



Web

RGOS 10.3(4b6)p2

©2000-2012

III

III
III
III
III
III
III



III

III

III

III

<http://www.ruijie.com.cn/> III

III
III
III

<http://webchat.ruijie.com.cn>III

8:30 6 1 1 4

RGOS®10.3 (4b6)p2 III

1 Web

1.1

Web
III

III

PC

Web

1-1

III



III PC IP 192.168.201.122/255.255.255.0 PC Web

HA() HA
IP FW-FAILOVER-SCG.doc AS
FW-FAILOVER-AA-SCG.doc AA III

:

1

VLAN 3III GigabitEthernet 1/1 Access VLAN 2III

Firewall# configure terminal

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

Firewall(config)# **vlan 2**

Firewall(config-vlan)# **exit**

Firewall(config)# **interface GigabitEthernet 1/1**

Firewall(config-if)# **switchport access vlan 2**

Firewall(config-if)# **exit**

4 TenGigabitEthernet 4/1 TenGigabitEthernet
4/2 () Aggretegateport 4

Firewall(config)# **interface TenGigabitEthernet 4/1**

Firewall(config-if)# **port-group 4**

Firewall(config-if)# **exit**

Firewall(config)# **interface TenGigabitEthernet 4/2**

Firewall(config-if)# **port-group 4**

Firewall(config-if)# **exit**

Aggretegateport 4 Trunk VLAN 2 III

Firewall(config)# **interface Aggretegateport 4**

Firewall(config-if)# **switchport mode trunk**

Firewall(config-if)# **switchport trunk allowed vlan remove 1,3-4094**

2

Firewall(config)#**interface vlan 2**Firewall(config-if)#**ip address 192.168.201.1 255.255.255.0****3 http/https****http**Firewall(config)# **enable service web-server http****https**Firewall(config)# **enable service web-server https****4 Web local**Firewall(config)# **ip http authentication local**

5

Firewall(config)# **user admin password admin****15**Firewall(config)# **user admin privilege 15**

6

Firewall(config)# **service password-encryption**

CLI

III

III

(1) Web local III

(2) admin III

3 admin III

4 III

5

IE 8.0

IP 192.168.201.1
l admin

< >

Web
III

1-2 III



1-2

1.3 Web

Web

< >

Web III

1.4

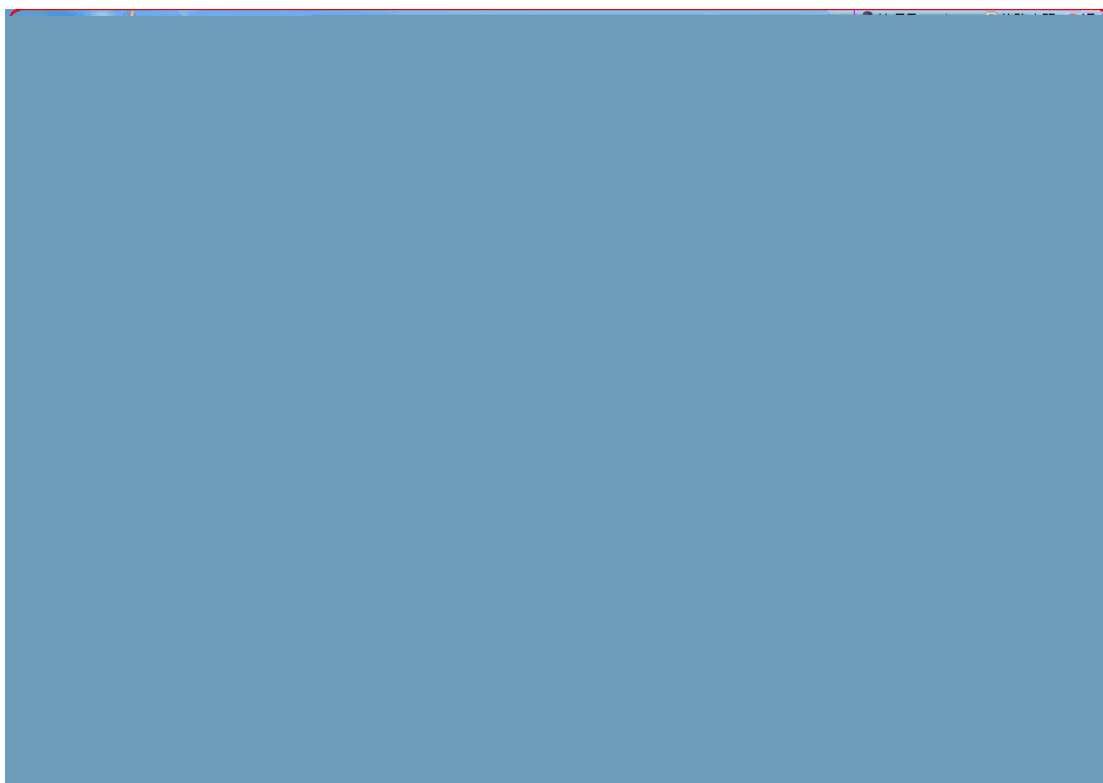
Web

1

2

1-3

III



1-3 Web

2

CPU

Web

I

L

2-1

III

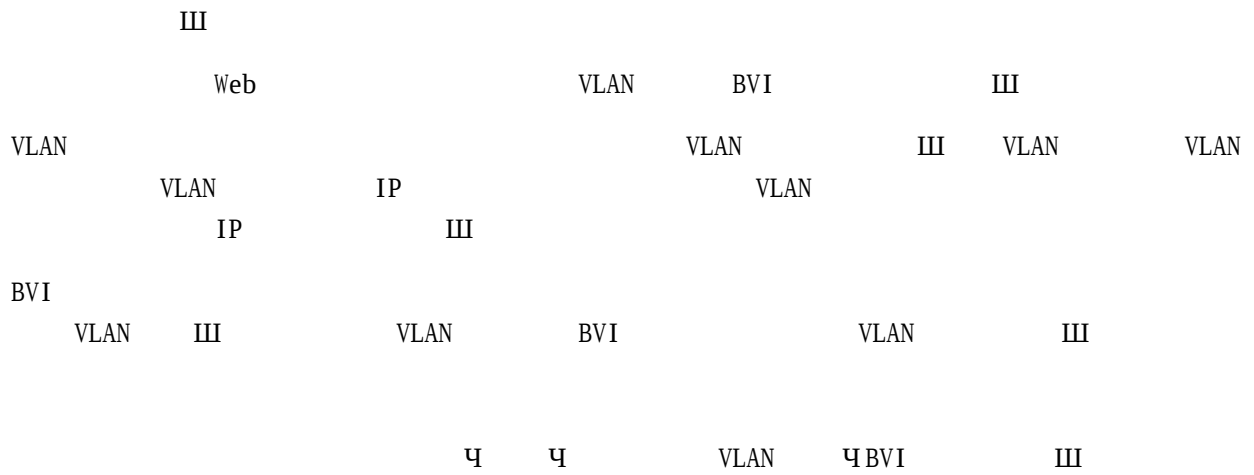
III



2-1

3

4



3.1 VLAN

3.1.1 VLAN



3-1 VLAN

	VLAN
IP /	IP DHCP IP III IP
	UP: DOWN:



+ ...

-

	ACL		ACL	ACL
		in/out	ACL	
ACL				

描述：

状态：☒ 启用 ☐ 禁用

确定 取消

3-2 VLAN

VLAN ID	VLAN ID
IP	IP IP IP IP IP
IP	VLAN IP IP 1 2 III IP III
IP	VLAN IP IP 1 2 III IP III IP 1 2 IP III

3.2 BVI

3.2.1 BVI

1 > 1 VLAN III 1 1
III 3 3 III



3-3

	VLAN IIIVLAN VLAN IP III

IP /	IP PPP IP III IP
	UP: DOWN:
	+ ... - IP IP 4 4 PPP ACL in/out ACL ACL ACL IP IP

3.2.2 BVI

BVI

3-3

f

L

3-4

添加桥组

*桥组ID: (1-500)

请选择接口:

所有接口

- Vlan 1
- Vlan 2
- Vlan 3
- Vlan 4
- Vlan 5
- Vlan 6
- Vlan 7
- Vlan 8

增加->

<-移除

已选接口

IP配置: ☐ 无IP配置 ☒ 静态地址 ☐ PPP协商

IP地址:

掩码: ☒ 配置从IP ☐ 配置双机热备

※从IP地址必须与主IP地址位于不同网段

从IP地址: 掩码:

描述:

状态: ☒ 启用 ☐ 禁用

3-4

ID	ID, 1-500

IP /	IP III
IP /	Ł IP IP III IP III ı

4

4.1

4.1.1

IP III
ip IP
III IP
III III

4.1.2

I > L III 4-1 III

防攻击配置

会话和流量限制

防攻击黑名单

攻击日志

提示：列入黑名单的主机，将不能访问外网。当系统检测到来自某主机的攻击行为时，也会自动将该主机列入黑名单。

主机IP 地址： 添加方式：

所有方式

 搜索

防攻击黑名单列表

手动添加黑名单

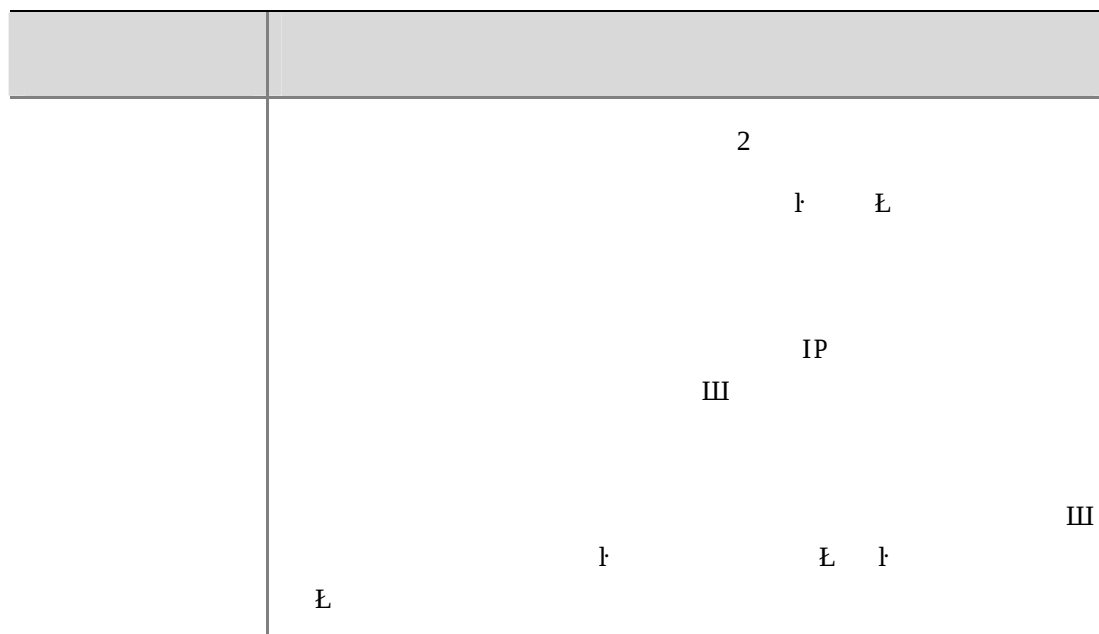
刷新

主机IP 地址	有效时间	添加方式	操作
100.0.0.100	永久有效	手动添加	删除 刷新

1 页 下一页 末页 50 1 - 1 共 1 条 首页 上一页 1 共

4-1

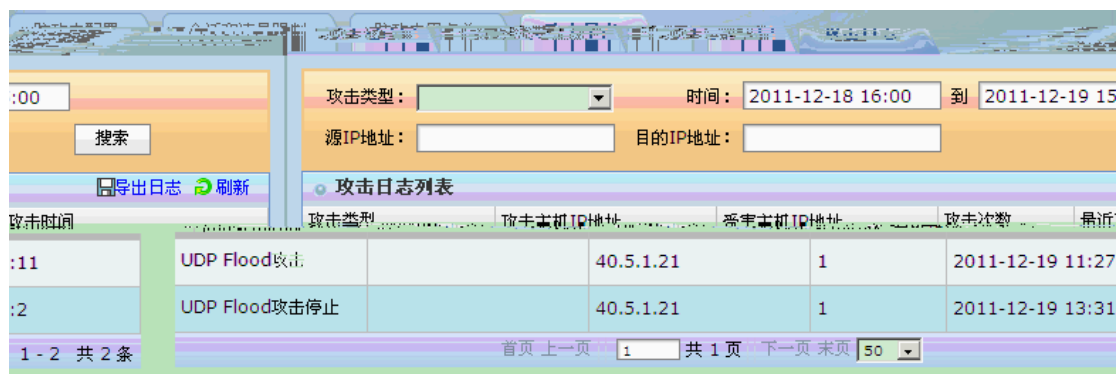
IP	IP



III

4.1.3

4-1



4-3

	SYN FLOOD
	UDP FLOOD
	ICMP FLOOD
	IP
IP	IP IP IP
IP	IP SYN FLOOD UDP

flow flood

ip ip

udp flood

III icmp flood
III

4.3.2

4-4 III I > L I L III

防攻击配置			
会话和流量限制			
防攻击黑名单			
攻击日志			
会话和流量限制列表			
+添加 ×删除			
主机范围	例外主机	规则	操作
192.168.3.0/255.255.255.0	192.168.3.25/255.255.255.255	每IP带宽限制：流入(in):1000000 流出(out):1000000	修改 ×删除
7.0.0.0/255.0.0.0 119.75.218.77/255.255.255.255 224.0.0.0/255.0.0.0 172.2.1.0/255.255.255.0 172.1.0.0/255.255.0.0 119.75.217.56/255.255.255.255 6.6.6.66/255.255.255.255	7.2.3.11/255.255.255.255	每IP带宽限制：流入(in):10000000 流出(out):10000000 每IP会话建立速率限制：流入(in):100000 流出(out):100000 每IP会话总数限制：流入(in):1000000 流出(out):1000000	修改 ×删除

