



Web

RGOS 10.3(4b6)p2

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RGNOS®

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8:30 6

RGOS[®]10.3 (4b6)p2

1.1

KV

D7

KV

%%



D7

KYV

D7 =D % & %%, " & % " % & # &) " &) " &) " S

<5fl L <5



=D

: Kl : 5=@CJ9F! G7; "XcW 5G

: Kl : 5=@CJ9F! 55! G7; "XcW 55

%

J@5B ' ;][U]h9h\YfbYh %%% 5WVgg J@5B &

:]fYkU`# WbZ][iFY hYfa]bU

9bhYf WbZ][iFUh]cb WaaUbXgž cbY dYf `]bY' 9bX k]h\ 7BH@#N'

:]fYkU`fWbZ][L# j`Ub &

:]fYkU`fWbZ][!j`UbL# Y]h

:]fYkU`fWbZ][L#]bhYfZUW ;][U]hYh\YfbYh %%%

:]fYkU`fWbZ][!ZL# gk]hWdcfh UWVgg j`Ub &

:]fYkU`fWbZ][!ZL# Y]h

(Hb;][U]hYh\YfbYh (# % Hb;][U]hYh\YfbYh (#& fl L 5[[fYhY]UhYdcfh (

:]fYkU`fWbZ][L#]bhYfZUW Hb;][U]hYh\YfbYh (# %

:]fYkU`fWbZ][!ZL# dcfh] [fci d (

:]fYkU`fWbZ][!ZL# Y]h

:]fYkU`fWbZ][L#]bhYfZUW Hb;][U]hYh\YfbYh (# &

:]fYkU`fWbZ][!ZL# dcfh] [fci d (

:]fYkU`fWbZ][!ZL# Y]h

5[[fYhY]UhYdcfh (Hfi b_ J@5B &

:]fYkU`fWbZ][L#]bhYfZUW 5[[fYhY]UhYdcfh (

:]fYkU`fWbZ][!ZL# gk]hWdcfh acXY hfi b_

:]fYkU`fWbZ][!ZL# gk]hWdcfh hfi b_ U`ckYXj`Ub fYacjY %ž'!(S(

&

:]fYkU`fWbZ][L#]bhYfZUWj`Ub &

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' \hhd#\hhdg

\hhd

:]fYkU`fWbZ][L#]YbUVYgYfj]W kYMgYfjYf \hhd

\hhdg

:]fYkU`fWbZ][L#]YbUVYgYfj]W kYMgYfjYf \hhdg

(KYV `cWU

:]fYkU`fWbZ][L#]d \hhd U h\Ybh]W h]cb `cWU

)

:]fYkU`fWbZ][L#]igYf Ux]b dUggkcfX Ux]b

%

:]fYkU`fWbZ][L#]igYf Ux]b df]j]`Y[Y %

*

:]fYkU`fWbZ][L#]gYfj]W dUggkcfX YbWmdh]cb

7@-

f&L

KYV

`cWU

f&L

Ux]b



' Ux]b

(

)

=D % &'%, " &S%% Ux|b Ux|b 0 > KYV =9, " S % &



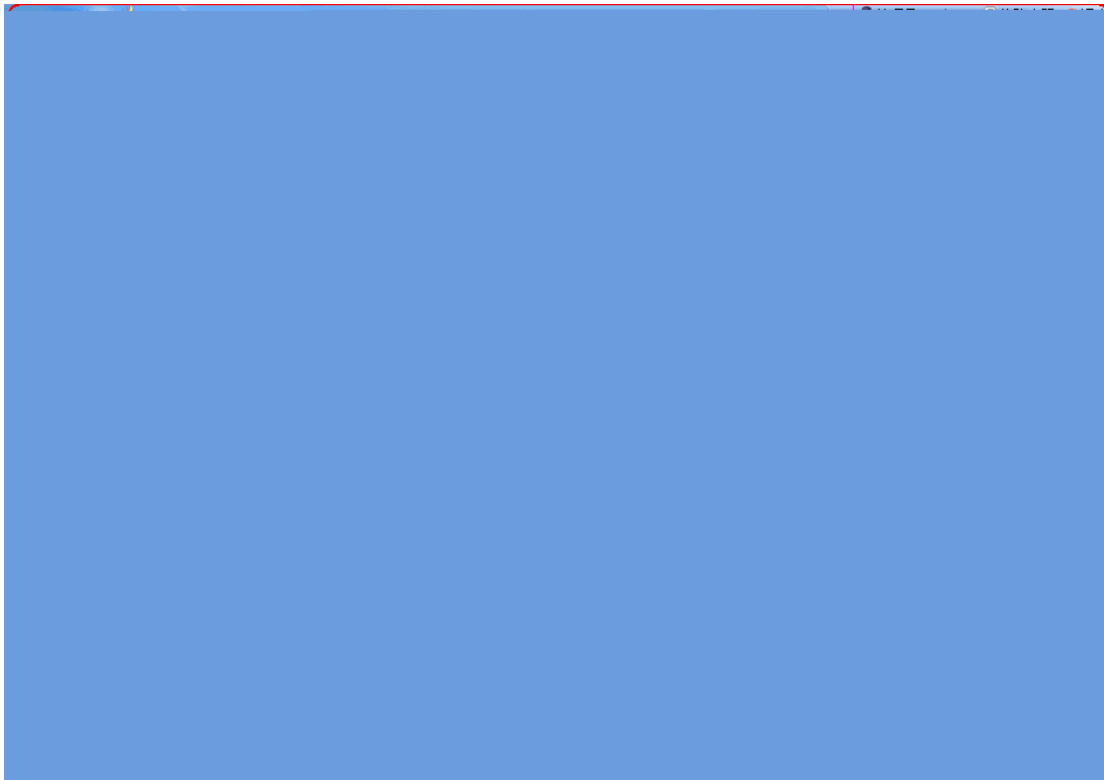
% &

1.3 Web

KYV 0 > KYV

1.4

KYV %'



%' KYV

http	<pre> Firewall(config)#ip http port ? 80 Default port number <1025-65535> Port number range </pre>
https	<pre> Firewall(config)#ip http secure-port ? 443 Default port number <1025-65535> Port number range </pre>
Web	<pre> Firewall(config)#ip http authentication ? enable Use enable passwords local Use local username and passwords enable username xxx password xxx admin Firewall(config)#enable password xxxxx local username xxx password xxx local local enable WEB local </pre>



1.7

f&LKYV A|WcgcZh =bhYbYh 9l d' cfYf *"\$ GD&
; cc[`Y 7fcaY

Acn] ``U:]fYZcl '*\$
=9, "\$

f&LKYV

KYV

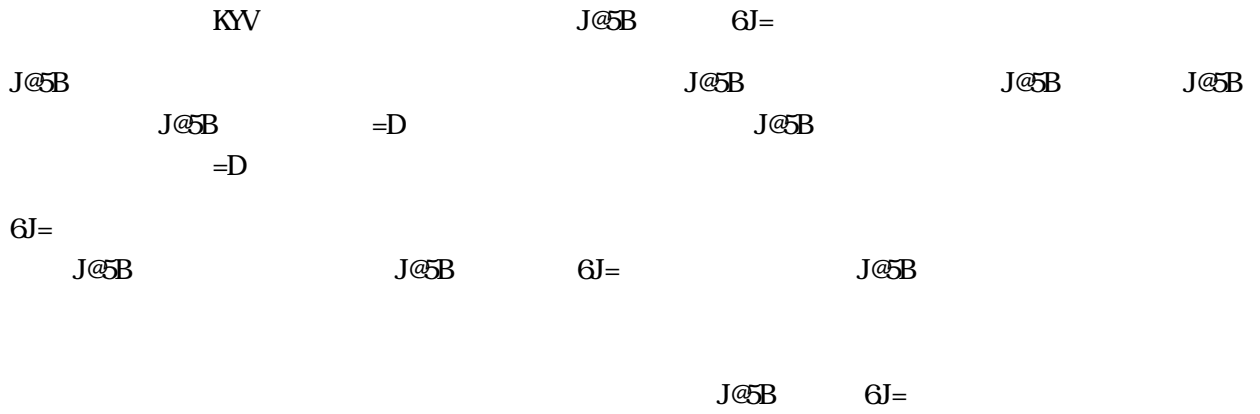
7D

KYV

&%



&%



3.1 VLAN

3.1.1



'!% J@B

		J@B		
=D #	IP DHCP	IP	IP	IP
	ID 8KB			

Ž ...
!

57@]b#ci h 57@ 57@
57@ 57@

添加VLAN
✕

*VLAN ID: (1-4094)

IP配置: 无IP配置 静态地址

IP地址:

掩码: 配置从IP 配置双机热备IP地址对

※从IP地址必须与主IP地址位于不同网段

描述:

状态: 启用 禁用

'!& J@5B

J@5B =8	J@5B =8
=D	=D =D =D =D =D
=D	J@5B =D =D =D
=D	J@5B =D =D =D
=D	=D =D =D

3.2 BVI

3.2.1

> J@5B
3 3



!!

