address-table vlan** 1

Vlan	MAC Address	Type	Interface
1	00d0.f800.1001	STATIC	Gi0/1
1	00d0.f800.1002	STATIC	Gi0/1
1	00d0.f800.1003	STATIC	Gi0/1
1	00d0.f800.1004	STATIC	Gi0/1

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show mac-address-table static	ƒфѕ Â
show mac-address-table filtering	ƒфѕ Â
show mac-address-table dynamic	╠ ƒфѕ Â
show mac-address-table address	ƒфѕ ѕ ƒфѕ Â
show mac-address-table interface	∧ ѕ ƒфѕ Â

show mac-address-table count	فخ سم فخ سم Â

show memroy

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show memory

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Switch# **show memory**

MemoryPoolName	CurrentUtilization	LowestUtilization	LargestUtilization
SYSMEM	23%	23%	23%
large pa	0%	0%	0%
DMA Memo	23%	23%	23%
FileMem	0%	0%	0%
arpPool	0%	0%	0%
NUFragPa	0%	0%	0%
link_Par	0%	0%	0%
udp_mem	32%	4%	32%
tcp_mem	2%	0%	7%

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show mls qos queueing

QoS Â

show mls qos queueing

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	Qos Â

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Switch# **show mls qos queueing**

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wrr-queue bandwidth	∧ Â
wrr-queue cos-map	cos-map ⊿ ف Â

show mls qos interface

∧ QoS Â
show mls qos interface [ ] [policers|queueing]

	∧ /∧ Â
policers	**policer** Â
queueing	**queueing**

∧ Qos Â

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Switch# **show mls qos interface policer**

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mls qos cos	∧ CoS Â
mls qos trust	∧ Qos Â

show mls qos maps

cos-to-dscp map dscp-to-cos map Â
show mls qos maps [**cos-dscp** | **dscp-cos**]

cos-dscp	cos-to-dscp map Â
dscp-cos	dscp-to-cos map

Qos map Â

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show policy-map [[class]]

	QoS policy map Â
class	policy map class Â

… policy map Â

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Switch# **show policy-map**

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policy-map	… policy map˘ policy map Â

show port-security

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show port-security [address] [interface]

address	˘ʃ ʌ ѫ Â
interface	ʌ ʌ Â

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Switch# **show port-security address**
Secure Port MaxSecureAddr(count) CurrentAddr(count) Security Action
---------- ---------- ---------- ----------
Gi0/9 128 0 Protect

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switchport port-security	ʌ ╗ ˘ ʌ Â
switchport port-security aging	и ʌ Э ѫ Â

switchport mac-address	**port-security**	٨ فخ سه Â

enable	
enable secret	
disable	

show radius-server

RADIUS

show radius-server

RADIUS

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Switch(config)#**show radius-server**
Radius server : 192.168.23.33
Radius backup server : 192.168.23.45
Authentication UDP port : 1812

radius-server

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Switch#**show rmon alarms**
Alarm : 1
Interval : 1
Variable : 1.3.6.1.2.1.4.2.0
Sample type : absolute
Last value : 64
Startup alarm : 3
Rising threshold : 10
Falling threshold : 22
Rising event : 0
Falling event : 0
Owner : zhangsan

Switch#**show rmon events**
Event : 1
Description : firstevent
Event type : log-and-trap
Community : public
Last time sent : 0d:0h:0m:0s
Owner : zhangsan

Log : 1

0I( )5.r l( )5.8( )5.8( )5.8( )5.8( )5.8( )5.8(5( )251.6(1)250( )]TJ0 -1.4( )Tjw)255(n)250(e)251.1(r)254.5(

Pkts : 726
BroadcastPkts : 502
MulticastPkts : 189
CRCAlignErrors : 0
UndersizePkts : 0
OversizePkts : 0
Fragments : 0
Jabbers : 0
Collisions : 0
Utilization : 0
.....

Switch#**show rmon statistics**
Statistics : 1
Data source : Gi0/1
DropEvents : 0
Octets : 1884085
Pkts : 3096
BroadcastPkts : 161
MulticastPkts : 97
CRCAlignErrors : 0
UndersizePkts : 0
OversizePkts : 1200
Fragments : 0
Jabbers : 0
Collisions : 0
Pkts64Octets : 128
Pkts65to127Octets : 336
Pkts128to255Octets : 229
Pkts256to511Octets : 3
Pkts512to1023Octets : 0
Pkts1024to1518Octets : 1200
Owner : zhangsan

ÎÜ ¾Ý	
rmon alarm	RMON ¯ Â
rmon collection history	RMON ¿ Â
rmon collection stats	RMON Â
rmon event	RMON Y ¯ Â

show route-map

ÎÜ ¾Ý route-map Â

show route-map [ ]

route-map ﻝ Â

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interface	٧ Â
	٤ ⁸ ٧.