4-4

	IP			
	I	L	III	
	IP	/	IP	
/	IP		/	
		IP		IP

4.3.3

III 4-4 I L 4-5



Land	Land SYN-ACK Land Windows NT TCP SYN IP III ACK III UNIX III
Smurf	Smurf III ICMP Smurf III ICMP III III III Smurf III Fraggle III ICMP III
Winnuke	WinNuke NetBIOS NetBIOS 139 Windows OOB out-of-band III
SYN Flood	SYN Flood ACK TCP/IP SYN-ACK TCP SYN III III SYN Flood III III
ICMP Flood Flood	ICMP ping UDP UDP III
	III

TCP



4-7



: 上 上



III

TCP 4 UDP ICMP

TCP

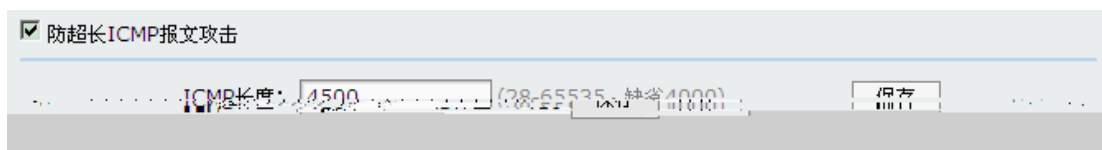
UDP

4-8 IP FLOOD

IP FLOOD	: 1 IP FLOOD L 1 IP FLOOD L
	pps
	IP FLOOD

4.4.4.2 ICMP

4-9



4-9 ICMP

ICMP	: 1 ICMP L 1 ICMP L
ICMP	ICMP 4000 bytes byte

4.4.4.3 SYN FLOOD

4-10

☒ 防SYN Flood攻击

返回顶部

+增加受保护IP +引用ACL ×删除

☐ 受保护主机IP ACL名称	速率阈值 pps(每秒包数)	操作
☐ audp	12	修改 ×删除
☐ 12.2.1.0/255.255.255.0	12	修改 ×删除
☐ 1	1000	修改 ×删除
☐ z2	11	修改 ×删除

☐ 记录日志

4-10 SYN FLOOD

SYN FLOOD	SYN FLOOD SYN FLOOD
IP ACL	SYN FLOOD IP ACL ACL ACL III III
	SYN FLOOD SYN FLOOD

Web

SYN Flood

1

IP

2

ACL

IP

III

1)

SYN

4-11

添加SYN报文限速

X

* 受保护主机IP范围:

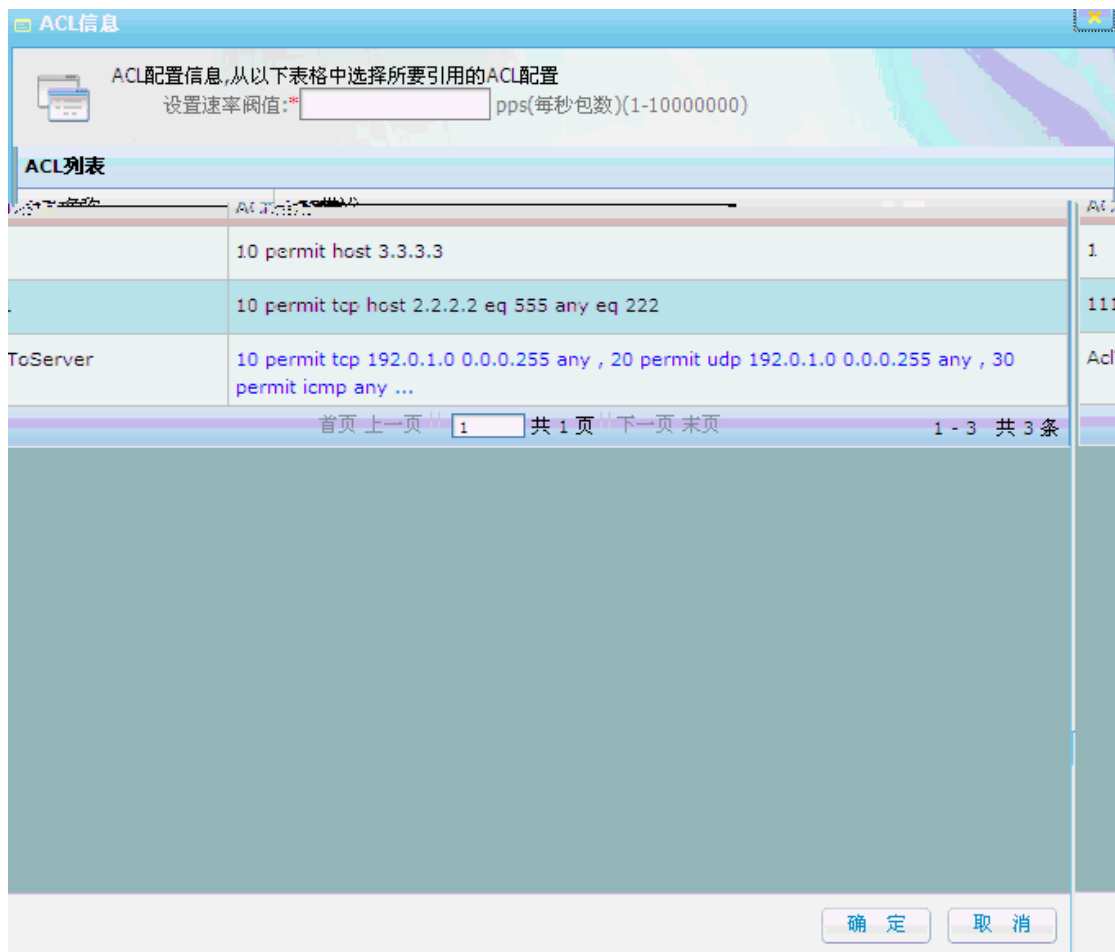
添加

* 速率阈值:

pps(每秒包数)(1-10000000)

确定

取消



4.4.4.4 UDP FLOOD

4-12



4-12 UDP FLOOD

UDP FLOOD	1 UDP FLOOD 2 1 UDP FLOOD 2
IP	UDP FLOOD IP III ACL ACL III ACL
	UDP FLOOD III UDP FLOOD III
	1 2 UDP FLOOD 1 2

III UDP Flood 1 IP ;2) ACL

1 1 2 1 UDP FLOOD 2 III 4-13



4-13 UDP FLOOD

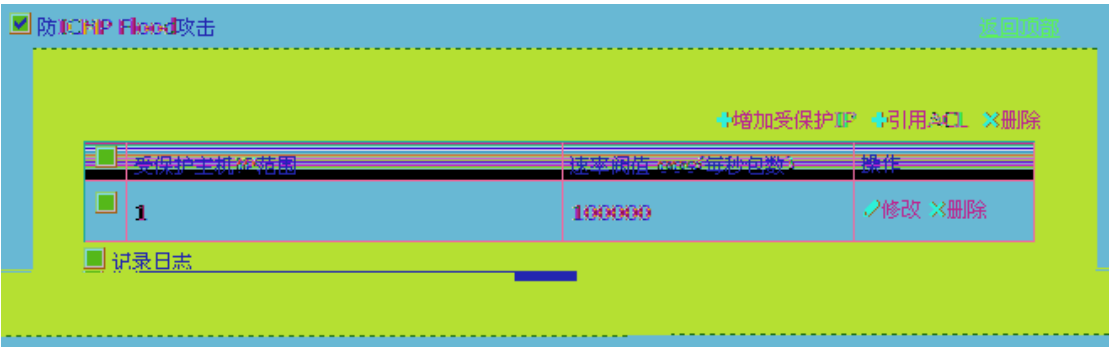
--	--

IP	UDP FLOOD III IP
	III UDP FLOOD III

2 ACL 4.4.5.3 III

4.4.4.5 ICMP FLOOD

4-14



4-14 ICMP FLOOD

ICMP FLOOD	ICMP FLOOD ICMP FLOOD
IP	ICMP FLOOD ACL ACL IP III ACL III ACL
	ICMP FLOOD III ICMP FLOOD III

	1 2 ICMP FLOOD
	1 2

ICMP Flood 1 IP;2) ACL

1) 1 ICMP FLOOD 2 III 4-15

添加防ICMP Flood攻击

* 受保护主机IP范围:

添加

* 速率阈值:

pps(每秒包数)(1-10000000)