	J@5B J@5B J@5B =D

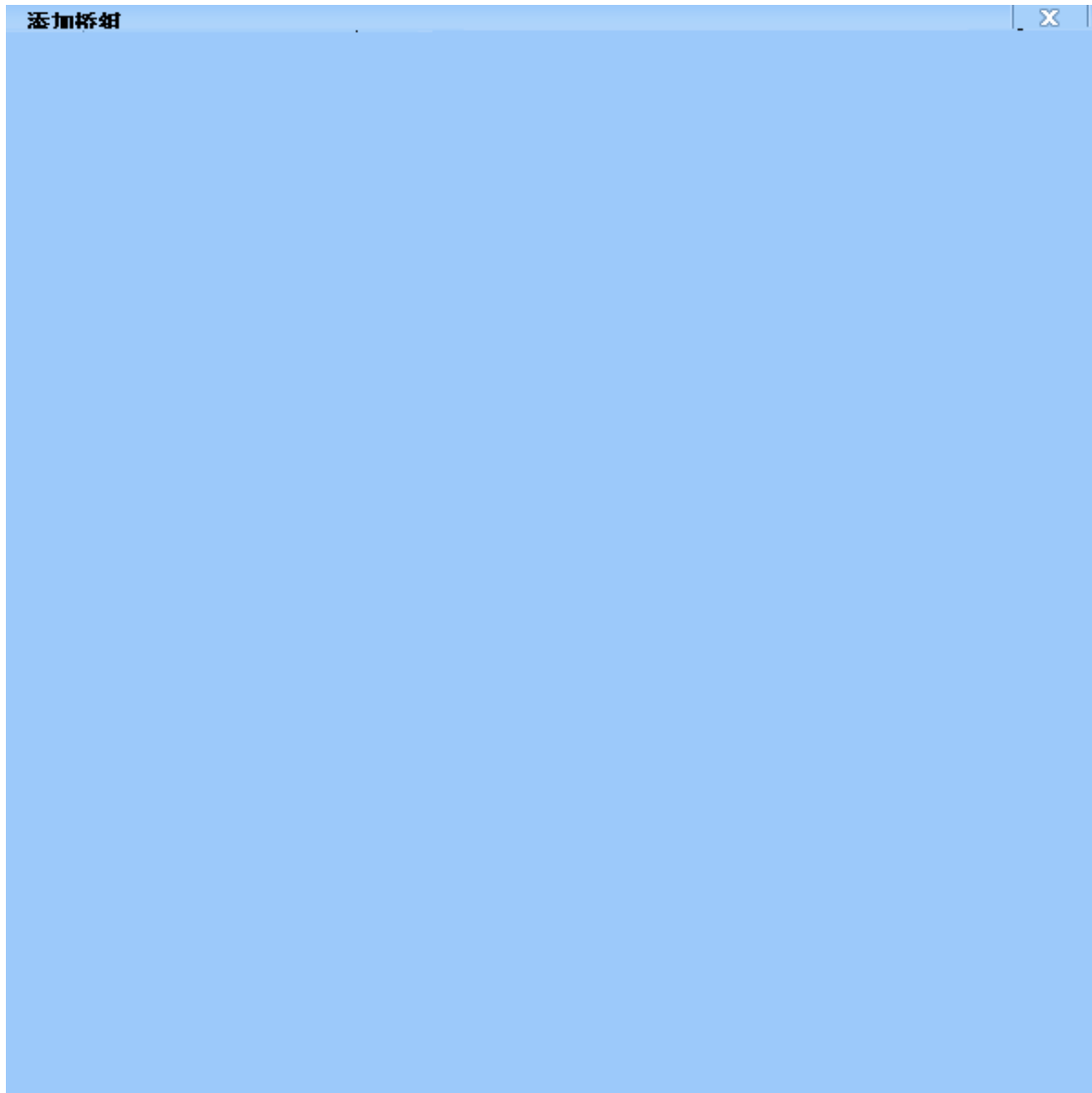
=D #	IP PPP	IP	IP	IP
	ID 8CKB			
	Ž ... ! =D	=D	DDD	
	57@ 57@]b#ci h	57@ 57@	57@
	=D		=D	

3.2.2

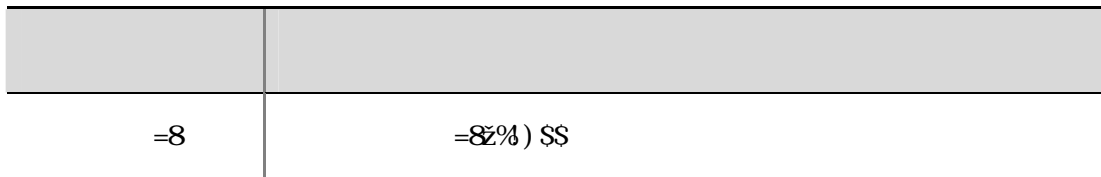
6J=

'!'

'!(



'!(



=D #	IP
=D #	IP IP
	IP

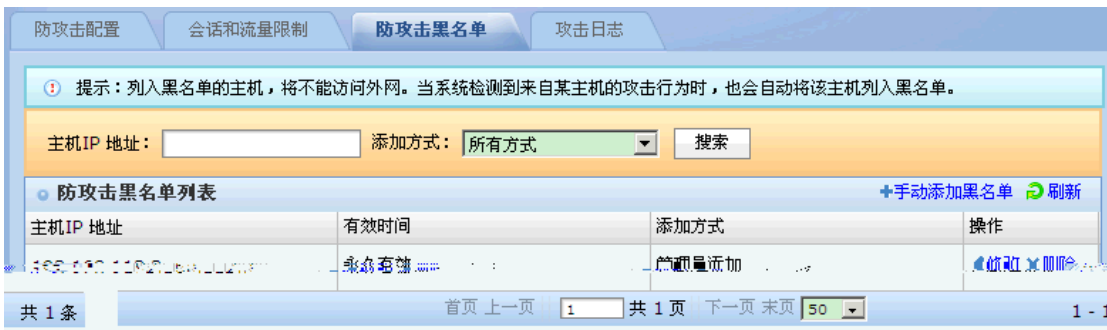
4.1

4.1.1

=D
]d =D
=D

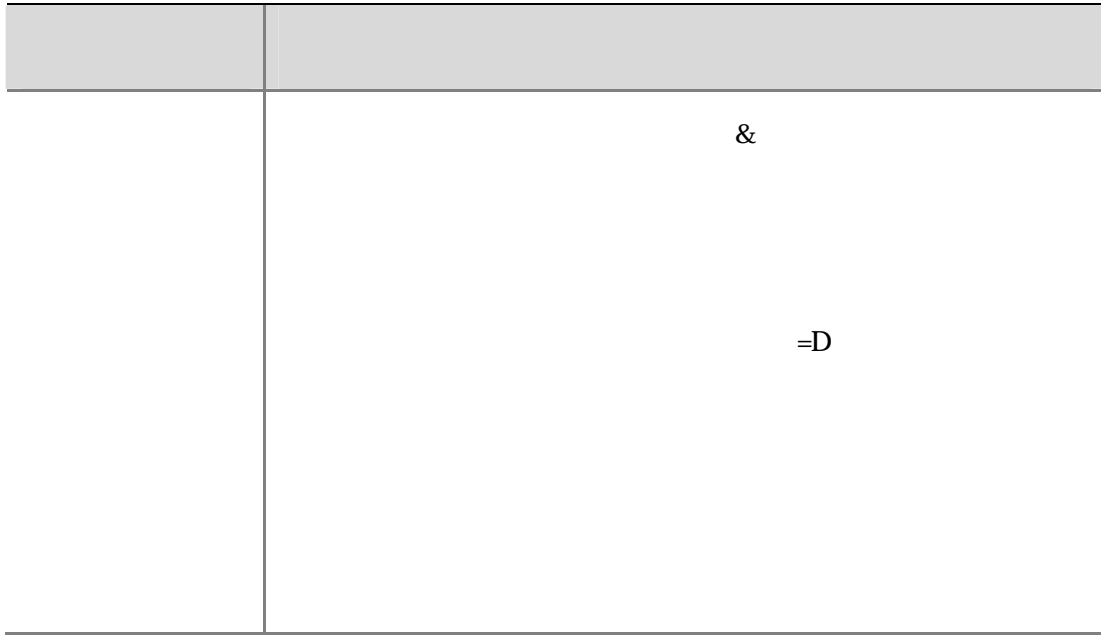
4.1.2

> (!%



(!%

=D	=D



4.1.3

(!%

:00
套
致市时间
:11
:2
1 - 2 共

=D

Z ck Z ccX

]d]d

iXl Z ccX

]WdZ ccX

4.3.2

>

(!(

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
<input type="checkbox"/>	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
<input type="checkbox"/>	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

(!(

	=D
#	#
#	#
#	#
#	#

4.3.3

(!(

(!

添加会话和流量限制
✕

主机范围:

例外主机:

※ 例外主机是指被排除在主机范围外的主机IP。

每IP带宽限制: 流入 (in) KBps (1~10000000)

流出 (out) KBps (1~10000000)

每IP会话建立速率限制: 流入 (in)

流出 (out)

每IP会话总数限制: 流入 (in)

流出 (out)

※ 以上6个选项框必须至少填写一个!

(!)

	=D =D =D
	Ubm Ubm
	=D
=D	Ubm Ubm
	% &'%, "' " &
	% &'%, "' " \$
	(!) ž
	% &'%, "' " &
=D	=D =D =D
	% %SSSS_6dgŁ



@bX	<p>@bX H7DGMB</p> <p>=D</p> <p>GMB! 57? 57?</p> <p>@bX IB=L</p> <p>K] bXckg BH</p>
Gai fZ	<p>Gai fZ =7AD</p> <p>=7AD</p> <p>Gai fZ</p> <p>=7AD</p> <p>Gai fZ</p> <p>: fU[`Y</p>
K] bbi_Y	<p>K] bBi_Y K] bXckg</p> <p>BYh6=CG %- CC6 ci h! cZI VbX</p> <p>BYh6=CG</p>
GMB : `ccX	<p>H7D#=D H7D</p> <p>GMB: `ccX GMB</p> <p>GMB! 57?</p> <p>57?</p> <p>GMB : `ccX</p>
=7AD : `ccX : `ccX	<p>=7AD d] b[I 8D</p>

D] b[cZ 8YU\	D] b[cZ 8YU\ =7AD =D % *)') =7AD *) \$+ =7AD =D f&S\ =7AD , > *)')

4.4.2

>

(!*



(!*

HUFXcd

Gai fZ

H7D: `U

D] b[cZ 8YU\

4.4.3

>

(!+



(!+





TCP UDP ICMP

TCP

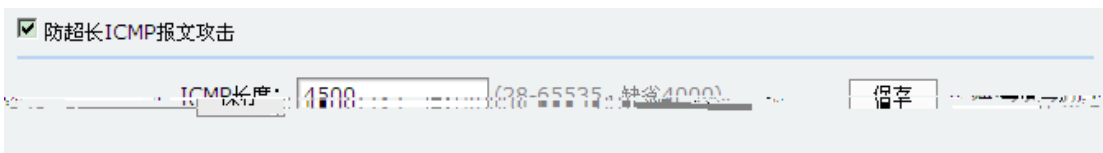
UDP

(!, =D :@CC8

=D :@CC8	. =D :@CC8 =D :@CC8
	ddg
	=D :@CC8

4.4.4.2 ICMP

(!-



(!- =7AD

=7AD	. =7AD =7AD
=7AD	=7AD (SSS VnmYg VnmY =7AD

4.4.4.3 SYN FLOOD

(!%\$

防SYN Flood攻击 [返回顶部](#)

[+增加受保护IP](#) [+引用ACL](#) [×删除](#)

<input type="checkbox"/> 受保护主机IP ACL名称	速率阈值 pps(每秒包数)	操作
<input type="checkbox"/> audp	12	修改 ×删除
<input type="checkbox"/> 12.2.1.0/255.255.255.0	12	修改 ×删除
<input type="checkbox"/> 1	1000	修改 ×删除
<input type="checkbox"/> z2	11	修改 ×删除

