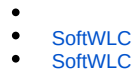


# BRAS (Broadband Remote Access Server)



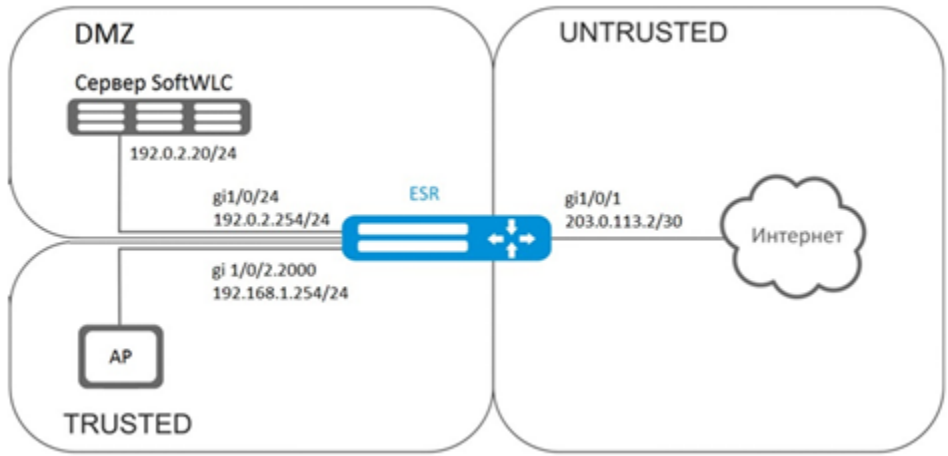
| 1  | RADIUS-                                | <b>esr(config)# radius-server host</b><br><b>{ &lt;IP-ADDR&gt;   &lt;IPv6-ADDR&gt; }</b><br><b>[ vrf &lt;VRF&gt; ]</b><br><br><b>esr(config-radius-server)#</b> | <IP-ADDR> – IP- RADIUS-, AAA.BBB.CCC.DDD, [0..255];<br><br><IPv6-ADDR> – IPv6- RADIUS-, X:X:X:X::X, [0..FFFF]<br><br><VRF> – VRF, 31 .        |
|----|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 2  | RADIUS-                                | <b>esr(config-radius-server)# key ascii-text</b><br><b>{ &lt;TEXT&gt;   encrypted &lt;ENCRYPTED-TEXT&gt; }</b>                                                  | <TEXT> – [8..16] ASCII-; <ENCRYPTED-TEXT> – , [8..16] , [16..32] .                                                                            |
| 3  | .                                      | <b>esr(config)# aaa radius-profile &lt;NAME&gt;</b>                                                                                                             | <NAME> – , 31 .                                                                                                                               |
| 4  | AAA RADIUS-                            | <b>esr(config-aaa-radius-profile)# radius-server host</b><br><b>{ &lt;IP-ADDR&gt;   &lt;IPv6-ADDR&gt; }</b>                                                     | <IP-ADDR> – IP- RADIUS-, AAA.BBB.CCC.DDD, [0..255];<br><br><IPv6-ADDR> – IPv6- RADIUS-, X:X:X:X::X, [0..FFFF].                                |
| 5  | DAS-                                   | <b>esr(config)# das-server &lt;NAME&gt;</b>                                                                                                                     | <NAME> – DAS-, 31 .                                                                                                                           |
| 6  | DAS-                                   | <b>esr(config-das-server)# key ascii-text</b><br><b>{&lt;TEXT&gt; encrypted &lt;ENCRYPTED-TEXT&gt; }</b>                                                        | <TEXT> – [8..16] ASCII-; <ENCRYPTED-TEXT> – , [8..16] , [16..32] .                                                                            |
| 7  | AAA DAS-                               | <b>esr(config)# aaa das-profile &lt;NAME&gt;</b>                                                                                                                | <NAME> – DAS-, 31 .                                                                                                                           |
| 8  | DAS- DAS-                              | <b>esr(config-aaa-das-profile)# das-server &lt;NAME&gt;</b>                                                                                                     | <NAME> – DAS-, 31 .                                                                                                                           |
| 9  | BRAS.                                  | <b>esr(config)# subscriber-control [ vrf &lt;VRF&gt; ]</b>                                                                                                      | <VRF> – VRF, 31 , .                                                                                                                           |
| 10 | (DAS), CoA- PCRF                       | <b>esr(config-subscriber-control)# aaa das-profile &lt;NAME&gt;</b>                                                                                             | <NAME> – (DAS), 31 .                                                                                                                          |
| 11 | RADIUS-                                | <b>esr(config-subscriber-control)# aaa services-radius-profile &lt;NAME&gt;</b>                                                                                 | <NAME> – RADIUS-, 31 .                                                                                                                        |
| 12 | RADIUS-                                | <b>esr(config-subscriber-control)# aaa sessions-radius-profile &lt;NAME&gt;</b>                                                                                 | <NAME> – RADIUS-, 31 .                                                                                                                        |