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Switch# **show running-config**
Building configuration...
enable secret level 1 5 %3R:>H.YW4_;C,tZ5U0<D+S(Uj9=G1X)
enable secret level 5 5 !:>H.Y*T7;C,tZ[V0<D+S(\W9=G1X)sv
enable secret level 15 5 !.tj9=G17/7R:>H.,1u_;C,t-8U0<D+S

hostname Switch
radius-server host 192.168.23.33
interface gigabitEthernet 0/9

show services

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	Â
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	Switch# **show services** Snmp-agent : Enabled Telnet-server : Enabled Web-server : Enabled
Þu ¾	Þu ¾
	enable services snmp agent à telnet server à web server Â

show snmp

snmp server Â

show snmp

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	Â
Þu ¾	Â
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	Switch# **show snmp** Switch#sh snmp Hostname : Switch Contact : 353000.star Location : switch.i-net.com.cn

SNMP packets input: 0

Switch#**show snmp-server traps**

Traps	Status
coldStart	Disabled
warmStart	Disabled
linkDown	Disabled
linkUp	Disabled
authenFailure	Disabled
newRoot	Disabled
topoChange	Disabled
hardChangeDetected	Disabled
portSecurityViolate	Disabled
stormViolationAlarm	Disabled
mac-notification	Disabled
vrrp-newmaster	Disabled
vrrp-authfailure	Disabled
power-state-trans	Disabled
fans-state-trans	Disabled
ospf	Disabled
pim	Disabled
igmp	Disabled
dvmrp	Disabled

Ъ ђ	Ъ ђ
snmp-server community	ѓ^ community˜ Â
snmp-server enable traps	trap Â
snmp-server host	trap ч ў Â

show spanning-tree

∩ Â

show spanning-tree [forward-time | hello-time | max-age | tx-hold-count | pathcost method | max_hops]

forward-time	BridgeForwardDelay Â
hello-time	BridgeHelloTime Â
max-age	BridgeMaxAge Â
Max-hops	instance
tx-hold-count	TxHoldCount Â
pathcost method	

Â

Ю MST '
Switch# **show spanning-tree hello-time**

Ю instance
Switch# **show spanning-tree**
SysStpStatus : Enabled
BaseNumPorts : 24
MaxAge : 20
HelloTime : 2
ForwardDelay : 15
BridgeMaxAge : 20
BridgeHelloTime : 2
BridgeForwardDelay : 15
MaxHops : 20
TxHoldCount : 3
PathCostMethod : long
BPDUGuard : Disabled
BPDUFilter :Disabled

MST00 vlans mapped: 1-9, 21-4094
BridgeAddr : 0002.4b29.7a00
Priority : 32768

Ю ҳ	Ю ҳ	
	Spanning-spanning-treetree	
	spanning-tree max-hops	instance
	Spanningtree pathcost method	
	spanning-tree tx-hold-count	STP TxHoldCount Â

show spanning-tree interface

STP ∧ Â ⊥ Â

show spanning-tree interface [{bpdufilter | portfast | bpduguard | link-type }]

	∧ /∧
bpdufilter	**bpdufilter** Â
portfast	**portfast** Â
bpduguard	**bpduguard** Â
link-type	∧ **linktype**

Â

Ю ҳ Â

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Switch# **show spanning-tree interface gigabitethernet** 0/1 **bpdufilter**
PortBPDUFilter : Disabled

Ю Ո ∧ **gigabitethernet** 0/5
Switch# **show spanning-tree interface gigabitethernet** 0/5
PortAdminPortfast : Disabled
PortOperPortfast : Disabled
PortAdminLinkType : auto
PortOperLinkType : shared
PortBPDUGuard: Enabled
PortBPDUFilter: Disabled

MST00 vlans mapped: 1-9ʹ 21-4095
PortPriority : 128
PortState : discarding

PortDesignatedRoot : 800000D0F8DDDD08
PortDesignatedCost : 0
PortDesignatedBridge : 800000D0F8DDDD08
PortDesignatedPort : 0000
PortAdminPathCost : 0
PortOperPathCost : 0
PortRole : disabledPort
PortForwardTransitions : 0

MST01 vlans mapped: 10-20
PortPriority : 128
PortDesignatedRoot : 800000D0F8DDDD08
PortDesignatedCost : 0
PortDesignatedBridge : 800000D0F8DDDD08
PortDesignatedPort : 0000
PortAdminPathCost : 0
PortOperPathCost : 0
PortRole : disabledPort
PortForwardTransitions : 0

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spanning-tree bpdufilter	٨	BPDU filter	Â
spanning-tree portfast	٨	portfast	Â
spanning-tree bpduguard	٨	BPDU guard	Â
spanning-tree link-type	٨	صر a “	”Â

show spanning-tree mst

ھ Ю Ъu ҙ ۍ Л∪ mst ˇ instance Â

show spanning-tree mst { configuration | [interface] }

		configuration	mst
			Instance /١
			٨ /١

instance Â

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		Ю	MST '

Switch# **show spanning-tree mst configuration**
Multi spanning tree protocal : enabled
Name : region1
Revision : 1
Instance Vlans Mapped
---------- ---------------------
0 1-2,4,11-4094
1 3,5-10

ꞮO instance 1 ꞱU ꝛ'
Switch# **show spanning-tree mst** 1
MstpStatus : Enabled
BaseNumPorts : 24
MaxAge : 20
HelloTime : 2
ForwardDelay : 15
BridgeMaxAge : 20
BridgeHelloTime : 2
BridgeForwardDelay : 15
MaxHops : 20
TxHoldCount : 3
PathCostMethod : long
BPDUGuard : Disabled
BPDUFilter :Disabled