确定

取消

4-13 ICMP FLOOD

IP	ICMP FLOOD III IP
	III ICMP FLOOD III

2 ACL 4.4.5.3 III

5

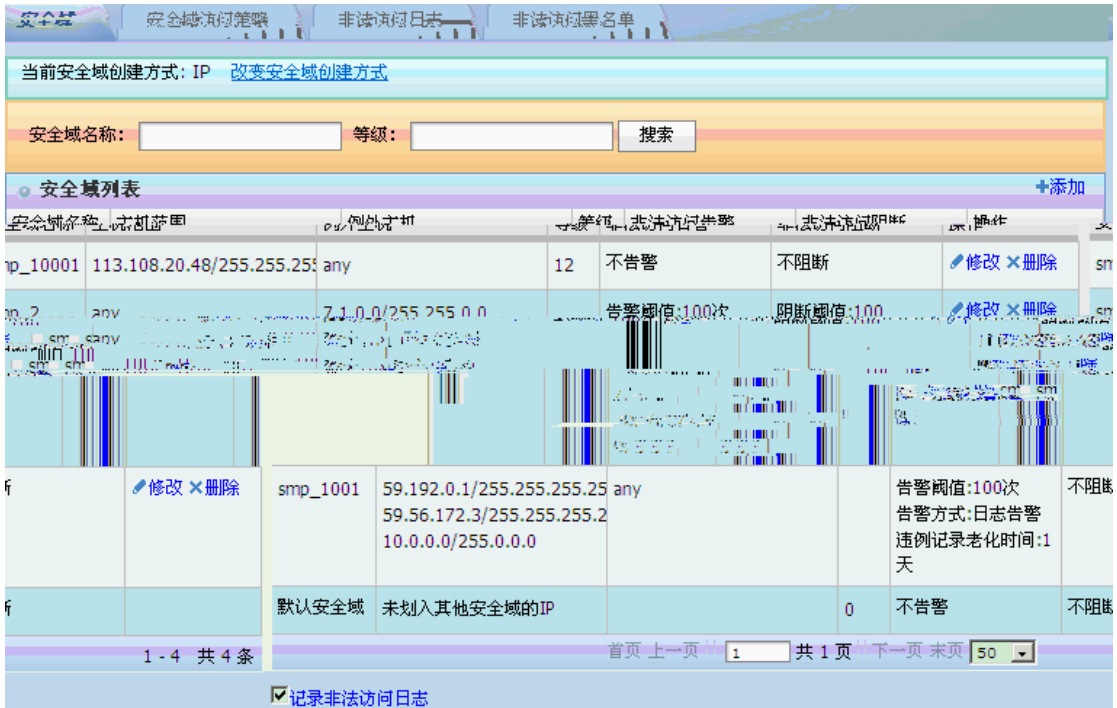
Ч Ч III III III

5.1

1		IP
2		default t III default default default default III
3		III

5.2

т > Ł III 5-1 III



5-1

I L 5-2 III



5-2

IP	IP

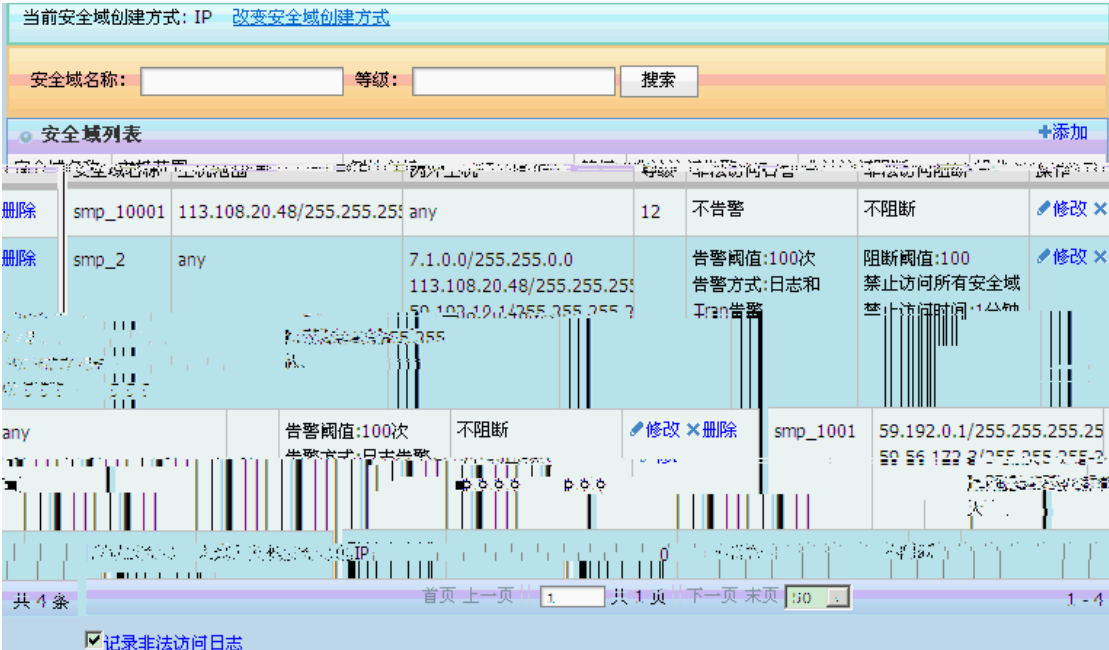


III

5.3 IP

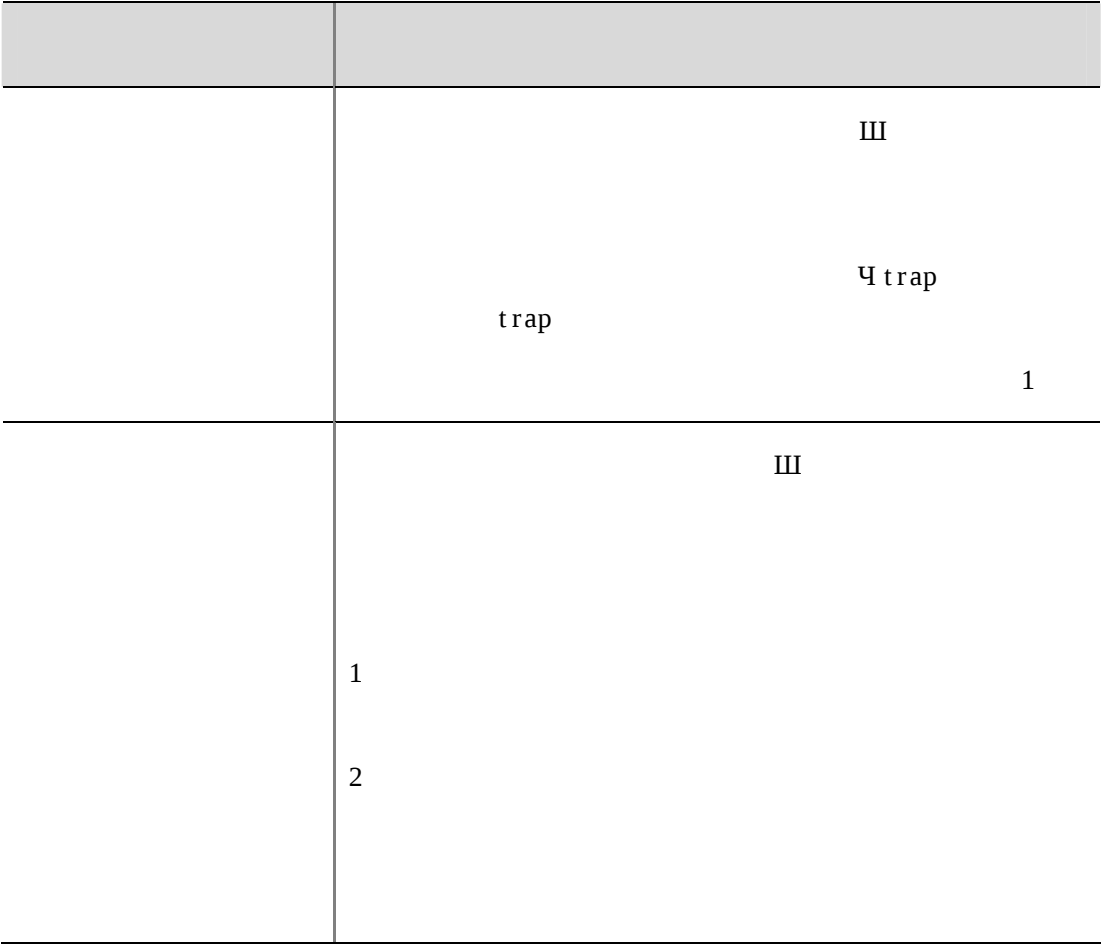
5.3.1

I IP L IP 5-3 III



5-3 IP

	IP
	III IP
I L	III
	III



5.3.2

5-3 f Ł 5-4 III



5-5

	any	IP III	any III

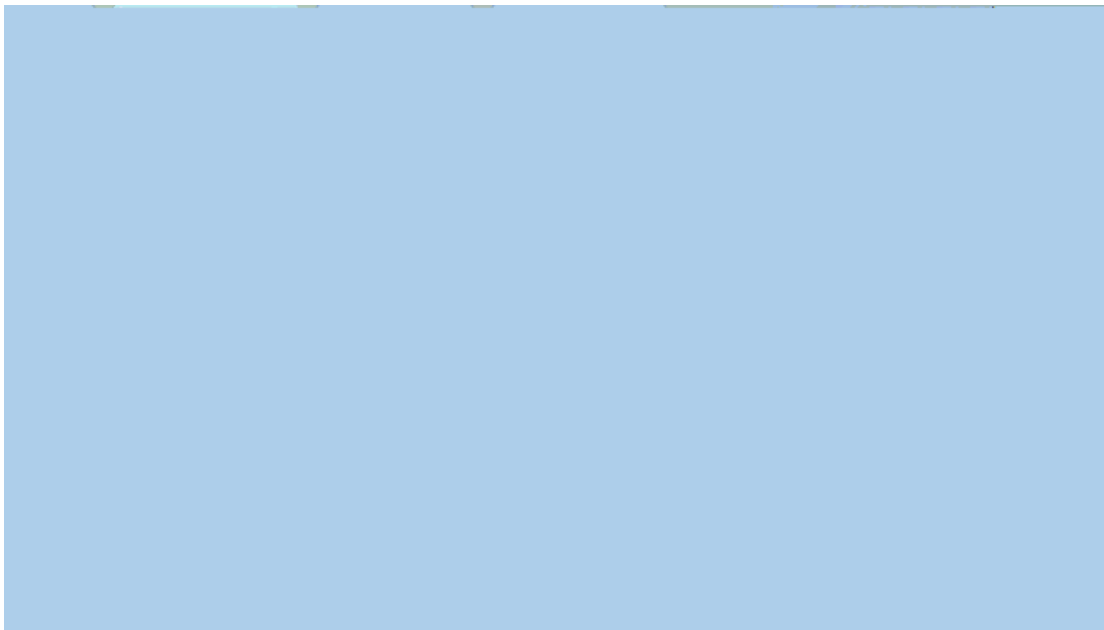


5.3.3

1)

I > III I III I I

5-6 III



5-6

	III
A → B:	A B
A ← B:	B A
A ↔ B:	A B
A × B:	A B
	III III
A → B:	A B
A ← B:	B A

2)

III 5-6 III

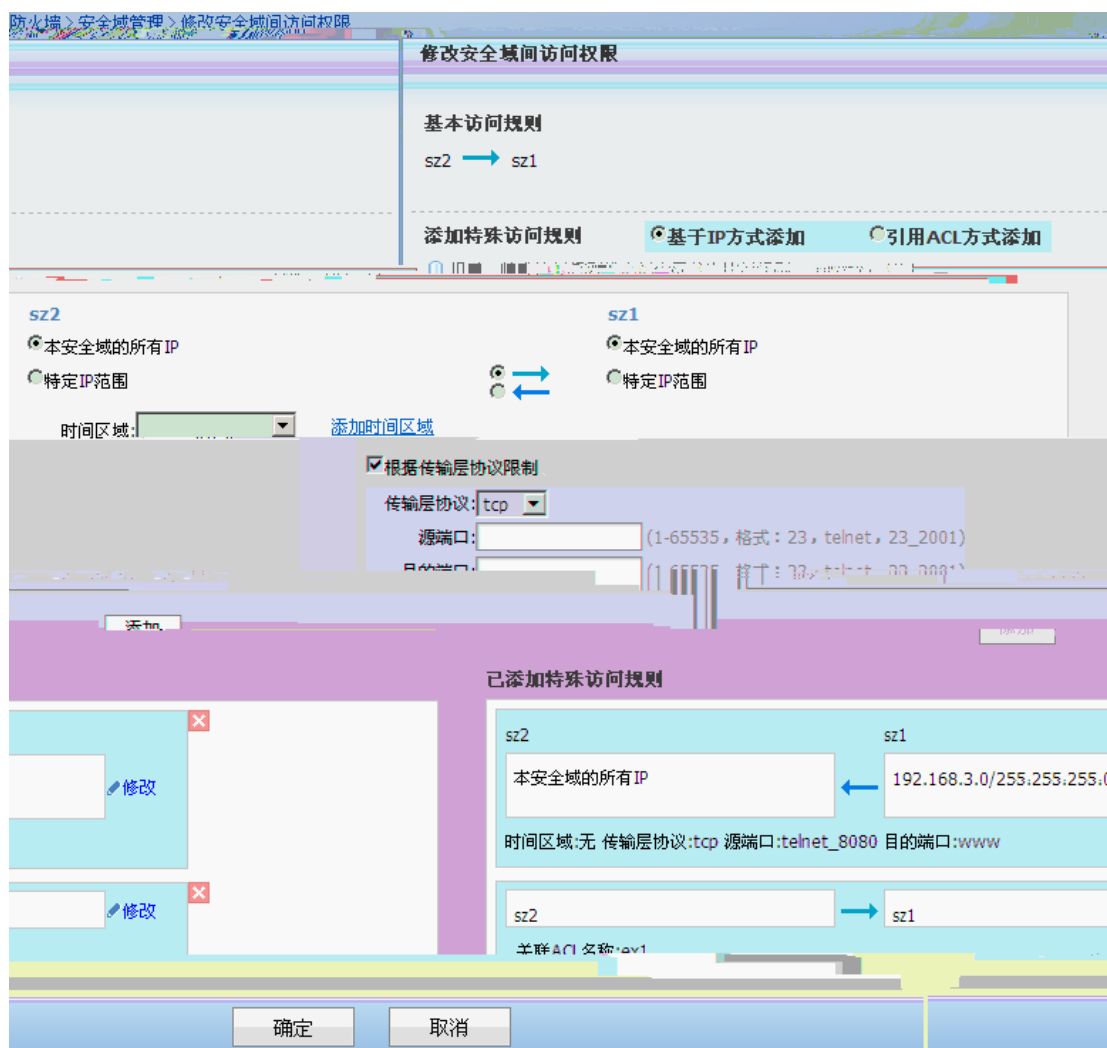
☐ 允许同一安全域内互访	☐ 允许同等级安全域间互访	修改
-------------------------------------	--------------------------------------	----

III

5-6 III

☐ 允许同一安全域内互访	☐ 允许同等级安全域间互访	修改
-------------------------------------	--------------------------------------	----

5-7 5-6
III



5-7

2

IP

IP

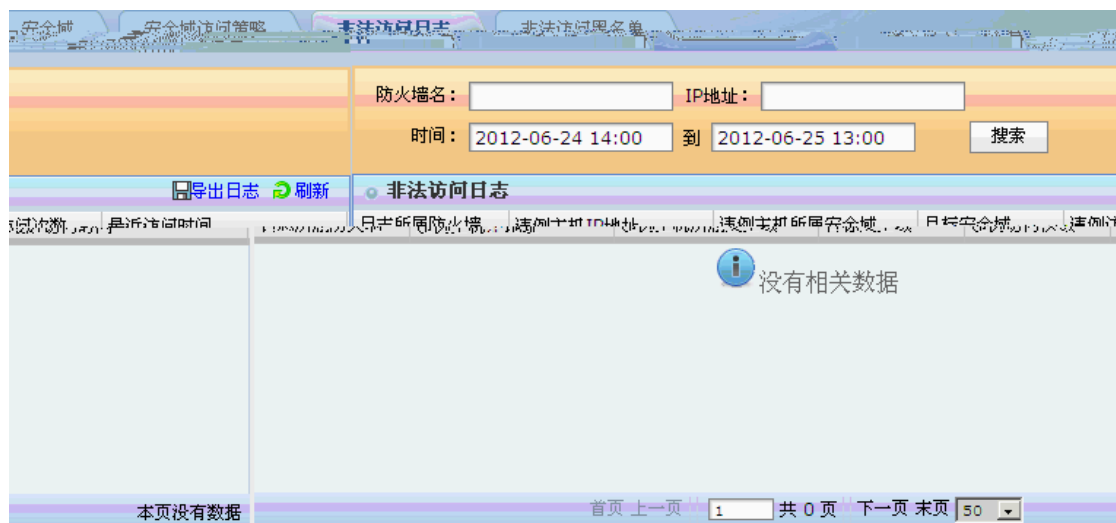
ACL

ACL

ACL

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5-8

	III
	III
IP	IP

I > L III I L
5-9 III

安全域

安全域访问策略

非法访问日志

非法访问黑名单

主机IP 地址：

安全域名称：

搜索

非法访问黑名单

解除全部

刷新

违例主机IP地址	非法访问的安全域	违例处理方式	禁止访问时间	操作
没有相关数据				

首页

上一页

1

共 0 页

下一页

末页

50

本页没有数据

5-9

IP	IP

5.4

5.4.1

I L 5-10 III

安全域

基本配置

* 安全域名称：

(字母,数字,下划线,最长不超过16个字符)

