VRRP

VRRP (Virtual Router Redundancy Protocol) — , , . IP-, .

1	// , VRRP	`esr(config)# interface <IF-TYPE><IF-NUM>`	<IF-TYPE> – ; <IF-NUM> – F/S/P – F- (1), S – (0), P – .
		`esr(config)# tunnel <TUN-TYPE><TUN-NUM>`	<TUN-TYPE> – ; <TUN-NUM> – .
		`esr(config)# bridge <BR-NUM>`	<BR-NUM> – .
2	// , IP-		
3	VRRP- IP-.	`esr(config-if-gi)# vrrp`	
		`esr(config-if-gi)# ipv6 vrrp`	
4	IP- VRRP-.	`esr(config-if-gi)# vrrp ip <ADDR/LEN>`	<ADDR/LEN> – IP-, AAA.BBB.CCC.DDD/EE, AAA – DDD [0..255] EE [1..32]. IP- . 4 IP- .
		`esr(config-if-gi)# ipv6 vrrp ip <IPV6-ADDR>`	<IPV6-ADDR> – IPv6-, X:X:X:X::X, [0..FFFF]. 8 IPv6- .
5	VRRP-.	`esr(config-if-gi)# vrrp id <VRID>`	<VRID> – VRRP-, [1..255].
		`esr(config-if-gi)# ipv6 vrrp id <VRID>`	
6	VRRP-.	`esr(config-if-gi)# vrrp priority <PR>`	<PR> – VRRP-, [1..254]. : 100.
		`esr(config-if-gi)# ipv6 vrrp priority <PR>`	
7	VRRP- . VRRP-, , .	`esr(config-if-gi)# vrrp group <GRID>`	<GRID> – VRRP-, [1..32].
		`esr(config-if-gi)# ipv6 vrrp group <GRID>`	
8	IP-, IP- VRRP-.	`esr(config-if-gi)# vrrp source-ip <IP>`	<IP> – IP- , AAA.BBB.CCC.DDD, [0..255].
		`esr(config-if-gi)# ipv6 vrrp source-ip <IPV6>`	<IPV6> – IPv6- , X:X:X:X::X, [0..FFFF].
9	VRRP-	`esr(config-if-gi)# vrrp timers advertise <TIME>`	<TIME> – , [1..40]. : 1 .
		`esr(config-if-gi)# ipv6 vrrp timers advertise <TIME>`	
10	, GratuituousARP () Master.	`esr(config-if-gi)# vrrp timers garp delay <TIME>`	<TIME> – , [1..60]. : 5 .
11	GratuituousARP , Master.	`esr(config-if-gi)# vrrp timers garp repeat <COUNT>`	<COUNT> – , [1..60]. : 5.

12	, GratuituousARP (), Master.	`esr(config-if-gi)# vrrp timers garp refresh <TIME>`	<TIME> – , [1..65535]. : .
13	GratuituousARP , garprefresh Master.	`esr(config-if-gi)# vrrp timers garp refresh-repeat <COUNT>`	<COUNT> – , [1..60]. : 1.
14	, Backup- Master Master- .	`esr(config-if-gi)# vrrp preemption disable` `esr(config-if-gi)# ipv6 vrrp preemption disable`	
15	, Backup- Master Master- .	`esr(config-if-gi)# vrrp preemption delay <TIME>` `esr(config-if-gi)# ipv6 vrrp preemption delay <TIME>`	<TIME> – , [1..1000]. : 0
16	.	`esr(config-if-gi)# vrrp authentication key ascii-text { <CLEAR-TEXT> | encrypted <ENCRYPTED-TEXT> }`	<CLEAR-TEXT> – , 8 16 ; <ENCRYPTED-TEXT> – 8 16 (16 32) (0xYYYY...) (YYYY...).
17	.	`esr(config-if-gi)# vrrp authentication algorithm <ALGORITHM>`	<ALGORITHM> – : • **cleartext** – , ; • **md 5** – md5.
18	VRRP-.	`esr(config-if-gi)# vrrp version <VERSION>`	<VERSION> – VRRP-: 2, 3.
19	, vrrp IP- UP . ( )	`esr(config-if-gi)# vrrp force-up`	
20	ipv6 vrrp MASTER ND .	`esr(config-if-gi)# ipv6 vrrp timers nd delay <TIME>`	<TIME> – , [1..60]. : 5
21	ND ipv6 vrrp MASTER.	`esr(config-if-gi)# ipv6 vrrp timers nd refresh <TIME>`	<TIME> – , [1..65535]. : 5
22	ND ipv6 vrrp MASTER.	`esr(config-if-gi)# ipv6 vrrp timers nd refresh-repeat <NUM>`	<NUM> – , [1..60]. : 0
23	ND ipv6 vrrp MASTER.	`esr(config-if-gi)# ipv6 vrrp timers nd repeat <NUM>`	<NUM> – , [1..60]. : 1

