ESR L3 (WiFi L3)

vlan . L2 ESR. L3 . , L3 ESR, SoftWLC . L2 GRE (EoGRE) , vlan ESR - vlan L3 , DHCP-relay, , 43 ESR GRE . ESR , wireless-controller. **WiFi L3**.

:

1. ESR - " **SoftGRE"**.
2. - - PCRF, - EMS SSID - " **SoftGRE**".

! wireless-controller ESR WiFi. show licence:

```
esr-1000# show licence
Licence information
-------------------
Name:    eltex
Version: 1.0
Type:    ESR-1000
S/N:     NP00000033
MAC:     A8:F9:4B:AB:B3:80
Features:
 WIFI - Wi-Fi controller
```

GRE Wireless-Controller.

, GRE :

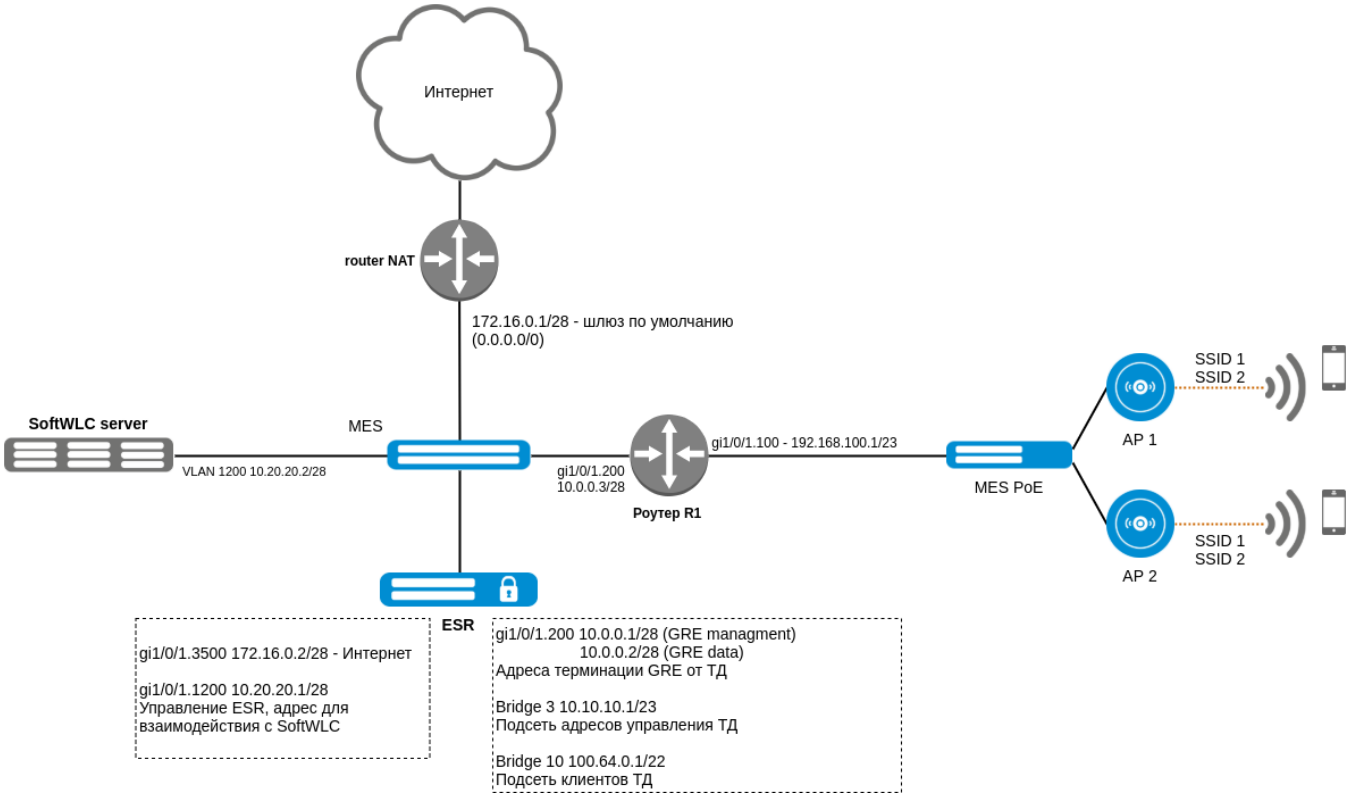
- EoGRE - L2 GRE
- GRE - ,
- SoftGRE - , ESR

, :

vlan			ESR	SoftWLC	, R1
100	192.168.100.0/23		--	--	192.168.0.1
200	10.0.0.0/28	GRE	10.0.0.1 10.0.0.2	--	10.0.0.3
3	10.10.10.0/23	( )	10.10.10.1	--	--
10	100.64.0.0/22	SSID	100.64.0.1	--	--
1200	10.20.20.0/28	SoftWLC	10.20.20.1	10.20.20.2	--
3500	172.16.0.0/28		172.16.0.2	--	--

