



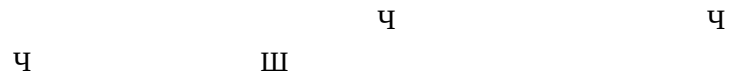
Web

RGOS 10.3(4b6)p1

©2000-2012

III

III ㄣ ㄣ ㄣ ㄣ ㄣ ㄣ



8:30 6 1 L 4
III 4



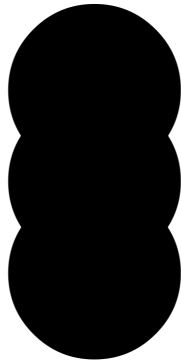
4
III

4008-111-000

<http://support.ruijie.com.cn>

service@ruijie.com.cn

Ä6 Ä



1.

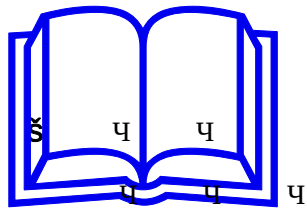
III Courier New 5 III

2.

Arial III

[] III
{ x | y | ... } III
[x | y | ...] III
// III

3.



III

4.



III

q

III

III

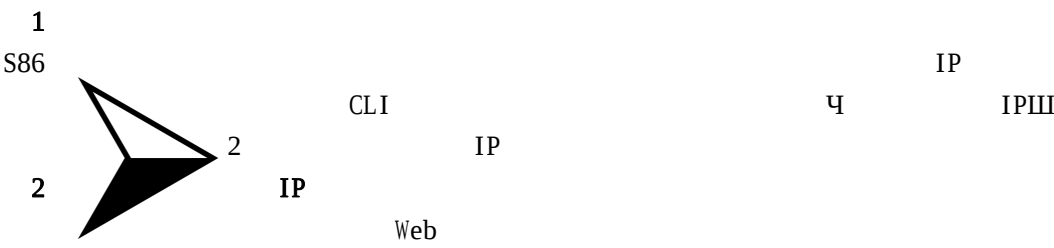
1 Web

1.1



1-1 Web

1.2 Web



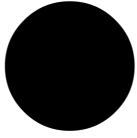
192.168.201.1		IE 8.0		IP	
ruijie		Web		1-2 III	
123456	<	>	III		

III

Web < > Web III

Web	4	4	1-3	III
-----	---	---	-----	-----

2012-9-19	Web	8	, 129
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```
M8600-FW (config)#ip http authentication ?
```

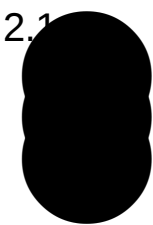
```
enable  Use enable passwords
```