MST01 vlans mapped: 10-20
BridgeAddr : 0002.4b29.7a00
Priority : 32768
TimeSinceTopologyChange : 0d:0h:39m:30s
TopologyChanges : 0
DesignatedRoot : 800000D0F8DDDD08
RootCost : 200038
RootPort : Gi0/1
Remain Hops : 20

ꞮO instance 0 ꝰ **gigaethernet0/1** ꓤ ꞱU ꝛ
Switch# **show spanning-tree mst** 0 **interface gigabitethernet** 0/5
PortAdminPortfast : Disabled
PortOperPortfast : Disabled
PortAdminLinkType : auto
PortOperLinkType : shared
PortBPDUGuard: Enabled
PortBPDUFilter: Disabled

MST00 vlans mapped: 1-9,21-4094
PortPriority : 128
PortState : discarding
PortDesignatedRoot : 800000D0F8DDDD08

		PortDesignatedCost : 0 PortDesignatedBridge : 800000D0F8DDDD08 PortDesignatedPort : 0000 PortAdminPathCost : 0 PortOperPathCost : 0 PortRole : disabledPort PortForwardTransitions : 0

Ъυ ҙ		Ъυ ҙ	
		spanning-tree mst configuration	MST region
		spanning-tree mst cost	instance
		Spanning-tree mst max-hops	instance
		Spanning-tree mst priority	instance ″ӏ
		Spanning-tree mst port-priority	instance ʌ ″ӏ

show standby

VRRP

show standby [[ ]]

	ʌ ID
	VRRP ID

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Ъυ ҙ ↓	
1.0	Ъυ ҙ ѝ ↓ Â

Switch(config-if)# **show standby** 5 1

if	group	state	priority	preempt	interval	virtual IP	auth
VLAN1	255	Backup	105	may	3	192.168.165.111	
Gi10/10	0	Master	105	no	3	192.168.165.111	12345678

show storm-control

8 Â

show storm-control [ ]

	8 Â

Â

	Â

1.0	Â

Switch# **show storm-control gigabitethernet** 0/1

Interface Broadcast Control Multicast Control Unicast Control

---------- ---------- ---------- ----------

Gi0/1 Disabled Disabled Disabled

storm-control	8 Â

show time-range

time-range Â

show time-range [ ]

	ACL

Â

	Â

1.0	Â

```
Switch#show time-range
time-range name: no-http
   periodic Weekdays 8:00 to 18:00

time-range name: no-udp
   periodic Tuesday 15:30 to 16:30
```

ћu ҙ	ћu ҙ
	absolute ш .
	periodic □ .

show version

à ˚ Â

show version [devices | slots]

devices	Â
slots	Â

ћu ҙ Â

ћu ҙ Â

ћu ҙ ↓	
1.0	ћu ҙ и ↓ Â

↰ ‡ Â

```
Switch# show version
System description          : Gigabit Routing Switch(S3550-12G)
System uptime               : 0d:0h:30m:25s
System hardware version : 1.0
   CPU:    PVR-80811014, Vendor-1057, Device-0006, Revision-12
   Flash-1: Id-10f        , Memory Room: fff00000-fff7ffff
   Flash-2: Id-ec75       , Memory Room: f0000000-f1ff3fff
   Unit-0: DevId:S35XX-00, RevId:00000001
System software version : 2.0 Build Apr 29 2003 Debug
System BOOT version         : STAR-S3550B-BOOT01-01-01
System CTRL version         : STAR-S3550B-CTRL01-01-01
Running Switching Image : Layer3

Switch#show version devices
Device          Slots       Description
```

---

1 1 S3550-12G

Switch#**show version slots**

Device	Slot	Ports	Max Ports	Module
1	0	12	12	S3550-12G_Static_Module

ЪU ҈	ЪU ҈

show vlan

VLAN ˜ ˄ Â

show vlan [id]

id	VLAN ID ˄ Â

Â

ЪU ҈	Â

ЪU ҈ ˩	
1.0	ЪU ҈ ˥ ˩ Â

Switch# **show vlan id** 1

VLAN	Name	Status	Ports
1	default	active	Gi0/1 , Gi0/2 , Gi0/3 , Gi0/4 Gi0/5 , Gi0/6 , Gi0/7 , Gi0/8 Gi0/9 , Gi0/10, Gi0/11, Gi0/12

ЪU ҈	ЪU ҈
name	VLAN ˩ Â
switchport access	˄ ╗ Vlan Â

show wrr-queue bandwidth

WRR Â

show wrr-queue bandwidth

	Ъυ ҳ ٧ Â
	Ъυ ҳ Â
Ъυ ҳ	Â
Ъυ ҳ ٫	
	1.0 Ъυ ҳ ٭ ٤ Â

Switch# **show wrr-queue bandwidth**

Ъυ ҳ	Ъυ ҳ
	wrr-queue bandwidth ٧ Â

show wrr-queue cos-map

cos-to-queue map Â

show wrr-queue cos-map

	Ъυ ҳ ٧ Â
	Ъυ ҳ Â
Ъυ ҳ	Â
Ъυ ҳ ٫	
	1.0 Ъυ ҳ ٭ ٤ Â

Switch# **show wrr-queue cos-map**

Ъυ ҳ	Ъυ ҳ
	wrr-queue cos-map cos-map ٦ ف Â

shutdown

ج ٧ ˘ Ъυ ҳ ٧ Â Ъυ ҳ **no** ٧ Â

shutdown

no shutdown

	Ъυ ҳ ٧ Â
	Ъυ ҳ Â
Ъυ ҳ	٧ Â
Ъυ ҳ ل	
1.0	Ъυ ҳ ѝ ل Â

٧ˆ Л٥ ٧ à Ap ٧ à SVI ٧˜˜ Ъυ ҳ ٧˘
٧ è Ÿ ج˘ a Â
show interfaces Ъυ ҳ ٧ Â

Ap 1'
Switch(config)#**interface aggregateport** 1
Switch(config-if)#**shutdown**
Ap 1'
Switch(config)#**interface aggregateport** 1
Switch(config-if)#**no shutdown**