| 13 | IP-, IP- RADIUS .                      | <b>esr(config-subscriber-control)# nas-ip-address &lt;ADDR&gt;</b>                                                                                              | <ADDR> – IP-, AAA.BBB.CCC.DDD, [0..255].                                                                                                      |
| 14 | MAC- ( ).                              | <b>esr(config-subscriber-control)# session mac-authentication</b>                                                                                               |                                                                                                                                               |
| 15 | (DHCP, DNS ..) .                       | <b>esr(config-subscriber-control)# bypass-traffic-a I &lt;NAME&gt;</b>                                                                                          | <NAME> – ACL, 31 .                                                                                                                            |
| 16 | .                                      | <b>esr(config-subscriber-control)# default-service</b>                                                                                                          |                                                                                                                                               |
| 17 | QoS- .                                 | <b>esr(config-subscriber-default-service)# class-map &lt;NAME&gt;</b>                                                                                           | <NAME> – , 31 .                                                                                                                               |
| 18 | URL, HTTP/HTTPS .                      | <b>esr(config-subscriber-default-service)# filter-name</b><br><b>{ local&lt;LOCAL-NAME&gt;   remote&lt;REMOTE-NAME&gt; }</b>                                    | <LOCAL-NAME> – URL, 31 ;<br><br><REMOTE-NAME> – URL , 31 .                                                                                    |
| 19 | , HTTP/HTTPS-, URL URL, «filter-name». | <b>esr(config-subscriber-default-service)# filter-action&lt;ACT&gt;</b>                                                                                         | <ACT> – :<br><br><ul style="list-style-type: none"> <li>• <b>permit</b> – ;</li> <li>• <b>deny</b> – ;</li> </ul> redirect <URL> – URL, 255 . |
| 20 | , HTTP/HTTPS-, URL URL, «filter-name». | <b>esr(config-subscriber-default-service)# default - action&lt;ACT&gt;</b>                                                                                      | <ACT> – :<br><br><ul style="list-style-type: none"> <li>• <b>permit</b> – ;</li> <li>• <b>deny</b> – ;</li> </ul> redirect <URL> – URL, 255 . |
| 21 | .                                      | <b>esr(config-subscriber-control)# enable</b>                                                                                                                   |                                                                                                                                               |
| 22 | (, - ) ( ).                            | <b>esr(config-if)# location &lt;ID&gt;</b>                                                                                                                      | <ID> – , 220 .                                                                                                                                |
| 23 | .                                      | <b>esr(config-if-gi)# service-subscriber-control</b><br><b>{any} object-group &lt;NAME&gt;}</b>                                                                 | <NAME> – IP-, 31 .                                                                                                                            |
| 24 | ( ).                                   | <b>esr(config-subscriber-control)# quota-expired-reauth</b>                                                                                                     |                                                                                                                                               |