```
local   Use local username and passwords
```

```
enable
```

Web

2



2.1

CPU

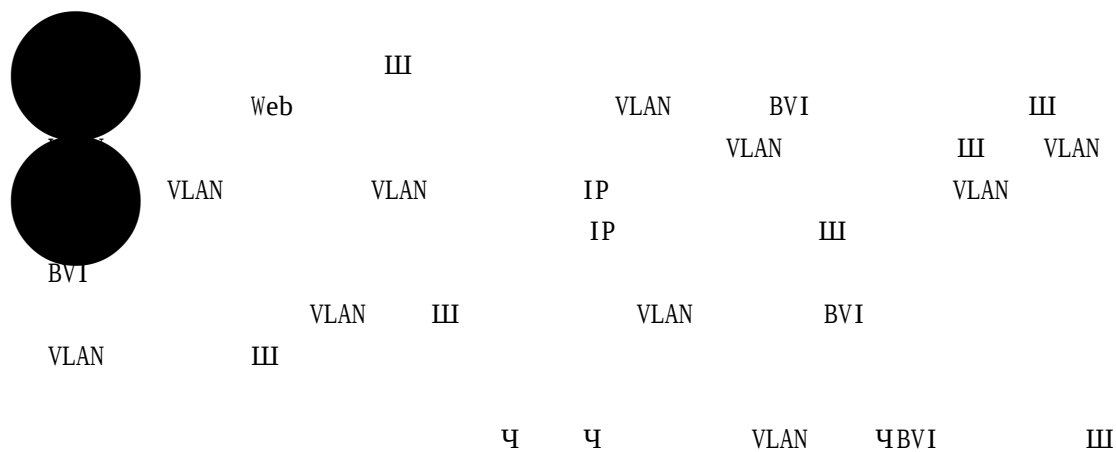
2.2

III Web I Ł 2-1 III

2-1

3

3.1



3.2

3.2.1 VLAN

3.2.1.1 VLAN

I. > L VLAN III 3-1 III

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IP	/		IP	IP	IP
----	---	---	----	----	----


 DOWAL

IP

—

IP

3.2.1.2 VLAN

VLAN 3-1 1 2 VLAN 3-2

3-2 VLAN

VLAN ID		VLAN	ID				
IP		IP	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					

3.2.2 BVI

3.2.2.1 BVI

f > L VLAN III f L
III 3-3 III

3-3



VLAN III VLAN
VLAN IP III



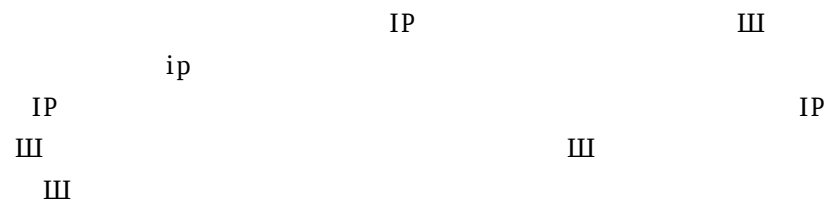
3-4

ID	ID, 1-500									
	VLAN					III VLAN				
	VLAN					IP		III		
IP	IP					IP		IP		
						IP		IP		
	IP							IP		
	PPP					PPP		IP		
IP /	IP							III		
IP /	IP					IP		III		
	L					IP		III		

4

4.1

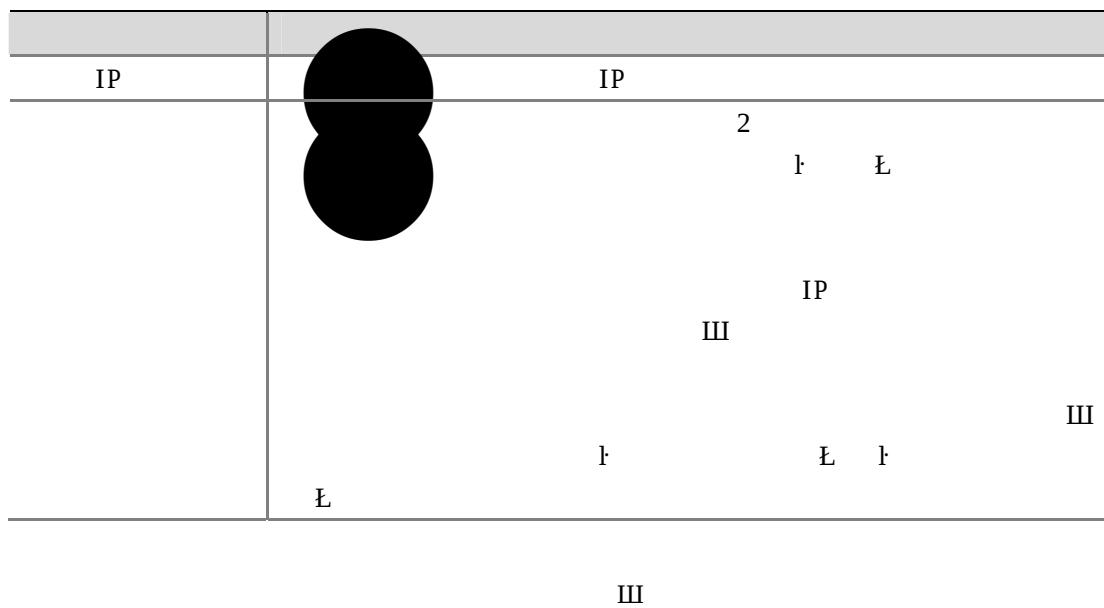
4.1.1



4.1.2



4-1



4.1.3

4-2 [4-1](#) 1 2

IP 4-2
IP

4.2

III 1 > 2 1 2
4-3 III

4-3



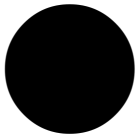
4.3

4.3.1

4.3.2

III 4-4 III

4-4



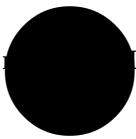
DoS Denial of Service

III

DoS

SYN Flood

Firewall



III

ping

ICMP

TCP

III

TCP

UDP

III



TCP/IP

TCP

III

SYN Flood

	pps f
	£ III
	III
	IP
	III

4.4.4

III	f	>	£	f	£
UDP FLOOD	IP	FLOOD	Ψ	ICMP	Ψ SYN FLOOD
	Ψ	ICMP FLOOD	III		Ψ

4.4.5.1 IP FLOOD

4-8

4-8 IP FLOOD

IP FLOOD	: f IP FLOOD £
	f IP FLOOD £
	pps
	IP FLOOD

4.4.5.2 ICMP

4-9

4-9 ICMP

ICMP	: f ICMP L
	f ICMP L
ICMP	ICMP 4000 bytes byte

4.4.5.3 SYN FLOOD

4-10

4-10 SYN FLOOD

SYN FLOOD	f SYN FLOOD L
	f SYN FLOOD L
IP ACL	SYN FLOOD IP III ACL ACL III ACL ACL III

	I L SYN FLOOD
	I L

Web	SYN Flood	1	IP	2
1)	ACL	IP	III	
	I	IP L	I SYN	L III 4-11

4-11 SYN FLOOD

IP	SYN FLOOD IP
	III
	III
2)	SYN FLOOD III
	ACL
	ACL
	III

4.4.5.4 UDP FLOOD
4-12

4-12 UDP FLOOD

UDP FLOOD	f UDP FLOOD £ f UDP FLOOD £

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

	UDP Flood	1		IP	;2)
1	ACL	III	1	UDP FLOOD	1
	1	1	1	III	4-13