记录日志

(!%\$ GMB : @CC8

GMB : @CC8	GMB : @CC8 GMB : @CC8
=D 57@	GMB : @CC8 =D 57@ 57@ 57@ 57@
	GMB : @CC8

KV GMB: `ccX % =D & 57@

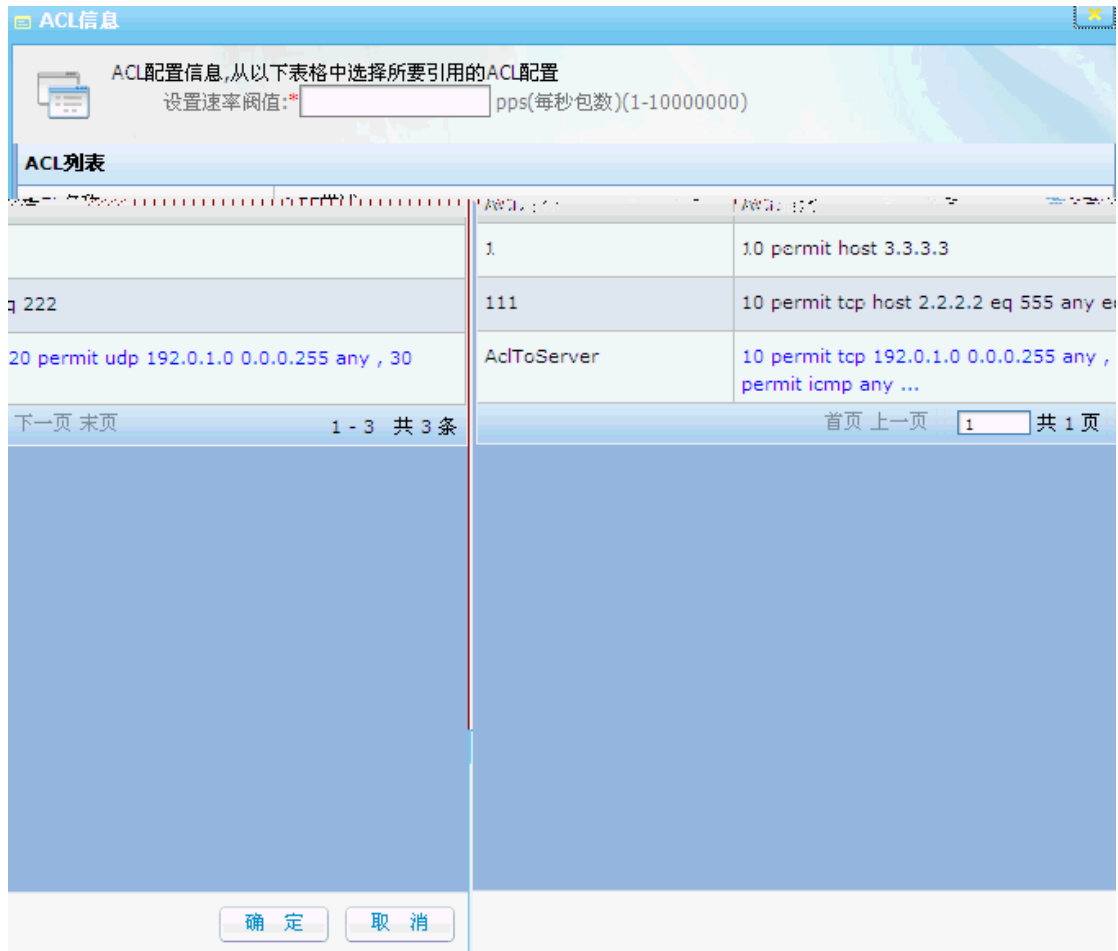
=D

%L =D GMB (!%\$

添加SYN报文限速 X

* 受保护主机IP范围:

* 速率阈值: pps(每秒包数)(1-10000000)



4.4.4.4 UDP FLOOD

(!%&



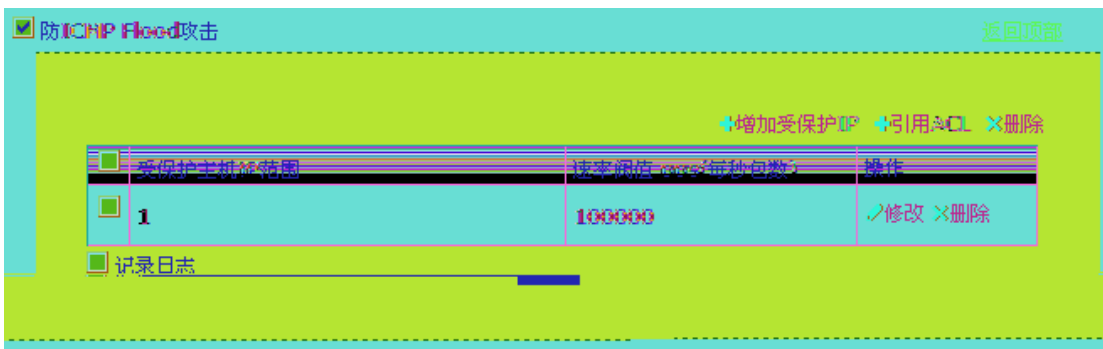
(!%& I8D:@C8

=D	I 8D : @CC8 =D
	I 8D : @CC8

& 57@ ("(")"

4.4.4.5 ICMP FLOOD

(!%



(!% =7AD : @CC8

=7AD : @CC8	=7AD : @CC8 =7AD : @CC8
=D	=7AD : @CC8 =D 57@ 57@ 57@
	=7AD : @CC8 =7AD : @CC8

	=7AD: @CC8

=7AD: `ccX %

=D/ &L

57@

%L

=7AD: @CC8

(!%)

添加防ICMP Flood攻击 X

* 受保护主机IP范围:

* 速率阈值: pps(每秒包数)(1-10000000)

(!% =7AD: @CC8

=D	=7AD: @CC8 =D
	=7AD: @CC8

&

57@

("(")"")

5.1

%		=D
&		XYZU`h XYZU`h XYZU`h XYZU`h
,		

5.2

>

)!%

安全域 安全域访问策略 非法访问日志 非法访问黑名单

当前安全域创建方式: IP [改变安全域创建方式](#)

安全域名称: 等级:

安全域列表 +添加

安全域名称	主机范围	例外主机	等级	非法访问告警	非法访问阻断	操作
ip_10001	113.108.20.48/255.255.255.255	any	12	不告警	不阻断	修改 删除
ip_2	any	7.1.0.0/255.255.0.0		告警阈值:100次	阻断阈值:100	修改 删除
f	修改 删除	smp_1001	59.192.0.1/255.255.255.255 59.56.172.3/255.255.255.2 10.0.0.0/255.0.0.0	any	告警阈值:100次 告警方式:日志告警 违规记录老化时间:1天	不阻断
f		默认安全域	未划入其他安全域的IP		0	不告警

1 - 4 共 4 条 首页 上一页 1 共 1 页 下一页 末页 50

记录非法访问日志

)!%

)!&

请选择安全域的创建方式



源IP地址



接口

)!&

=D	=D



5.3 IP

5.3.1

=D

=D

)!'

当前安全域创建方式: IP [改变安全域创建方式](#)

安全域名称: 等级:

安全域列表 +添加

操作	安全域名称	IP地址	等级	告警方式	阻断方式	操作	
删除	smp_10001	113.108.20.48/255.255.255.0	any	12	不告警	不阻断	修改 ×
删除	smp_2	any	7.1.0.0/255.255.0.0 113.108.20.48/255.255.255.0 59.192.0.1/255.255.255.0	告警阈值:100次 告警方式:日志和 Trap告警	阻断阈值:100 禁止访问所有安全域 禁止访问时间:1分钟	修改 ×	
	any			告警阈值:100次 告警方式:日志和 Trap告警	不阻断	修改 × 删除	
						修改 × 删除	

页 1/10 1 - 4 共 4 条 首页 上一页 1 共 1 页 下一页 末页

记录非法访问日志

)!' =D

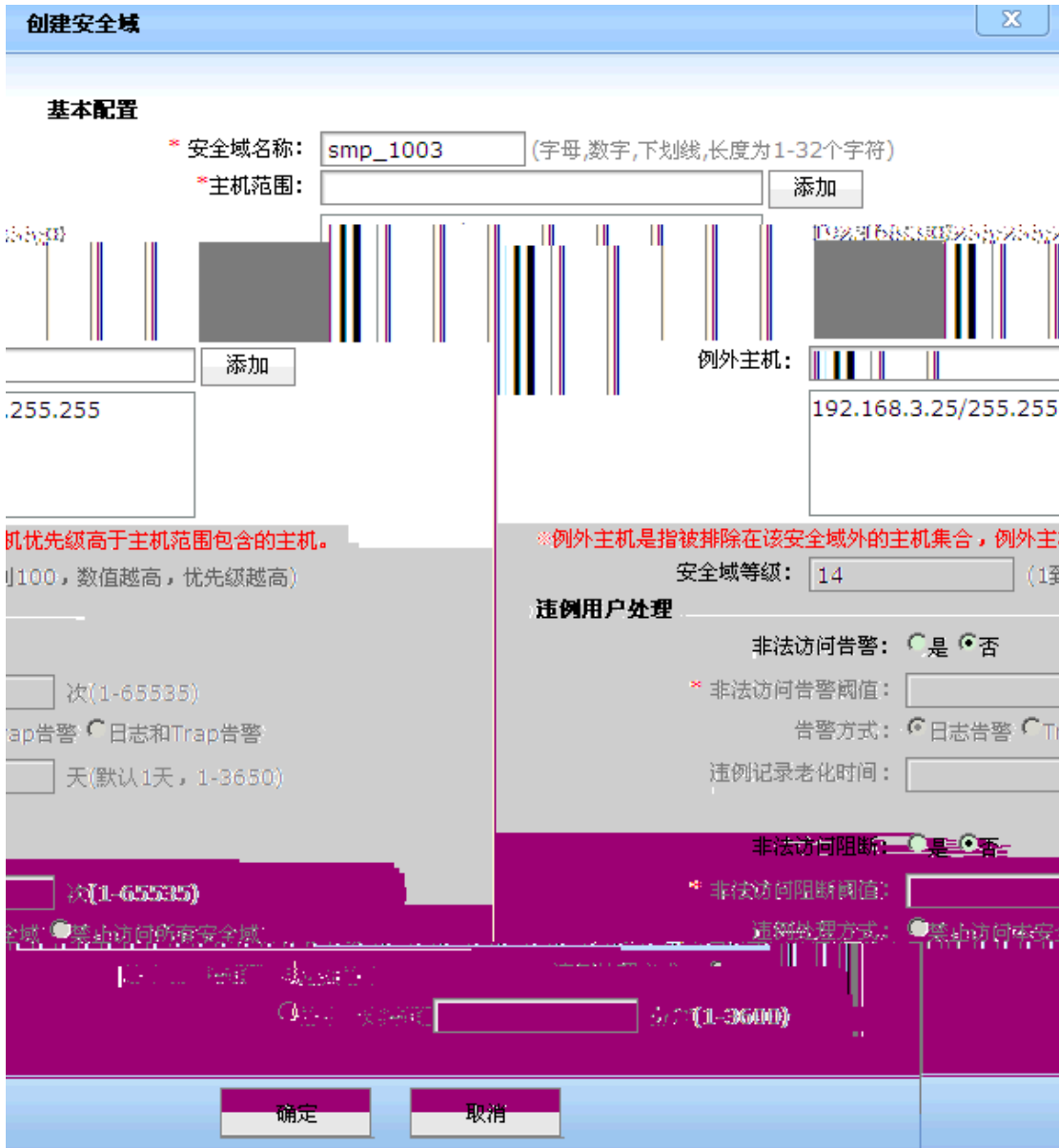
	=D
	=D

	hfUd hfUd %
	% &

5.3.2

)!'