* 接口范围：

所有接口

Vlan 2

Vlan 3

Vlan 4

Vlan 5

Vlan 6

BVI 12

增加->

<-移除

已选接口

* 安全域等级：

(1到100，数值越高，优先级越高)

确定

取消

5-11

	III
	, , , 16
	III
	III

5.4.3

IP

5.2.2.3

IP

1)

5.2.2.3

2)

5.2.2.3

6 ACL

ACL Access Control List
III

ACL (Access Control Entry ACE)III
III
ч ч III

6.1

ACL

1	ACL	ACL ACL
2	ACE	ACL ACE ACE III III III

6.2 ACL

т > ACL Ł ACL III 6-1 III

IP ҫ	ACE III ACL III IP
IP ҫ	ACE III ACL III IP
	ACE III ACE III III

ACE

ACE

ACE

ACE

ACE

ACE

ACE

ACE

6.3 ACL

ACL

6 1

I

ACL L

ACL

6 2

III

添加ACL

提示：

1. 支持字符命名：包括字母，数字和下划线，但不能以数字作为名称的开头。

2. 支持数字编号命名：标准ACL：1-99，1300-1999；扩展ACL：100-199，2000-2699。

*ACL名称：

标准ACL

扩展ACL

ACL 100

ACL 101

ACL 102

ACL 103

ACL 104

ACL 105

ACL 106

ACL 107

ACL 108

ACL 109

ACL 110

ACL 111

ACL 112

ACL 113

ACL 114

ACL 115

ACL 116

ACL 117

ACL 118

ACL 119

ACL 120

ACL 121

ACL 122

ACL 123

ACL 124

ACL 125

ACL 126

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ACL 180

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ACL 182

ACL 183

ACL 184

ACL 185

ACL 186

ACL 187

ACL 188

ACL 189

ACL 190

ACL 191

ACL 192

ACL 193

ACL 194

ACL 195

ACL 196

ACL 197

ACL 198

ACL 199

Vlan 91

in 方向

添加

确定

取消

确定

6.2 ACL

ACL	ACL III ACL 1-99 1300-1999 ACL 100-199 2000-2699 III
ACL	ACL IP 1-99 1300 - 1999 IP ACL IP 100-199 2000-2699 III
	ACL in ACL ACL ACE out ACL ACL ACE III

Web IP IP III IP
 MAC MAC Expert III
 CLI III

6.4 ACE ACL

ACL ACE 2
 ACL ACE ACL IP
 ACL ACE ACL IP IP

III

ACE

1. ACE

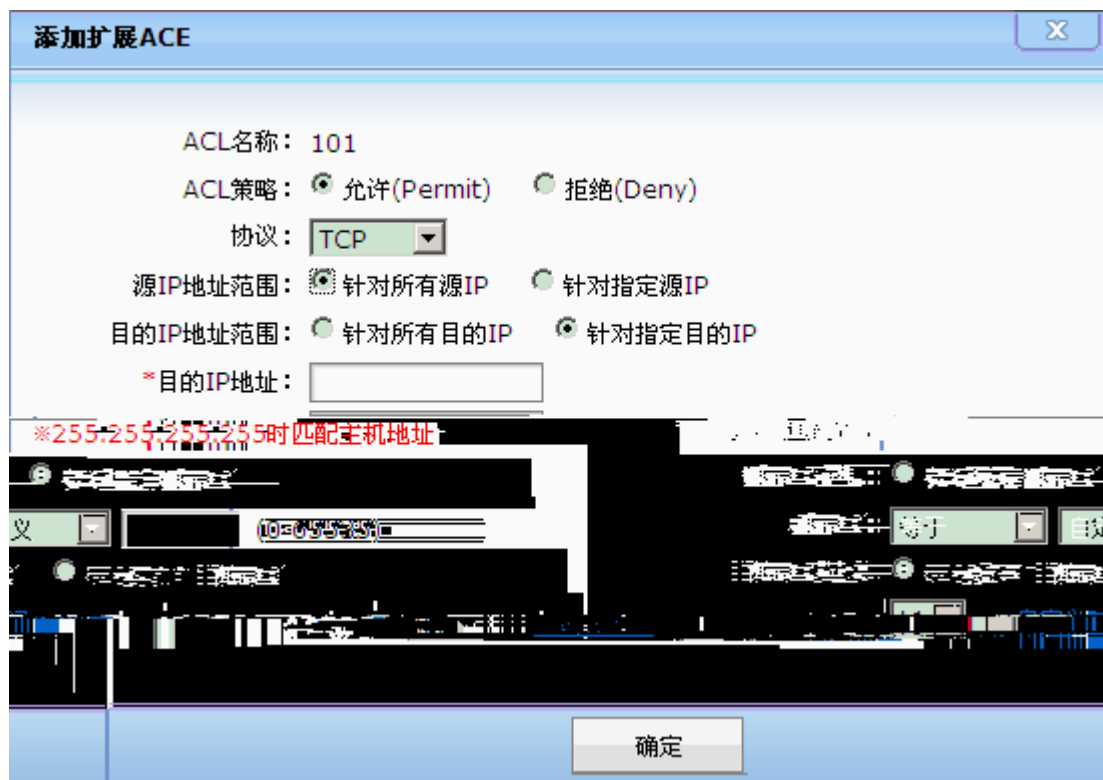
2. f L “ ”
IIIIII “
III1) ACL ACE
ACL ACE 6 1 ACE ACL ACE f ACE L
ACE 6 3 III

6 3 ACE

ACL	ACE Permit Deny
IP	IP: IP:
IP	IP
	III2 1 0 III
	ACE III III

2)

ACL ACE
 ACL ACE 6 1 ACE ACL ACE 1 ACE 1
 ACE 6 4 III



6 4 ACE



ACE

ACL

Permit

Deny

7 NAT

NAT Network Address Translation IP IP IP
III NAT III
IP IP IP III

7.1

NAT III
IP IP
IP III
IP IP
III
IP
1 IP III
2 IP III

NAT

1	NAT	NAT NAT
2	NAT	NAT IP IP IP

7.2 NAT

III f > NAT Ł Ł Ƨ IP NAT Ł III 7-1



7-1 NAT

NAT 7 2 NAT 7 2 NAT 7 2 NAT 7 2 NAT 7 2 NAT

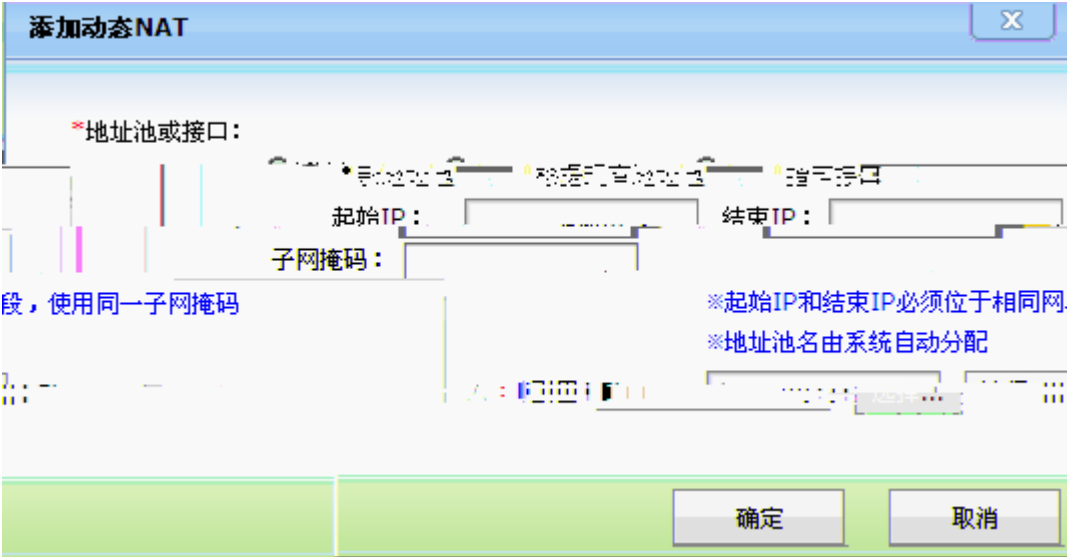


7 2 NAT

	NAT

7.3 IP

NAT 7.1 IP 7.2 III



7-2 IP

	NAT IP (III)
	2
	1 ----
	2 ----
ACL	ACL ACL

7.4 IP NAT

IP I > NAT L L DMZ NAT L III 7-3 III



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III

172.18.3.7 udp(2002)

6 172.18.3.7

UDP

	IP 1 1
	IP 1 III
IP	NAT IP III
IP	IP

IP	2 IP— NAT IP — NAT
	IP +
IP	NAT IP
	NAT
	NAT

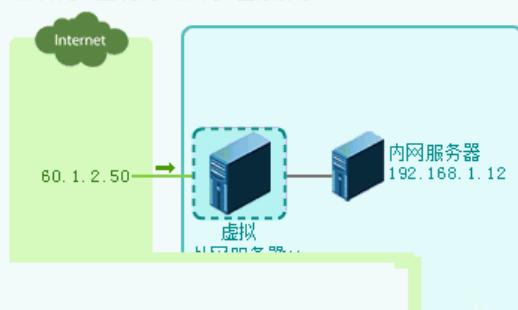
7.5 IP (1 1 1)

NAT 7-5 III 7-3 IP IP

添加服务器IP地址转换

独立内网服务器IP地址配置

☒ 外网
 ☐ 内网
 ☐ 同一业务系统



* 外网IP或接口: ☒ 指定主机IP ☐ 指定接口

主机IP:

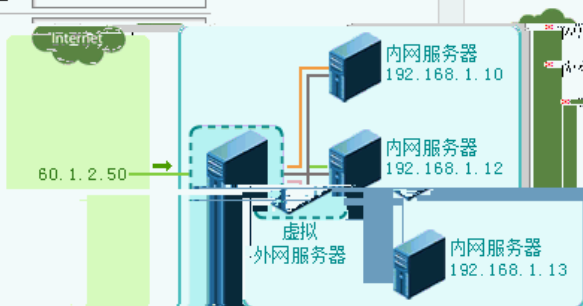
* 内网IP地址:

☒ 允许服务器主动访问外网

多台内网服务器IP地址配置 (TCP负载均衡)

地址:

☒ 外网
 ☐ 内网
 ☐ 同一业务系统
 ☒ TCP 负载均衡



* 外网IP:

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确定

取消

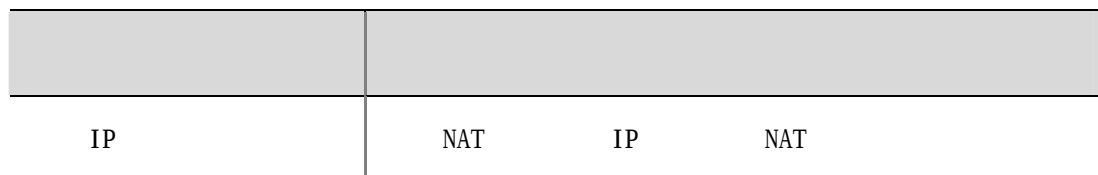
7-5

IP

IP

1

1



IP

NAT

IP

NAT

IP

3

NAT

IP	NAT IP
IP	NAT
IP	NAT

8 HA

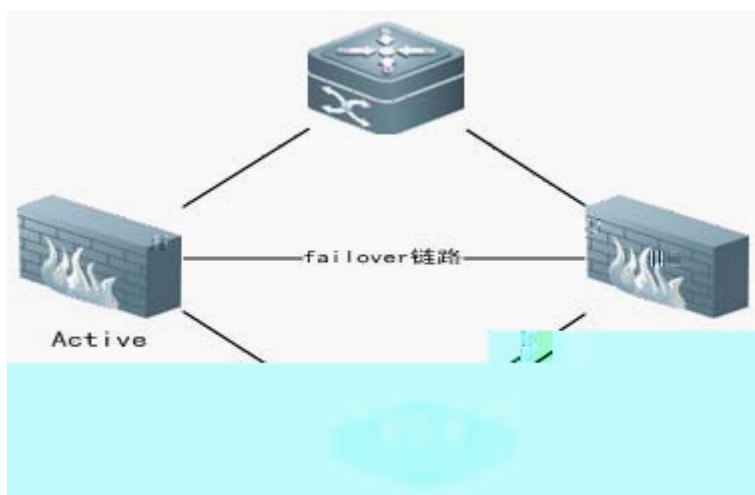
4

III
III

Active

Standby III

III



8-1

failover

III

4

III Failover

III

8.1

HA

1

> HA

1

HA

III

8-1

III



8-1 HA

	AS Standby AA III AS AA III AS AA III
	WEB s t a n d b y III

HA III

III

>>

f

>>L

III

8-2

III



8-2

8.2 HA

1 > HA 2 HA 3 >> 4, HA

8-3 III



8-3 HA

HA

1		
2	/	

9

添加虚拟防火墙

基本信息

* 虚拟防火墙名称：

(1-15字符)

* 配置文件名称：

.text (1-13字符)

