

# v1.19\_Wi-Fi

|  |            |
|--|------------|
|  | 1.4        |
|  | 17.12.2019 |
|  |            |

- 
- 
- 
- 
- " (! WEP-2 1.19)
- 
- MAC
- - MAC
- MAC - MAC Hot-WiFi
- Hot-Wifi ()
  - JSON
    - MAC
    - ap\_name (radar\_id)
- 
- ""
- 
- 
- 

MAC- , , "".

Hot-Wifi. () , , Hot-WiFi.

"" WEP-2ac , .

"" (), ( , Wi-Fi).

(. Wi-Fi): GRE ESR, (management). Data-tunnel .

, .. MAC- . , (AP Location). (AP Location) SNMP . , 'radar\_id', MAC , 'ap\_id'.

, , ( .).

, MAC Hot-WiFi, . NAT ( ) VPN ( ).

1. Wi-Fi.
2. ESR.
3. SoftWLC v1.15 , .

:

- ;
- : probe-request- ( ): MAC-, ;
- : . , , ;
- : HTTP(S), POST, - JSON;
- 'put if absent' - . MAC+Channel, (rssi\_min, rssi\_max) . RSSI .
- MAC+Channel RSSI;
- MAC+Channel ;
- MAC+Channel (. 'Mode' );
- : BSS MAC ( ), SSID ( Probe Request, );



MAC 1 1.. 1 n - .

. MAC

"" (! WEP-2 1.19)

|                 |                           |  |      |   |
|-----------------|---------------------------|--|------|---|
|                 |                           |  |      |   |
| status          | up   down                 |  | down | "" . "", SSID ( ). "" Airtune/WIDS/Cluster ( "" ) |
| interfaces      | all   2.4G   5G           |  | all  | , ""  |
| Collector URL   | https://host:port/service |  |      | URL   |
| Send Interval   | 1 ... 3600                |  | 5    |   |
| MAC list size   | 255 ... 65535             |  | 1000 | .   |
| Scan timeout    | 100..60000                |  | 200  |   |
| Scan 5g channel | 0   1..13                 |  | 0    | 5, 0  |
| Scan 2g channel | 0   36..165               |  | 0    | 2.4, 0  |
| Mode            | , .                       |  |      | . , . .   |
| mgmt-probe      | on/off                    |  | on   | probe request.                                    |
| mgmt-assoc      | on/off                    |  | off  | assoc/disassoc, auth/deauth                       |
| data            | on/off                    |  | off  | . , Probe Request.                                |

CLI radar ("get/set radar").

GUI EMS "-MAC- Scanner":

Описание

Пользователи Wi-Fi

Мониторинг конкурентных ТД

Мониторинг

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Доступ

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Global RADIUS

QoS. Main

QoS. EDCA parameters

Client QoS. Global

Client QoS. Class Map

Client QoS. Policy Map

WDS

Captive Portal. Global

Captive Portal. Instance

Cluster. Main

AirTune сервис

MAC Scanner

Системное время

Системные события

SNMP

SNMP trap

CLI/telnet

CLI/ssh

Обновить

Редактировать

В XML

Статус

Down

URL Коллектора

Интерфейсы

all

Интервал отправки, с

5

Размер буфера MAC Сканера

1000

Таймаут сканирования, мс

200

Каналы сканирования

Канал 2.4Ггц

0

Канал 5Ггц

0

Режимы сканирования

mgmt-probe

On

mgmt-assoc

Off

data

Off

Other params

AirTune Status

Up

Cluster mode

SoftWLC

WIDS Status

Down

, SNMP TRAP Eltex.EMS. ( ) , 300 .

```
ELTEX_RADAR_NOT_AVAILABLE          1 //
ELTEX_RADAR_NOT_ANSWER              2 //      200
ELTEX_RADAR_CONNECTION_ERROR        3 //
ELTEX_RADAR_OVERFLOW                4 //
ELTEX_RADAR_NOT_HOST                5 //
```