)!('



)!)

	=D =D =D Ubm
Ubm	



5.3.3

%L

>
)!*



)!*

	5 → 6	5	6
	5 ← 6	6	5
	5 ↔ 6	5 6	
	5 ↔ 6	5 6	
	5 → 6	5	6
	5 ← 6	6	5

&L

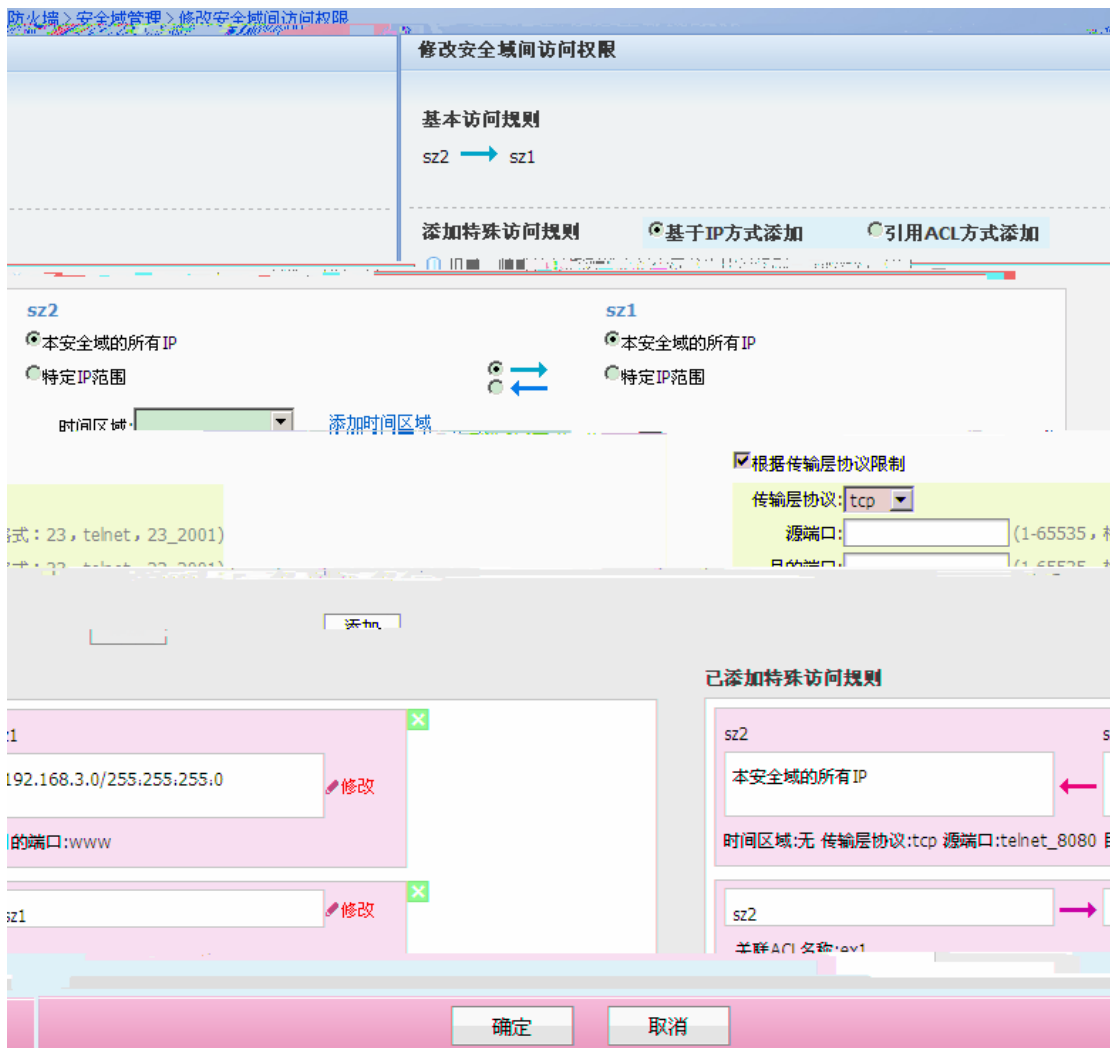
)!*

允许同一安全域内互访 允许同等级安全域间互访

)!*

允许同一安全域内互访 允许同等级安全域间互访

)!+)!*



)!+

&

=D

=D

57@

57@

57@



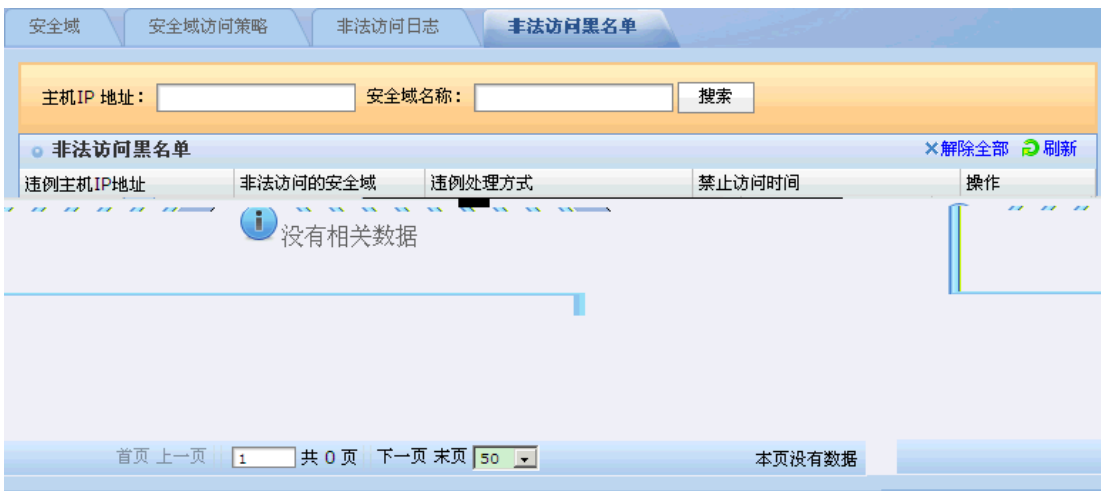




)!

=D	=D

>
)!-



)!-

=D	=D

5.4

5.4.1

)!%\$

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

已选接口

* 安全域等级: (1到100, 数值越高, 优先级越高)

)!%%

	16

5.4.3

IP

5.2.2.3

[IP](#)

%L

)" & &'



&L

)" & &'



57@ 5Wgg 7cbfc` @gh

57@

f5Wgg 7cbfc` 9bfm 579L

6.1

ACL

%	57@	57@ 57@
&	579	ACL ACE ACE

6.2 ACL

> 57@

57@

*!%



6 1 ACL

ACL

ACL

ACL

ACE

ACL

ACE

ACL

ACE

57@	579 d]f a] h X]bm
=D	579 =D =D =D =D
=D	579 57@

=D	579	57@ =D
=D	579	57@ =D
	579	579
ACE	ACE	579
579	579	

6.3 ACL

ACL

[6.1](#)

ACL

ACL

6.2

添加ACL

提示：

- 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。
- 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

6 2 ACL

57@	<p>57@</p> <p>57@ %\$!% - &\$\$\$! &* --</p> <p>57@ %\$!% -- % \$\$! %--</p>
57@	<p>57@ IP 1 - 99 1300</p> <p>- 1999 IP</p> <p>57@ IP 100 - 199</p> <p>2000 - 2699</p>
	<p>57@</p> <p>in ACL</p> <p>ACL ACE</p> <p>out ACL</p> <p>ACL ACE</p>

KV =D =D =D

A57 A57 9 d\fh

7@=

6.4 ACE ACL

ACL ACE 2

ACL ACE ACL IP

ACL ACE ACL IP IP

ACE

1. ACE

2. " "

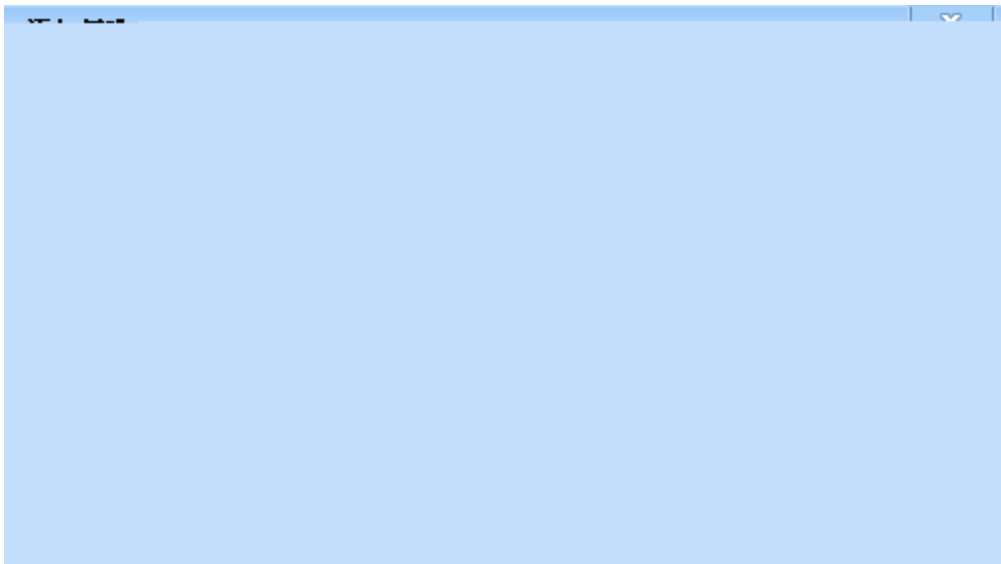


"

"