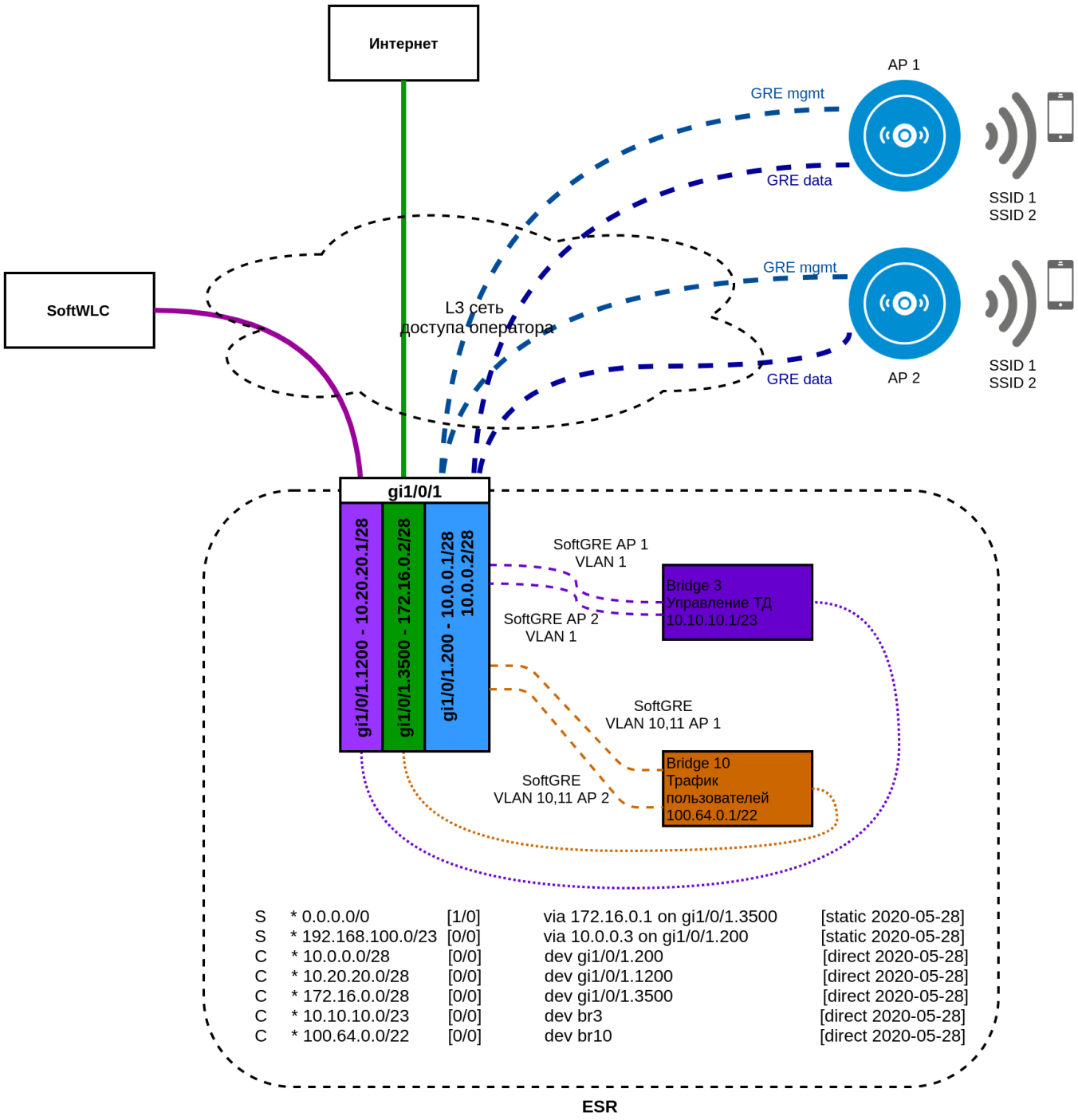
1.

, . 1:


Интернет
router NAT
172.16.0.1/28 - шлюз по умолчанию
(0.0.0.0/0)
SoftWLC server
MES
VLAN 1200 10.20.20.2/28
gi1/0/1.200
10.0.0.3/28
Роутер R1
gi1/0/1.100 - 192.168.100.1/23
MES PoE
AP 1
AP 2
SSID 1
SSID 2
SSID 1
SSID 2
ESR
gi1/0/1.3500 172.16.0.2/28 - Интернет
gi1/0/1.1200 10.20.20.1/28
Управление ESR, адрес для
взаимодействия с SoftWLC
gi1/0/1.200 10.0.0.1/28 (GRE managment)
10.0.0.2/28 (GRE data)
Адреса терминации GRE от ТД
Bridge 3 10.10.10.1/23
Подсеть адресов управления ТД
Bridge 10 100.64.0.1/22
Подсеть клиентов ТД

.1 L3 .

, . 2, ESR:



. 2. ESR, L3 .

1. vlan 3500, 172.16.0.1 (router-NAT). router-NAT, NAT .
2. ESR vlan 1200, 10.20.20.0/28, SoftWLC.
3. IP 192.168.100.0/23 DHCP-relay / DHCP- SoftWLC. 43 11 12, 2 GRE : 10.0.0.1 10.0.0.2 (. v1.16_ 43). . 2 EoGRE , DHCP 11 12 :
   - Management GRE 10.0.0.1 vlan id = 1, .
   - Data GRE 10.0.0.2 vlan id = N, , , SSID (vlan 10 11).
4. Management GRE (vlan id 1) DHCP , DHCP-relay ESR, SoftWLC. DHCP , SoftWLC, IP 10.10.10.0/23, bridge 3 ESR 10.10.10.1. 43.10 SoftWLC : 10.20.20.2, (. v1.16_ 43). SoftWLC.
5. SSID 1 SSID 2, vlan id 10 11. c vlan 10 11 Data GRE ESR. DHCP , DHCP-relay ESR SoftWLC. bridge 10 ESR 100.64.0.0/22, 100.64.0.1.

vlan. vlan , . MES:

```
interface gigabitethernet1/0/1
 description AP_1
 switchport mode accesss
 switchport access vlan 100
!
```

! Eltex 43 11, 12 , GRE (telnet, ssh, web-gui) . ( ), GRE .

MTU EoGRE

EoGRE MTU 42 . , MTU (MTU L3 1500) 1458 . ESR.

, ICMP "fragmentation needed" TCP , , , TCP MSS MTU - ip tcp adjust-mss 1418.

MTU L3 , GRE , 1500 . MTU 1500 , EoGRE, MTU L3 ESR 1542 .

ESR

Wireless-Controller:

```
#     TFTP
esr-1000# copy tftp://<IP  tftp->:/<  ESR>.lic system:licence
|**************************************| 100% (678B) Licence loaded successfully. Please reboot system
to apply changes.
#     ESR
esr-1000#reload system
Do you really want to reload system ? (y/N): y
```

. ESR.