选择接口

所有接口

Vlan 1

Vlan 2

Vlan 91

Vlan 99

Vlan 100

Vlan 999

Vlan 1000

Vlan 2000

Vlan 3000

Vlan 4000

已选接口

增加->

<-移除

静态路由表

+添加静态路由

×删除路由

目标地址IP

子网掩码

下一跳地址/本地转发接口

其他

操作

没有相关数据

确定

取消

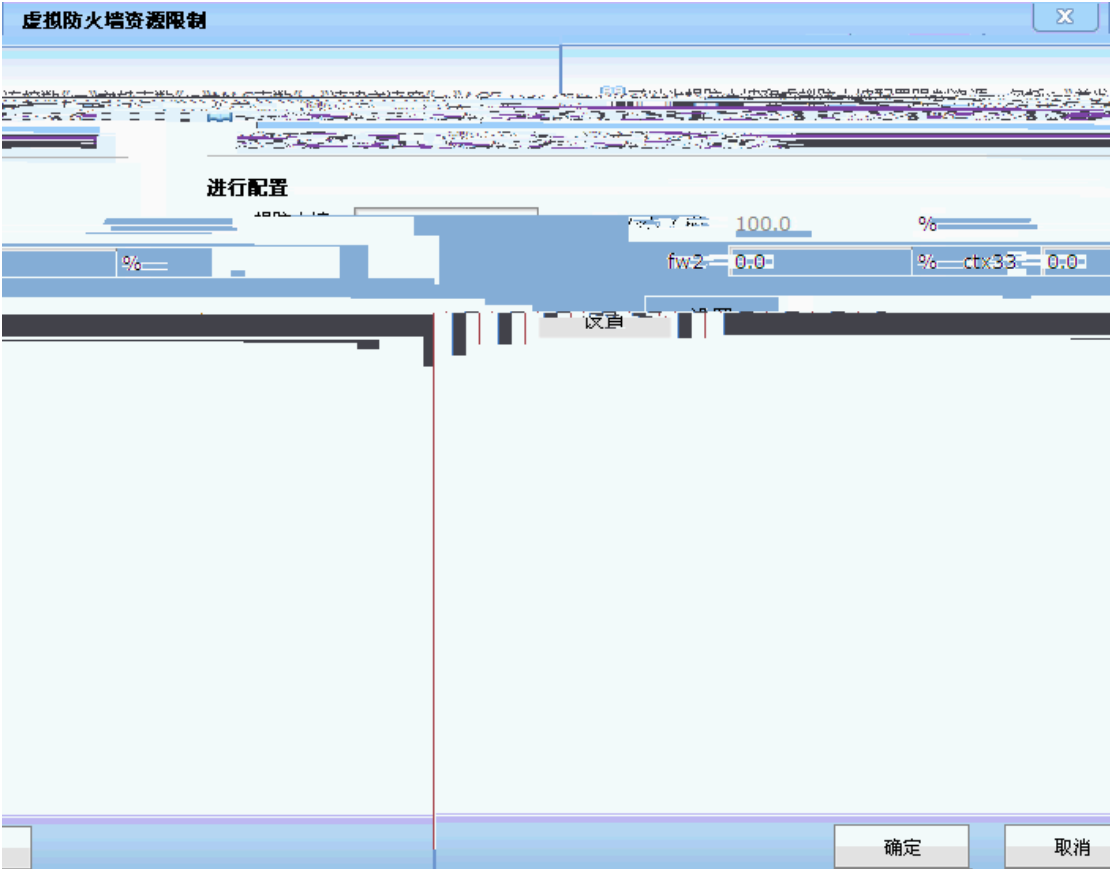
9 2

	III1~15 III
	III
	III
	III
III	interface VLAN III interface VLAN

IP III

9.3

[9 1](#) III 9 3

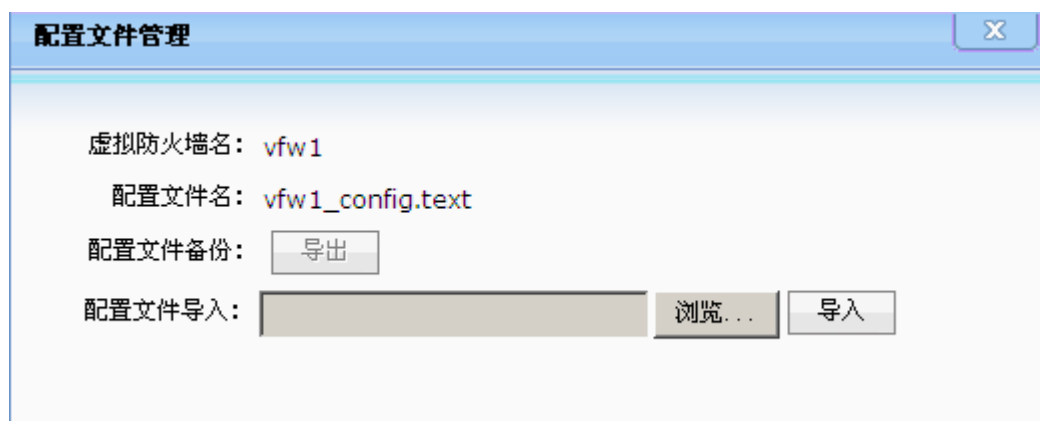


9 3

Web III 30% 30%
III 4 4 MAC
III 1 1 1 1
1 1 X 1 III 1

9.4

[9 1](#) III 9 4 III 1 1



9 4

III

III

IE



III

8

10

III

III

10.1

1 > 10-1 III



10-1

IP	IP
	IP
/	IP



添加静态路由

*

目标地址IP:

*

子网掩码:

*

下一跳地址:

下一跳地址

本地转发接口

Vlan 2

☒

高级配置

管理距离(DISTANCE):

1

1-255

权重(WEIGHT):

1

1-8

确定

取消

10-2

IP	IP0.0.0.0
	IP0.0.0.0

/	IP III III III IP III III III PPP PPP IP III NBMA IP2MP IP III III Virtual-Template VLAN III III III
	0 rip 120 III

	III 1III weight WCMP weight III WCMP 8III WCMP III WCMP 8 Firewall(config)#ip route 10.0.0.0 255.0.0.0 172.0.1.2 weight 6 Firewall(config)#ip route 10.0.0.0 255.0.0.0 172.0.1.4 weight 6

11

III

III

III

1

III

III

11.1

┆

>

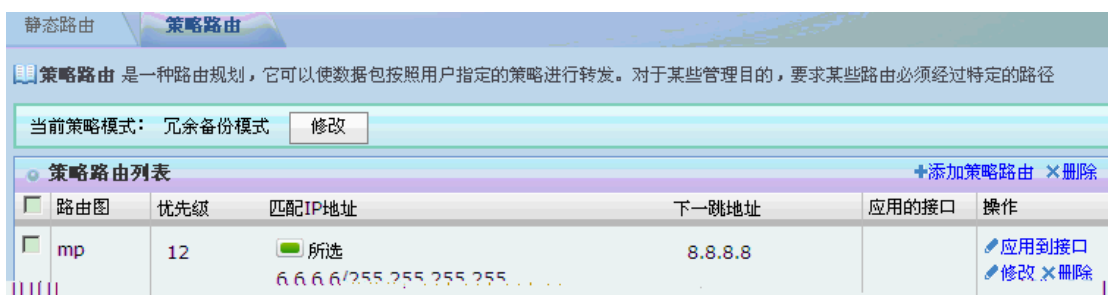
┆

┆

┆

10-3

III



10-3

11.2

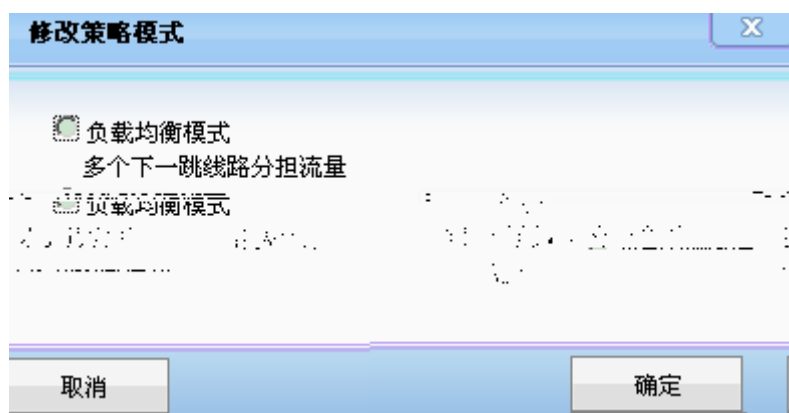
[10 3](#)

┆

┆

10 4

III



11.3

[10.3](#)

I

L

10.5

III

基本信息

* 路由图(route-map): (字母,数字,下划线,最长不超过16个字符)

添加匹配策略路由

* 策略优先级: 0到65535, 数值越低, 优先级越高

* 匹配IP地址: ☒ 所选 ☐ 除了所选以外

* IP地址范围:

* 下一跳地址:

已添加匹配策略路由

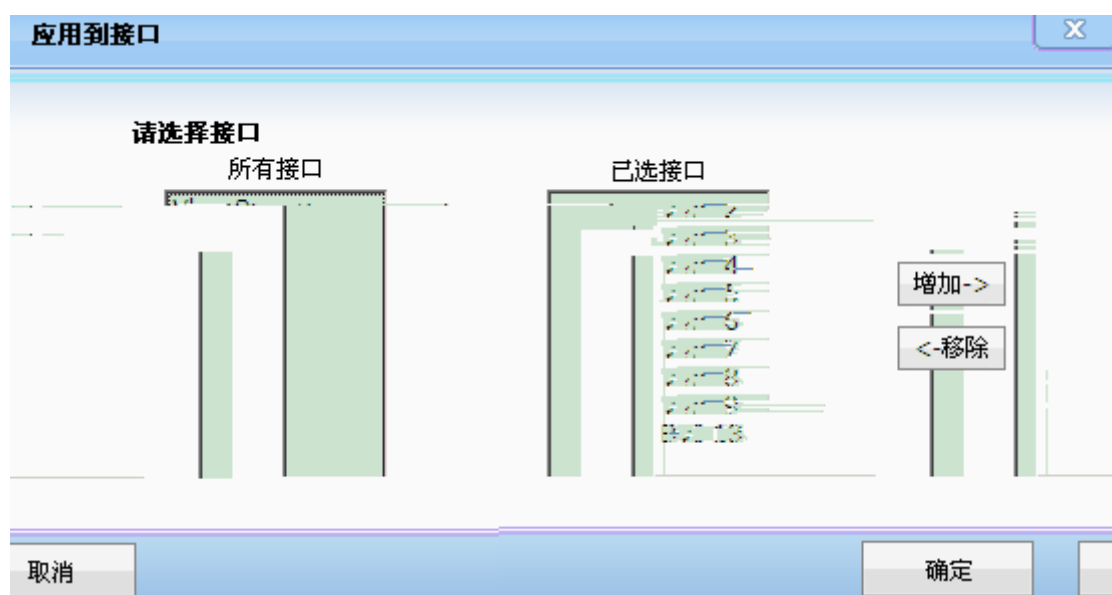
策略优先级	匹配IP地址	下一跳地址	操作
12	☒ 所选 192.168.201.66/255.255.255.255	192.168.203.3	修改 删除