ELTEX\_RADAR\_CONNECTION\_ERROR:

```
* Diagnostic strings that may be returned include
*
*      "getaddrinfo (ipv6) failed"
*      "unknown address family"
*      "getaddrinfo (ipv4) failed"
*      "set socket opts failed"
*      "insert wsi failed"
*      "lws_ssl_client_connect1 failed"
*      "lws_ssl_client_connect2 failed"
*      "Peer hung up"
*      "read failed"
*      "HS: URI missing"
*      "HS: Redirect code but no Location"
*      "HS: URI did not parse"
*      "HS: Redirect failed"
*      "HS: Server did not return 200"
*      "HS: OOM"
*      "HS: disallowed by client filter"
*      "HS: disallowed at ESTABLISHED"
*      "HS: ACCEPT missing"
*      "HS: ws upgrade response not 101"
*      "HS: UPGRADE missing"
*      "HS: Upgrade to something other than websocket"
*      "HS: CONNECTION missing"
*      "HS: UPGRADE malformed"
*      "HS: PROTOCOL malformed"
*      "HS: Cannot match protocol"
*      "HS: EXT: list too big"
*      "HS: EXT: failed setting defaults"
*      "HS: EXT: failed parsing defaults"
*      "HS: EXT: failed parsing options"
*      "HS: EXT: Rejects server options"
*      "HS: EXT: unknown ext"
*      "HS: Accept hash wrong"
*      "HS: Rejected by filter cb"
*      "HS: OOM"
*      "HS: SO_SNDBUF failed"
*      "HS: Rejected at CLIENT_ESTABLISHED"
```

SNMP TRAP , , .

## MAC

, WiFi, . . .

:

1) HTTP(S);

2) ( ), ;

3) MAC Hot-WiFi HTTPS;

: , ( ) , Proxy Server (nginx).

- MAC

HTTP(S), POST, JSON.

MAC - MAC Hot-WiFi

Hot-WiFi HTTPS, HTTP POST, JSON.

Hot-Wifi ()

JSON

```
{ap_id: '000456F83326', 'version': u'1.0', 'ap_name': '{radar_id}', 'probe_requests':
[
  {'ch': 11, 'dbi': -42, 'mac': 'A44E315F6D2C', 'rssi_min': -76, 'packet_count': 12, 'type_bitmask': 1,
'timestamp': '1571390378', 'bss_mac': '', 'ssid': 'WIFI-guest' },
  {'ch': 40, 'dbi': -78, 'mac': '483B3825C8E2', 'rssi_min': -81, 'packet_count': 17, 'type_bitmask': 3,
'timestamp': '1571390388', 'bss_mac': 'A012315F6D2C', 'ssid': 'WIFI-guest' }
]
}
```

JSON

|                |   |   |
|----------------|---|---|
|                |   |   |
| ap_id          | , MAC (.)   | 1A-2B-3C-4D-5E-6F   |
| version        |   | u'1.0'  |
| ap_name        | , . - 'AP Location', ; Hot-WiFi - 'radar_id'.                       | XXXX-9090_2y_Uzhnoportoviy_pr_12.Sberbank.MRF_Center.Center.Ap.root |
| probe_requests | , , - (). MAC+Channel.  | -   |
| ch             | ,   | 11  |
| dbi            | , dBm. (rssi_max) MAC+Channel.                                      | -63   |
| mac            | MAC . ch .  | 1A-2B-3C-4D-5E-6F   |
| rssi_min       | , dBm. MAC+Channel  | -82   |
| packet_count   | , MAC+Channel   | 432   |
| type_bitmask   | : () 'mgmt-probe', 'mgmt-assoc', 'data'. , 2 ( 010) , 'mgmt-assoc'. | 2   |
| timestamp      | , UTC timeticks ( )   | 1571390378  |
| bss_mac        | ! MAC , . 'data' (.. data- ).                                       | 1A-2B-3C-4D-5E-6F   |
| ssid           | ! SSID, . 'mgmt-probe'.   | WIFI-guest  |

MAC

- , : 1A-2B-3C-4D-5E-6F;
- : '', 0x2d;
- (upper case);