:

1. , (1).
2. ESR, . ESR, ip telnet/SSH, (ip firewall disable).
3. ESR .
4. .
5. -.
6. Wireless-Controller.,
7. .
8. - SNMP , NTP .

( ). ESR 1.11.0. SoftGRE.

telnet, SSH:

```
ip telnet server
ip ssh server
```

tcp/udp , :

```
object-group service dhcp_server
  port-range 67
exit
object-group service dhcp_client
  port-range 68
exit
object-group network MGMT
  ip prefix 10.10.10.0/23
  ip prefix 10.20.20.0/28
exit
```

ESR 100/200/1000 spanning-tree, . . :

```
no spanning-tree
```

:

```
security zone trusted
exit
security zone untrusted
exit
security zone gre
exit
security zone user
exit
```

SNMP, SoftWLC:

```
snmp-server
snmp-server system-shutdown
snmp-server community "public11" ro
snmp-server community "private1" rw

snmp-server host 10.20.20.2
exit

snmp-server enable traps
snmp-server enable traps config
snmp-server enable traps config commit
snmp-server enable traps config confirm
snmp-server enable traps environment
snmp-server enable traps environment pwrin
snmp-server enable traps environment pwrin-insert
snmp-server enable traps environment fan
snmp-server enable traps environment fan-speed-changed
snmp-server enable traps environment fan-speed-high
snmp-server enable traps environment memory-flash-critical-low
snmp-server enable traps environment memory-flash-low
snmp-server enable traps environment memory-ram-critical-low
snmp-server enable traps environment memory-ram-low
snmp-server enable traps environment cpu-load
snmp-server enable traps environment cpu-critical-temp
snmp-server enable traps environment cpu-overheat-temp
snmp-server enable traps environment cpu-supercooling-temp
snmp-server enable traps environment board-overheat-temp
snmp-server enable traps environment board-supercooling-temp
snmp-server enable traps environment sfp-overheat-temp
snmp-server enable traps environment sfp-supercooling-temp
snmp-server enable traps environment switch-overheat-temp
snmp-server enable traps environment switch-supercooling-temp
snmp-server enable traps wifi
snmp-server enable traps wifi wifi-tunnels-number-in-bridge-high
snmp-server enable traps file-operations
snmp-server enable traps file-operations successful
snmp-server enable traps file-operations failed
```

```
snmp-server enable traps file-operations canceled
snmp-server enable traps interfaces
snmp-server enable traps interfaces rx-utilization-high
snmp-server enable traps interfaces tx-utilization-high
snmp-server enable traps interfaces number-high
snmp-server enable traps screen
snmp-server enable traps screen dest-limit
snmp-server enable traps screen source-limit
snmp-server enable traps screen icmp-threshold
snmp-server enable traps screen udp-threshold
snmp-server enable traps screen syn-flood
snmp-server enable traps screen land
snmp-server enable traps screen winnuke
snmp-server enable traps screen icmp-frag
snmp-server enable traps screen udp-frag
snmp-server enable traps screen icmp-large
snmp-server enable traps screen syn-frag
snmp-server enable traps screen unknown-proto
snmp-server enable traps screen ip-frag
snmp-server enable traps screen port-scan
snmp-server enable traps screen ip-sweep
snmp-server enable traps screen syn-fin
snmp-server enable traps screen fin-no-ack
snmp-server enable traps screen no-flag
snmp-server enable traps screen spoofing
snmp-server enable traps screen reserved
snmp-server enable traps screen quench
snmp-server enable traps screen echo-request
snmp-server enable traps screen time-exceeded
snmp-server enable traps screen unreachable
snmp-server enable traps screen tcp-all-flags
snmp-server enable traps entity
snmp-server enable traps entity config-change
snmp-server enable traps entity-sensor
snmp-server enable traps entity-sensor threshold
snmp-server enable traps envmon
snmp-server enable traps envmon fan
snmp-server enable traps envmon shutdown
snmp-server enable traps envmon supply
snmp-server enable traps envmon temperature
snmp-server enable traps flash
snmp-server enable traps flash insertion
snmp-server enable traps flash removal
snmp-server enable traps snmp
snmp-server enable traps snmp authentication
snmp-server enable traps snmp coldstart
snmp-server enable traps snmp linkdown
snmp-server enable traps snmp linkup
snmp-server enable traps syslog
```

SSID , SoftWLC, , :

```
bridge 3
  description "AP_MANAGMENT"
  security-zone trusted
  ip address 10.10.10.1/23
  ip helper-address 10.20.20.2
  ip tcp adjust-mss 1418
  protected-ports local
  enable
exit
bridge 10
  description "AP_SSID_USERS"
  security-zone user
  ip address 100.64.0.1/22
  ip helper-address 10.20.20.2
  ip tcp adjust-mss 1418
  location data10
  protected-ports local
  enable
exit

interface gigabitethernet 1/0/1.200
  description "GRE_AP"
  security-zone gre
  ip address 10.0.0.1/28
  ip address 10.0.0.2/28
exit
interface gigabitethernet 1/0/1.1200
  description "MANAGMENT"
  security-zone trusted
  ip address 10.20.20.1/28
  ip tcp adjust-mss 1418
exit
interface gigabitethernet 1/0/1.3500
  description "INTERNET"
  security-zone untrusted
  ip address 172.16.0.2/28
  ip tcp adjust-mss 1418
exit
```

DHCP :

```
ip dhcp-relay
```

:

```
ip route 0.0.0.0/0 172.16.0.1
```

:

```
ip route 192.168.100.0/23 10.0.0.3
```

- (PCRF):