Ъυ ҳ	Ъυ ҳ
	clear interface ٧ ˚ Æ Â
	show interfaces ٧ Ո Â

snmp-server community

ل ˆ community˜˜ ل Л٥ ˆ Simple Network Management Protocol˘ SNMP˜
Â Ъυ ҳ no ل IP فخ سم Â
snmp-server community [ro | rw] [host]
no snmp-server community [host]

	ل Â
	ro ٧ Â
	rw ل Â
	host IP فخ سم Â

ل ѝ public˘ ѝ ٧ Â

Ъυ ҳ	Â
Ъυ ҳ ل	
1.0	Ъυ ҳ ѝ ل Â

IP ﻓﺦ ﺳﻫ ˇ ‡ ﻉ IP ў SNMP Â

hostˇ ‡ ﻉ IP ﻓﺦ ﺳﻫ ˇ a

ˇ ‡ ﻝ Â

Switch(config)# **snmp-server community** private **ro**

ƕ ϡ	ƕ ϡ
show snmp-server	SNMP Server Â

snmp-server contact

ˆ contact˜ Â ƕ ϡ **no** Â

snmp-server contact

no snmp-server contact

	Â

έ ᾱ Â

ƕ ϡ	Â

ƕ ϡ ﻝ	
1.0	ƕ ϡ ϧ ﻉ Â

show snmp-server ƕ ϡ Â

Switch(config)# **snmp-server contact** abcdefg

ƕ ϡ	ƕ ϡ
show snmp-server	SNMP Server Â

snmp-server enable traps

trap Â ƕ ϡ **no** trap Â

snmp-server enable traps [ ]

no snmp-server enable traps [ ]

trap صر Â ў '

	ﾉ Â
	ﾍ 1 trap Â
ﾄU ﾇ	Â
ﾄU ﾇ ﾍ	
1.0	ﾄU ﾇ ﾀ ﾍ Â
	ﾍ ﾊU a ﾍ ﾟ ﾍ a ﾍ trap Â **show snmp-server host** ﾄU ﾇ Â
	Switch(config)# **snmp-server host** 64.1.1.1 **traps version 1** public
ﾄU ﾇ	ﾄU ﾇ
show snmp-server	SNMP Server Â

snmp-server location

Æ ^ location˜ Â ﾄU ﾇ **no** Â

snmp-server location

no snmp-server location

	Æ Â
	é ā Â
ﾄU ﾇ	Â
ﾄU ﾇ ﾍ	
1.0	ﾄU ﾇ ﾀ ﾍ Â
	show version ﾄU ﾇ Â
	Switch(config)# **snmp-server location** sssss123
ﾄU ﾇ	ﾄU ﾇ
show snmp-server	SNMP Server Â

1.0	

forward-time à hello-time à max-age Þ تن ˘ è

: è ч تن Â Þ ⁸ '

2*(Hello Time+1.0snd) <= Max-Age Time <= 2*(Forward-Delay – 1.0snd)

a ˄ ˚ ≠ a ╖ Â

show spanning-tree Ъυ ϡ Â

spanning-tree ╖ '

Switch(config)# **spanning-tree**

BridgeForwardDelay'

Switch(config)# **spanning-tree forward-time** 10

Ъυ ϡ	

Ъυ ϡ	
show spanning-tree	STP Â
spanning-tree mst cost	STP ∧ PathCost Â
spanning-tree tx-hold-count	STP TxHoldCount Â

spanning-tree bpdufilter

∧ BPDU filter Â ⅃Ո Ъυ ϡ enabled disabled ∧ BPDU filter Â

spanning-tree bpdufilter [**enabled | disabled**]

enabled	∧ BPDU filter Â
Disabled	∧ BPDU filter Â

Â

Ъυ ϡ	∧ Â

Ъυ ϡ	

1.0	Ъυ ϡ ѝ ⅃ Â

show spanning-tree interface Â

Switch(config)# **interface gigabitethernet 0/1**

Switch(config-if)# **spanning-tree bpdufilter enable**

Ъυ ϡ	Ъυ ϡ

show spanning-tree interface	STP Â

spanning-tree bpduguard

Â BPDU guard Â Â enabled disabled Â BPDU guard Â

spanning-tree bpduguard [enabled | disabled]

enabled	Â BPDU guard Â
disabled	Â BPDU guard Â

Â

Â

Â

1.0	Â

show spanning-tree interface Â

```
Switch(config)# interface gigabitethernet 0/1
Switch(config-if)# spanning-tree bpduguard enable
```

show spanning-tree interface STP Â

spanning-tree link-type

Â a “ ” Â Â **no** Â

spanning-tree link-type [point-to-point | shared]

no spanning-tree link-type

poinit-to-point	Â point-to-point.
Shared	Â shared

Â point-to-point Â shared.