4-13 UDP FLOOD



4-14 ICMP FLOOD

ICMP FLOOD	1 ICMP FLOOD 2
	1 ICMP FLOOD 2
IP	ICMP FLOOD IP III ACL
	ACL III ACL
	ACL III
	ICMP FLOOD III
	ICMP FLOOD III
	1 2 ICMP FLOOD
	1 2

1) ICMP Flood 1 IP;2) ACLIII
1 ICMP FLOOD 2 III 4-15

4-13 ICMP FLOOD

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5

III f 5-1 Ł 5-2

5-2

IP	IP

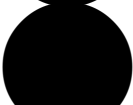
III

5.2.2 IP

5.2.2.1

5-3 III f IP Ł IP

5-3 IP

	ł	IP Ł	default t	
IP		IP		
IP		IP Ł	III	IP
			III	III
			III	
		trap	Ŧ trap	
			III	1
1				
2				

5-5



1

III

1

2

5.2.2.3

1)

1. > 5-6 III 1. III

5-6

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

	IP:		IP
	IP		IP
5.2.2.4	A → B:	A	B
	A ← B:	B	A
	TCP/UDP		
IP		III	III

5-10

	Ł default t
	III

5.2.3.2

5-10 Ł 5-11 III

5-11

	III
	, , , 16

6 ACL

6.1

ACL Access Control List

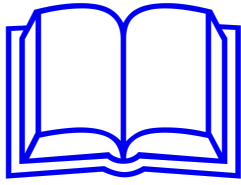
III

ACL

(Ac

6-1 ACL				
ACL	ACE	ACL	ACE	ACL
ACL	ACE	ACL	ACE	ACL
ACE	ACE	ACE	ACE	ACE
ACL	ACE	ACL	ACE	ACL
	permit			
	deny			
IP	ACE	IP	ACE	IP
	IP		IP	
IP	ACE	IP	ACE	IP
			IP	
IP	ACE	IP	ACE	IP
			IP	
IP	ACE	IP	ACE	IP
			IP	
	ACE		ACE	

ACE ACE ACE M



Web

MAC

IP

CLI

MAC

III

IP

III

IP

Expert t

III

6.2.4

A

ACL

ACE

2

ACL

ACE

ACL

IP

ACL

ACE

ACL

IP

IP

6-3 ACE	
ACL	ACE
	Permit Deny
IP	IP:
IP	IP:
	IP
	1 0
	ACE
	ACE

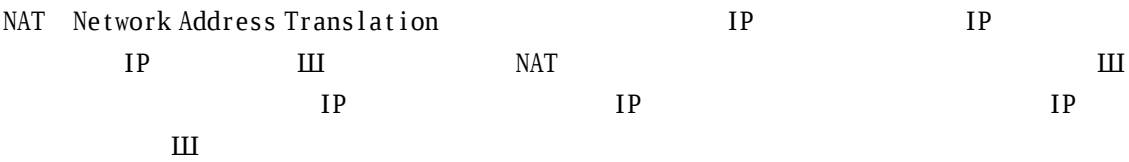
2) ACL ACE
 ACL ACE [6-1](#) ACE
 ACE ACE 6-4 ACE

6-4 ACE

	ACE		
ACL	Permit	ACE	
	Deny		
IP		IP	IP
IP		IP	IP
	ACE	III	
	III		

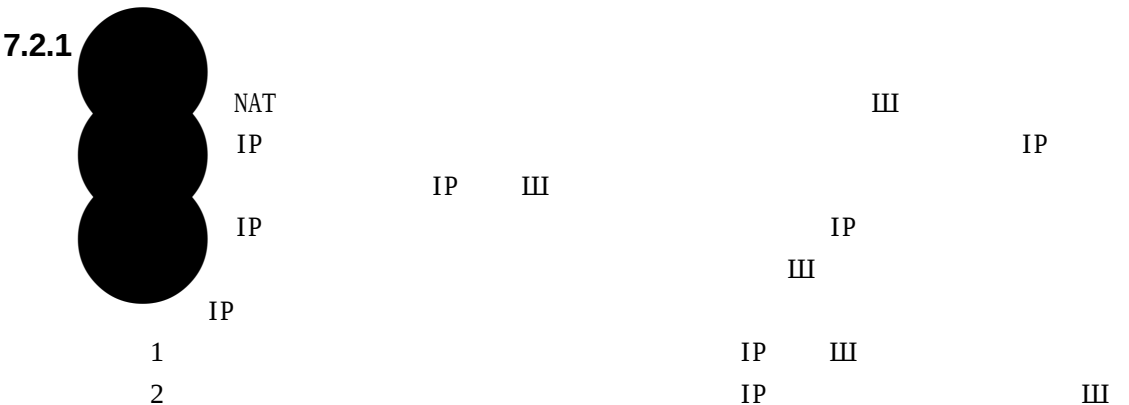
7 NAT

7.1



7.2 NAT

7.2.1



NAT

1	NAT	NAT NAT
2	NAT	NAT IP IP IP

			7-1	NAT				
NAT	┆	NAT		Ł	┆	Ł	┆	Ł
NAT		7-2	III					

7-2 NAT	
	NAT

7.2.3

Ψ

IP

NAT

7-2

III

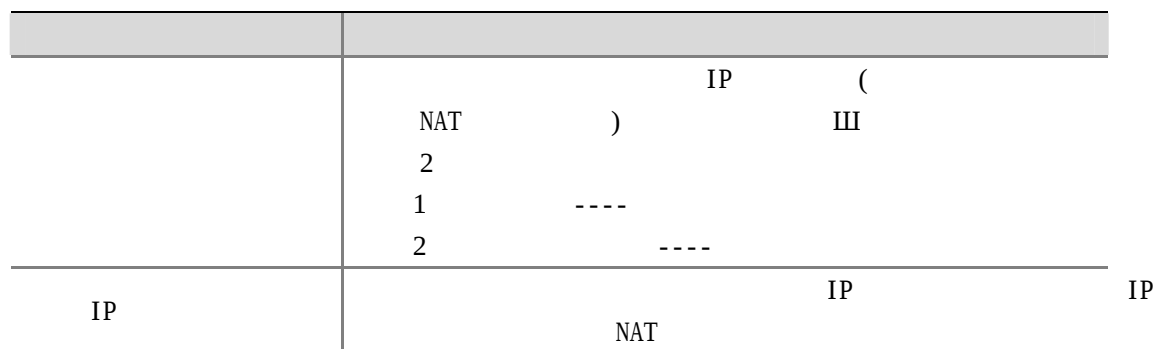
7-1

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IP

7-2 Ч IP



7.2.4 IP NAT

DMZ > NAT NAT L
IP III 7-3 III

IP		7-3 NAT	
IP		NAT	IP III
IP		:1026	4:172.18.3.7 udp(2002)
		2002	1026 172.18.3.7
IP		UDP	
IP		1 1	
IP		IP 1 III	