SoftWLC Eltex-PCRF - ESR aaa radius-profile! VRRP !

```
radius-server host 10.20.20.2
  key ascii-text testing123
  timeout 11
  source-address 10.20.20.1
  auth-port 31812
  acct-port 31813
  retransmit 2
  dead-interval 10
exit
radius-server host 10.20.20.3
  key ascii-text testing123
  timeout 11
  source-address 10.20.20.1
  auth-port 31812
  acct-port 31813
  retransmit 2
  dead-interval 10
exit
aaa radius-profile PCRF
  radius-server host 10.20.20.2
  radius-server host 10.20.20.3
exit
```

```
radius-server timeout 10
radius-server host 10.20.20.2
  key ascii-text testing123
  timeout 11
  source-address 10.20.20.1
  auth-port 31812
  acct-port 31813
  retransmit 2
  dead-interval 10
exit
aaa radius-profile PCRF
  radius-server host 10.20.20.2
exit
das-server COA
  key ascii-text testing123
  port 3799
  clients object-group MGMT
exit
aaa das-profile COA
  das-server COA
exit
```

:

```
tunnel softgre 1
  description "managment"
  mode management
  local address 10.0.0.1
  default-profile
  enable
exit
tunnel softgre 1.1
  bridge-group 3
  enable
exit
tunnel softgre 2
  description "data"
  mode data
  local address 10.0.0.2
  default-profile
  enable
exit
```

"Wireless-Controller":

```
wireless-controller
  nas-ip-address 10.20.20.1
  data-tunnel configuration radius
  aaa das-profile COA
  aaa radius-profile PCRF
  enable
exit
```

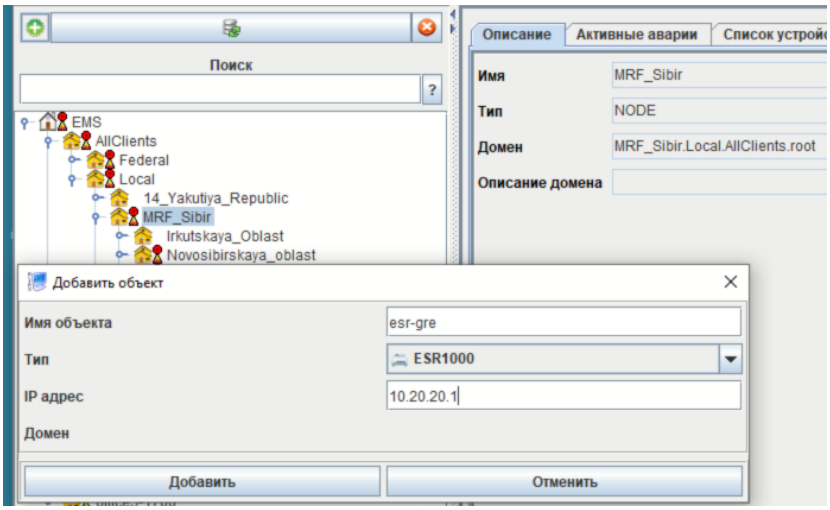
:

```
#   GRE   ICMP    gre:
security zone-pair gre self
  rule 1
    action permit
    match protocol gre
    enable
  exit
  rule 2
    action permit
    match protocol icmp
    enable
  exit
exit

#        MGMT:
security zone-pair trusted self
  rule 1
    action permit
    match source-address MGMT
    enable
  exit
exit

#     trusted    :
security zone-pair trusted trusted
  rule 1
    action permit
    match source-address MGMT
    enable
  exit
exit

#      trusted   :
security zone-pair trusted user
  rule 1
    action permit
```

```
    enable
  exit
exit

#      trusted   gre:
security zone-pair trusted gre
  rule 1
    action permit
    enable
  exit
exit

#      DHCP,      :
security zone-pair user self
  rule 1
    action permit
    match protocol udp
    match source-port dhcp_client
    match destination-port dhcp_server
    enable
  exit
exit

#   ,   DHCP:
security zone-pair user trusted
  rule 1
    action permit
    match protocol udp
    match source-port dhcp_client
    match destination-port dhcp_server
    enable
  exit
exit

#       :
security zone-pair user untrusted
  rule 1
    action permit
    enable
  exit
exit
```

ESR EMS

EMS, , ESR "+", :