Â

spanning-tree mode

æ IO ЪU ҳ stp Â no ⊣ Л Â

spanning-tree mode [stp | rstp | mstp]

no spanning-tree mode

		stp	Spanning tree protocol(IEEE 802.1d)
		rstp	Rapid spanning tree protocol(IEEE 802.1w)
		mstp	Multiple spanning tree protocol(IEEE 802.1s)

		MSTP

ЪU ҳ		.

ЪU ҳ ⊣			
		1.0	ЪU ҳ ѝ ⊣ Â

		Switch(config)#**spanning-tree mode stp**

ЪU ҳ		ЪU ҳ	
		show spanning-tree	

spanning-tree mst configure

æ IO ЪU ҳ ⊣ Л mst ˘ mstp region

ھ ˘ **end** Ƕ ʒ˘ **Ctrl+C** ʎ Â

ھ ˘ **exit** Ƕ ʒ Â

MST ʎ˘ ɻ Ɲ ƬƵǶ ʒ ʯ '

instance **vlan** ' Vlan ╗ MST instance Â

تن ѝ 0 64 Âvlan تن ѝ 1 4095 Â ɻ Ɲ

vlan ʎ˘ vlan ʕ ʕ ˘ vlan ʕ ɻ Ɲ ¦ · Ľ

ч vlan

		show	جھ mst ЮО MST

spanning-tree mst cost

جھ ٨ ЮО Ъυ ҂ instance Â no ⊣ Л Ъυ ҂ Â

spanning-tree mst cost

no spanning-tree mst cost

		Instance-id:	Instance ٨˘ تن ﻯ 0˙ 63
		Cost:	˘ تن ﻯ 1˙ 200˝ 000˝ 000

spanning-tree mst port-priority
no spanning-tree mst port-priority

			Instance ﾊﾞ ﾝ 0 63
			ﾊ ﾞｌ ﾞ ﾚ 0 16 32 48 64 80 96 112 128 144 160 176 192 208 224 240 16 ﾞ ｷ ﾝ 16

		ﾝ 128

ﾄｭ ｦ		ﾊ .

ﾄｭ ｦ ﾚ			
		1.0	ﾄｭ ｦ ﾝ ﾚ Â

		ﾌ region ﾞ ｌ ｌ ﾊ ﾚ Â ｌ ﾞ ﾌ ﾊ ﾊ ﾊ

		Ю ﾌ instance 20 **gigabitethernet 0/1** ﾊ ｌ ﾝ 10 Switch(config)# **interface gigabitethernet 0/1** Switch(config-if)# **spanning-tree mst 20 port-priority 0** ﾚﾌ **show spanning-tree mst interface** ﾄｭ ｦ Э

ﾄｭ ｦ		**ﾄｭ ｦ**	
		show sanning-tree mst	ﾊ MSTP Â
		spanning-tree mst cost	
		spanning-tree mst priority	a ﾚ instance ｌ Â

spanning-tree mst priority

ﾌ Ю ﾄｭ ｦ ﾚﾌ instance ｌ Â no ﾚﾌ ﾄｭ ｦ Â
spanning-tree mst priority
no spanning-tree mst priority

			Instance ﾊﾞ ﾝ 0 63
			ｌ ﾞ ﾚ 0, 4096, 8192, 12288, 16384, 20480, 24576, 28672, 32768, 36864, 40960, 45056, 49152, 53248, 57344 Ո 61440 Â 16 ﾞ ｷ ﾝ 4096

		й 32768

Ъu ҙ		.

Ъu ҙ ↓			
		1.0	Ъu ҙ й ↓ Â

		Ю instance 20 ″l й 8192′ Switch(config-if)# **spanning-tree mst 20 priority 8192** ↓ Л∪ **show spanning-tree mst** instance **interface** Ъu ҙ Э

Ъu ҙ		Ъu ҙ	
		show spanning-tree mst	↑ MSTP Â
		spanning-tree mst cost	
		spanning-tree mst port-priority	a ↓ instance ↑ ″l

spanning-tree reset

spanning-tree й Â Ъu ҙ **no** Â
spanning-tree reset

	Ъu ҙ ↑ Â
	Ъu ҙ Â
Ъu ҙ	Â

Ъu ҙ ↓		
	1.0	Ъu ҙ й ↓ Â

show spanning-tree Ъu ҙ STP Â

Switch(config)# **spanning-tree reset**

Ъu ҙ	Ъu ҙ	
	show spanning-tree	STP Â
	show spanning-tree interface	STP ↑ Â

spanning-tree tx-hold-count

STP TxHoldCount ˘ ↓ BPDU Â ħυ ҃ **no**
Â

spanning-tree tx-hold-count

no spanning-tree tx-hold-count

Switch(config-if)# **spanning-tree pathcost method** long

Ъu ҳ	Ъu ҳ
show spanning-tree interface	STP ʎ Â

spanning-tree portfast

ʎ portfast Â ɻ ʃu Ъu ҳ disabled ʎ portfast Â

spanning-tree portfast [disabled]

disabled	ʎ portfast Â

Â

Ъu ҳ ʎ Â

Ъu ҳ ɻ	
1.0	Ъu ҳ ѝ ɻ Â

show spanning-tree interface Â

Switch(config)# **interface gigabitethernet 0/1**
Switch(config-if)# **spanning-tree portfast**

Ъu ҳ	Ъu ҳ
show spanning-tree interface	ʎ STP Â

spanning-tree portfast bpduguard default

BPDU guard Â ɻ ʃu Ъu ҳ **no** BPDU guard Â

spanning-tree portfast bpduguard default
no spanning-tree portfast bpduguard default

	Ъu ҳ ʎ Â

BPDU guard.