		NAT	IP III
IP		IP	
NAT	<u>7-3</u>	IP	
IP	7-4	III	

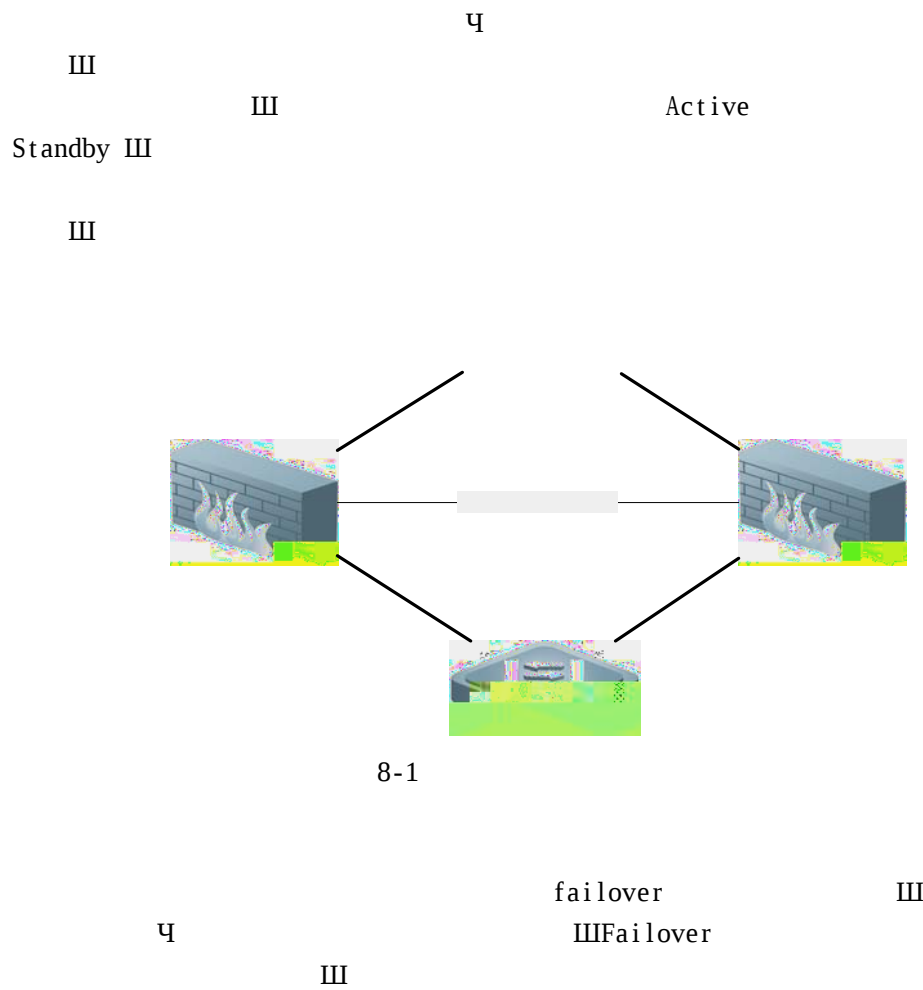
7-4 IP

IP	$2 \begin{matrix} \text{IP} - \text{NAT} \\ - \text{NAT} \end{matrix} \text{IP}$
IP	$\text{IP} + \begin{matrix} \text{NAT} \\ \text{NAT} \end{matrix} \text{IP}$

7.2.5 IP (1 1 1)
NAT [7-3](#) IP IP
7-5 III

8 HA

8.1



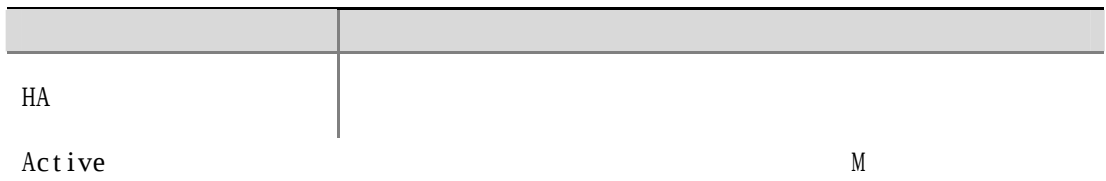
8.2

HA

f > HA L HA III 8-1 III

failov

8-1 HA



8-2

8.3 HA

HA f > HA L HA f HA >> L ,
8-3 III

8-3 HA

HA		
1	HA	
2	/	
3	Failover	Failover VLAN failover III IP IP IP IP IP

9

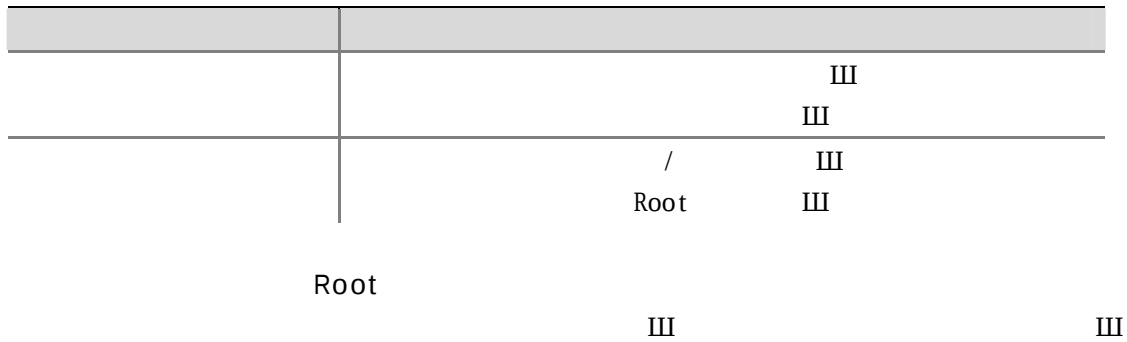
9.1



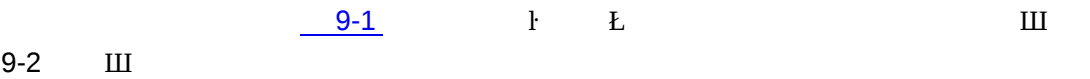
9.2



9-1



9.3



III 9-3 III [9-1](#) Ъ £

9-3

Web 30% 30% Ч ЧMAC III

III

III

Ъ £ Ъ £ III

9-4

III

III

IE

III

Web

III

10

10.1

10.1.1

f > L 10-1 III

10-1

IP	IP
/	IP IP

									0
	rip	120							
			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								

10.1.2

10-2 III [10-1](#) 1 1

10-2

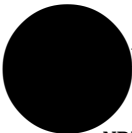
IP	IP
	IP

IP

III
III
III
IP
III
III



/



NBMA P2MP



IP
III
III
IP

Virtual-Template VLAN

III
III

	III
	1 III weight WCMP
	weight
	III WCMP 8 III
	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

10.2

10.2.1

10.2.2

2012-9-19

Web

65 , 129

10-5



(route-map)



IP

┆

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10-5

III

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III

10.2.4

III

10-3

┆

Ł

10-6

III

10-6

III

11 RIP

11.1

RIP (Routing Information Protocol)

11.2.1.2 RIP

1
1 RIP $L \longrightarrow L$ L , 2
1 192.168.10.0/24 / 2 192.168.10.0 255.255.255.0
11-2-1-3.

11-2-1-3

B 'n

11.2.1.3 RIP

[illegible]

11.2.1.4

1	2	3	4	5	6	11-2-1-9
III	1	2	3	4	5	11-2-1-10
III						
		11-2-1-9	1	2	3	
		11-2-1-10	1	2	3	

11.2.1.5 RIP

Rip : 11-2-1-11 III

11-2-1-11 RIP

ip III

1 I L

11-2-1-12 2 ip 192.168.5.2 3

I L III 1 2 3 ip 192.168.5.2

11-2-1-13.

1 ip 192.168.5.2

I L , 11-2-1-14 2 I L III