|    |                                 |                                                                                            |                                                                                                                                                                                                     |
|----|---------------------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 25 | IP- (.).                        | <b>esr(config-subscriber-control)# session ip-authentication</b>                           |                                                                                                                                                                                                     |
| 26 | backup BRAS (.).                | <b>esr(config-subscriber-control)# backup traffic-processing transparent</b>               |                                                                                                                                                                                                     |
| 27 | , URL (.).                      | <b>esr(config)# subscriber-control unused-filters-remove-delay</b><br><b>&lt;DELAY&gt;</b> | <b>&lt;DELAY&gt;</b> – , [10800..86400].                                                                                                                                                            |
| 28 | , , , (.).                      | <b>esr(config-subscriber-default-service)# session-timeout</b><br><b>&lt;SEC&gt;</b>       | <b>&lt;SEC&gt;</b> – , [120..3600].                                                                                                                                                                 |
| 29 | VRRP-, (/) (.).                 | <b>esr(config-subscriber-control)# vrrp-group &lt;GRID&gt;</b>                             | <b>&lt;GRID&gt;</b> – VRRP-, [1..32].                                                                                                                                                               |
| 30 | TCP- HTTP Proxy- (.).           | <b>esr(config-subscriber-control)# ip proxy http listen-ports</b><br><b>&lt;NAME&gt;</b>   | <b>&lt;NAME&gt;</b> – TCP/UDP-, 31 .                                                                                                                                                                |
| 31 | HTTP Proxy- (.).                | <b>esr(config-subscriber-control)# ip proxy http redirect-port</b><br><b>&lt;PORT&gt;</b>  | <b>&lt;PORT&gt;</b> – , [1..65535].                                                                                                                                                                 |
| 32 | TCP- HTTPS Proxy- (.).          | <b>esr(config-subscriber-control)# ip proxy https listen-ports</b><br><b>&lt;NAME&gt;</b>  | <b>&lt;NAME&gt;</b> – TCP/UDP-, 31 .                                                                                                                                                                |
| 33 | HTTPS Proxy- (.).               | <b>esr(config-subscriber-control)# ip proxy https redirect-port</b><br><b>&lt;PORT&gt;</b> | <b>&lt;PORT&gt;</b> – , [1..65535].                                                                                                                                                                 |
| 34 | IP-, IP- Proxy- HTTP/HTTPS (.). | <b>esr(config-subscriber-control)# ip proxy source-address</b><br><b>&lt;ADDR&gt;</b>      | <b>&lt;ADDR&gt;</b> – IP-, AAA.BBB.CCC.DDD, [0..255].                                                                                                                                               |
| 35 | URL-, (.).                      | <b>esr(config)# subscriber-control apps-server-url &lt;URL&gt;</b>                         | <b>&lt;URL&gt;</b> – , 8 255 .                                                                                                                                                                      |
| 36 | (.).                            | <b>esr(config-if-gi)# subscriber-control application-filter</b><br><b>&lt;NAME&gt;</b>     | <b>&lt;NAME&gt;</b> – , 31 .                                                                                                                                                                        |
| 37 | / BRAS (.).                     | <b>esr(config-subscriber-control)# thresholds sessions-number high &lt;Threshold&gt;</b>   | <b>&lt;Threshold&gt;</b> – BRAS:<br><ul style="list-style-type: none"> <li>• [0-50000] – ESR-1700</li> <li>• [0-10000] – ESR-1200/1000/1500 /1511/3100</li> <li>• [0-1000] – ESR-100/200</li> </ul> |
| 38 | / BRAS (.).                     | <b>esr(config-subscriber-control)# thresholds sessions-number low &lt;Threshold&gt;</b>    | <b>&lt;Threshold&gt;</b> – BRAS:<br><ul style="list-style-type: none"> <li>• [0-50000] – ESR-1700</li> <li>• [0-10000] – ESR-1200/1000/1500 /1511/3100</li> <li>• [0-1000] – ESR-100/200</li> </ul> |