Ъu ҳ Â

Ъυ ϟ	⊿
1.0	Ъυ ϟ ѝ ϟ Â

BPDU guardď ѫ ∧ Э BPDUЎ ‡ error-disabled Â **show spanning-tree** Ъυ ϟ Â

Switch(config)# **spanning-tree portfast bpduguard default**

Ъυ ϟ	**Ъυ ϟ**
show spanning-tree interface	STP Â

spanning-tree portfast bpdufilter default

BPDU filter Â ⊿ Л Ъυ ϟ **no** BPDU filter Â

spanning-tree portfast bpdufilter default

no spanning-tree portfast bpdufilter default

	Ъυ ϟ ∧ Â
	BPDU filter
Ъυ ϟ	Â

Ъυ ϟ	⊿
1.0	Ъυ ϟ ѝ ϟ Â

BPDU filter ⊿ˇ ∧ a ⊿ ≠ a BPDU Â **show spanning-tree** Ъυ ϟ Â

Switch(config)# **spanning-tree portfast bpdufilter default**

Ъυ ϟ	**Ъυ ϟ**
show spanning-tree interface	STP Â

spanning-tree portfast default

∧ portfast Â Ъυ ϟ **no** ∧ portfast Â

spanning-tree portfast default

no spanning-tree portfast default

	Ъυ ҳ ٧ Â
	٧ portfast Â
Ъυ ҳ	Â
Ъυ ҳ ↓	
	1.0 Ъυ ҳ ѝ ٦ Â
	show spanning-tree interface Â
	Switch(config)# **spanning-tree portfast default**
Ъυ ҳ	**Ъυ ҳ**
	show spanning-tree interface STP Â

speed

٧ Â Ъυ ҳ **no** Â

speed {10 | 100 | 1000 | auto }

no speed

10	٧ ѝ 10 / Â
100	٧ ѝ 100 / Â
1000	٧ ѝ 1000 / Â
auto	٧ ѝ Â

Â

Ъυ ҳ ٧ ^ Л∪ ٧ à Ap ٧ ~

Ъυ ҳ ↓	
	1.0 Ъυ ҳ ѝ ٦ Â

Ю ҳ	Ю ҳ
show interfaces	∧ ∩ Â

speed(console)

ср ∧ Â Ю ҳ **no** Â S35 ∧ Â

speed

no speed

	∧ ˘ 9600 â19200 â38400 â 57600 ˘ Æ BPS Â
	9600 Â
Ю ҳ	Â
Ю ҳ ∠	
1.0	Ю ҳ ѝ ∟ Â
	˘ ‡ ∠ ∧ ЛЦ Â **show line console** Ю ҳ Â
	Ю ѝ 57600BPS' Switch(config)#**line console** 0 Switch(config-line)#**speed** 57600

Ю ҳ	Ю ҳ
line	ср˘ Â
show line console	∧ Â

standby authentication

VRRP ˘ Ю ҳ **no** Â

standby [ ] **authentication**

no standby [ ] **authentication**

	VRRP ID Â ىں 1-255˜
	˘ 8

	ѝ Â
ƚυ ҙ	∧ Â

ƚυ ҙ ↓	
1.0	ƚυ ҙ ѝ ↓ Â

	Switch(config-if)# **show** 1 **authentication** start

ƚυ ҙ	ƚυ ҙ
show standby	VRRP

standby ip

ƚυ ҙ VRRP ╖ , ƚυ ҙ **no** ↓ Â

standby [ ] **ip**

no standby [ ] **ip**

	VRRP ID Â ﺘﻦ 1-255˜
	VRRP IP ﻓﺦ ﺳﻢ

VRRP ID ѝ 0

ƚυ ҙ	∧ Â

[ÂAv

standby preempt

ĥυ ҳ ѝ , ĥυ ҳ **no** ѝ Â
standby [ ] **[priority**] **preempt**
no standby [ ][**priority**] **preempt**

	VRRP ID Â ىَ 1-255˜
	˝ǀ

ѝ Â

ĥυ ҳ ٧ ÂÂ

ĥυ ҳ ٦	
1.0	**ĥυ ҳ** ѝ ٤ Â

show standby ĥυ ҳ

Switch(config-if)# **standby** 1 **preempt**

ĥυ ҳ	**ĥυ ҳ**
show standby	VRRP

standby priority

ĥυ ҳ VRRP ˝ǀ , ĥυ ҳ **no** Â
standby [ ] **priority** [**preempt**]
no standby [ ] **priority** [**preempt**]