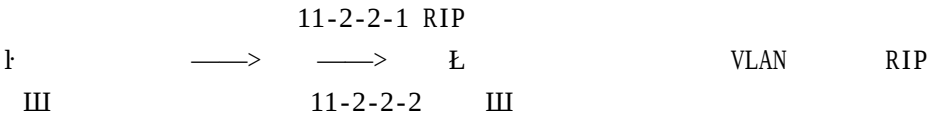
11-2-1-12

11.2.2 RIP RIP

RIP VLAN :

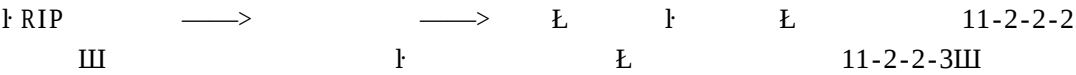
q q q q RIP

q III 11-2-2-1.



11-2-2-2

11.2.2.1



(1) 2
 (a 172.18.10.0/18 / 11-2-2-4 (b 172.18.0.0
 255.255.192.0 , f L
 11-2-2-5III

(2) , f L
 11-2-2-6 f L III f 11.2.1.5 RIP
 L f 11.2.1.2 RIP L III

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

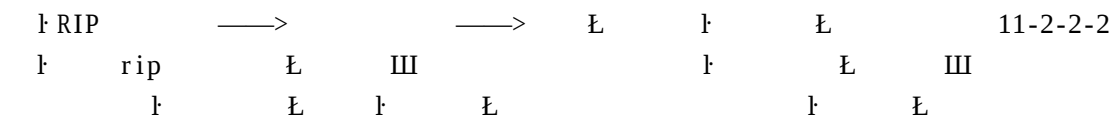
11-2-2-5

11-2-2-6

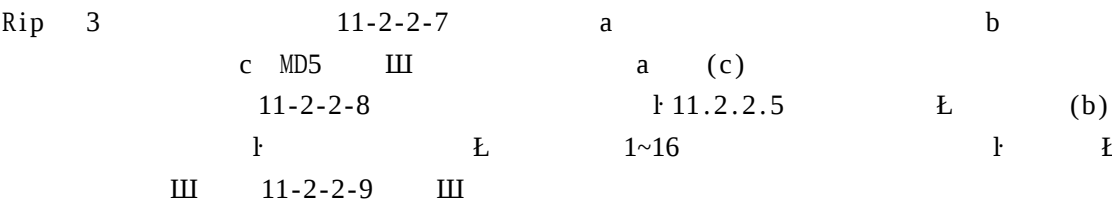
11.2.2.2

f RIP ———> L f L 11-2-2-2
 f rip L III f L III
 f L f

11.2.2.3



11.2.2.4 RIP



—> 添加密钥 添加密钥 11-2-2-15.

ID 设置密钥的有效时间

11-2-2-16

11-2-2-17 ID 1

network 1

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

3 hello

11-2-2-19 删除 III 1

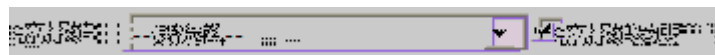
11-2-2-20 III

4 1

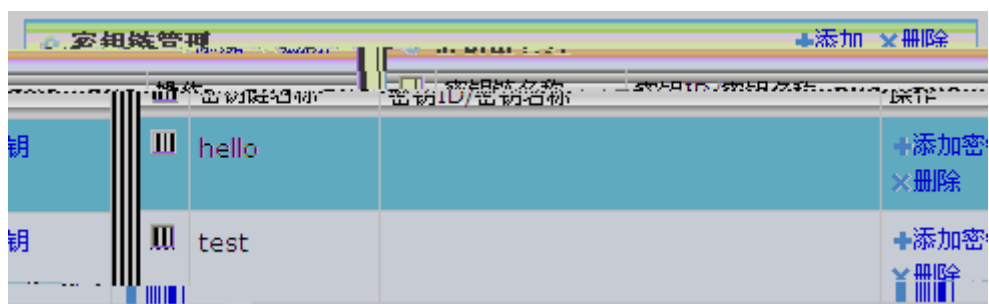
11-2-2-21

删除 III

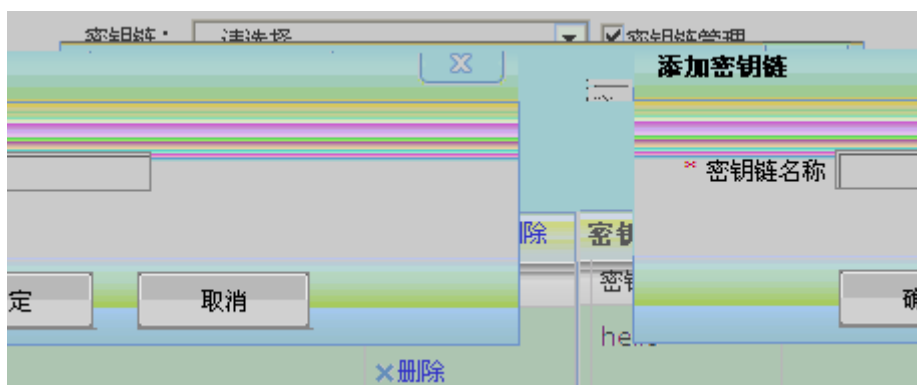
11-2-2-22



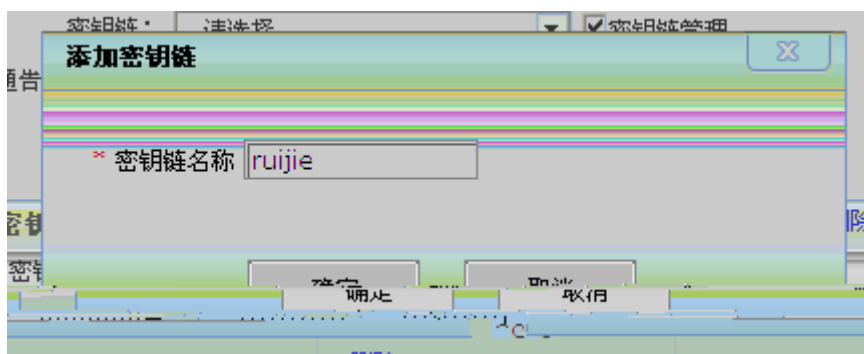
11-2-2-10



11-2-2-11

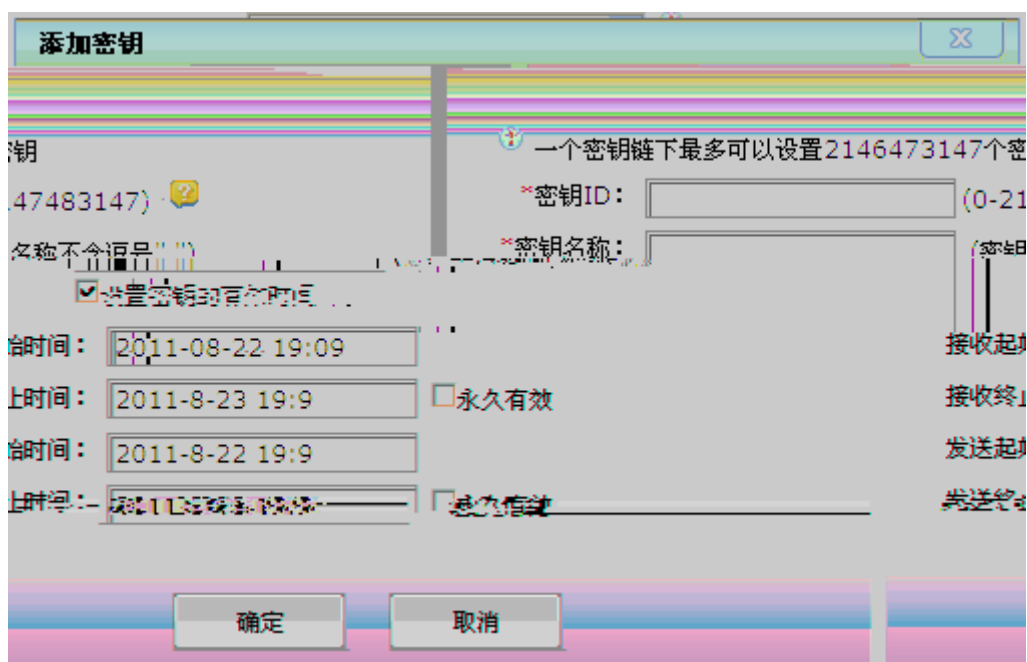


11-2-2-12

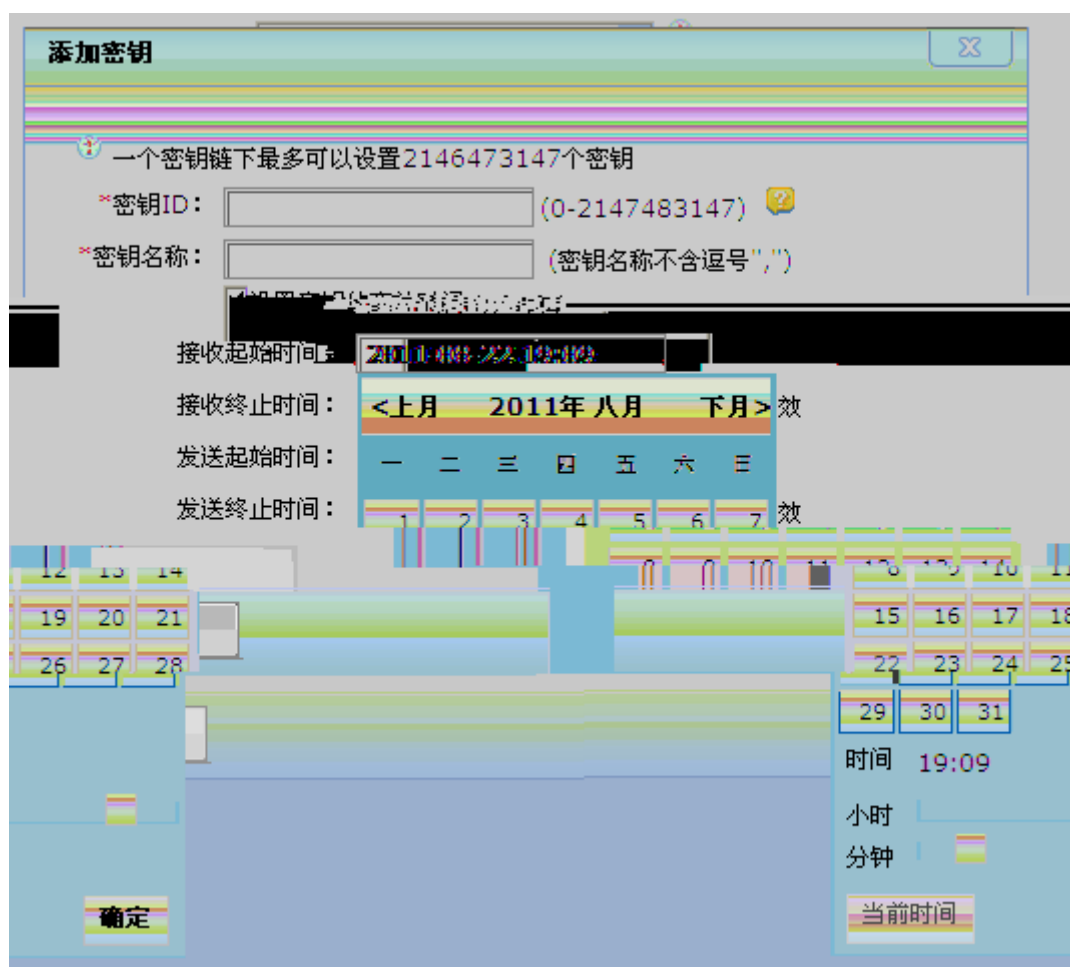


11-2-2-13

fruijieL



11-2-2-16



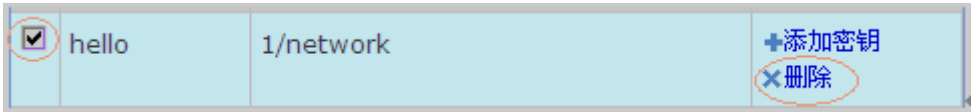
11-2-2-17

f

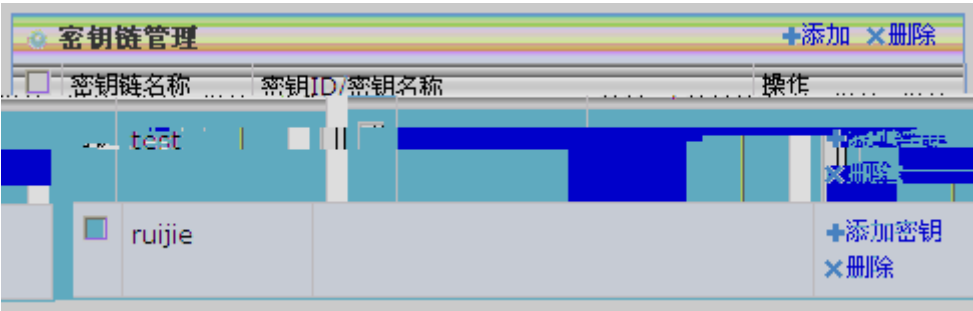
L



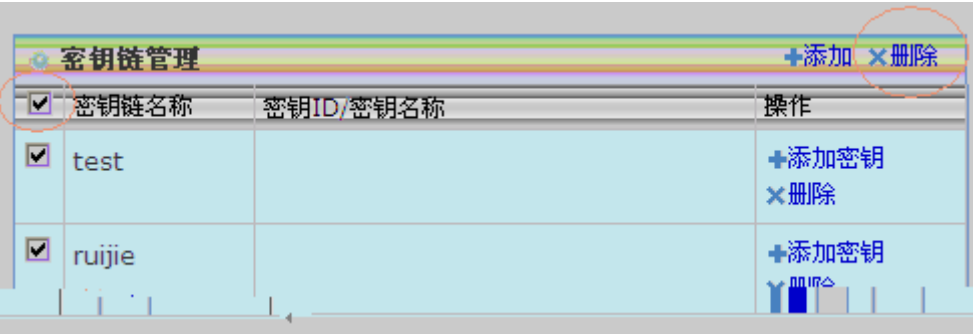
11-2-2-18 1/network



11-2-2-19



11-2-2-20

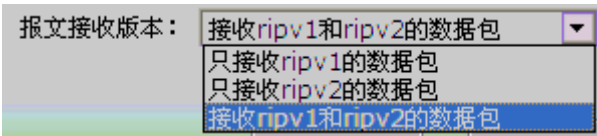


11-2-2-21



11-2-2-22

11.2.2.6



11-2-2-28

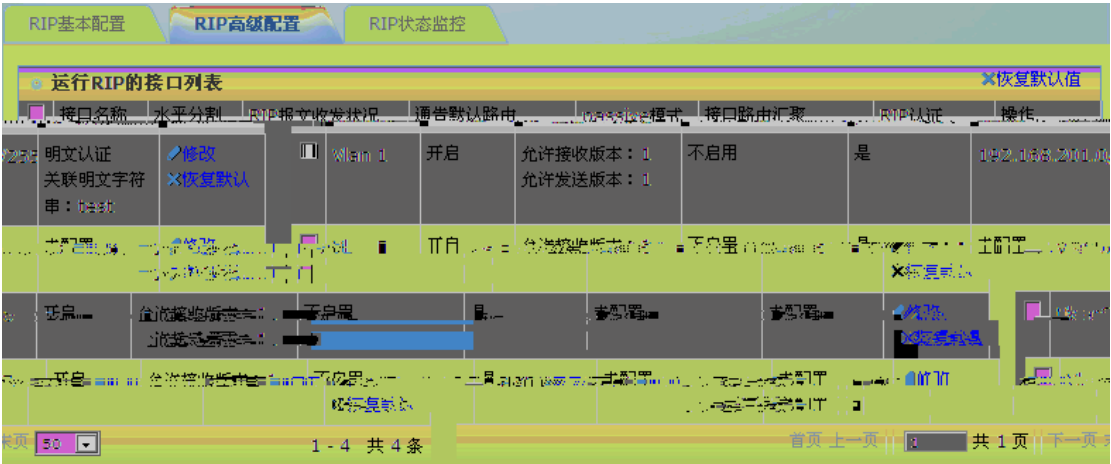
11.2.2.8

11-2-2-29

III 11-2-2-30



11-2-2-29



11-2-2-30

11.2.2.9 VLAN

11-2-2-30

VLAN 2

11-2-2-31

11-2-2-31

III

11-2-2-31

	vlan 1	开启	允许接收版本：1 允许发送版本：1	不启用	否	未配置	未配置	修改 恢复默认
---	--------	----	----------------------	-----	---	-----	-----	--

11-2-2-32

11.2.2.10 VLAN

2 a

12 OSPF

12.1

OSPF Open Shortest Path First IETF OSPF
II OSPF IP
89 OSPF 224.0.0.5 OSPF
224.0.0.6 III
RIP OSPF
III RIP OSPF III
VLSMs() III RIPv2
RIP 16 II OSPF
1 2 IGP III
RIP IGP III
OSPF
A4 0 Td [(IG)12(P)]TJ 2.629f 0.0020FF507CE4.0114, RS CÇ ß &• Ò •0Ô<p @