1

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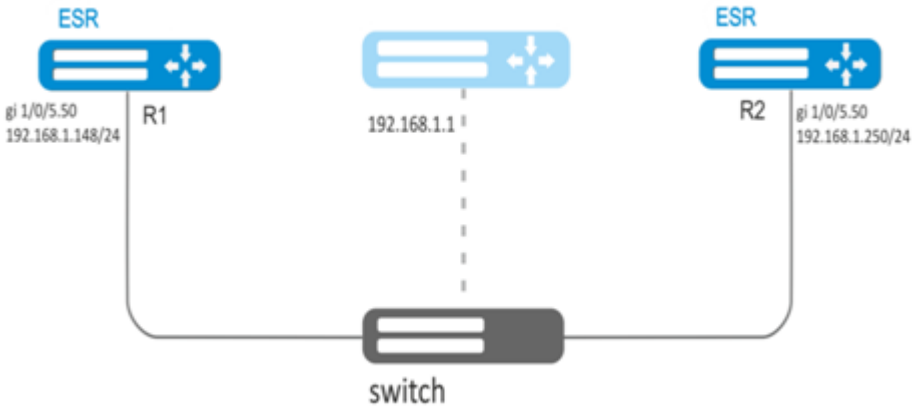
VLAN 50, VRRP. IP- 192.168.1.1.



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- -;
- -;
- IP- -.

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R1.

- VRRP. VRRP:

```
R1(config)#interface gi 1/0/5.50
R1(config-subif)# vrrp id 10
```

IP- 192.168.1.1/24:

```
R1(config-subif)# vrrp ip 192.168.1.1
```

VRRP:

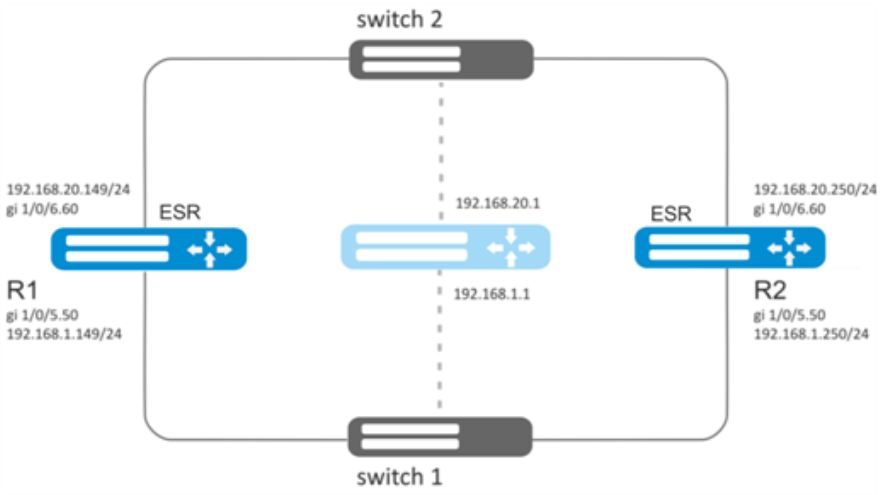
```
R1(config-subif)# vrrp
R1(config-subif)# exit
```

R2.

2

:

192.168.1.0/24 VLAN 50 192.168.20.0/24 VLAN 60, VRRP c . VRRP- . IP- 192.168.1.1 192.168.20.1.



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- -;
- -;
- IP- -.

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R1.

VRRP 192.168.1.0/24 -.

VRRP:

```
R1(config-sub)#interface gi 1/0/5.50
R1(config-subif)# vrrp id 10
```

IP- 192.168.1.1:

```
R1(config-subif)# vrrp ip 192.168.1.1
```

VRRP-:

```
R1(config-subif)# vrrp group 5
```

VRRP:

```
R1(config-subif)# vrrp
R1(config-subif)# exit
```

VRRP 192.168.20.0/24 -.

VRRP:

```
R1(config-sub)#interface gi 1/0/6.60
R1(config-subif)# vrrp id 20
```

IP- 192.168.20.1:

```
R1(config-subif)# vrrp ip 192.168.20.1
```

VRRP-:

```
R1(config-subif)# vrrp group 5
```

VRRP:

```
R1(config-subif)# vrrp
R1(config-subif)# exit
```

R2.

⚠ firewall VRRP(112).

VRRP tracking

VRRP tracking — VRRP.

1	VRRP " VRRP".		
2	Tracking- Tracking-.	`esr(config)#tracking <ID>`	<ID> – Tracking-, [1..60].
3	VRRP-.	`esr(config-tracking)# vrrp <VRID> [not] state { master | backup | fault }`	<VRID> – VRRP-, [1..255].