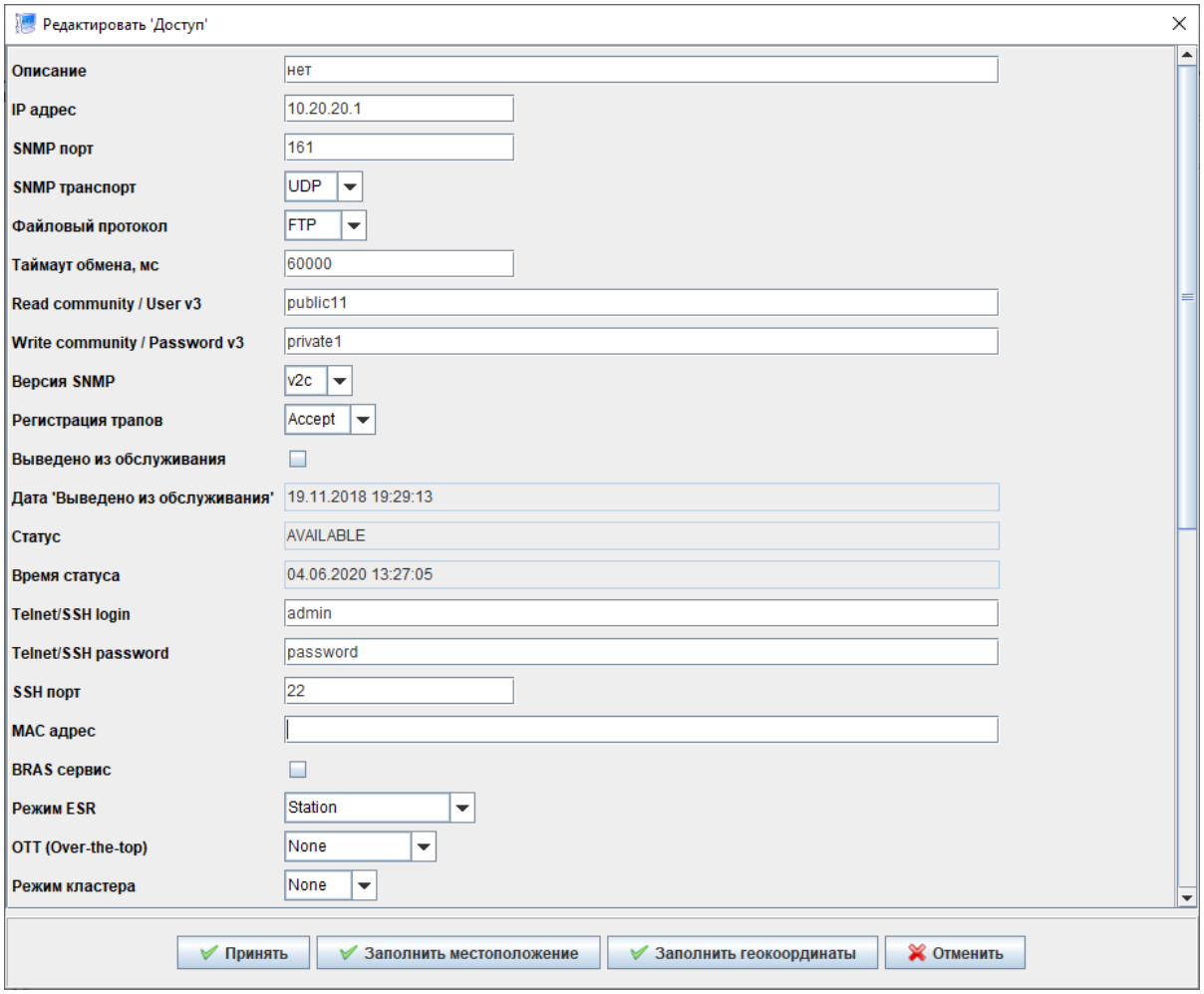
. 3.

, :

- " " - ESR "esr-gre".
- "" - , ESR "ESR1000".
- "IP " - ESR "10.20.20.1".

"".

ESR (- " ") "":



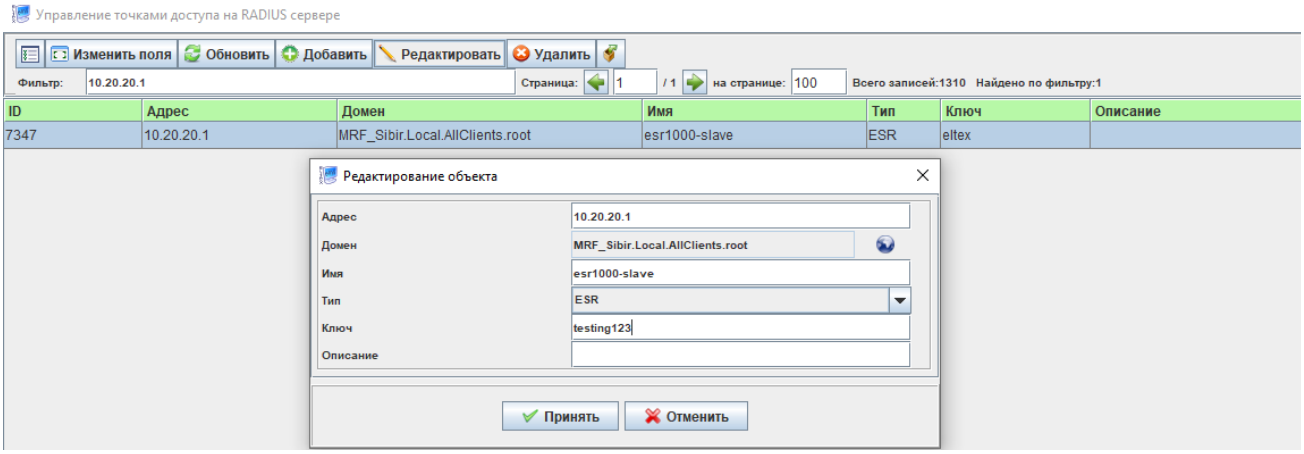
. 4.

:

- " " - "FTP".
- "Read community" - SNMP RO community, "public11".
- "Write community" - SNMP RW community, "private1".

> ESR-100/200 " ESR" "StationCE".
>
> "Station", ESR - .

radius, ESR. EMS "RADIUS" " ". ESR (IP ESR) "":



. 5.

, "" ESR "testing123" "".