2 ABR Area Border Routers ,

3 ASBR Autonomous System Boundary Routers ,

OSPF

III

OSPF

RFC 2328

OSPF v2

OSPF

SPF

64 OSPF

RF

VRF OSPF

—

¶

RIP ¶ BGP

—

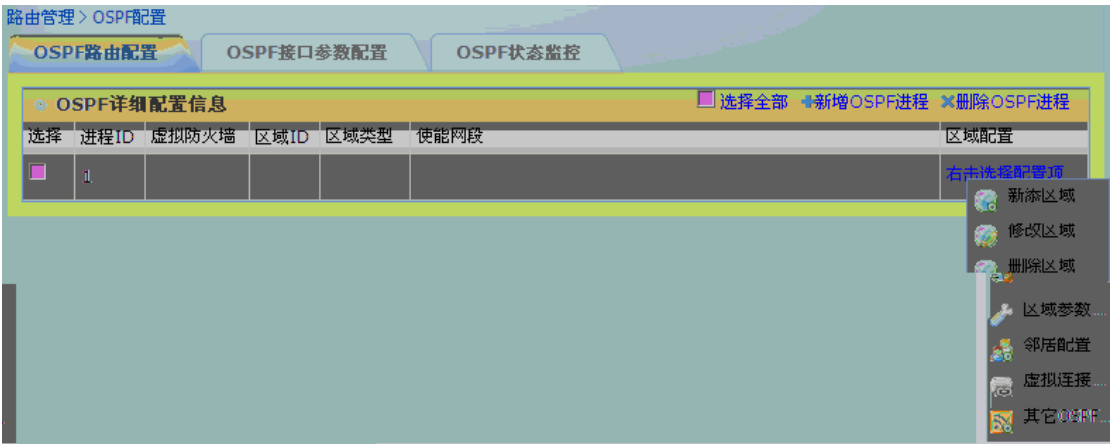
MD5

—

VLSMs

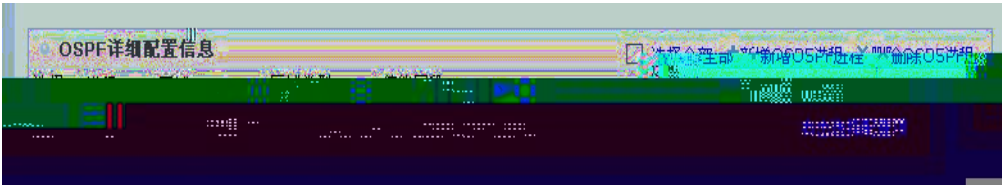
NSSA Not So Stubby Area RFC 3101

Graceful Restart (X) (X) 623 01 2T0 1 T1 1 1 Tf 01 18 Tc 2.246 0 Td 0. Tcw8>TM j /TT2



12.2.1.1 OSPF

1. 进入 OSPF 配置页面



12.2.1.1.1 OSPF

1. 配置 OSPF 进程 ID

2. 配置 OSPF 区域 ID

3. 配置 OSPF 网络地址

Step 1	Ruijie # configure terminal	III
Step 2	Ruijie (config)# ip routing	()
Step 3	Ruijie (config)# router ospf process_id [vrf vrf-name]	OSPF OSPF
Step 4	Ruijie (config-router)# network address wildcard-mask area area-id	

Step 5	Ruijie (config-router)# end	III
Step 6	Ruijie # show ip protocols	III
Step 7	Ruijie # write	III

NSSA

STUB

III

OSPF

OSPF

12.2.1.1 OSPF

>OSPF



OSPF



12.2.1.1.3.1 OSPF

OSPF ID
1 2

添加区域信息

*OSPF进程ID:

2

*区域ID:

(0-4294967295)

*区域类型:

普通域

*区域网段:

添加

确定

取消

OSPF	ID	OSPF
	ID	
		OSPF

12.2.1.1.3.2 OSPF

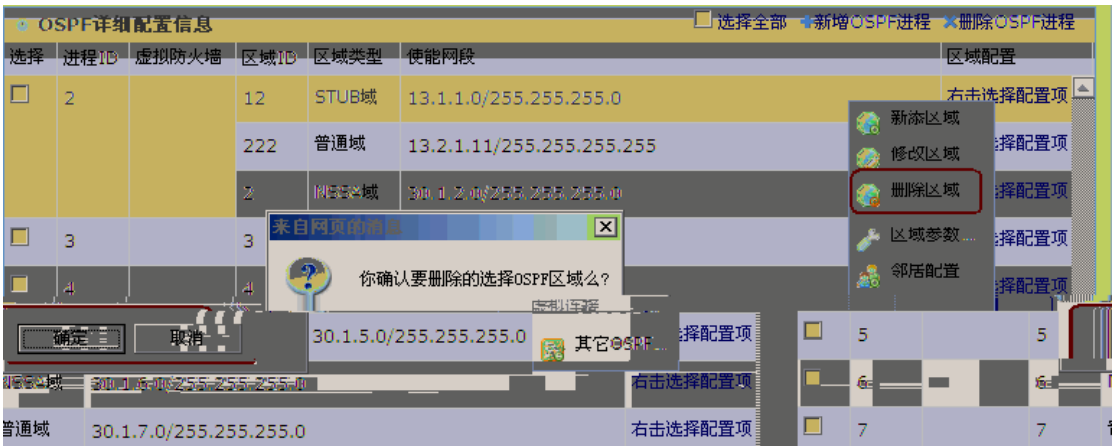
OSPF ID
1 2



OSPF	ID	OSPF
	ID	OSPF
		OSPF

12.2.1.1.3.3

OSPF ID
f L ,



12.2.1.1.3.4 OSPF

OSPF , OSPF , OSPF ,



12.2.1.2

12.2.1.2.1.1

III

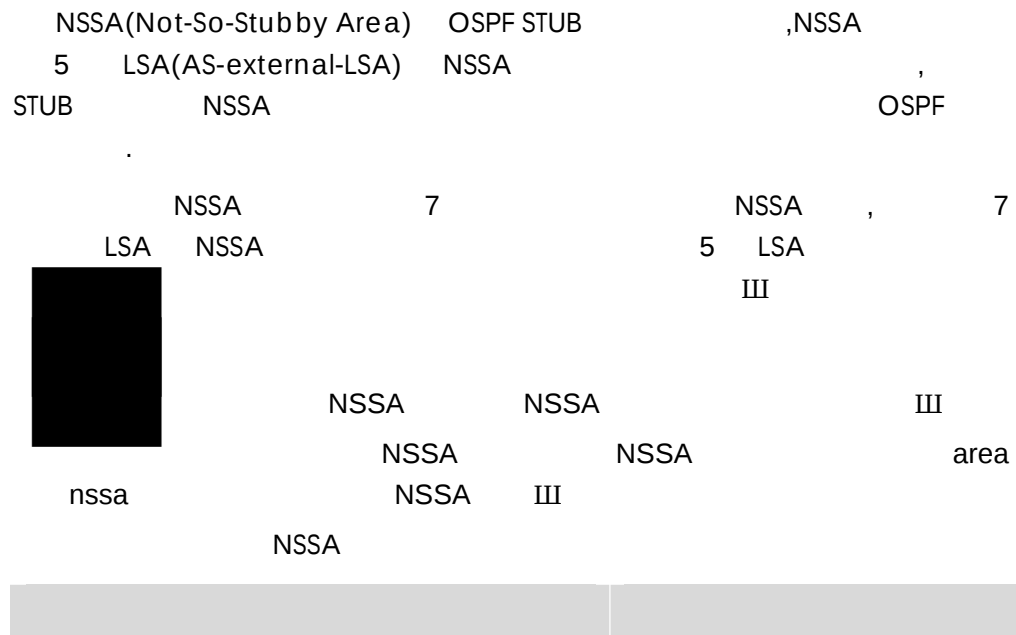
III

OSPF

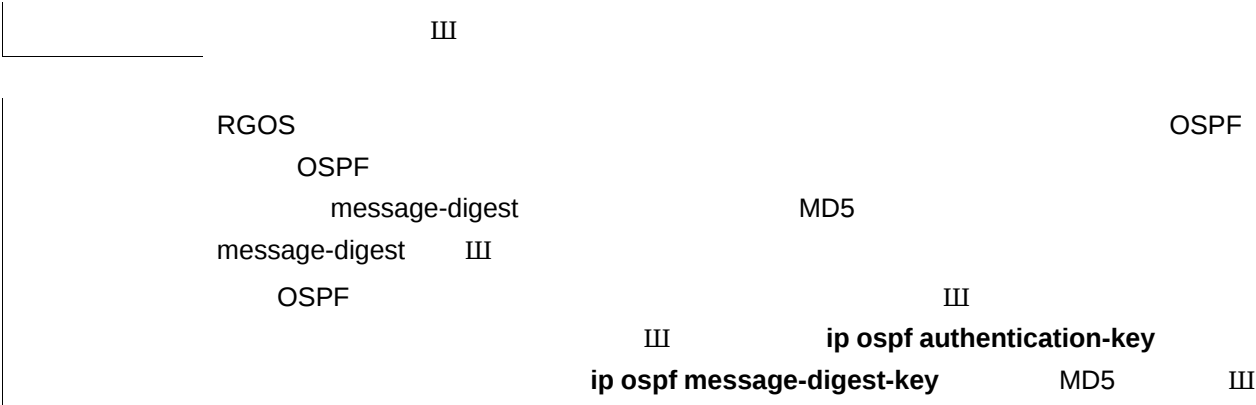
OSPF

12.2.1.2 NSS

12.2.1.2.2.1 NSS



12.2.1.2.4



12.2.1.2.4.2

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

12.2.1.2.6

12.2.1.2.6.1

ABR

area filter-list

III

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

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

<i>area-id</i>	III
<i>acl-name</i>	acl
<i>prefix-name</i>	prefix-list
access prefix	prefix list ACL
in out	

ABR

III

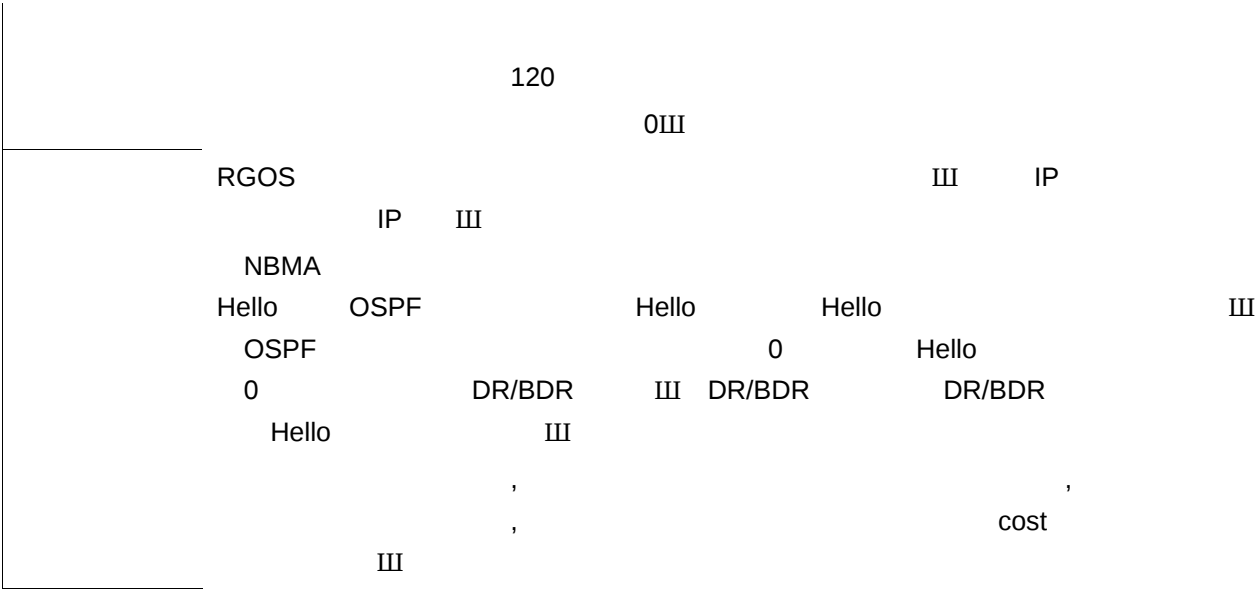
ABR

III

ACL

,prefiex

	0-255III (NBMA)
cost cost	cost 1-65535III (point-to-multipoint) III



12.2.1.3.2

OSPF -> OSPF ID ,

	,
	,
	

12.2.1.4

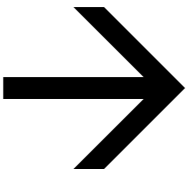
12.2.1.4.1