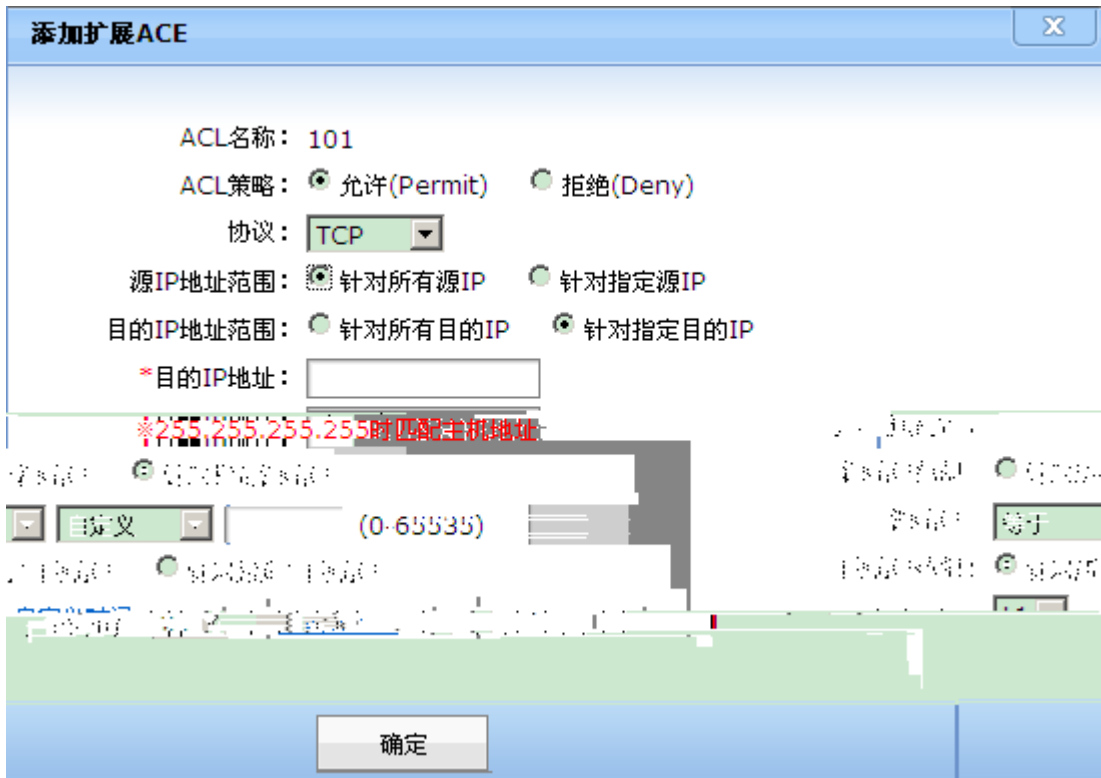
%L 57@ 579

ACL ACE 61 ACE ACL ACE ACE



63 ACE





6 4 ACE



579

57@

Dfajh

8Ybm

B5H BMkcf_ 5XX Ygg H Ubg` Uh] cb =D =D =D
 =D =D B5H =D

7.1

B5H
 =D =D
 =D =D
 =D =D
 =D
 % =D
 & =D

NAT

%	B5H	B5H	B5H
&	B5H	NAT =D =D =D	

7.2 NAT

> B5H =D B5H +! %



+!% B5H

NAT

NAT

NAT

7 2



7 2 NAT

	B5H

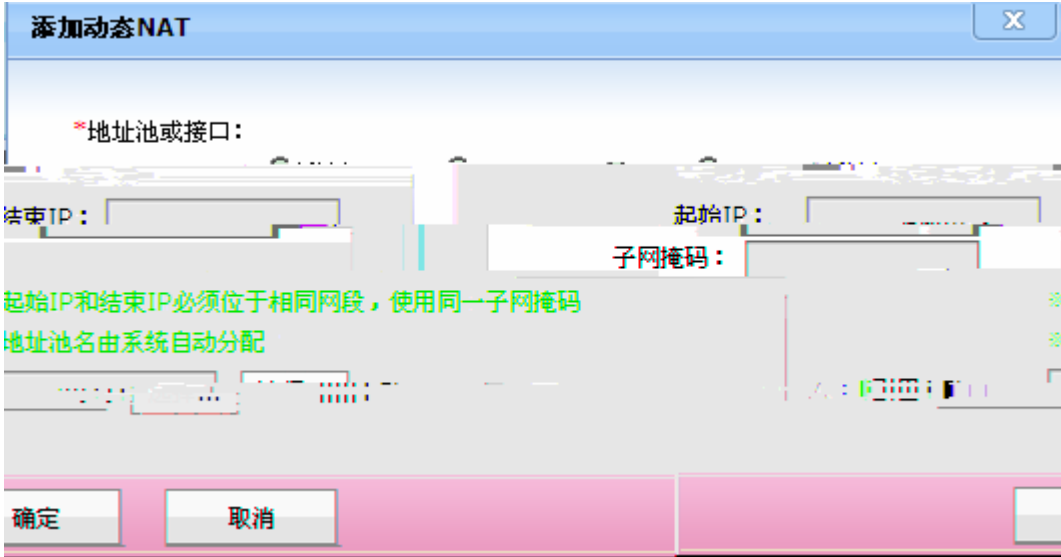
7.3 IP

NAT

7.1

IP

7.2



+!&

=D

		=D fl
	B5H L	
	&	
	% !!!!	
	&	!!!!
57@	ACL	ACL

7.4

IP

NAPT

=D

> B5H
+!'

8AN

B5H

内网、外网IP地址转换(动态NAT) | DMZ服务器配置(静态NAT)

业务系统IP地址转换 +添加 ×删除

没有相关数据

业务系统IP地址转换配置显示区域

服务器IP地址转换 针对2种内网服务器,分别是:
第1种:为独立内网服务器,配置一个静态的外网IP地址。
第2种:为多台内网服务器,配置一个静态的外网IP地址。

+添加 ×删除

允许主动访问外网	操作	类型	外网IP或接口	内网服务器IP

没有相关数据

服务器IP地址转换配置显示区域



D

172.18.3.7 udp(2002)

6

172.18.3.7

UDP

	=D % %
	=D %
=D	B5H =D
=D	=D

=D	& =D— B5H =D — B5H
	=D Ž
=D	B5H =D
	B5H
	B5H

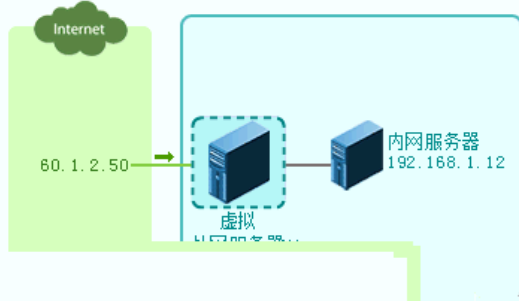
7.5 IP (1 1 1)

B5H +! =D =D
 +!)

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:

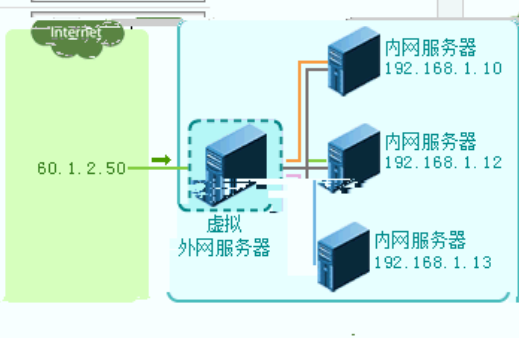
*内网IP地址:

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:
*内网IP:
*接口:

确定 取消

+!) =D

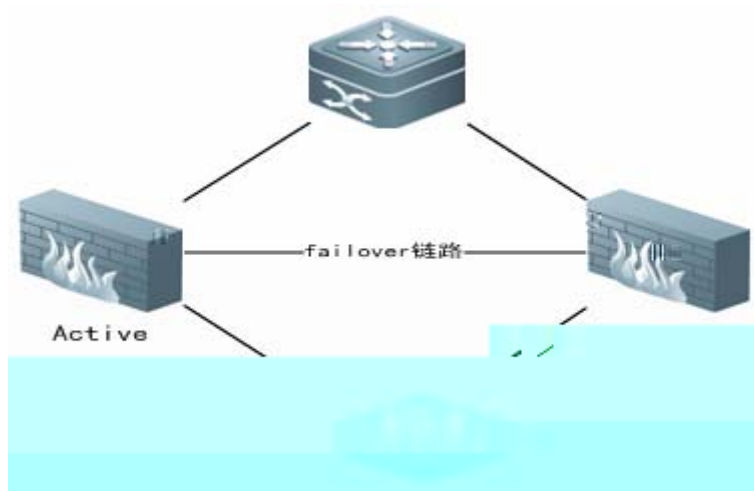
=D % %



=D	B5H =D
=D	B5H
=D	B5H

5MjY

GhUxVm



, !%

ZU`cj Yf

: U`cj Yf

8.1

HA

> <5

<5

, !%

HA(高可靠性)管理

基本状态

热备状态: 未建立

工作模式: 主备运行

HA

HA

HA

HA

[多信息>>](#)

双机热备部署示意图

心跳线
Failover 线路

主用防火墙 备用防火墙

新
自动刷新时间:
刷

[热备配置>>](#)

, !% <5

	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: left;">5G</div> <div style="text-align: center;">5G</div> <div style="text-align: right;">5G</div> </div> <div style="display: flex; justify-content: center; align-items: center; margin: 10px 0;"> GhUbXVm </div> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: left;">55</div> <div style="text-align: center;">55</div> <div style="text-align: right;">55</div> </div>
	<div style="display: flex; justify-content: center; align-items: center;"> K96 </div> <div style="display: flex; justify-content: center; align-items: center; margin-top: 10px;"> ghUbXVm </div>

<5

>>

>>

,!&

基本状态信息心跳报文信息状态机信息备份状态信息

```
show failover info:
failover off
Failover create time: NA
Last switch: NA
This host:
Secondary: Failover disabled
Primary: OK
```

返回

,!&

8.2 HA

> <5

<5

>> ž <5

, !'