, testing123, PCRFBRAS VRF

ESR SoftGRE

```
#!/usr/bin/clish
#18

object-group service dhcp_server
  port-range 67
exit
object-group service dhcp_client
  port-range 68
exit

object-group network MGMT
  ip prefix 10.10.10.0/23
  ip prefix 10.20.20.0/28
exit

radius-server timeout 10
radius-server host 10.20.20.2
  key ascii-text encrypted 88B11079B9014FAAF7B9
  timeout 11
  source-address 10.20.20.1
  auth-port 31812
  acct-port 31813
  retransmit 2
  dead-interval 10
exit
aaa radius-profile PCRF
  radius-server host 10.20.20.2
exit
das-server COA
  key ascii-text encrypted 88B11079B9014FAAF7B9
  port 3799
  clients object-group MGMT
exit
aaa das-profile COA
  das-server COA
exit
```

```
no spanning-tree

security zone trusted
exit
security zone untrusted
exit
security zone gre
exit
security zone user
exit


snmp-server
snmp-server system-shutdown
snmp-server community "public11" ro
snmp-server community "private1" rw

snmp-server host 10.20.20.2
exit

snmp-server enable traps
snmp-server enable traps config
snmp-server enable traps config commit
snmp-server enable traps config confirm
snmp-server enable traps environment
snmp-server enable traps environment pwrin
snmp-server enable traps environment pwrin-insert
snmp-server enable traps environment fan
snmp-server enable traps environment fan-speed-changed
snmp-server enable traps environment fan-speed-high
snmp-server enable traps environment memory-flash-critical-low
snmp-server enable traps environment memory-flash-low
snmp-server enable traps environment memory-ram-critical-low
snmp-server enable traps environment memory-ram-low
snmp-server enable traps environment cpu-load
snmp-server enable traps environment cpu-critical-temp
snmp-server enable traps environment cpu-overheat-temp
snmp-server enable traps environment cpu-supercooling-temp
snmp-server enable traps environment board-overheat-temp
snmp-server enable traps environment board-supercooling-temp
snmp-server enable traps environment sfp-overheat-temp
snmp-server enable traps environment sfp-supercooling-temp
snmp-server enable traps environment switch-overheat-temp
snmp-server enable traps environment switch-supercooling-temp
snmp-server enable traps ports
snmp-server enable traps ports port-counters-errors
snmp-server enable traps wifi
snmp-server enable traps wifi wifi-tunnels-number-in-bridge-high
snmp-server enable traps file-operations
snmp-server enable traps file-operations successful
snmp-server enable traps file-operations failed
snmp-server enable traps file-operations canceled
snmp-server enable traps interfaces
snmp-server enable traps interfaces rx-utilization-high
snmp-server enable traps interfaces tx-utilization-high
snmp-server enable traps interfaces number-high
snmp-server enable traps bras
snmp-server enable traps bras sessions-number-high
snmp-server enable traps screen
snmp-server enable traps screen dest-limit
snmp-server enable traps screen source-limit
snmp-server enable traps screen icmp-threshold
snmp-server enable traps screen udp-threshold
snmp-server enable traps screen syn-flood
snmp-server enable traps screen land
snmp-server enable traps screen winnuke
snmp-server enable traps screen icmp-frag
snmp-server enable traps screen udp-frag
snmp-server enable traps screen icmp-large
snmp-server enable traps screen syn-frag
snmp-server enable traps screen unknown-proto
```

```
snmp-server enable traps screen ip-frag
snmp-server enable traps screen port-scan
snmp-server enable traps screen ip-sweep
snmp-server enable traps screen syn-fin
snmp-server enable traps screen fin-no-ack
snmp-server enable traps screen no-flag
snmp-server enable traps screen spoofing
snmp-server enable traps screen reserved
snmp-server enable traps screen quench
snmp-server enable traps screen echo-request
snmp-server enable traps screen time-exceeded
snmp-server enable traps screen unreachable
snmp-server enable traps screen tcp-all-flags
snmp-server enable traps entity
snmp-server enable traps entity config-change
snmp-server enable traps entity-sensor
snmp-server enable traps entity-sensor threshold
snmp-server enable traps envmon
snmp-server enable traps envmon fan
snmp-server enable traps envmon shutdown
snmp-server enable traps envmon supply
snmp-server enable traps envmon temperature
snmp-server enable traps flash
snmp-server enable traps flash insertion
snmp-server enable traps flash removal
snmp-server enable traps snmp
snmp-server enable traps snmp authentication
snmp-server enable traps snmp coldstart
snmp-server enable traps snmp linkdown
snmp-server enable traps snmp linkup
snmp-server enable traps syslog

bridge 3
  description "AP_MANAGMENT"
  security-zone trusted
  ip address 10.10.10.1/23
  ip helper-address 10.20.20.2
  ip tcp adjust-mss 1418
  protected-ports local
  enable
exit
bridge 10
  description "AP_SSID_USERS"
  security-zone user
  ip address 100.64.0.1/22
  ip helper-address 10.20.20.2
  ip tcp adjust-mss 1418
  location data10
  protected-ports local
  enable
exit

interface gigabitethernet 1/0/1.200
  description "GRE_AP"
  security-zone gre
  ip address 10.0.0.1/28
  ip address 10.0.0.2/28
exit
interface gigabitethernet 1/0/1.1200
  description "MANAGMENT"
  security-zone trusted
  ip address 10.20.20.1/28
  ip tcp adjust-mss 1418
exit
interface gigabitethernet 1/0/1.3500
  description "INTERNET"
  security-zone untrusted
  ip address 172.16.0.2/28
  ip tcp adjust-mss 1418
exit
tunnel softgre 1
```

```
  description "managment"
  mode management
  local address 10.0.0.1
  default-profile
  enable
exit
tunnel softgre 1.1
  bridge-group 3
  enable
exit
tunnel softgre 2
  description "data"
  mode data
  local address 10.0.0.2
  default-profile
  enable
exit

security zone-pair gre self
  rule 1
    action permit
    match protocol gre
    enable
  exit
  rule 2
    action permit
    match protocol icmp
    enable
  exit
exit
security zone-pair trusted self
  rule 1
    action permit
    match source-address MGMT
    enable
  exit
exit
security zone-pair trusted trusted
  rule 1
    action permit
    match source-address MGMT
    enable
  exit
exit
security zone-pair trusted user
  rule 1
    action permit
    enable
  exit
exit
security zone-pair trusted gre
  rule 1
    action permit
    enable
  exit
exit
security zone-pair user self
  rule 1
    action permit
    match protocol udp
    match source-port dhcp_client
    match destination-port dhcp_server
    enable
  exit
exit
security zone-pair user trusted
  rule 1
    action permit
    match protocol udp
    match source-port dhcp_client
    match destination-port dhcp_server
```

```
    enable
  exit
exit
security zone-pair user untrusted
  rule 1
    action permit
    enable
  exit
exit


ip dhcp-relay

ip route 0.0.0.0/0 172.16.0.1
ip route 192.168.100.0/23 10.0.0.3

wireless-controller
  nas-ip-address 10.20.20.1
  data-tunnel configuration radius
  aaa das-profile COA
  aaa radius-profile PCRF
  enable
exit
ip telnet server
ip ssh server
```