```
OSPF area virtual-link no
III
area area-id virtual-link router-id [authentication message-digest | null]
[
```

transmit-delay <i>seconds</i>	OSPF LSA LSA LSA LSA III
authentication-key <i>key</i>	OSPF III password-encryption IIIservice III
message-digest-key <i>key-id md5</i> key	OSPF MD5 III MD5 IIIservice password-encryption III
authentication	III
message-digest	MD5 III
null	III

dead-interval 40
hello-interval 10
retransmit-interval 5
transmit-delay 1

12.2.1.4.2



OSPF -> OSPF ID
1 1 ,
:

虚拟连接配置

启用虚拟链路: ☒

本地ID: 1

对端ID:

本地接口地址: 10.0.0.1/24

对端接口地址: 10.0.0.2/24

本地接口掩码: 24

对端接口掩码: 24

认证类型: ---MD5认证---

认证密钥: 1

对端认证密钥:

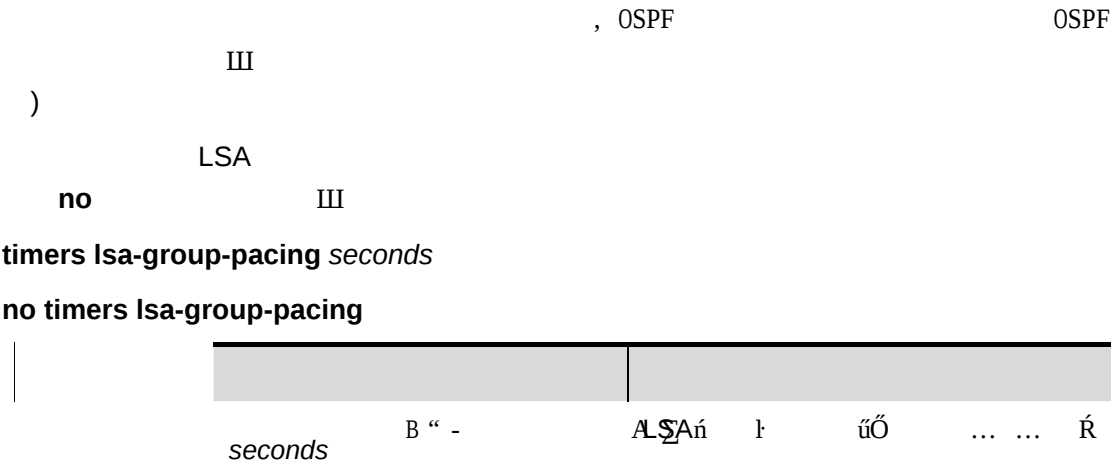
确定

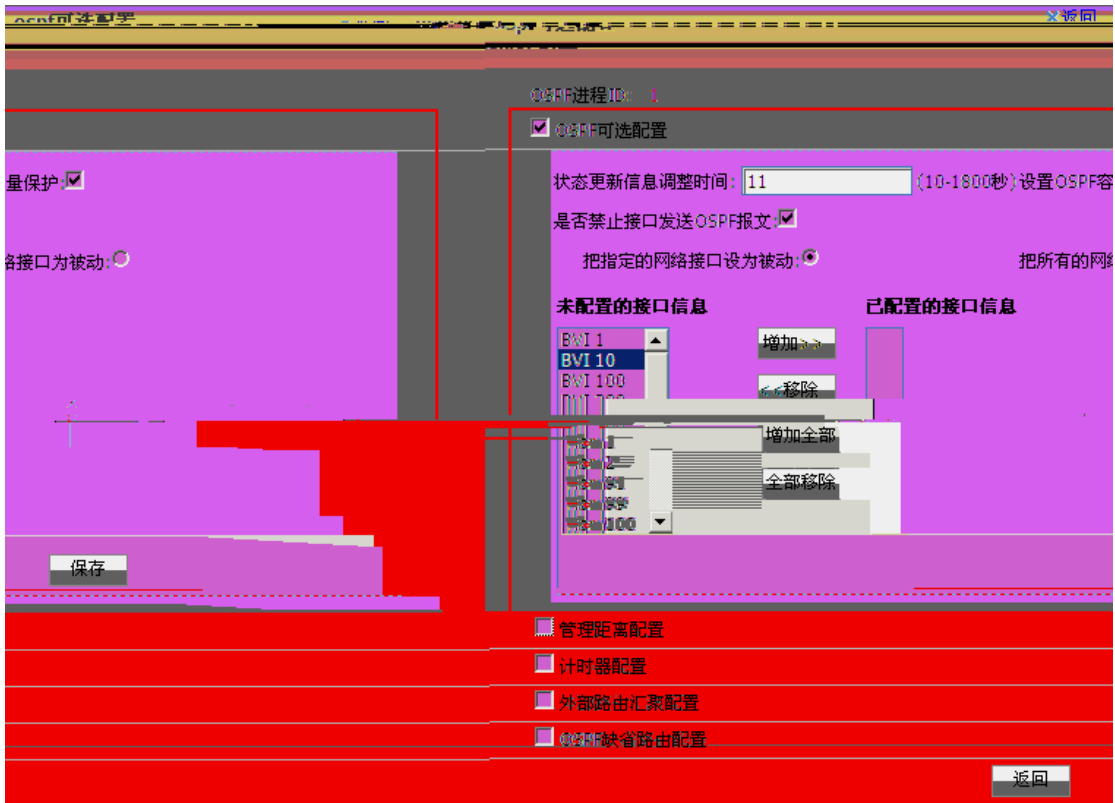
取消

ID:area-id	OSPF III IP III
Ospf ID:router-id	III show ip ospf III
dead-interval seconds	1-65535III III
hello-interval seconds	OSPF Hello 1-65535III III
LSA retransmit-interval seconds	OSPF LSA 1-65535III III
LSA transmit-delay seconds	OSPF LSA 1-65535III LSA LSA LSA III
authentication-key key	OSPF III IIIservice password-encryption III

12.2.1.5.2

12.2.1.5.2.1

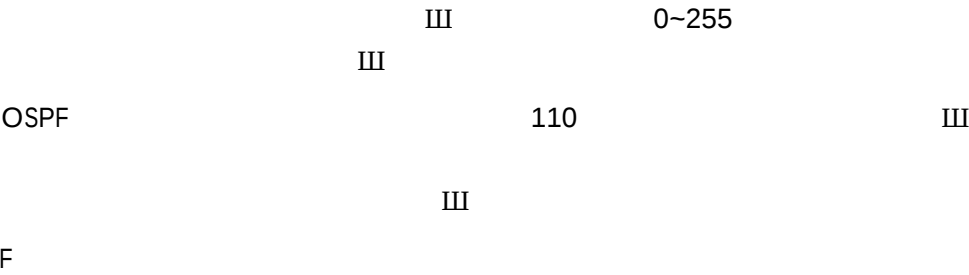




ID	ID/III
	,
OSPF	OSPF
OSPF	OSPF

12.2.1.5.3.1 OSPF

12.2.1.5.3.1 OSPF

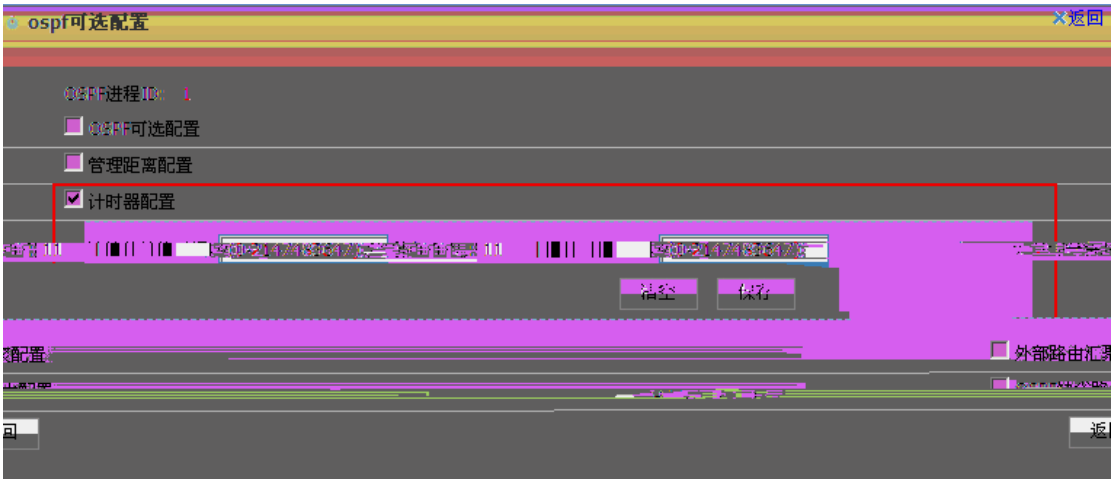
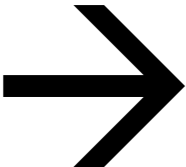