, !' <5

<5

%		
&	#	

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](#) [x 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
i 没有相关数据				

确定 取消

9 2

	%%

interface VLAN

interface VLAN

IP

9.3

[9 1](#)

9 3



9 3

Web
30%

MAC

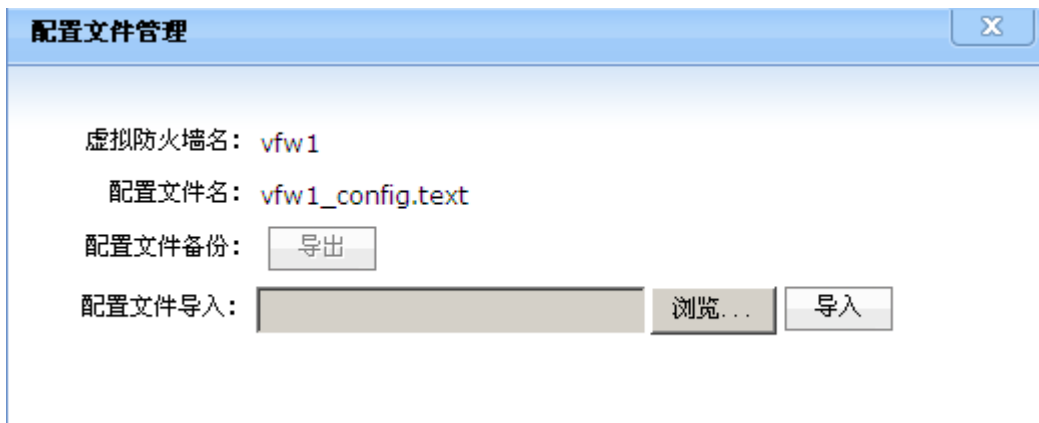
30%

L

9.4

[9 1](#)

9 4



10.1

>

%!%



%!%

=D	=D
	=D
#	=D



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): 1-255

权重(WEIGHT): 1-8

确定
取消

%! &

=D	=D =D S" S" S" S"
	=D S" S" S" S"

	=D
	=D
#	
	DDD =D DDD
	DD =D
	BGA5 D&AD =D =D
	J]fhiU!Hrad UhY J@5B
	\$f]d %SS



%

11.1

>

%!

静态路由 **策略路由**

策略路由 是一种路由规划，它可以使数据包按照用户指定的策略进行转发。对于某些管理目的，要求某些路由必须经过特定的路径

当前策略模式： 冗余备份模式

策略路由列表 [+添加策略路由](#) [×删除](#)

路由图	优先级	匹配IP地址	下一跳地址	应用的接口	操作
<input type="checkbox"/> mp	12	<input checked="" type="checkbox"/> 所选 6.6.6.6/255.255.255.255...	8.8.8.8		应用 应用 到接口 修改 ×删除

%!

11.2

[10.3](#)

10.4

修改策略模式

负载均衡模式
多个下一跳线路分担流量

冗余备份模式

\$ 4

11.3

[10.3](#)

10 5

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
1	92.106.201.0/24	192.106.201.3	<input type="button" value="修改"/> <input type="button" value="删除"/>
2	92.106.201.0/255.255.255.255		<input type="button" value="修改"/> <input type="button" value="删除"/>

10 5

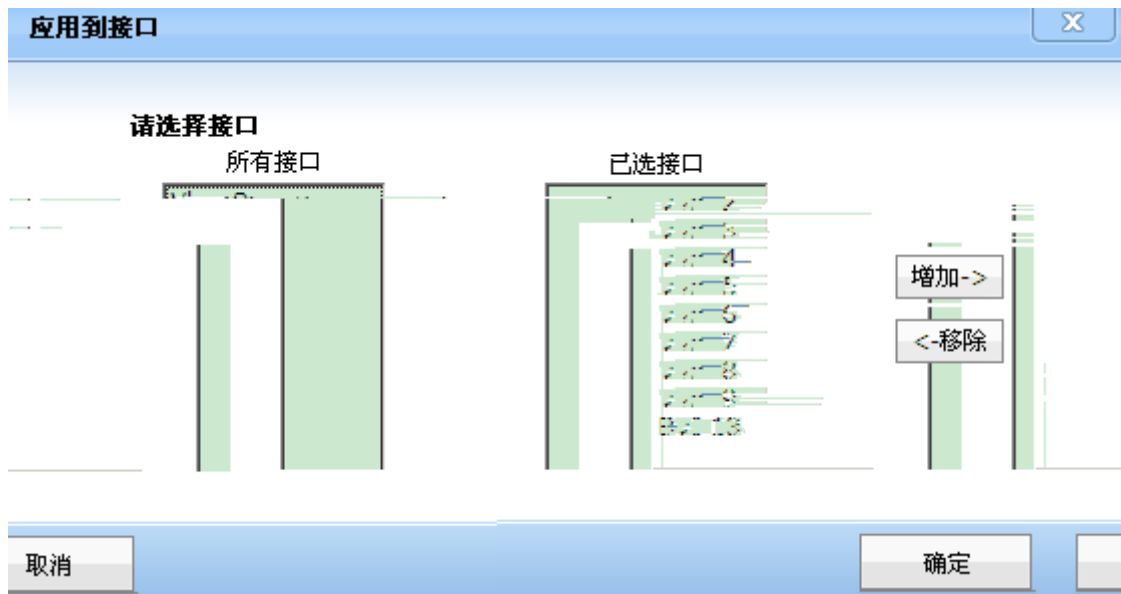
ff ci hY! aUdL	=D =D =D =D
	\$ *)))'
=D	=D =D =D =D =D
=D	=D =D
	=D

%)

11.4

10 3

10 6

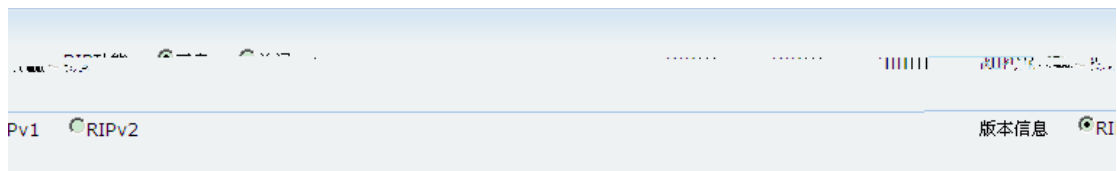


RIP (Routing Information Protocol)



%% & % F=D

12.2.1



%% & % & F=D

12.2.2

%

F=D ——> ž & %
% &"%\$, "%\$ " \$#& # & % &"%\$, "%\$ " \$ &)" &)" &)" \$
" %& &"%' " >a "

*RIP进程关联网络

%% & % *

12.2.3

路由源地址验证 开启(默认) 关闭

%%&%%&

12.2.5

F]d

%%&%%&

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

%%&%%&F=D

]d

%

单播方式通告路由更新报文

%%&%%&

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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

%%&%%&

12.3RIP

RIP

F=D

J@B

F=D

%% & & %

The screenshot shows a network configuration interface with tabs for 'RIP基本配置', 'RIP高级配置', and 'RIP状态监控'. The 'RIP高级配置' tab is active, displaying a table of running RIP interfaces. The table has columns for '接口名称', '水平分割', 'RIP报文收发状况', and '通告默认路由'. Two entries are visible: Vlan 5 and Vlan 6, both with '水平分割' set to '不启用' and '通告默认路由' set to '未配置'.

接口名称	水平分割	RIP报文收发状况	通告默认路由
Vlan 5	不启用	是	未配置
Vlan 6	不启用	是	未配置

%% & & % F=D

——> ——>
%% & & &

J@B

F=D



%%&&&

12.3.1

F=D

——>

——>

[修改](#)
%%&&&'

%%&&&

f%L

%&'%"\$" \$#%

#

%%&&& (fV %&'%"\$" \$&)"&)"%

&

fU

fl&L ž %04 & &)
× ž × %04 & & *
F=D %0' &' %') F=D %0' &' %' &

接口级路由汇聚:

%04 & & '

接口级路由汇聚:

%04 & & (

接口级路由汇聚:

172.18.0.0/255.255.192.0

%04 & &)

接口级路由汇聚:

172.18.0.0/255.255.192.0 ×

%04 & & *

12.3.2

12.3.3

F=D

——>

——>

 修改

%% & & &

f]d

——>

%& & %"

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%& & %
%

%& & %+

=8

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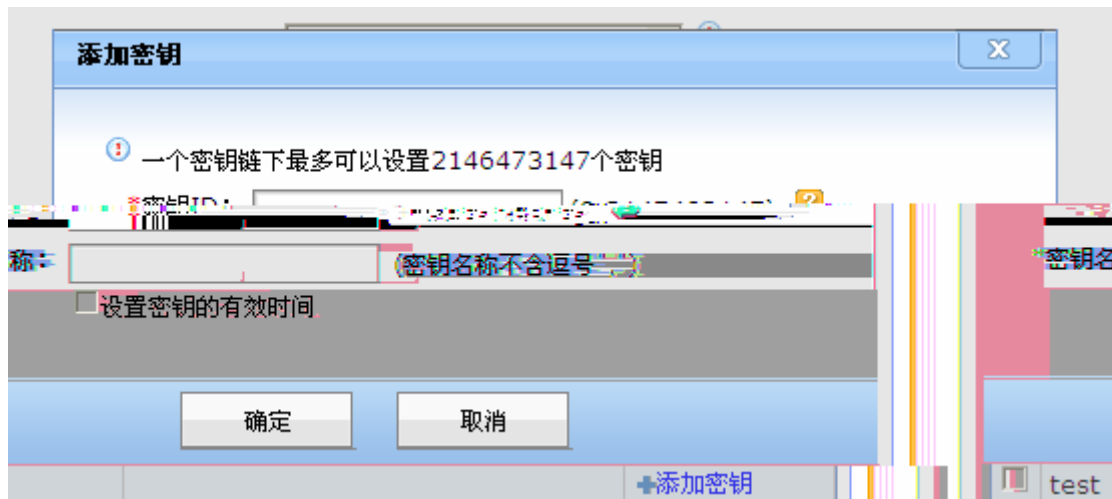
%& & %%

%& & %&

%%&&%

fi]^Y

%%&&%



%%&&%

添加密钥 [X]

! 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",")

设置密钥的有效时间

接收起始时间:

接收终止时间:

发送起始时间:

发送终止时间:

永久有效

永久有效

取消 确定

%% & & %

添加密钥 [X]

! 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:

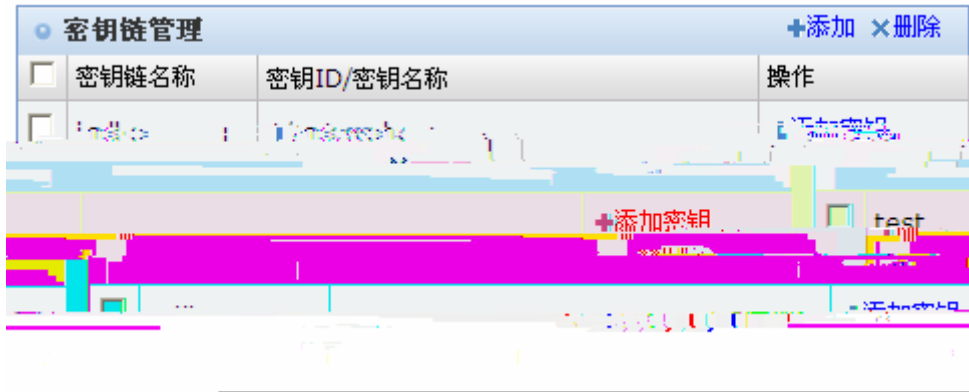
接收终止时间:

发送起始时间:

发送终止时间:

确定

%& & %



%& & %

%#bYhkcf_

%& & %

%& & & %

%& & & %



%% & & &

12.3.6

f]d ' %% & & & U
V V W
V f]d %-% %% & & &

%% & & &

%% & & &

12.3.7

f]d F=D
%% & & & &
%% & & &+ %% & & &

%%&&&*

%%&&&+

%%&&&

12.3.8

f]d
F=D

%%&&&
%%&&&'S

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%%&&'S

12.3.9

%%&&'S

J@5B &

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%%&&'% " j`Ub&

%%&&'%

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12.3.10

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%&'!%F=D

OSPF Open





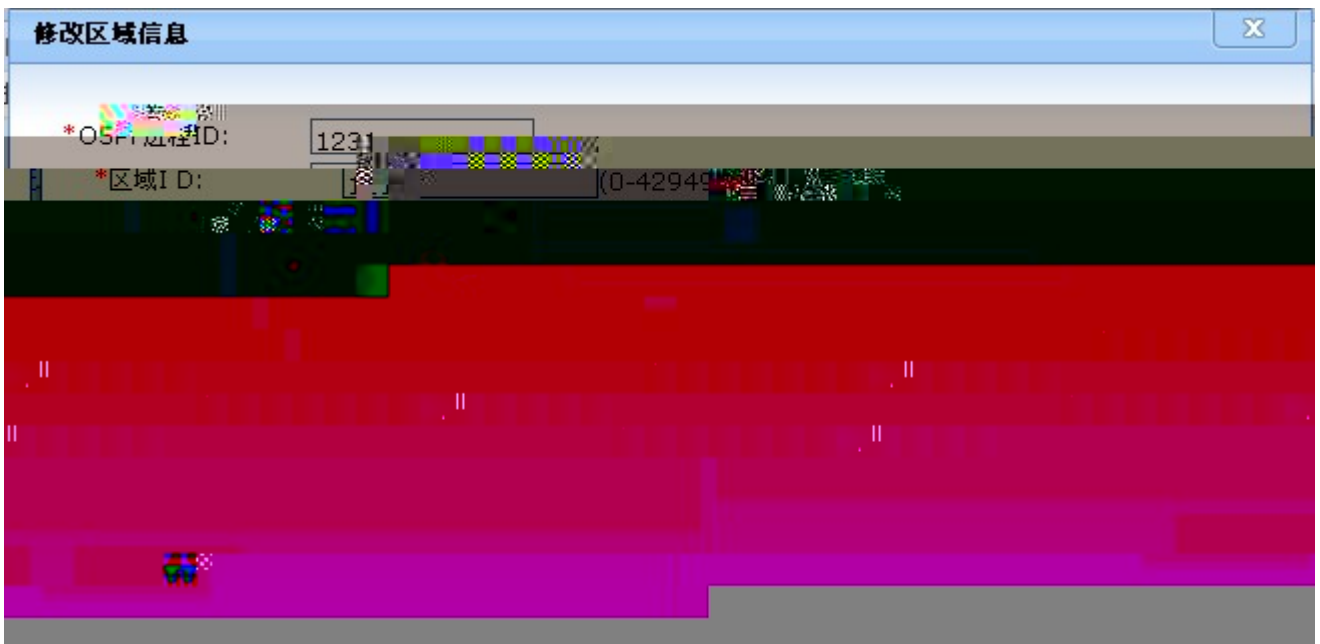
CCD

=8

CCD	=8	CCD
	=8	
		CCD

CGD

=8



CGD =8	CGD
=8	CGD
	CGD

CCD

=8

ž

"

CCD

ž

CCD

ž

OSPF

,

13.2.2

13.2.2.1

```

OSPF
  Stub Area
  1
  2
  3
  Stub
  LSA
  1
  2
  OSPF
  ( no summary
  )
  ( area default cost
  )
  
```

13.2.2.2 NASS

```

NASS(Not So Stubby Area) OSPF STUB ,NASS 5
LSA(AS external LSA) NSSA , STUB NSSA
OSPF
.
NASS , 7 LSA
NASS NSSA 5 LSA
NASS
NASS NSSA NSSA
NASS NSSA NSSA area nssa
NASS
NASS
  
```

Step 1	<pre> :] fYkU `(config-router)# area area-id nssa [no-redistribution] [no-summary] [default-information-originate[metric metric][metric-type [1 2]]] NSSA </pre>
Step 2	<pre> :] fYkU `(config-router)# area area-id default-cost cost NSSA </pre>

```

Type 7 LSA nssa ABR ASBR
Type 7 LSA ASBR
( ABR) Type 7 LSA
  
```

no redistribution ASBR

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

13.2.2.3 STUB

OSPF

area id []

area id []

area-id	STUB
no-summary	ABR ABR



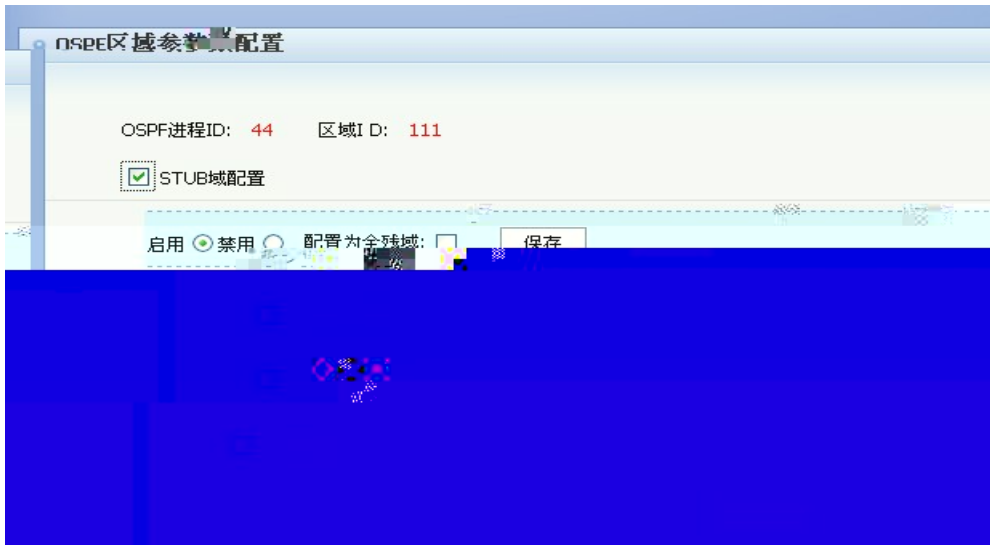
OSPF (LSA) 1 1 area stub LSA 2 2 ABR LSA 3 3
 LSA ABR area s OSPF

area default-cost

```

1
:~]fYkU `(config)# router ospf 1
:~]fYkU `(config-router)# network 172.16.0.0 0.0.255.255 area 0
:~]fYkU `(config-router)# network 192.168.12.0 0.0.0.255 area 1
:~]fYkU `(config-router)# area 1 stub
    
```

!> GH6 !> =8
 GH6 ž GH6 ž



13.2.2.4

area-id	STUB ,

: no-summary	ABR ABR
------------------------	------------

OSPF

OSPF

CGD

!>

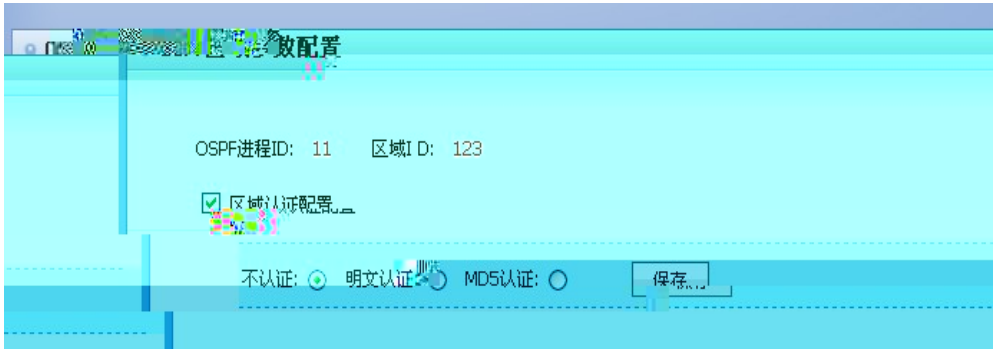
CGD

=8

ž

ž

ž



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

13.2.2.5

OSPF

area id ip address net mask [] [cost]

area id ip address net mask []

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

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

cost

RFC1583

RFC1583

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

13.2.2.6

ABR area filter list
 area id [acl name| prefix name] [|]
 area id [acl name| prefix name] [|]