ESR SoftGRE

radius- Wireless-Controller. SoftGRE - vlan 10 11, Bridge 10.

```
#!/usr/bin/clish
#18

object-group service dhcp_server
  port-range 67
exit
object-group service dhcp_client
  port-range 68
exit

object-group network MGMT
  ip prefix 10.10.10.0/23
  ip prefix 10.20.20.0/28
exit

no spanning-tree

security zone trusted
exit
security zone untrusted
exit
security zone gre
exit
security zone user
exit


snmp-server
snmp-server system-shutdown
snmp-server community "public11" ro
snmp-server community "private1" rw

snmp-server host 10.20.20.2
exit

snmp-server enable traps
snmp-server enable traps config
```

```
snmp-server enable traps config commit
snmp-server enable traps config confirm
snmp-server enable traps environment
snmp-server enable traps environment pwrin
snmp-server enable traps environment pwrin-insert
snmp-server enable traps environment fan
snmp-server enable traps environment fan-speed-changed
snmp-server enable traps environment fan-speed-high
snmp-server enable traps environment memory-flash-critical-low
snmp-server enable traps environment memory-flash-low
snmp-server enable traps environment memory-ram-critical-low
snmp-server enable traps environment memory-ram-low
snmp-server enable traps environment cpu-load
snmp-server enable traps environment cpu-critical-temp
snmp-server enable traps environment cpu-overheat-temp
snmp-server enable traps environment cpu-supercooling-temp
snmp-server enable traps environment board-overheat-temp
snmp-server enable traps environment board-supercooling-temp
snmp-server enable traps environment sfp-overheat-temp
snmp-server enable traps environment sfp-supercooling-temp
snmp-server enable traps environment switch-overheat-temp
snmp-server enable traps environment switch-supercooling-temp
snmp-server enable traps ports
snmp-server enable traps ports port-counters-errors
snmp-server enable traps wifi
snmp-server enable traps wifi wifi-tunnels-number-in-bridge-high
snmp-server enable traps file-operations
snmp-server enable traps file-operations successful
snmp-server enable traps file-operations failed
snmp-server enable traps file-operations canceled
snmp-server enable traps interfaces
snmp-server enable traps interfaces rx-utilization-high
snmp-server enable traps interfaces tx-utilization-high
snmp-server enable traps interfaces number-high
snmp-server enable traps bras
snmp-server enable traps bras sessions-number-high
snmp-server enable traps screen
snmp-server enable traps screen dest-limit
snmp-server enable traps screen source-limit
snmp-server enable traps screen icmp-threshold
snmp-server enable traps screen udp-threshold
snmp-server enable traps screen syn-flood
snmp-server enable traps screen land
snmp-server enable traps screen winnuke
snmp-server enable traps screen icmp-frag
snmp-server enable traps screen udp-frag
snmp-server enable traps screen icmp-large
snmp-server enable traps screen syn-frag
snmp-server enable traps screen unknown-proto
snmp-server enable traps screen ip-frag
snmp-server enable traps screen port-scan
snmp-server enable traps screen ip-sweep
snmp-server enable traps screen syn-fin
snmp-server enable traps screen fin-no-ack
snmp-server enable traps screen no-flag
snmp-server enable traps screen spoofing
snmp-server enable traps screen reserved
snmp-server enable traps screen quench
snmp-server enable traps screen echo-request
snmp-server enable traps screen time-exceeded
snmp-server enable traps screen unreachable
snmp-server enable traps screen tcp-all-flags
snmp-server enable traps entity
snmp-server enable traps entity config-change
snmp-server enable traps entity-sensor
snmp-server enable traps entity-sensor threshold
snmp-server enable traps envmon
snmp-server enable traps envmon fan
snmp-server enable traps envmon shutdown
snmp-server enable traps envmon supply
snmp-server enable traps envmon temperature
```

```
snmp-server enable traps flash
snmp-server enable traps flash insertion
snmp-server enable traps flash removal
snmp-server enable traps snmp
snmp-server enable traps snmp authentication
snmp-server enable traps snmp coldstart
snmp-server enable traps snmp linkdown
snmp-server enable traps snmp linkup
snmp-server enable traps syslog

bridge 3
  description "AP_MANAGMENT"
  security-zone trusted
  ip address 10.10.10.1/23
  ip helper-address 10.20.20.2
  ip tcp adjust-mss 1418
  protected-ports local
  enable
exit
bridge 10
  description "AP_SSID_USERS"
  security-zone user
  ip address 100.64.0.1/22
  ip helper-address 10.20.20.2
  ip tcp adjust-mss 1418
  location data10
  protected-ports local
  enable
exit

interface gigabitethernet 1/0/1.200
  description "GRE_AP"
  security-zone gre
  ip address 10.0.0.1/28
  ip address 10.0.0.2/28
exit
interface gigabitethernet 1/0/1.1200
  description "MANAGMENT"
  security-zone trusted
  ip address 10.20.20.1/28
  ip tcp adjust-mss 1418
exit
interface gigabitethernet 1/0/1.3500
  description "INTERNET"
  security-zone untrusted
  ip address 172.16.0.2/28
  ip tcp adjust-mss 1418
exit
tunnel softgre 1
  description "managment"
  mode management
  local address 10.0.0.1
  default-profile
  enable
exit
tunnel softgre 1.1
  bridge-group 3
  enable
exit
tunnel softgre 2
  description "data"
  mode data
  local address 10.0.0.2
  default-profile
  enable
exit
tunnel softgre 2.10
  bridge-group 10
  enable
exit
tunnel softgre 2.11
```

```
  bridge-group 10
  enable
exit

security zone-pair gre self
  rule 1
    action permit
    match protocol gre
    enable
  exit
  rule 2
    action permit
    match protocol icmp
    enable
  exit
exit
security zone-pair trusted self
  rule 1
    action permit
    match source-address MGMT
    enable
  exit
exit
security zone-pair trusted trusted
  rule 1
    action permit
    match source-address MGMT
    enable
  exit
exit
security zone-pair trusted user
  rule 1
    action permit
    enable
  exit
exit
security zone-pair trusted gre
  rule 1
    action permit
    enable
  exit
exit
security zone-pair user self
  rule 1
    action permit
    match protocol udp
    match source-port dhcp_client
    match destination-port dhcp_server
    enable
  exit
exit
security zone-pair user trusted
  rule 1
    action permit
    match protocol udp
    match source-port dhcp_client
    match destination-port dhcp_server
    enable
  exit
exit
security zone-pair user untrusted
  rule 1
    action permit
    enable
  exit
exit

ip dhcp-relay

ip route 0.0.0.0/0 172.16.0.1
ip route 192.168.100.0/23 10.0.0.3
```

```
wireless-controller
  enable
exit
ip telnet server
ip ssh server
```