(route-map)	IP IP IP III
	III0 65535
IP	IP IP IP IP
IP	IP IP
	IP

$$\text{III} \quad \text{III} \quad \text{I} \quad \text{I}$$

III

III



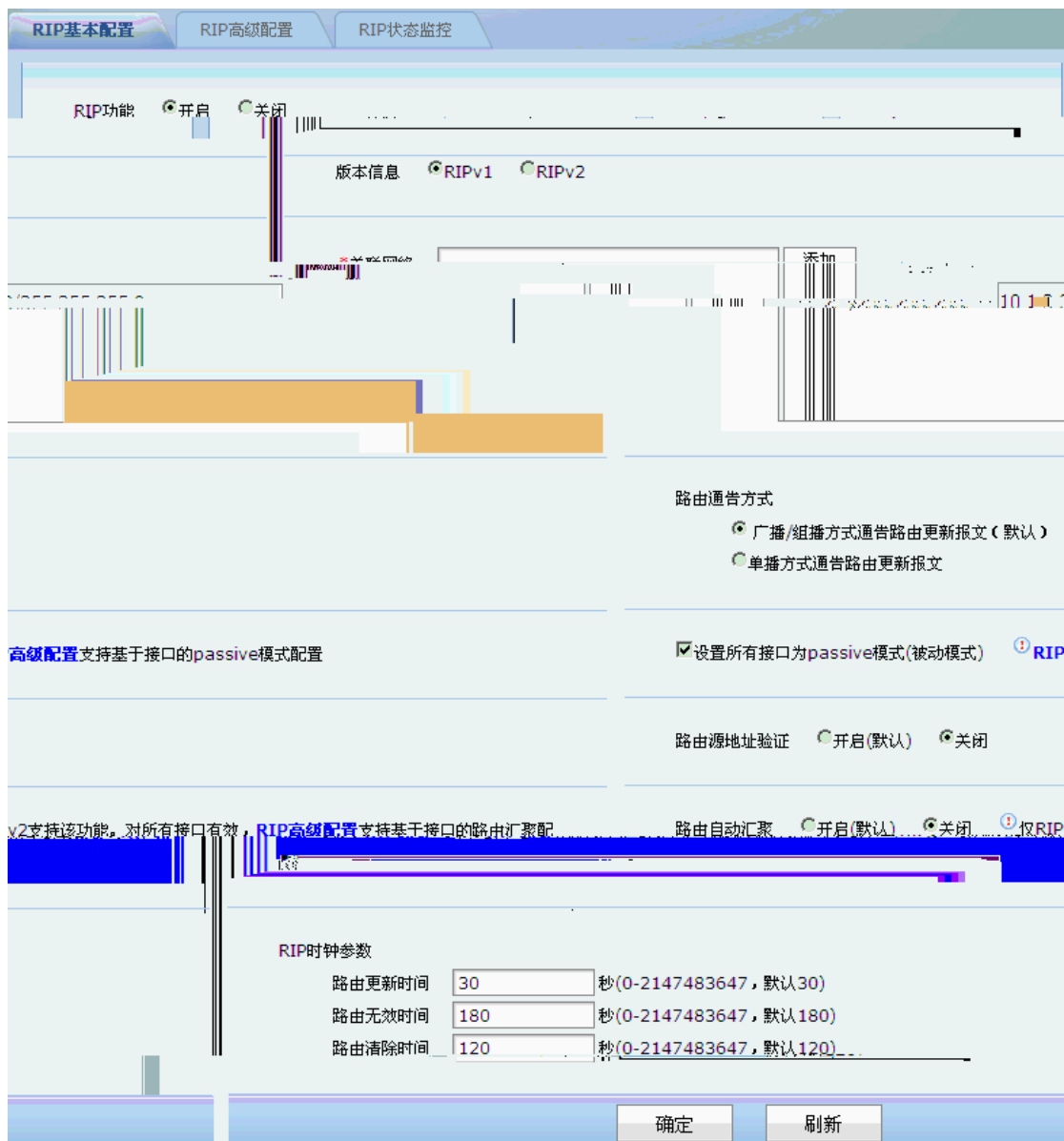
10 6



III

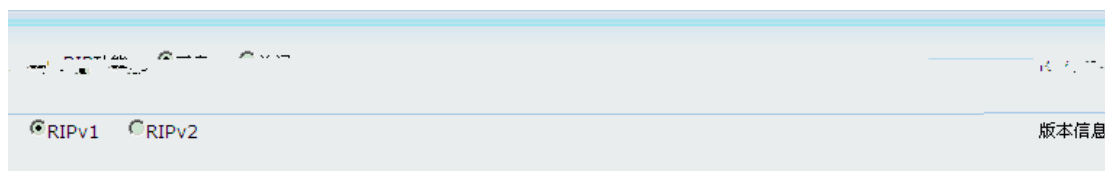
12 RIP

RIP (Routing Information Protocol)



11-2-1 RIP

12.2.1 RIP



11-2-1-2 RIP

12.2.2 RIP

1

1. RIP 路由协议使用 24 位掩码，2 1
192.168.10.0/24 2 192.168.10.0 255.255.255.0
11-2-1-3. 度 1 - Y

*RIP进程关联网络

添加

11-2-1-6

12.2.3 RIP

$$\mathbb{L} \quad \mathbb{L} \quad \mathbb{L} \quad \mathbb{L}$$

路由源地址验证 ☒ 开启(默认) ☐ 关闭

11-2-1-10 1 1

12.2.5 RIP

Rip : 1 1 11-2-1-11 III

III

路由通告方式

☒ 广播/组播方式通告路由更新报文(默认)

☐ 单播方式通告路由更新报文

11-2-1-11 RIP

ip III

1 1 ☒ 单播方式通告路由更新报文 1 11-2-1-12

2 ip 192.168.5.2 3 1 1 III 1 2 3

ip 192.168.5.2 11-2-1-13.

1 ip 192.168.5.2
1 ☒ 1, 11-2-1-14 2 1 ☒ 1 III

路由通告方式

☒ 广播/组播方式通告路由更新报文(默认)

☐ 单播方式通告路由更新报文

单播地址

添加

11-2-1-12

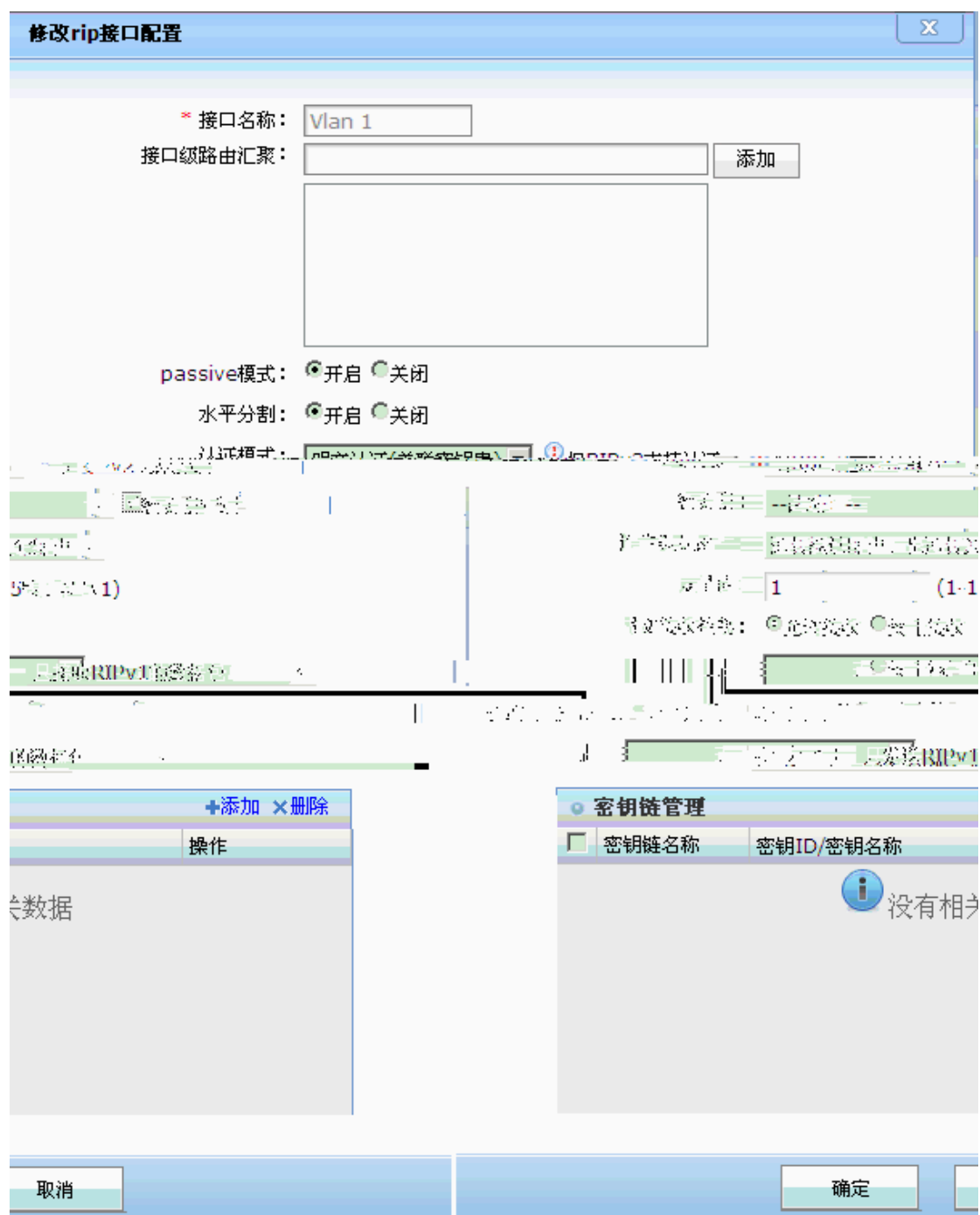
12.3RIP RIP

RIP VLAN : Ⅳ Ⅳ
Ⅳ Ⅳ Ⅳ ⅣRIP Ⅳ III
11-2-2-1.



11-2-2-1 RIP

Ⅰ ———> ———> Ⅱ VLAN RIP III
11-2-2-2 III



11-2-2-2

12.3.1

1 RIP	→	→	1 修改	11-2-2-2	III
	1	1	11-2-2-3III		
(1)				2	(a
172.18.10.0/18	/		11-2-2-4 (b	172.18.0.0 255.255.19	

, 11-2-2-5

(2) 11-2-2-6
 11-2-2-6
 RIP 11-2-2-6
 RIP 11-2-2-6

接口级路由汇聚：

添加

11-2-2-3

接口级路由汇聚：

172.18.0.0/18

添加

11-2-2-4

接口级路由汇聚：

添加

172.18.0.0/255.255.192.0

11-2-2-5

接口级路由汇聚：

添加

172.18.0.0/255.255.192.0

11-2-2-6

12.3.2

12.3.3

└ RIP

——>

——>

└

└  修改 └

11-2-2-2

└

rip

III 1 ———> 1 1 1

1 1 11-2-2-15. 1 ID 1 1

1 1 1

11-2-2-16 11-2-2-17 III 1 ID 1

1 1 1 network 1 1 1 1

1 ID/ 1 1/network 11-2-2-18 III

3 1 hello 1 11-2-2-19

1 1 III 1 1 11-2-2-20 III

4 1 1 1 1

1 1 11-2-2-21 1 1

III 11-2-2-22 III

11-2-2-10

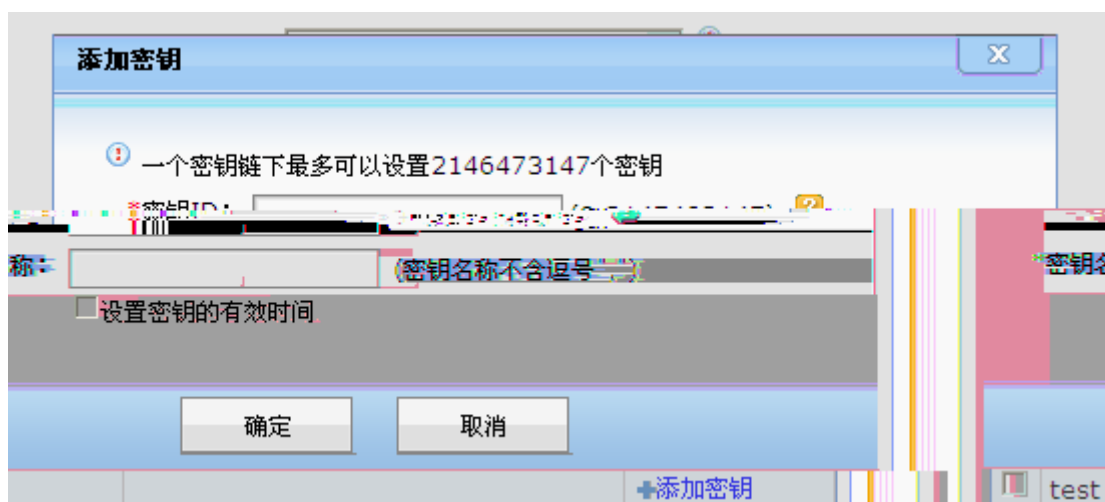
11-2-2-11

11-2-2-12

11-2-2-13

f ruijieL

11-2-2-14



11-2-2-15

添加密钥

一个密钥链下最多可以设置2146473147个密钥

*密钥ID: (0-2146473147)

*密钥名称: (密钥名称不含逗号",")

☒ 设置密钥的有效时间

时间: 接收起始

时间: ☐ 永久有效 接收终止

时间: 发送起始

时间: ☐ 永久有效 发送终止

11-2-2-16

添加密钥

一个密钥链下最多可以设置2146473147个密钥

*密钥ID: (0-2147483147) ?