# SoftWLC

:

, .



:

SoftWLC. SoftWLC :

[https://docs.eltex-co.ru/display/doc/v1.17\\_SoftWLC](https://docs.eltex-co.ru/display/doc/v1.17_SoftWLC) – SoftWLC;

<https://docs.eltex-co.ru/pages/viewpage.action?pageId=76808938> – SoftWLC .

BRAS, .

, :

```
esr# configure
esr(config)# security zone trusted
esr(config-zone)# exit
esr(config)# security zone untrusted
esr(config-zone)# exit
esr(config)# security zone dmz
esr(config-zone)# exit
```

:

```
esr(config)# interface gigabitethernet 1/0/1
esr(config-if-gi)# security-zone untrusted
esr(config-if-gi)# ip address 203.0.113.2/30
esr(config-if-gi)# service-policy dynamic upstream
esr(config-if-gi)# exit
esr(config)# ip route 0.0.0.0/0 203.0.113.1
```

SoftWLC:

```
esr (config)# interface gigabitethernet 1/0/24
esr (config-if-gi)# security-zone dmz
esr (config-if-gi)# ip address 192.0.2.1/24
esr (config-if-gi)# exit
```

Wi-Fi .

```
esr(config)# bridge 2
esr(config-bridge)# security-zone trusted
esr(config-bridge)# ip address 192.168.0.254/24
esr(config-bridge)# ip helper-address 192.0.2.20
esr(config-bridge)# service-subscriber-control object-group users
esr(config-bridge)# location ssid1
esr(config-bridge)# enable
esr(config-bridge)# exit
esr(config)# interface gigabitethernet 1/0/2.2000
esr(config-subif)# bridge-group 1
esr(config-subif)# exit
esr(config)# interface gigabitethernet 1/0/2
esr(config-if-gi)# service-policy dynamic downstream
esr (config-if-gi)# exit
```



, location ( bridge 2) .

, -, eltex-radius IP- SoftWLC. - SoftWLC.

:

```
esr(config)# radius-server host 192.0.2.20
esr(config-radius-server)# key ascii-text password
esr(config-radius-server)# auth-port 31812
esr (config-radius-server)# acct-port 31813
esr (config-radius-server)# exit
```

AAA:

```
esr(config)# aaa radius-profile RADIUS
esr(config-aaa-radius-profile)# radius-server host 192.0.2.20
esr(config-aaa-radius-profile)# exit
```

DAS (Direct-attached storage)-:

```
esr(config)# object-group network server
esr(config-object-group-network)# ip address-range 192.0.2.20
esr(config-object-group-network)# exit
esr(config)# das-server CoA
esr(config-das-server)# key ascii-text password
esr(config-das-server)# port 3799
esr(config-das-server)# clients object-group server
esr(config-das-server)# exit
esr(config)# aaa das-profile CoA
esr(config-aaa-das-profile)# das-server CoA
esr(config-aaa-das-profile)# exit
```

trusted, DHCP- DNS-. DHCP- DNS-:

```
esr(config)# ip access-list extended DHCP
esr(config-acl)# rule 10
esr(config-acl-rule)# action permit
esr(config-acl-rule)# match protocol udp
esr(config-acl-rule)# match source-address any
esr(config-acl-rule)# match destination-address any
esr(config-acl-rule)# match source-port 68
esr(config-acl-rule)# match destination-port 67
esr(config-acl-rule)# enable
esr(config-acl-rule)# exit
esr(config-acl)# rule 11
esr(config-acl-rule)# action permit
esr(config-acl-rule)# match protocol udp
esr(config-acl-rule)# match source-address any
esr(config-acl-rule)# match destination-address any
esr(config-acl-rule)# match source-port any
esr(config-acl-rule)# match destination-port 53
esr(config-acl-rule)# enable
esr(config-acl-rule)# exit
esr(config-acl)# exit
```

:

```
esr(config)# ip access-list extended WELCOME
esr(config-acl)# rule 10
esr(config-acl-rule)# action permit
esr(config-acl-rule)# match protocol any
esr(config-acl-rule)# match source-address any
esr(config-acl-rule)# match destination-address any
esr(config-acl-rule)# enable
esr(config-acl-rule)# exit
esr(config-acl)# exit
esr(config)# ip access-list extended INTERNET
esr(config-acl)# rule 10
esr(config-acl-rule)# action permit
esr(config-acl-rule)# match protocol any
esr(config-acl-rule)# match source-address any
esr(config-acl-rule)# match destination-address any
esr(config-acl-rule)# enable
esr(config-acl-rule)# exit
esr(config-acl)# exit
```

web- :

```
esr(config)# object-group url defaultservice
esr(config-object-group-url)# url http://eltex.nsk.ru
esr(config-object-group-url)# exit
```