Bridge

GRE , "Bridge", .. - EoGRE L2 .
"Bridge" SoftGRE vlan-ID.
"Bridge", SoftGRE SoftGRE. "protected-ports local".
"Bridge" vlan, SoftGR vlan "protected-ports exclude vlan".

```
bridge 10
  vlan 10
  protected-ports local
  protected-ports exclude vlan
  enable
exit
```

SoftGRE ESR

SoftGRE :

```
esr1000# show tunnels status
Tunnel             Admin   Link    MTU      Local IP           Remote IP          Last change
                   state   state
----------------   -----   -----   ------   ----------------   ----------------   -------------------------
softgre 1          Up      Up      1462     10.0.0.1           192.168.100.15     4 days, 21 minutes and 32
                                                                                  seconds

softgre 1.1        Up      Up      1458     --                 --                 4 days, 21 minutes and 32
                                                                                  seconds

softgre 2          Up      Up      1462     10.0.0.2           192.168.100.15     4 days, 21 minutes and 32
                                                                                  seconds

softgre 2.10       Up      Up      1458     --                 --                 4 days, 21 minutes and 32
                                                                                  seconds

softgre 2.11       Up      Up      1458     --                 --                 4 days, 21 minutes and 32
                                                                                  seconds

softgre 3          Up      Up      1462     10.0.0.1          192.168.100.12     4 days, 21 minutes and 14
                                                                                  seconds

softgre 3.1        Up      Up      1458     --                 --                 4 days, 21 minutes and 14
                                                                                  seconds

softgre 4          Up      Up      1462     10.0.0.2          192.168.100.12     4 days, 21 minutes and 14
                                                                                  seconds

softgre 4.10       Up      Up      1458     --                 --                 4 days, 21 minutes and 14
                                                                                  seconds

softgre 4.11       Up      Up      1458     --                 --                 4 days, 21 minutes and 14
                                                                                  seconds
```

"Bridge" SoftGRE :

```
esr1000# show interfaces bridge
Bridges      Interfaces
----------   ------------------------------------------------------------
bridge 3     softgre 1.1, softgre 3.1
bridge 10    softgre 2.10, softgre 2.11, softgre 4.10, softgre 4.11
```

DHCP

DHCP , . DHCP ISC-DHCP-SERVER.

```
default-lease-time 86400;
max-lease-time 87000;

log-facility local7;

#listening subnet
subnet 10.20.20.0 netmask 255.255.255.240 {}

#  ,
class "ELTEX-DEVICES" {
        match if (
                (substring (option vendor-class-identifier, 0, 14)="ELTEX_WEP-12AC") or
                (substring (option vendor-class-identifier, 0, 14)="ELTEX_WOP-12AC") or
                (substring (option vendor-class-identifier, 0, 14)="ELTX_WEP-12AC") or
                (substring (option vendor-class-identifier, 0, 14)="ELTX_WOP-12AC") or
                (substring (option vendor-class-identifier, 0, 13)="ELTEX_WEP-2AC") or
                (substring (option vendor-class-identifier, 0, 12)="ELTEX_WOP-2L") or
                (substring (option vendor-class-identifier, 0, 12)="ELTEX_WEP-2L") or
                (substring (option vendor-class-identifier, 0, 12)="ELTEX_WEP-1L")
        );
}

#     vlan 100
subnet 192.168.100.0 netmask 255.255.255.0 {
        pool {
                option routers 192.168.100.1;
                range 192.168.100.2 192.168.101.254;
                option vendor-encapsulated-options 0B:08:31:30:2e:30:2e:30:2e:31:0C:08:31:30:2e:30:2e:30:2e:
32;
                allow members of "ELTEX-DEVICES";
 }
}

#    vlan 3
subnet 10.10.10.0 netmask 255.255.254.0 {
        pool {
                option routers 10.10.10.1;
                range 10.10.10.2 10.10.11.254;
                option vendor-encapsulated-options 0A:0A:31:30:2e:32:30:2e:32:30:2e:32;
                allow members of "ELTEX-DEVICES";
                option domain-name-servers 172.16.0.254;
        }
}

#   SSID vlan 10
subnet 100.64.0.0 netmask 255.255.252.0 {
        default-lease-time 3600;
        max-lease-time 3700;
        pool {
                option routers 100.64.0.1;
                range 10.64.0.2 100.640.3.254;
                option domain-name-servers 172.16.0.254;
        }
}
```

NAT ESR

- NAT ESR. :

```
object-group network nat
  ip prefix 100.64.0.0/22
exit

nat source
  ruleset NAT
    to zone untrusted
    rule 1
      match source-address nat
      action source-nat interface
      enable
    exit
  exit
exit
```