4	Tracking-.	`esr(config-tracking)#enable`	
5	C IP- Tracking-.	`esr(config)# ip route [ vrf <VRF> ] <SUBNET> { <NEXTHOP> [ resolve ] | interface <IF> | tunnel <TUN> | wan load-balance rule <RULE> | blackhole | unreachable | prohibit } [ <METRIC> ] [ track <TRACK-ID> ]`	<VRF> – VRF, 31 ; <SUBNET> – , : AAA.BBB.CCC.DDD – IP- , [0..255]; AAA.BBB.CCC.DDD/NN – IP- , AAA-DDD [0..255] NN [1..32]. <NEXTHOP> – IP- AAA.BBB.CCC.DDD, [0..255]; • **resolve** – IP- . , ; <IF> – IP-, , ; <TUN> – , , ; <RULE> – wan, [1..50]; • **blackhole** – ; • **unreachable** – , ICMP Destination unreachable (Host unreachable, code 1); • **prohibit** – , , ICMP Destination unreachable (Communication administratively prohibited, code 13); [METRIC] – , [0..255]; <TRACK-ID> – Tracking . Tracking , , .
6	IP , . ICMP Firewall.	esr(config-bridge)# vrrp track-ip <AAA.BBB.CCC.DDD>	AAA.BBB.CCC.DDD – IP- , [0..255].
7	, .	esr(config-bridge)# vrrp track-ip <seconds>	<seconds> – [3..60]. 10.
8	, .	esr(config-bridge)# vrrp track-ip packets <packets>	<packets> – [1..5]. 5.

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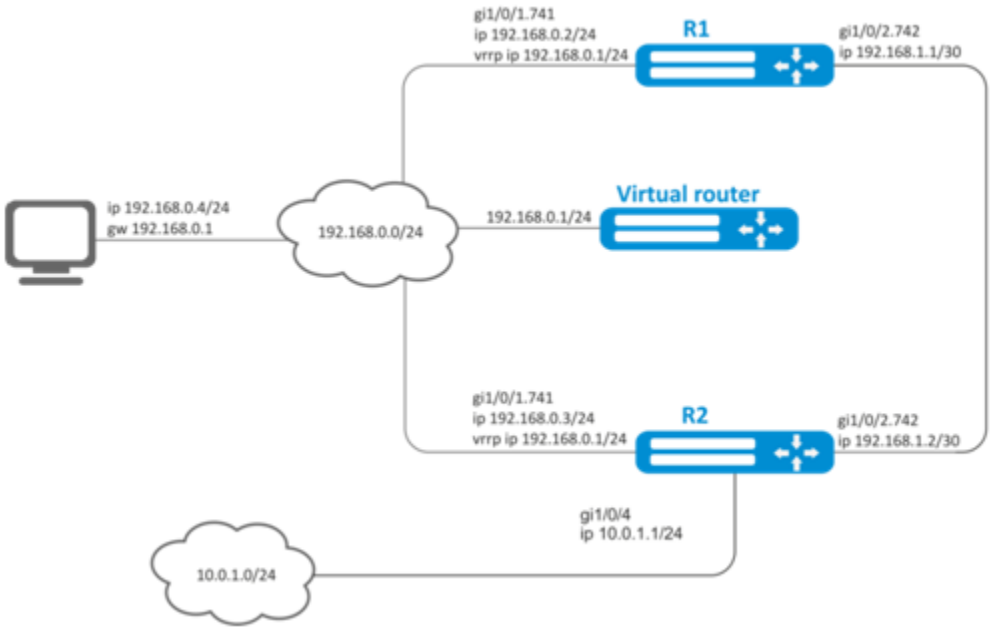
192.168.0.0/24 192.168.0.1/24 VRRP R1 R2. R1 R2 192.168.1.0/30. 10.0.1.0/24 R2. IP- 192.168.0.4/24 192.168.0.1

R1 vrrp backup, 10.0.1.0/24 . R1 vrrp master, 10.0.1.0/24 192.168.1.2.



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R1

```
hostname R1
interface gigabitethernet 1/0/1
  switchport forbidden default-vlan
exit
interface gigabitethernet 1/0/1.741
  ip firewall disable
  ip address 192.168.0.2/24
  vrrp id 10
  vrrp ip 192.168.0.1/24
  vrrp
exit
interface gigabitethernet 1/0/2
  switchport forbidden default-vlan
exit
interface gigabitethernet 1/0/2.742
  ip firewall disable
  ip address 192.168.1.1/30
exit
```

R2

```
hostname R2
interface gigabitethernet 1/0/1
  switchport forbidden default-vlan
exit
interface gigabitethernet 1/0/1.741
  ip firewall disable
  ip address 192.168.0.3/24
  vrrp id 10
  vrrp ip 192.168.0.1/24
  vrrp
exit
interface gigabitethernet 1/0/2
  switchport forbidden default-vlan
exit
interface gigabitethernet 1/0/2.742
  ip firewall disable
  ip address 192.168.1.2/30
exit
interface gigabitethernet 1/0/4
  ip firewall disable
  ip address 10.0.1.1/24
exit
```

:

R2 10.0.1.0/24 , , R2 vrrp master, . IP- 10.0.1.0/24 , R1 vrrp master.

tracking-object :

```
R1(config)# tracking 1
R1(config-tracking)# vrrp 10 state master
R1(config-tracking)# enable
R1(config-tracking)# exit
```

10.0.1.0/24 192.168.1.2, tracking 1:

```
R1(config)# ip route 10.0.1.0/24 192.168.1.2 track 1
```