URL SoftWLC ( IP- SoftWLC, , URL ):

```
esr(config)# subscriber-control filters-server-url http://192.0.2.20:7070/Filters/file/
```

BRAS, NAS IP SoftWLC, - IP- gigabitethernet 1/0/24:

```
esr(config)# subscriber-control
esr(config-subscriber-control)# aaa das-profile CoA
esr(config-subscriber-control)# aaa sessions-radius-profile RADIUS
esr(config-subscriber-control)# nas-ip-address 192.0.2.1
esr(config-subscriber-control)# session mac-authentication
esr(config-subscriber-control)# bypass-traffic-acl DHCP
esr(config-subscriber-control)# default-service
esr(config-subscriber-default-service)# class-map INTERNET
esr(config-subscriber-default-service)# filter-name local defaultservice
esr(config-subscriber-default-service)# filter-action permit
esr(config-subscriber-default-service)# default-action redirect http://192.0.2.20:8080/eltex_portal/
esr(config-subscriber-default-service)# session-timeout 3600
esr(config-subscriber-default-service)# exit
esr(config-subscriber-control)# enable
esr(config-subscriber-control)# exit
```

```
esr(config)# object-group service telnet
esr(config-object-group-service)# port-range 23
esr(config-object-group-service)# exit
esr(config)# object-group service ssh
esr(config-object-group-service)# port-range 22
esr(config-object-group-service)# exit
esr(config)# object-group service dhcp_server
esr(config-object-group-service)# port-range 67
esr(config-object-group-service)# exit
esr(config)# object-group service dhcp_client
esr(config-object-group-service)# port-range 68
esr(config-object-group-service)# exit
esr(config)# object-group service ntp
esr(config-object-group-service)# port-range 123
esr(config-object-group-service)# exit
```

trusted dmz:

```
esr(config)# security zone-pair trusted untrusted
esr(config-zone-pair)# rule 10
esr(config-zone-pair-rule)# action permit
esr(config-zone-pair-rule)# match protocol any
esr(config-zone-pair-rule)# match source-address any
esr(config-zone-pair-rule)# match destination-address any
esr(config-zone-pair-rule)# enable
esr(config-zone-pair-rule)# exit
esr(config-zone-pair)# exit
esr(config)# security zone-pair dmz untrusted
esr(config-zone-pair)# rule 10
esr(config-zone-pair-rule)# action permit
esr(config-zone-pair-rule)# match protocol any
esr(config-zone-pair-rule)# match source-address any
esr(config-zone-pair-rule)# match destination-address any
esr(config-zone-pair-rule)# enable
esr(config-zone-pair-rule)# exit
esr(config-zone-pair)# exit
esr(config)# security zone-pair dmz trusted
esr(config-zone-pair)# rule 10
esr(config-zone-pair-rule)# action permit
esr(config-zone-pair-rule)# match protocol any
esr(config-zone-pair-rule)# match source-address any
esr(config-zone-pair-rule)# match destination-address any
esr(config-zone-pair-rule)# enable
esr(config-zone-pair-rule)# exit
esr(config-zone-pair)# exit
```

DHCP trusted dmz:

```
esr (config)# security zone-pair trusted dmz
esr (config-zone-pair)# rule 10
esr(config-zone-pair-rule)# action permit
esr(config-zone-pair-rule)# match protocol udp
esr(config-zone-pair-rule)# match source-address any
esr(config-zone-pair-rule)# match destination-address any
esr(config-zone-pair-rule)# match source-port dhcp_client
esr(config-zone-pair-rule)# match destination-port dhcp_server
esr(config-zone-pair-rule)# enable
esr(config-zone-pair-rule)# exit
esr(config-zone-pair)# exit
```