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

ABR

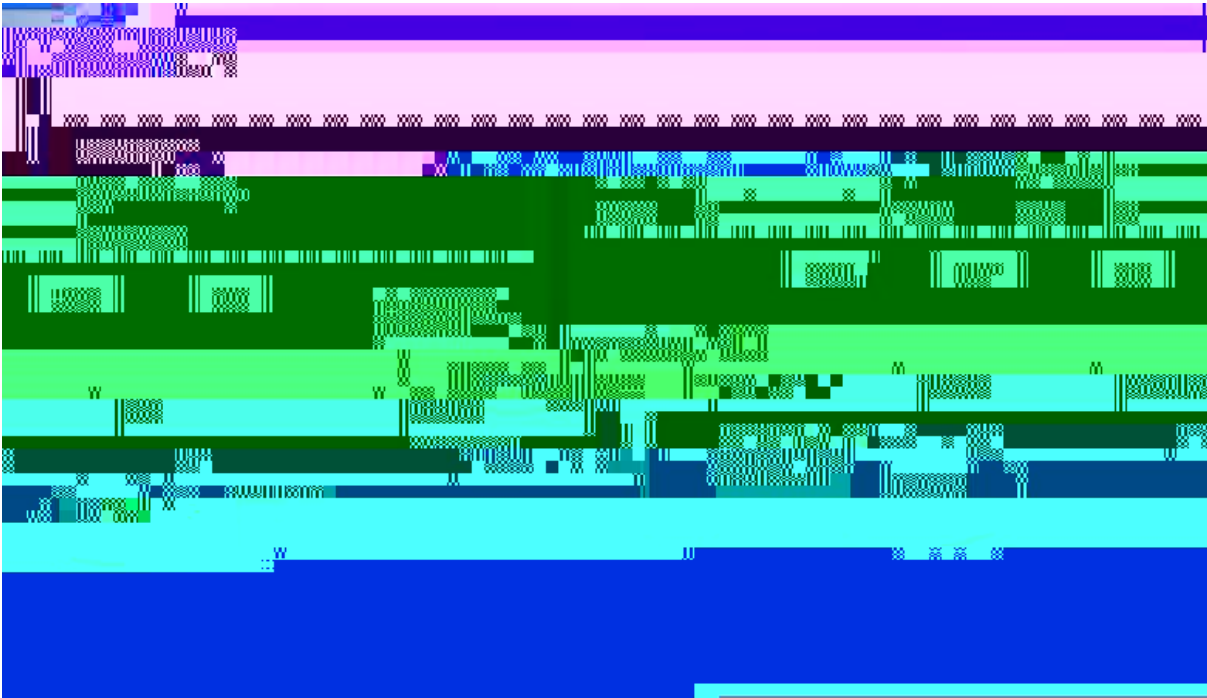


ip-address

IP

poll-interval seconds

1-2147483647



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

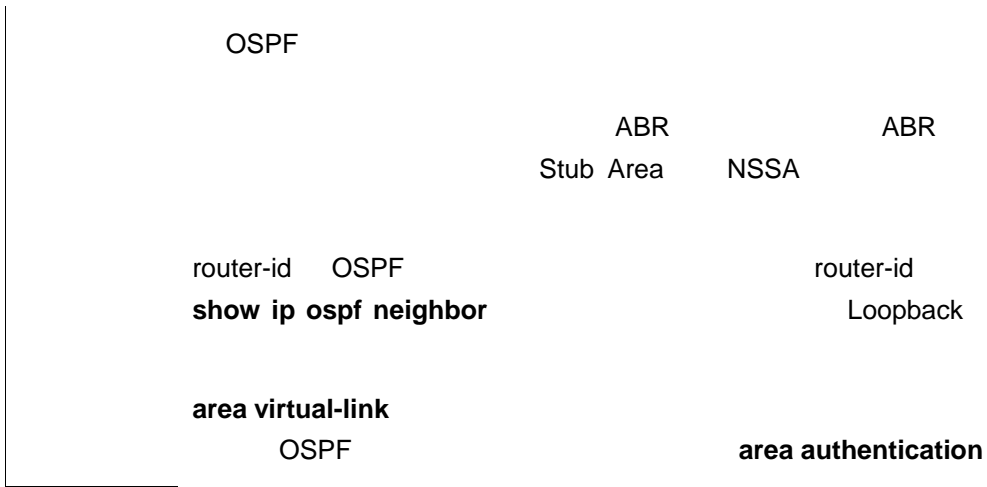
添加

ž ž \

修改

, "ospf"
, \
”

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



13.2.4.2

[[[!> [[[=8
ž .

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

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

13.2.5

13.2.5.1

OSPF

OSPF

OSPF



13.2.5.2

ž CGD

CGD

)

LSA

no

timers lsa-group-pacing seconds

no timers lsa-group-pacing

seconds	LSA	: 10-1800

240

LSA CPU (LSA age) CPU LSA LSA LSA

no

passive-interface [default | type number]

no passive-interface [default | type number]

type number	
default	

OSPF

CCD

CCD !>

CCD ž

=8

CCD

ž

ID	ID
	,
OSPF	OSPF
OSPF	OSPF

13.2.5.3 OSPF

OSPF

110

OSPF

{distance| { distance| distance| distance}}

[]

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

OSPF

!>

OSPF

=8

OSPF

ž

ž

ž

OSPF ID	
	1-255 110

spf-delay spf-holdtime

OSPF

CPU

timers spf timers throttle spf

13.2.5.5

OSPF

ip address net mask { | value }

ip address net mask { | value }

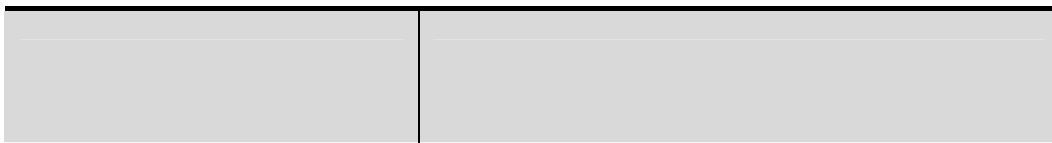
	ip-address	IP
	net-mask	
	not-advertise	
	tag value	tag 0-4294967295

OSPF

OSPF

area range

area



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

metric 1
metric-type 2

```

redistribute default-information OSPF ASBR
ASBR ASBR OSPF
ASBR default-information originate

always OSPF
show OSPF -0.0.0.F

wp ip r6(obute)TC20 1 Tf02 Tw76183 0 TdPA5104B02C76A1C00C34B9E2C4F68043350E62CD543C32B03F263.335 -1.557
OSPF 1
    
```

00

!>

00

=8

13.3 OSPF

13.3.1

OSPF

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

OSPF

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

Step 10

```

: ]fYkU `(config-if)# ip ospf priority
{broadcast          non-broadcast
point-to-multipoint non-broadcast  ]
point-to-point}

```

```

broadcast          OSPF
non-broadcast      OSPF
                   NBMA
point-to-multipoint [non-broadcast]
OSPF
                   , non-broadcast
point-to-point     OSPF

```

Step11 :]fYkU `(config-if)# ip ospf authentication
[message-digest | null]

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

()

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

()

64K

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

<p>BFD ()</p>	<pre> , , bfd all-interfaces ip ospf bfd BFD OSPF bfd all-interfaces OSPF BFD ip ospf bfd disable BFD </pre>
<p>OSPF ()</p>	<pre> , , network area network ospf OSPF OSPF </pre>
<p>() ip ospf database-filter all out</p>	<pre> , , LSA LSA LSA </pre>
	<pre> 1: 2 3 MD5 no null , , </pre>

ip ospf authentication-key
OSPF
OSPF

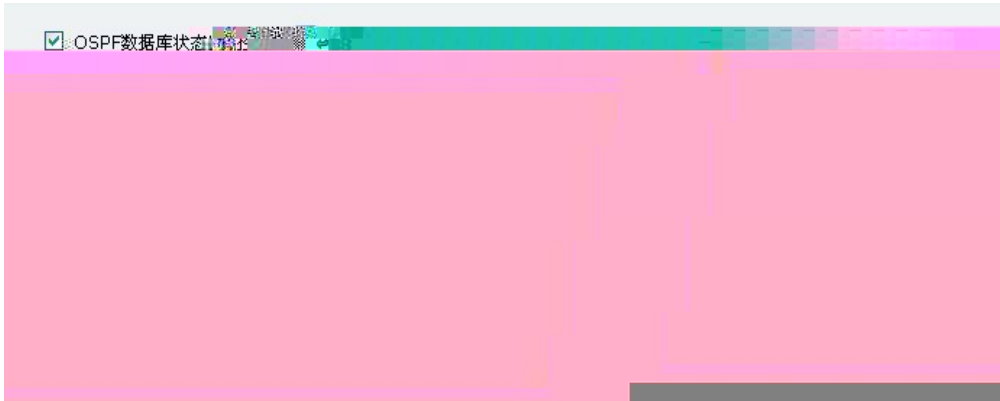
KEY

OSPF
area authentication

,

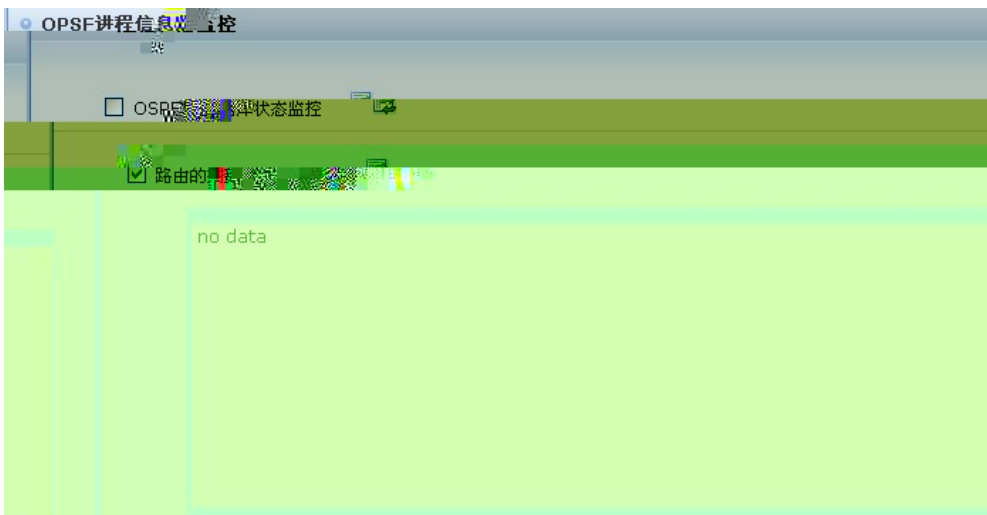
13.4.1

OSPF , OSPF , OSPF
>CGD CGD
OSPF OSPF :



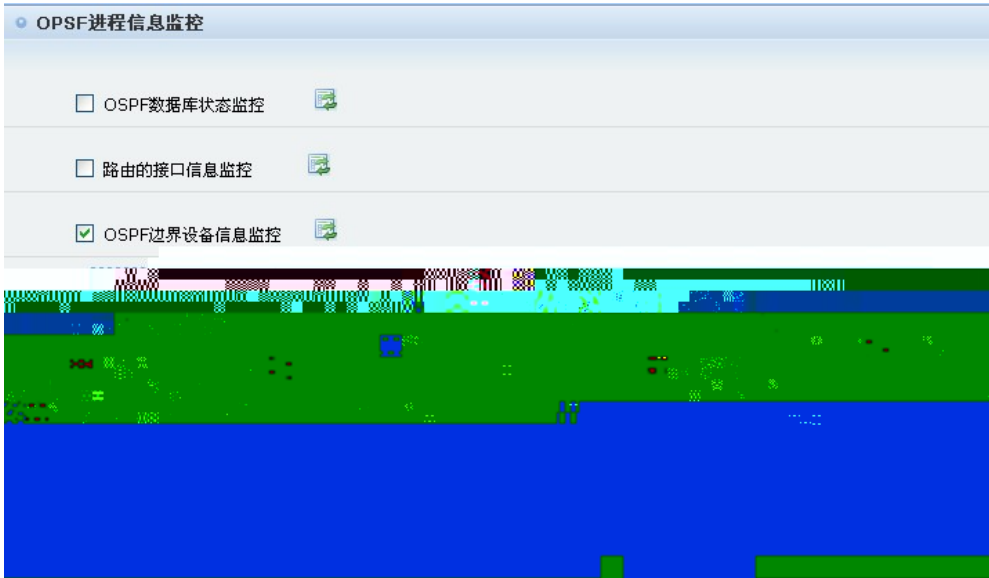
13.4.2

OSPF , OSPF , OSPF
>CGD CGD
OSPF OSPF :



13.4.3

OSPF , OSPF , OSPF
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OSPF OSPF :



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