	VRRP ID Â ىَ 1-255˜
	˝ǀ Â ىَ 1-255˜

˝ǀ ѝ 100

ĥυ ҳ ٧ Â

ĥυ ҳ ٦	
1.0	**ĥυ ҳ** ѝ ٤ Â

	Ю ă Ո ⁸ ╗ ѓ Â
ћu ҙ	∧ Â
ћu ҙ ↓	
1.0	ћu ҙ и ↓ Â
	∧ Э à ˘ ˘ ↓ Ո ╗ Â ↓ Â ↓ Л∪ ă Ո ⁸ Â à ˘ ص ↓ ^ ↓ ˜ Â **show storm-control ћu ҙ** Â
	Ю ∧ gigabitethernet 0/1 Э ⁸ ╗ ' Switch# **configure terminal** Switch(config)# **interface gigabitethernet 0/1** Switch(config-if)# **storm-control multicast**
ћu ҙ	**ћu ҙ**
	show storm-control ⁸ Â

summary-address

ћu ҙ ∧ تن ˘ ћu ҙ no ↓ Л∪ ∧ تن Â
summary-address [advertise | not-advertise]
no summary-address

	IP فخ سم Â
advertise	Ώ ˆ ∧
not-advertise	a Ώ ˆ ∧
	∧ تن Â
ћu ҙ	OSPF Â
ћu ҙ ↓	
1.0	ћu ҙ и ↓ Â

Switch(config-router)# **summary-address 211.0.0.0 255.0.0.0**

ЪЧ ЗЁ	ЪЧ ЗЁ
area nssa	ЪЖ nssa Ш ЖЖ
redistribute	ЁЗ ЧЁ ЄЁ
show ip ospf summary-address	ЯЁ ЗЯ ЗЁ ЗЁ Â
area default-cost	stub nssa metric Â

switchport

ЖЗ ЯЁ ЗЮ a ЯЁ **switchport** ЪЧ ЗЁ˘ ЯЁ ЗЙ 2 Â a ЯЁ **no switchport** ЪЧ ЗЁ ЯЁ ЗЙ 3 Â

switchport

no switchport

	ЪЧ ЗЁ ЯЁ Â
	ЖЗ ЗЮ ЯЁ ЖЗ 2 ЗЮ Â
ЪЧ ЗЁ	ЯЁ Â
ЪЧ ЗЁ ЯЁ	
	1.0 ЪЧ ЗЁ ЙЁ ЧЁ Â

ЪЧ ЗЁ ЯЁ ЯЁ ЯЁ Â switchport ЪЧ ЗЁ ЯЁ ˘ ЖЗ ЧЁ Â ЯЁ ЗЯ 2 ЁЗ 3 ˘ ЯЁ 2 Â

Switch(config-if)#**switchport**

ЪЧ ЗЁ	**ЪЧ ЗЁ**

switchport access

ЪЧ ЗЁ ЯЁ ЙЁ statics accessport˘ ЙЁ VLAN ˜ ЯЁ Â ЪЧ ЗЁ **no** ЯЁ VLAN Â

switchport access vlan

no switchport access vlan

	vlan ٧ ╗ VLAN ID Â
	switch port ٸ access˘ VLAN ٸ VLAN 1
Ъυ ٶ	٧ Â
Ъυ ٶ ٦	
	1.0 Ъυ ٶ ٸ ٦ Â
	VLAN ID Â VLAN ID˘ ‡ … VLAN˘ ٧ ٸ VLAN ˜ Â ج VLAN ID˘ ‡ ╗ VLAN ˜ ٧ Â ٧ trunkport˘ ‡ Â
	Switch(config)#**interface gigabitethernet** 0/1 Switch(config-if)#**switchport access vlan** 2
Ъυ ٶ	Ъυ ٶ
	switchport mode γ ٧^ switch port˜ Â
	switchport trunk ٸ trunkport native VLAN Ω Trunk ٧ ٦ VLAN Â

switchport mode

Ъυ ٶ γ ٧^ switch port˜ ˘ ٦ Л ٧ ٸ access port ٸ trunk port Â
Ъυ ٶ **no** ٧ ٸ Â
switchport mode {access | trunk}
no switchport mode

access	switch port ٸ access port Â
trunk	switch port ٸ trunk port Â

switch port _ ى Ї ∩ Ґ º ë م

switch port trunk‡ VLAN

Switch(config-if)# **switchport port-security**
Switch(config-if)# **switchport port-security violation shutdown**

show port-security	

switchport port-security aging

switchport port-security aging {static | time }
no switchport port-security aging {static | time }

static	
time	

1.0	

no switchport port-security aging time **no switchport port-security aging static** **show port-security**

Switch(config)# **interface gigabitethernet 0/1**
Switch(config-if)# **switchport port-security aging time 8**
Switch(config-if)# **switchport port-security aging static**

show port-security	

switchport port-security mac-address

ٴ ٴ Â ъ no ٴ ˘ ٴ ٴ Â

switchport port-security [**mac-address** [**ip-address**]] | [**maximum**]

no switchport port-security [**mac-address**] | [**maximum**]

mac-address	ٴ Â
ip-address	ٴ IP Â
maximum	ٴ Â

Â

ъ ٴ Â

ъ

1.0 ъ ٴ Â

ٴ Э 24 IP Ո MAC ٴ

˘ ٴ Э 120 IP Ո MAC ٴ

Â ٴ ˘ IP Ո MAC ٴ

б ACL ٴ Э ˘

ٴ Э ACL 802.1x ˘ IP

˘ ‡ ٴ Э IP ٴ Â

Ю ٴ gigabitethernet 0/1 '

00d0.f800.073c˘ ٴ IP ' 192.168.12.202'