ICMP , BRAS -- TCP 3129/3128 (NetPort Discovery Port/Active API Server Port):

```

esr(config)# object-group service bras
esr(config-object-group-service)# port-range 3129
esr(config-object-group-service)# port-range 3128
esr(config-object-group-service)# exit
esr(config)# security zone-pair trusted self
esr(config-zone-pair)# rule 10
esr(config-zone-pair-rule)# action permit
esr(config-zone-pair-rule)# match protocol tcp
esr(config-zone-pair-rule)# match source-address any
esr(config-zone-pair-rule)# match destination-address any
esr(config-zone-pair-rule)# match source-port any
esr(config-zone-pair-rule)# match destination-port bras
esr(config-zone-pair-rule)# enable
esr (config-zone-pair-rule)# exit
esr(config-zone-pair)# rule 20
esr(config-zone-pair-rule)# action permit
esr(config-zone-pair-rule)# match protocol icmp
esr(config-zone-pair-rule)# match source-address any
esr(config-zone-pair-rule)# match destination-address any
esr(config-zone-pair-rule)# enable
esr(config-zone-pair-rule)# exit
esr(config-zone-pair-rule)# exit
esr(config)# security zone-pair dmz self
esr(config-zone-pair)# rule 20
esr(config-zone-pair-rule)# action permit
esr(config-zone-pair-rule)# match protocol icmp
esr(config-zone-pair-rule)# match source-address any
esr(config-zone-pair-rule)# match destination-address any
esr(config-zone-pair-rule)# enable
esr(config-zone-pair-rule)# exit
esr(config-zone-pair-rule)# exit
esr(config)# security zone-pair untrusted self
esr(config-zone-pair)# rule 20
esr(config-zone-pair-rule)# action permit
esr(config-zone-pair-rule)# match protocol icmp
esr(config-zone-pair-rule)# match source-address any
esr(config-zone-pair-rule)# match destination-address any
esr(config-zone-pair-rule)# enable
esr(config-zone-pair-rule)# exit
esr(config-zone-pair-rule)# exit

```

DHCP-Relay:

```

esr(config)# ip dhcp-relay

```

SNAT gigabitethernet 1/0/1:

```

esr(config)# nat source
esr(config-snat)# ruleset inet
esr(config-snat-ruleset)# to interface gigabitethernet 1/0/1
esr(config-snat-ruleset)# rule 10
esr(config-snat-rule)# match source-address any
esr(config-snat-rule)# action source-nat interface
esr(config-snat-rule)# enable
esr(config-snat-rule)# end

```

## SoftWLC

:

BRAS SoftWLC.

:

10.10.0.0/16, FreeRADIUS- 192.168.1.1/24

:

**1:**

RADIUS-

FreeRADIUS- , . users FreeRADIUS :

:

```
<MACADDR> Cleartext-Password := <MACADDR>
```

#

```
User-Name = <USER_NAME> ,
```

#

```
Session-Timeout = <SECONDS> ,
```

#

```
Idle-Timeout = <SECONDS> ,
```

#

```
Acct-Interim-Interval = <SECONDS> ,
```

# (A- , N- )

```
Cisco-Account-Info = "{A|N}<SERVICE_NAME>"
```

:

```
<SERVICE_NAME> Cleartext-Password := <MACADDR>
```

# class-map ESR

```
Cisco-AVPair = "subscriber:traffic-class=<CLASS_MAP>" ,
```

# , ESR (permit, deny, redirect)

```
Cisco-AVPair = "subscriber:filter-default-action=<ACTION>" ,
```

# IP- (enabled-uplink, enabled-downlink, enabled, disabled)

```
Cisco-AVPair = "subscriber:flow-status=<STATUS>"
```

clients.conf , ESR:

```
client ESR {  
  ipaddr = <SUBNET>  
  secret = <RADIUS_KEY>  
}
```

RADIUS- :



«clients.conf» :

```
client BRAS {
ipaddr = 192.168.1.1
secret = password
}
```

«users» (<MAC> MAC-):

```
"54-E1-AD-8F-37-35" Cleartext-Password := "54-E1-AD-8F-37-35"
User-Name = "Bras_user",
Session-Timeout = 259200,
Idle-Timeout = 259200,
Cisco-AVPair += "subscriber:policer-rate-in=1000",
Cisco-AVPair += "subscriber:policer-rate-out=1000",
Cisco-AVPair += "subscriber:policer-burst-in=188",
Cisco-AVPair += "subscriber:policer-burst-out=188",
Cisco-Account-Info = "AINTERNET"
INTERNET Cleartext-Password := "INTERNET"
User-Name = "INTERNET",
Cisco-AVPair = "subscriber:traffic-class=INTERNET",
Cisco-AVPair += "subscriber:filter-default-action=permit"
```

## 2:

ESR.