```
distance { distance | ospf { intra-area distance | inter-area distance | external distance |
```


	timers spf	timers throttle spf	III
		RSR2.0	,
	timers spf	spf-delay spf-holdtime	

12.2.1.5.4.2

OSPF -> OSPF ID , , : ,



OSPF ID	
	0-214748364
:	0-214748364

12.2.1.5.5

12.2.1.5.5.1

OSPF summary-addressIII
no III
summary-addressip-address net-mask {not-advertisetag value}
no summary-addressip-address net-mask {not-advertisetag value}

	<i>ip-address</i>	IP III
	<i>net-mask</i>	III
	not-advertise	III
	tag <i>value</i>	tag 0-4294967295

	OSPF	
	OSPF	III
		III
	area range	area range OSPF
	summary-address	OSPF III
	NSSA	summary-address NSSA ABR
	III	

12.2.1.5.5.2

	: 0-4294967295

12.2.1.5.6
OSPF

12.2.1.5.6.1
OSFP

OSPF

default-information originate

no

III

default-information originate

always

[metric metric]

[metric-type type]

[route-map map-name]

no default-information originate

always

[metric metric]

[metric-type type]

[route-map map-name]

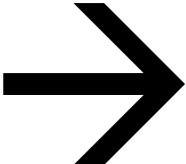
	always	OSPF III
	metric metric	0-16777214III
	metric-type type	IIIOSPF 1 2 III1
	route-map map-name	route-map , route-map

	metric 1
	metric-type 2III

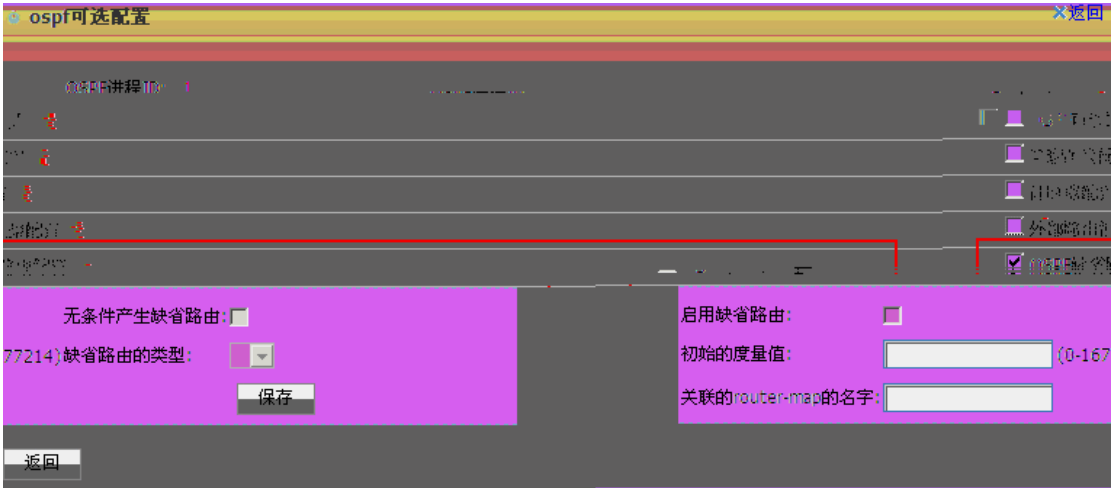
	redistribute	default-information	OSPF	ASBR
		III ASBR		OSPF
		IIIASBR	default-information originate	
		III		
	always	OSPF		
	III			
	show ip ospf database	OSPF	0.0.0.0	
	IIIOSPF	show ip route		

	III default-information originate default-metric III OSPF 1 2 1 III 1 show ip route 1 III 2 STUB III
--	--

12.2.1.5.6.2 OSPF



OSPF -> OSPF ID , , : ,



OSPF ID	
	, , 0-16777214III
	IIOSPF 1 2 2 III III 1

router_map

route-map

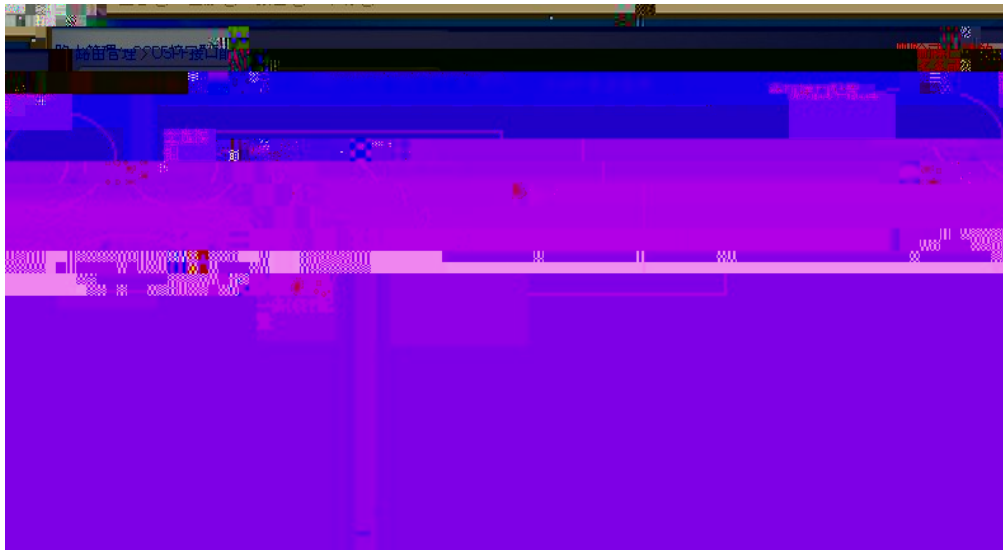
Step 10	<pre> Ruijie(config-if)# ip ospf priority {broadcast non-broadcast point-to-multipoint non-broadcast] point-to-point} </pre>	broadcast OSPF III non-broadcast OSPF NBMA III point-to-multipoint [non-broadcast] OSPF III , non-broadcast point-to-point OSPF III
Step11	<pre> Ruijie(config-if)# ip ospf authentication [message-digest null] </pre>	
Step12	<pre> Ruijie(config-if)# ip ospf authentication-key key </pre>	
Step13	<pre> Ruijie(config-if)# ip ospf message-digest-key keyid md5 key </pre>	MD5
Step14	<pre> Ruijie (config-if)# ip ospf database-filter all out </pre>	OSPF LSA LSA
Step15	<pre> Ruijie (config-if)# end </pre>	III
Step15	<pre> Ruijie # show ip ospf [process-id]interface [interface-id] </pre>	III
Step17	<pre> Ruijie # write </pre>	III

Âp6Ãq—•

12.2.2.2

1 >OSPF L OSPF OSPF

,



12.2.2.3

, /

, /
f >OSPF L OSPF OSPF
+ 添加接口配置 X
查看/编辑

添加接口配置			
接口名称:		接口物理类型:	请选择网络类型
接口费用:		秒(1-65535)重传间隔:	
传输延迟:		秒(1-65535)hello报文间隔:	
失效间隔:		秒(1-65535)优先级:	
使用BFD进行链路检测:	☐	产生ospf报文:	☐
阻止接口泛洪链路状态更新报文:	☐	是否忽略MTU校验:	☐
认证方式:	不认证		
添加 重置 返回			



--	--

()

()

()	OSPF hello III OSPF DR/BDR DR BDR DR BDR DR/BDR III OSPF III broadcast non-broadcast : DR BDR DR BDR III
BFD (	, , bfd all-interfaces III ip ospf bfd BFD OSPF bfd all-interfaces BFD ip ospf bfd disable BFD
OSPF ()	, , network area network ospf III OSPF OSPF , ,

()
ip ospf database-filter all out

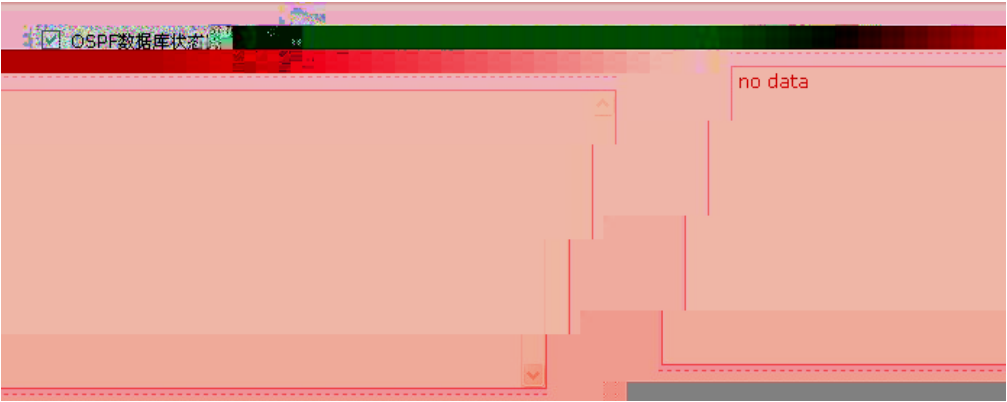
KEY	ip ospf authentication-key OSPF III OSPF III OSPF area authentication III ip ospf authentication , III
	ip ospf authentication-key OSPF III OSPF III OSPF area authentication III ip ospf authentication , III

12.2.3 OSPF

OSPF , OSPF , OSPF
, OSPF
OSPF , OSPF :

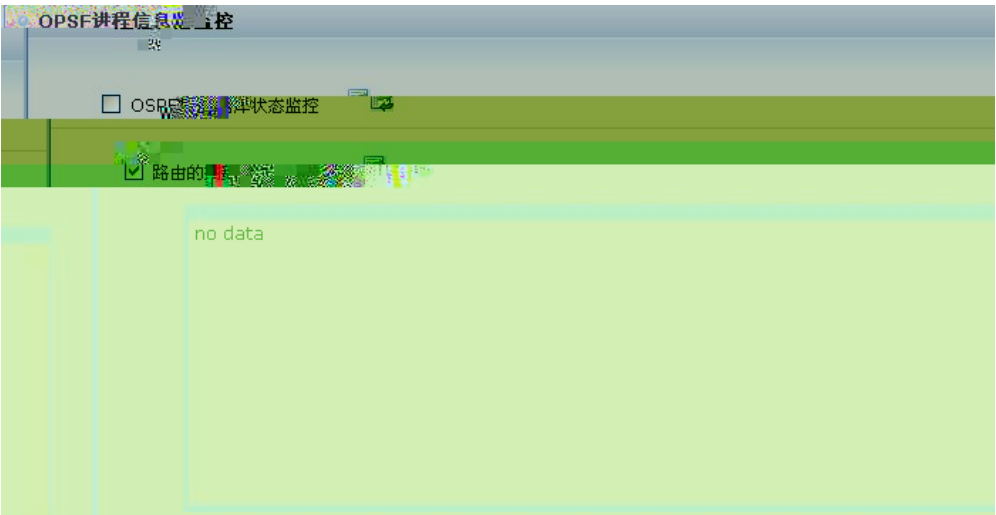
12.2.3.1 OSPF

OSPF , OSPF , OSPF
 , 1 >OSPF L OSPF
OSPF OSPF OSPF



12.2.3.2

OSPF , OSPF , OSPF
 , 1 >OSPF L OSPF
OSPF OSPF ,



13

13.1

http Web local Web 1.6 CLI Web

13-1

用户名: 搜索

用户列表 用户权限文件管理 添加 删除 刷新

用户名	用户权限	操作
test	配置管理员	修改 删除
admin	超级管理员	修改 删除

13-1

13.2

13-1 13-2

添加用户

*用户名:

*密码:

*确认密码:

用户权限: 超级管理员 ?

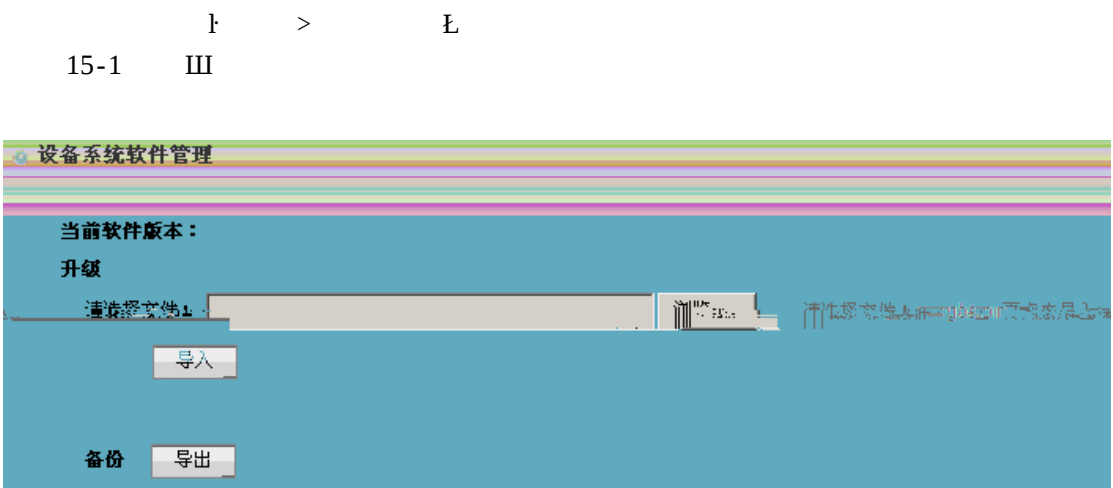
确定 取消

13-2

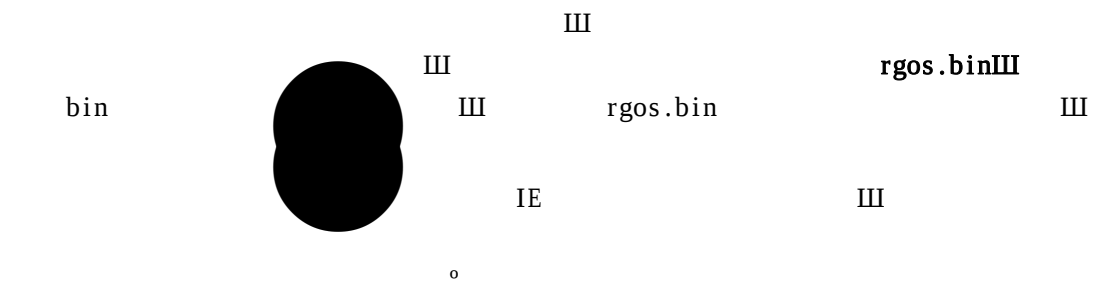
	ID
q	

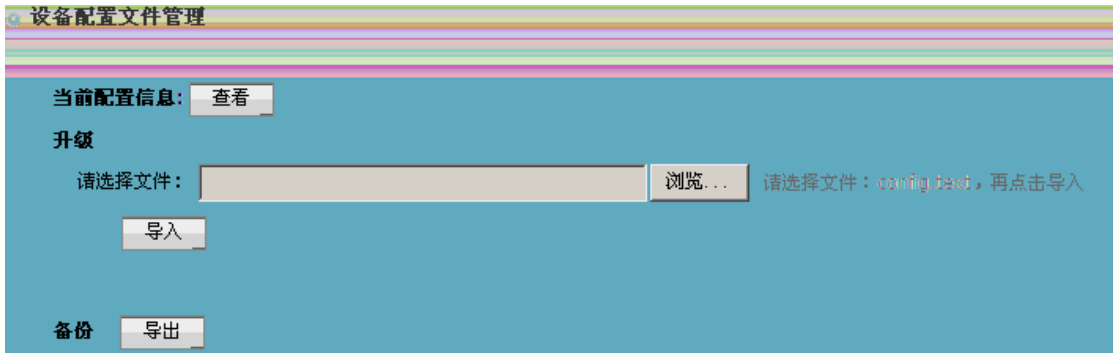
14

14.1

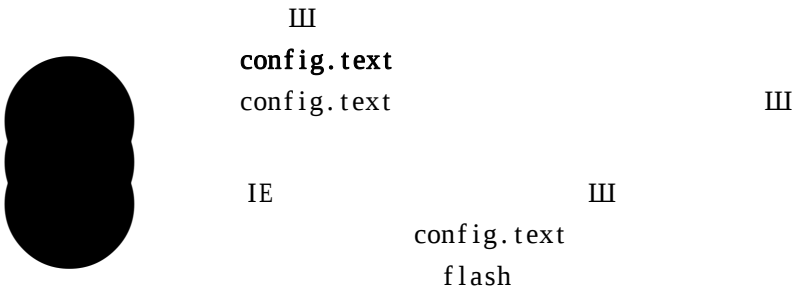


15-1



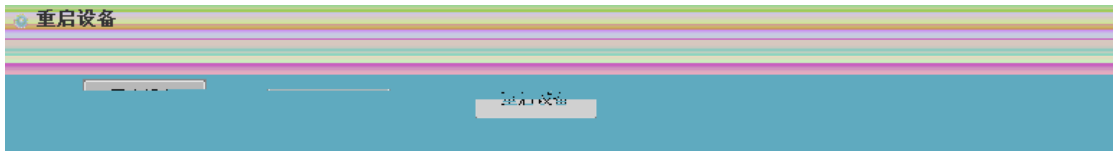


15-2



14.3

15-3 I > L III



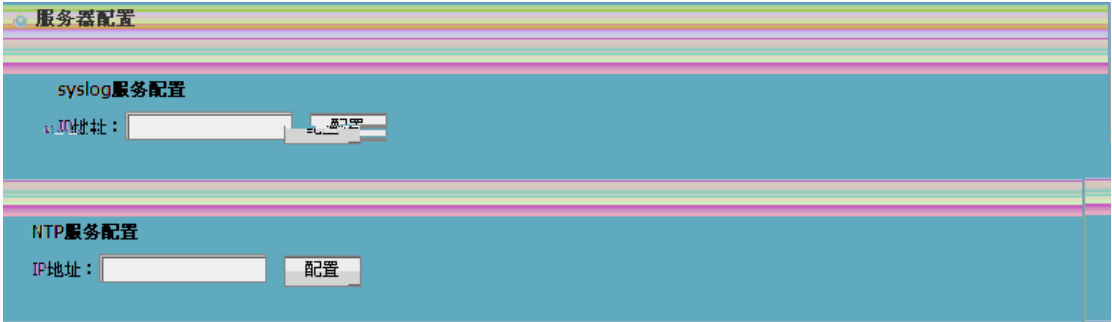
15-3

Web

15

15.1SYSLOG

I > L 14-1 III



14-1

IP

15.2NTP

IP