Switch# **configure terminal**

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

Switch(config)# **interface gigabitethernet 0/1**

Switch(config-if)# **switchport mode access**

Switch(config-if)# **switchport port-security**

Switch(config-if)#**switchport port-security mac-address** 00d0.f800.073c **ip-address** 192.168.12.202

ъ	
show port-security	ٴ Ո Â

switchport priority

802.1q ٴ ″ Â ъ **no** Â

switchport priority default

default	٨ ″I Â تن 0 7Â
	0Â
Ъυ ҙ	٨ Â
Ъυ ҙ ↙	
1.0	Ъυ ҙ и ↳ Â

show interfaces

switchport trunk

ѝ trunkport native VLAN Ո Trunk ٨ ۔ VLAN Â Ƅʊ ҳ **no**

Ю VLAN 2 ÿ ∧ 0/1 '

```
Switch(config)# interface gigabitethernet 0/1
Switch(config-if)# switchport trunk allowed vlan remove 2
Switch(config-if)# end
Switch# show interfaces gigabitethernet 0/1 switchport
Name: Gi0/1
Switchport                    :    Enabled
Administrative Mode           :    trunk
Access Mode VLAN              :    2
Trunking Native VLAN          :    1
Trunking VLANs Enabled        :    1,3-4094
```

Ъч	Ъч
show interfaces	∧ Â
switchport access	∧ й statics accessportў й VLAN ў ∧ Â

telnet

Â ж Ю **exit** Ъч ⊣Л ы Â

telnet

	IP эфзсм ў й ∫ 8 Â

Ъч

Ъч ⊣	
1.0	Ъч й ⊣ Â

ж Э ⊣Л Ъч ⊣ ⊣ Э Â ∧ **terminal monitor**
ÿ Э ыў ж Ю **exit** Ъч Â

Ю Ъч ÿ IP эфзсм й 192.168.65.1 Э ∨ Â Switch#**terminal monitor**

```
Switch# telnet 192.168.65.1
```

Ъч	Ъч

terminal monitor

Â Ø no Â

terminal monitor

no terminal monitor

	Ø Â
Ø	
Ø	
	1.0 Ø Â
	terminal monitor Ø Â
	Switch#**terminal monitor**
Ø	Ø
	show logging

timers basic

RIP Â Ø **no** Â

timers basic

no timers basic

	Æ Â
	update 9 Ø Æ Â
	Æ Â
	update 30 invalid 180 holddown 120 Â
Ø	RIP Â
Ø	

1.0	ħυ ҳ ӣ ↓ Â

show ip protocols ħυ ҳ RIP Â

update ӣ 20ʹ invalid ӣ 80ʹ flush ӣ 200ʹ

Switch(config)# **ip routing**

Switch(config)# **router rip**

Switch(config-router)# **timers basic** 20 80 200

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1.0	Ъu ҙ и ч Â

Traceroute Ъu ҙ ѫш
IP ѫш фд Ո ‡ Ի * Ւ

```
Switch>traceroute  192.168.64.10
Type esc/CTRL^c/CTRL^z/q to abort.
 1    1ms    1ms    1ms    192.168.65.1
 1    1ms    1ms    1ms    192.168.64.10
Trace complete successfully.
```

Ъu ҙ	Ъu ҙ

validate-update-source

Ъu ҙ ї IP ѫш фд Â Ъu ҙ **no** IP ѫш фд Â
validate-update-source
no validate-update-source

Ъu ҙ ч Â	

IP ѫш фд Â

Ъu ҙ	RIP Â

Ъu ҙ ч	
1.0	Ъu ҙ и ч Â

show ip protocols Ъu ҙ RIP Â

```
Switch(config)# ip routing
Switch(config)# router rip
Switch(config-router)# validate-update-source
```

Ъu ҙ	Ъu ҙ
ip routing	IP Â
router	RIP ╖ ˘ RIP Â
show ip protocols	ҷ IP Â

version

RIP ˩ Ո Â ƫ ʒ no ˥ Â

version

no version

	1' ˩ Ո 1 RIP Â 2' ˩ 2 RIP Â
	˧ ч RIP ˘ 1 Ո 2 ˘ ˩ 1 Â
ƫ ʒ	RIP
ƫ ʒ ˧	
1.0	ƫ ʒ ˥ ˩ Â
	ƫ ʒ ^ ˦ ˜ RIP Ո ˩ ˘ ˧ ˩ Ճ ˦ ч RIP Â ˦ Ո ˩ ˘ ‡ ˦ Â **show ip protocols** ƫ ʒ RIP ˘ Â
	˦ ˩ Ո 2 RIP ' Switch(config)#router rip Switch(config-router)# **version 2**

ƫ ʒ	
ip rip receive version	˦ RIP Â
ip rip send version	˦ RIP ˩ Â
show ip protocols	ج IP Â

vlan

ƫ ʒ VLAN ƫ ʒ Â ƫ ʒ no VLAN Â

vlan

no vlan

1.0	

end **Ctrl+C**

exit

show	**vlan**	V	L A

write memory

ٰ ˚ ٱ Â **n** **o**

write [memory]

config.text Â

1.0	

config.text˘ a ˘ ╟ ˚ Â

copy	
delete	Э ˚ Â
show configuration	˚ Â

wrr-queue bandwidth

ٰ Â **n** **o**