BRAS BRAS.

```
esr(config)# do sh licence
Licence information
-----
Name:      Eltex
Version: 1.0
Type:      ESR-X
S/N:       NP000000000
MAC:       XX:XX:XX:XX:XX:XX
Features:
  BRAS - Broadband Remote Access Server
```

RADIUS-:

```
esr(config)# radius-server host 192.168.1.2
esr(config-radius-server)# key ascii-text encrypted 8CB5107EA7005AFF
esr(config-radius-server)# source-address 192.168.1.1
esr(config-radius-server)# exit
```

AAA:

```
esr(config)# aaa radius-profile bras_radius
esr(config-aaa-radius-profile)# radius-server host 192.168.1.2
esr(config-aaa-radius-profile)# exit
esr(config)# aaa radius-profile bras_radius_servers
esr(config-aaa-radius-profile)# radius-server host 192.168.1.2
esr(config-aaa-radius-profile)# exit
```

DAS-:

```
esr(config)# das-server das
esr(config-das-server)# key ascii-text encrypted 8CB5107EA7005AFF
esr(config-das-server)# exit
esr(config)# aaa das-profile bras_das
esr(config-aaa-das-profile)# das-server das
esr(config-aaa-das-profile)# exit
esr(config)# vlan 10
esr(config-vlan)# exit
```

:

```
esr(config)# ip access-list extended BYPASS
esr(config-acl)# rule 1
esr(config-acl-rule)# action permit
esr(config-acl-rule)# match protocol udp
esr(config-acl-rule)# match source-address any
esr(config-acl-rule)# match destination-address any
esr(config-acl-rule)# match source-port 68
esr(config-acl-rule)# match destination-port 67
esr(config-acl-rule)# enable
esr(config-acl-rule)# exit
esr(config-acl)# rule 2
esr(config-acl-rule)# action permit
esr(config-acl-rule)# match protocol udp
esr(config-acl-rule)# match source-address any
esr(config-acl-rule)# match destination-address any
esr(config-acl-rule)# match source-port any
esr(config-acl-rule)# match destination-port 53
esr(config-acl-rule)# enable
esr(config-acl-rule)# exit
esr(config)# ip access-list extended INTERNET
esr(config-acl)# rule 1
esr(config-acl-rule)# action permit
esr(config-acl-rule)# match protocol any
esr(config-acl-rule)# match source-address any
esr(config-acl-rule)# match destination-address any
esr(config-acl-rule)# enable
esr(config-acl-rule)# exit
esr(config)# ip access-list extended WELCOME
esr(config-acl)# rule 10
esr(config-acl-rule)# action permit
esr(config-acl-rule)# match protocol tcp
esr(config-acl-rule)# match source-address any
esr(config-acl-rule)# match destination-address any
esr(config-acl-rule)# match source-port any
esr(config-acl-rule)# match destination-port 443
esr(config-acl-rule)# enable
esr(config-acl-rule)# exit
esr(config-acl)# rule 20
esr(config-acl-rule)# action permit
esr(config-acl-rule)# match protocol tcp
esr(config-acl-rule)# match source-address any
esr(config-acl-rule)# match destination-address any
esr(config-acl-rule)# match source-port any
esr(config-acl-rule)# match destination-port 8443
```

```

esr(config-acl-rule)# enable
esr(config-acl-rule)# exit
esr(config-acl)# rule 30
esr(config-acl-rule)# action permit
esr(config-acl-rule)# match protocol tcp
esr(config-acl-rule)# match source-address any
esr(config-acl-rule)# match destination-address any
esr(config-acl-rule)# match source-port any
esr(config-acl-rule)# match destination-port 80
esr(config-acl-rule)# enable
esr(config-acl-rule)# exit
esr(config-acl)# rule 40
esr(config-acl-rule)# action permit
esr(config-acl-rule)# match protocol tcp
esr(config-acl-rule)# match source-address any
esr(config-acl-rule)# match destination-address any
esr(config-acl-rule)# match source-port any
esr(config-acl-rule)# match destination-port 8080
esr(config-acl-rule)# enable
esr(config-acl-rule)# exit