*密钥名称: (密钥名称不含逗号",")

接收起始时间:

接收终止时间: 效

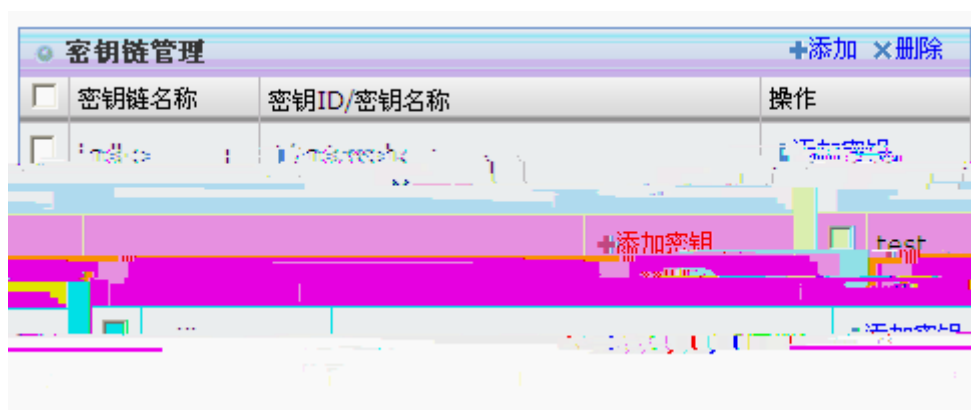
发送起始时间: 效

发送终止时间: 效

11-2-2-17

f

L



11-2-2-18

f 1/networkL

11-2-2-19

11-2-2-20

11-2-2-21



11-2-2-22

12.3.6

f	rip	Ł	3	11-2-2-23	a
		b	c		III
b	(c)		1~15	III	11-2-2-24

11-2-2-23

11-2-2-24

12.3.7

f	rip	L		f		L		RIP
		11-2-2-26 III		f		L		L 2
		f	L	f		L	f	L 3
11-2-2-27	11-2-2-28						III	

11-2-2-26

11-2-2-27

11-2-2-28

12.3.8

I	rip	L	I	L	11-2-2-29
I	RIP	L	III	11-2-2-30	

11-2-2-29

11-2-2-30

12.3.9 VLAN

11-2-2-30

VLAN 2

11-2-2-31

I

L

11-2-2-31

.

vlan2

III

11-2-2-31

11-2-2-32

12.3.10 VLAN

2

a

11-2-2-33

11-2-2-24

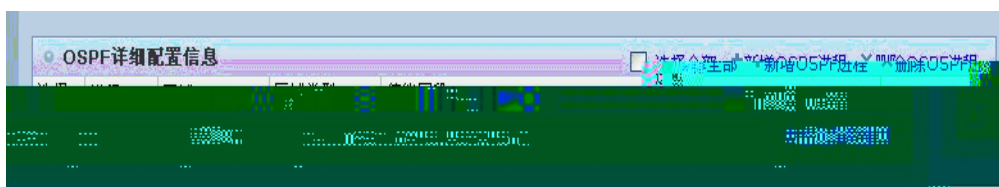
11-2-3-1RIP

13 OSPF

OSPF Open

13.2.1 OSPF

1 >OSPF 2 OSPF OSPF

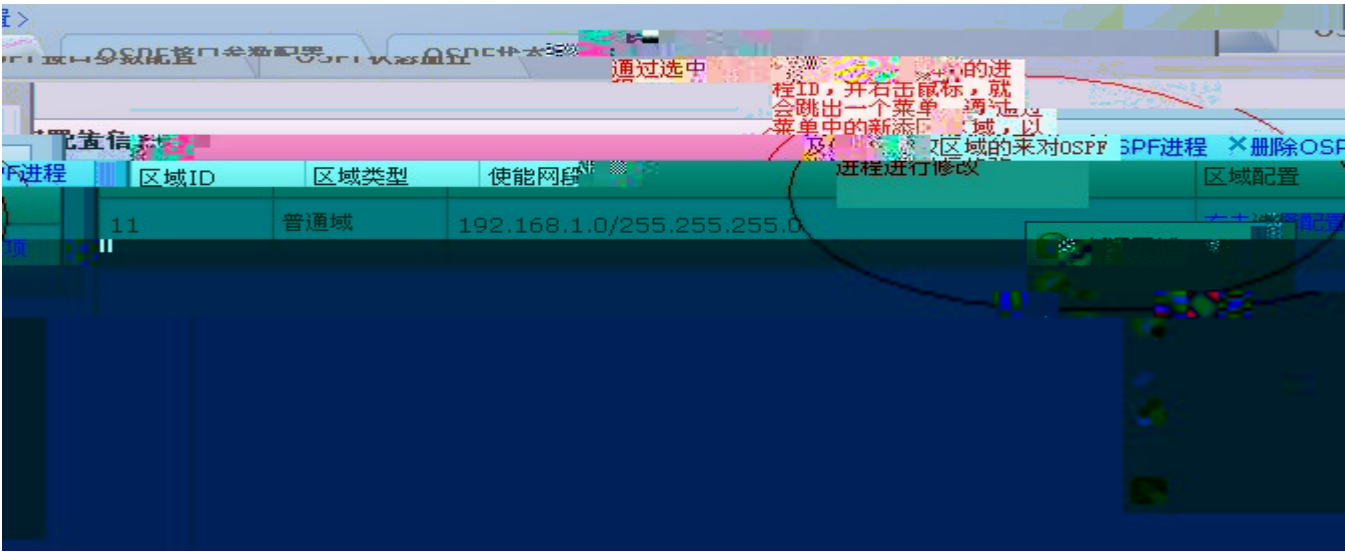


13.2.1.1 OSPF

OSPF OSPF IP IP
OSPF III OSPF IP 4 OSPF IP
III 64 OSPF III
OSPF







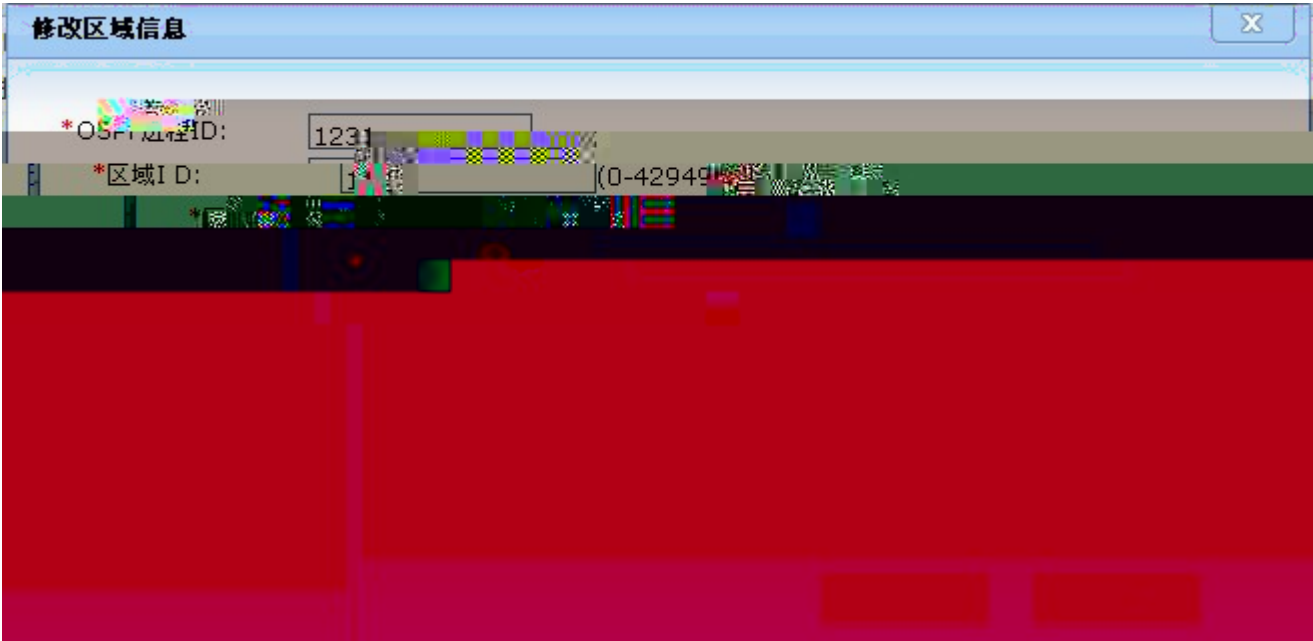
13.2.1.3.1 OSPF

OSPF ID

OSPF ID	OSPF
ID	
	OSPF

13.2.1.3.2 OSPF

OSPF ID
t L



OSPF ID	OSPF
ID	OSPF
	OSPF

13.2.1.3.3

OSPF ID , .

13.2.1.3.4 OSPF

OSPF , OSPF , OSPF ,

13.2.2

13.2.2.1

Ⅲ
Ⅲ
Ⅲ

OSPF Stub Area III

2 3 III

Stub LSA (no summary III)

) 1 2 III

OSPF III

) (area default cost III

13.2.2.2 NASS

13.2.2.2.1 NASS

NSSA(Not So Stubby Area) OSPF STUB ,NSSA 5

LSA(AS external LSA) NSSA , STUB NSSA

OSPF .

NSSA 7 NSSA , 7 LSA

NSSA 5 LSA

III

NSSA

NSSA NSSA III

NSSA NSSA NSSA area nssa

NSSA III

NSSA

Step 1	Firewall(config-router)# area area-id nssa [no-redistribution] [no-summary] [default-information-originate [metric metric][metric-type [1 2]]]	NSSA
Step 2	Firewall(config-router)# area area-id default-cost cost	NSSA
	default information originate ABR (ABR)	Type 7 LSA nssa ABR ASBR Type 7 LSA Type 7 LSA III

no redistribution ASBR

ABR	Type-3 LSA	nssa	(ABR)
no-summary		summary LSAs	Type-3 LSA III

13.2.2.3 STUB

13.2.2.3.1 STUB

OSPF area stub III no

III

area area-id stub [no summary]

no area area-id stub [no summary]

area-id	STUB III
no-summary	ABR III ABR III

III

III

OSPF area stub III ABR

(LSA) 1 1 LSA 2 2 LSA 3 3

LSA III OSPF

ABR area s

IIIarea default-cost

III

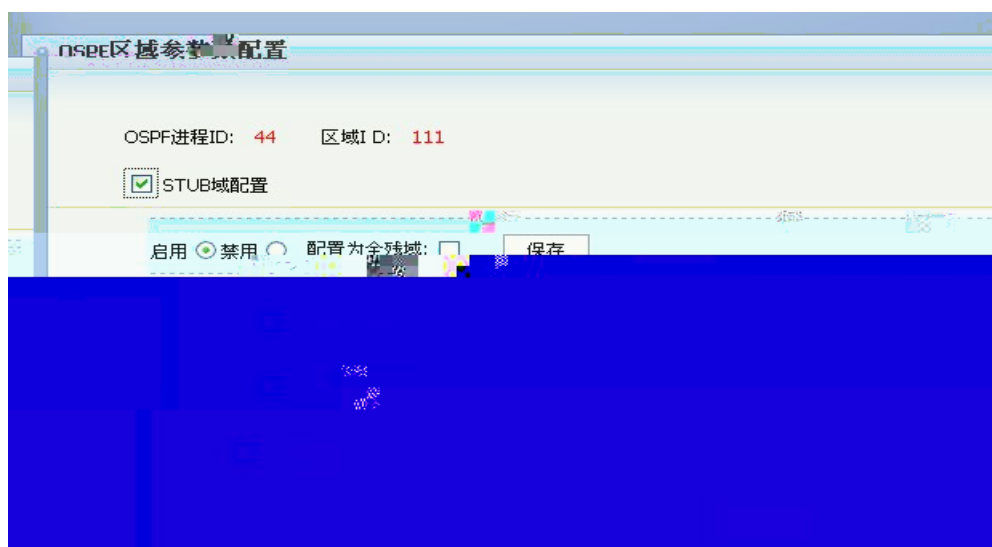
1

III

```
Firewall(config)# router ospf 1
Firewall(config-router)# network 172.16.0.0 0.0.255.255 area 0
Firewall(config-router)# network 192.168.12.0 0.0.0.255 area 1
Firewall(config-router)# area 1 stub
```

13.2.2.3.2 STUB

OSPF -> STUB OSPF -> ID
1 1 ,
STUB , STUB :



13.2.2.4

area-id	STUB ,

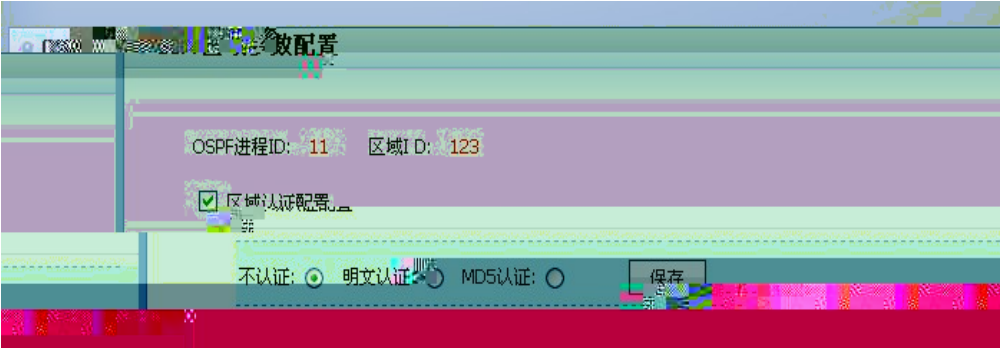
:	ABR
no-summary	III ABR
	III

13.2.2.4.1

OSPF
III
area authenticationIII no OSPF
area

13.2.2.4.2

OSPF ID
-> OSPF ID
:
:



area-id ID	,
MD5 Authentication[message-digest]	MD5

13.2.2.5

13.2.2.5.1

OSPF area rangeIII no
no cost III

area area id range ip addressnet mask[advertise | not advertise] [cost cost]

no area area id range ip addressnet mask[cost]

area-id	OSPF III IP III
ip-address net-mask	III
advertise not-advertise	

cost cost	0-16777215
------------------	------------

III

III

RFC1583

RFC1583

cost

cost

III

III

ABR

III

III

advertise

not-advertise

III

cost

III

OSPF

III

not-0>Trea rang1

ID: area-id	OSPF III IP III
IP ip-address	IP,
net-mask	,
advertise not-advertise	not_advertise,advertise ,
cost cost	0-16777215

13.2.2.6

13.2.2.6.1

ABR area filter list III

area area id filter list [access acl name] **prefix** prefix name] [in | out]

no area area id filter list [access acl name | **prefix** prefix name] [in | out]

area-id	III
acl-name	acl
prefix-name	prefix-list
access prefix	prefix list ACL
in out	