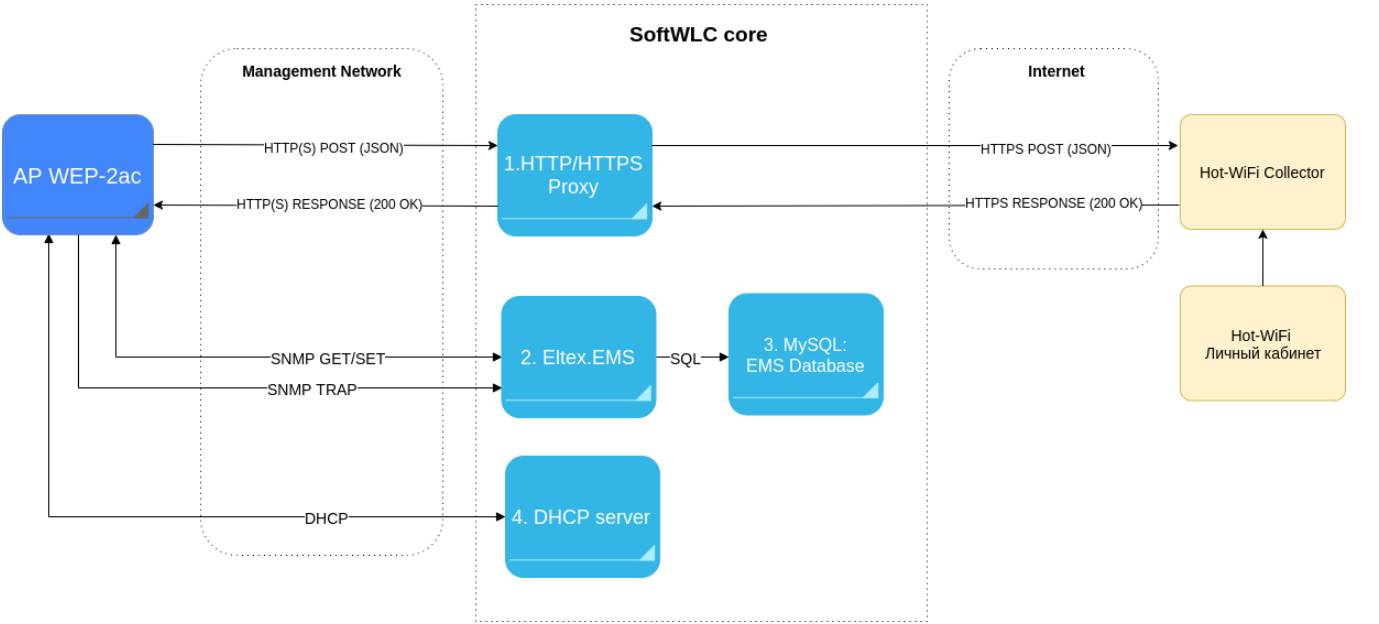
ap\_name (radar\_id)

- , . - , (0x2e);
- 255 ;

- - ;
- : XXXX-9090\_2y\_Uzhnoportoviy\_pr\_12.Sberbank.MRF\_Center.Center.Ap.root;

*i*

( ) JSON .



*i*

ESR GRE .

""

"" . . . 10 . . .

: **Linux Ubuntu Server 16.04 LTS x64.**

: **MySQL Server 5.7.**

DHCP server: **isc-dhcp-server 4.3.3** ( )

: **nginx 1.10.3** ( )

|                 | vCPU, | RAM, | HDD, |   |  |
|-----------------|-------|------|------|---|--|
| 1.HTTP(s) Proxy | 8     | 16   | 20   | nginx   |  |
| 2. Eltex.EMS    | 2     | 32   | 60   | openjdk-8-jdk<br>tomcat7<br>eltex-ems<br>eltex-oui-list |  |
| 3. MySQL server | 2     | 8    | 120  | mysql-server-5.7<br><br>eltex-radius-db<br>eltex-ems-db |  |

|                |   |   |    |                 |  |
|----------------|---|---|----|-----------------|--|
| 4. DHCP server | 1 | 4 | 20 | isc-dhcp-server |  |
|----------------|---|---|----|-----------------|--|



1 "HTTP(s) Proxy" 10 1 . , . , .

( eltex-ems) " Wi-Fi". () . .

, Wi-Fi. "// ()" "MANUAL" :

1. ssid\_apb\_check;
2. nas\_treeobj\_fitness;
3. ssid\_link\_check;
4. ssid\_scheduler;
5. wifi\_alien\_monitor;
6. wifi\_loss\_communication;
7. ott\_overdue;
8. ssid\_pwd\_change\_notifier;

( API), , Wi-Fi. "// " :

1. pcrf;
2. softwlc.nbi;
3. wirelessCommon/ ;
4. wirelessCommon/ (Jerry);