```

URL , , http-proxy BRAS :

```

esr(config)# object-group url defaultserv
esr(config-object-group-url)# url http://eltex.nsk.ru
esr(config-object-group-url)# url http://ya.ru
esr(config-object-group-url)# url https://ya.ru
esr(config-object-group-url)# exit

```

BRAS, NAS IP RADIUS- – IP- gigabitethernet 1/0/2:

```

esr(config)# subscriber-control
esr(config-subscriber-control)# aaa das-profile bras_das
esr(config-subscriber-control)# aaa sessions-radius-profile bras_radius
esr(config-subscriber-control)# aaa services-radius-profile bras_radius_servers
esr(config-subscriber-control)# nas-ip-address 192.168.1.1
esr(config-subscriber-control)# session mac-authentication
esr(config-subscriber-control)# bypass-traffic-acl BYPASS
esr(config-subscriber-control)# default-service
esr(config-subscriber-default-service)# class-map BYPASS
esr(config-subscriber-default-service)# filter-name local defaultserv
esr(config-subscriber-default-service)# filter-action permit
esr(config-subscriber-default-service)# default-action redirect http://192.168.1.2:8080/eltex_portal
esr(config-subscriber-default-service)# session-timeout 121
esr(config-subscriber-default-service)# exit
esr(config-subscriber-control)# enable
esr(config-subscriber-control)# exit

```

, BRAS ( ):

```

esr(config)# bridge 10
esr(config-bridge)# vlan 10
esr(config-bridge)# ip firewall disable
esr(config-bridge)# ip address 10.10.0.1/16
esr(config-bridge)# ip helper-address 192.168.1.2
esr(config-bridge)# service-subscriber-control any
esr(config-bridge)# location USER
esr(config-bridge)# protected-ports
esr(config-bridge)# protected-ports exclude vlan
esr(config-bridge)# enable
esr(config-bridge)# exit

```

RADIUS-:

```
esr(config)# interface gigabitethernet 1/0/2
esr(config-if-gi)# ip firewall disable
esr(config-if-gi)# ip address 192.168.1.1/24
esr(config-if-gi)# exit
```

:

```
esr(config)# interface gigabitethernet 1/0/3.10
esr(config-subif)# bridge-group 10
esr(config-subif)# ip firewall disable
esr(config-subif)# exit
```

SNAT gigabitethernet 1/0/2:

```
esr(config)# nat source
esr(config-snat)# ruleset factory
esr(config-snat-ruleset)# to interface gigabitethernet 1/0/2
esr(config-snat-ruleset)# rule 10
esr(config-snat-rule)# description "replace 'source ip' by outgoing interface ip address"
esr(config-snat-rule)# match protocol any
esr(config-snat-rule)# match source-address any
esr(config-snat-rule)# match destination-address any
esr(config-snat-rule)# action source-nat interface
esr(config-snat-rule)# enable
esr(config-snat-rule)# exit
esr(config-snat-ruleset)# exit
esr(config-snat)# exit
esr(config)# ip route 0.0.0.0/0 192.168.1.2
```

:

```
esr(config) # do commit
esr(config) # do confirm
```

- :

```
esr # sh subscriber-control sessions status
```

| Session id          | User name | IP address | MAC address       | Interface  | Domain |
|---------------------|-----------|------------|-------------------|------------|--------|
| 1729382256910270473 | Bras_user | 10.10.0.3  | 54:e1:ad:8f:37:35 | gi1/0/3.10 | --     |