ABR

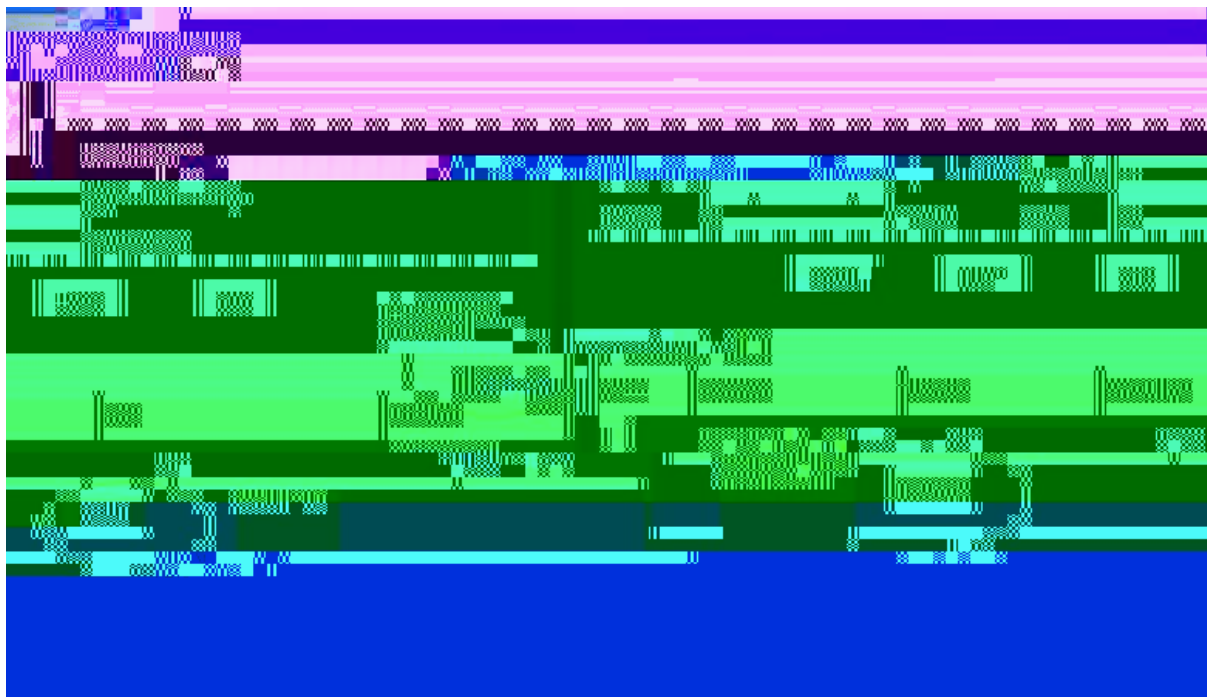
--	--

ip-address

IP III

poll-interval seconds

1-2147483647III



ID	IDIII
IP	IP 192.168.1.1
	poll-interval 1-2147483647
	0-255III (NBMA)
	cost 1-65535III (point-to-multipoint) III

添加

修改

保存

取消

重置

--	--

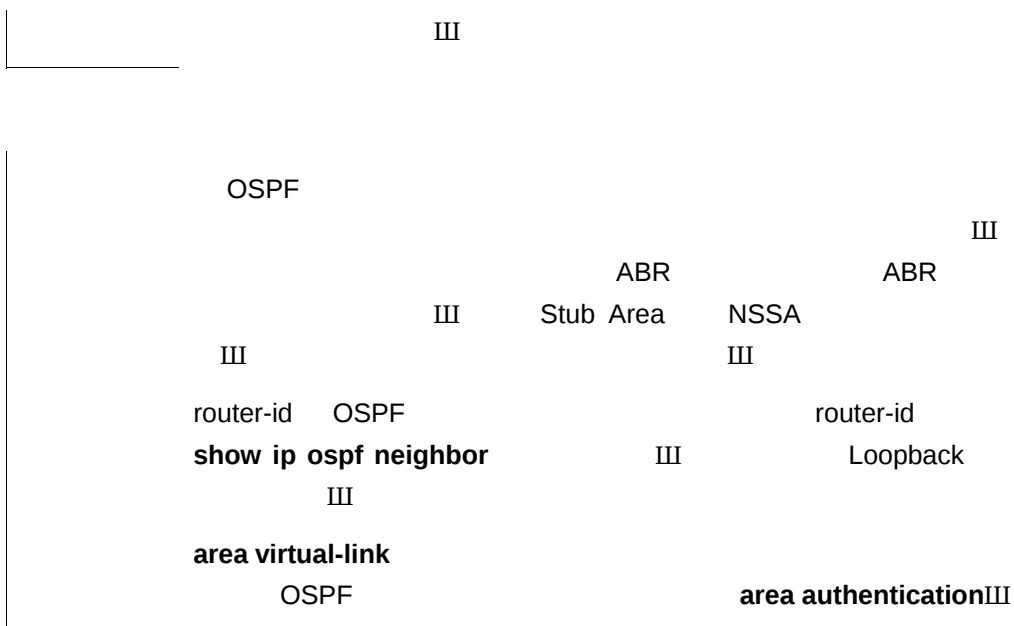
添加

修改

, , \

, "ospf" ,
" \

dead-interval seconds	1-65535III III	
hello-interval seconds	OSPF 1-65535III	Hello III
retransmit-interval seconds	OSPF	LSA 1-65535III



13.2.4.2

OSPF -> OSPF ID
 1 2 , :

ID:area-id	OSPF III IP III
Ospf ID:router-id	show ip ospf III III

dead-interval seconds	1-65535III	III
hello-interval seconds	OSPF III	Hello 1-65535III
LSA retransmit-interval seconds	OSPF 1-65535III	LSA III
LSA transmit-delay seconds	OSPF LSA LSA LSA III	LSA 1-65535III LSA
authentication-key key	OSPF password-encryption III	III III service
message-digest-key key-id md5 key	OSPF MD5 MD5 service password-encryption III	III III
authentication		III
MD5 authentication message-digest	MD5 III	
null	III	

13.2.5 OSPF

13.2.5.1

OSPF

OSPF
III

OSPF



13.2.5.2

13.2.5.2.1

III , OSPF OSPF
)
LSA no
III

timers lsa-group-pacing seconds

no timers lsa-group-pacing

	seconds	LSA : 10-1800III

240 III

LSA CPU III (LSA age) CPU LSA LSA

III

III no

III

passive-interface [default | type number]**no passive-interface** [default | type number]

type number	III
default	III

OSPF III

III

13.2.5.2.2

OSPF
-> OSPF ID
: OSPF ,

ID	IDIII
	,
OSPF	OSPF
OSPF	OSPF

13.2.5.3 OSPF

13.2.5.3.1 OSPF

OSPF

110

III

III

OSPF

distance {distance| **ospf** { **intra area** distance| **inter area** distance| **external** distance}}

no distance [**ospf**]

distance	1-255
intra-area distance	1-255
inter-area distance	1-255
external distance	1-255

13.2.5.3.2 OSPF

OSPF

->

OSPF

ID

f

OSPF

L

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,

,

:

OSPF ID	
	1-255 110

	1-255	110
	1-255	110

13.2.5.4

13.2.5.4.1

OSPF SPF SPF
timers spf **timers throttle spf**III no III

timers spf spf delayspf holdtime

no timers spf

timers throttle spf spf delayspf holdtimespf maxwaittime

--	--	--

SPF

spf-delay

spf-delay spf-holdtime

OSPF

CPU III

timers spf timers throttle spf

13.2.5.5

13.2.5.5.1

OSPF

summary address

no

III

summary address ip address net mask {not advertise | tag value}

no summary address ip address net mask {not advertise | tag value}

	ip-address	IP III
	net-mask	III
	not-advertise	III
	tag value	tag 0-4294967295

OSPF

OSPF

III

III

area range

area



	always	OSPF III
	metric metric	0-16777214III
	metric-type type	IIIOSPF 1 2 2 III III 1
	route-map map-name	route-map , route-map

	metric 1
	metric-type 2III

Fe redistribute default-information OSPF ASBR
wp ipr6(obute)Tf02 Tw76183 0 TdPA5104B02C76A1C00C34B9E2C4F68043350E62CD543C32B03F263.335 -1.557
OSPF 1

13.2.5.6.2 OSPF

OSPF

->

OSPF

ID

13.3 OSPF

13.3.1

OSPF

III

ip ospf hello interval ip

ospf dead interval ip ospf authentication ip ospf authentication key ip ospf message digest key,ip ospf network III

OSPF

Step 1	Firewall# configure terminal	III
Step 2	Firewall(config)# ip routing	()
Step 3	Firewall(config)# interface interface-id	III
Step 4	Firewall(config-if)# ip ospf cost cost-value	
Step 5	Firewall(config-if)# ip ospf retransmit-interval seconds	
Step 6	Firewall(config-if)# ip ospf transmit-delay seconds	
Step 7	Firewall(config-if)# ip ospf hello-interval seconds	hello
Step 8	Firewall(config-if)# ip ospf dead-interval seconds	
Step 9	Firewall(config-if)# ip ospf priority number	BDR DR

Step 10

```
Firewall(config-if)# ip ospf priority
```

```
{broadcast non-broadcast
point-to-multipoint non-broadcast }
point-to-point}
```

```
broadcast OSPF
```

```
III
```

```
non-broadcast OSPF
NBMA III
```

```
point-to-multipoint [non-broadcast]
```

```
OSPF III
```

```
, non-broadcast
```

```
point-to-point OSPF
```

```
III
```

```
Step15 154 @ 2015-12-29 11:05:00 [message-digest | null]
Step11 11 340.5Tc40 1 Tf-0.503 Tc 4.6
27w 75[>5gest$Step11 )LUH2C
```


	,
()	III X.25 Frame-relay map OSPF III OSPF III OSPF III X.25 map X.25 X.25 III

()	OSPF		
	100Mbps/Bandwidth	Bandwidth	
		bandwidth	III
	OSPF		
	64K	cost	1562
	E1	cost	48
	10M	cost	10
	100M	cost	1III
	ip ospf cost		OSPF
	III		

() 64K

hello ()	hello OSPF III III hello 10 PPP HDLC 10 10 X.25 30 III
() dead-interval	OSPF Hello III OSPF Hello III hello 4 hello III OSPF III hello
()	OSPF hello III OSPF DR/BDR DR BDR III DR BDR III DR/BDR III OSPF broadcast non-broadcast III ⚡ : DR BDR DR BDR III

BFD ()	, , bfd all-interfaces III ip ospf bfd BFD OSPF bfd all-interfaces OSPF BFD ip ospf bfd disable BFD
OSPF ()	, , network area network ospf III OSPF OSPF
() ip ospf database-filter all out	, , LSA LSA LSA III
	1: 2 3 MD5 . no null , ,

```
ip ospf authentication-key
    OSPF      III
            OSPF
            III
KEY
            OSPF
area authentication      III
                        ,
```

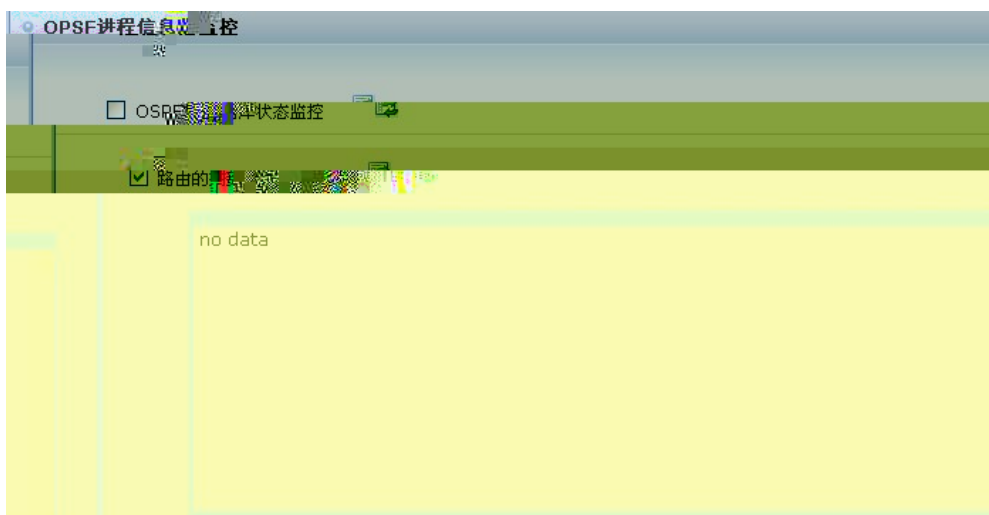
13.4.1 OSPF

OSPF , OSPF , OSPF
 OSPF >OSPF OSPF OSPF
 OSPF OSPF :



13.4.2

OSPF , OSPF , OSPF
 OSPF >OSPF OSPF OSPF
 OSPF , :



13.4.3 OSPF

OSPF , OSPF , OSPF
 OSPF >OSPF OSPF OSPF
 OSPF OSPF :



	III III III / III III

14.2

III

13-3 III 13-1 † £ † III £ III

13-3

- 1.



2. xml
webinfo.xml;
- 3.

15

15.1

III 1 > Ł 15-1

15-1

III

.bin .bin_ III

III

IE



flash

15.2

III 1 > Ł 15-2

15-2

III

config.text

III

config.text

III

IE



16

I > L III

14-1

16.1SYSLOG

IP

16.2NTP

IP