

УНИВЕРСИТЕТ ИТМО

Факультет программной инженерии и компьютерной
техники

Направление подготовки 09.03.04 Программная инженерия

Лабораторная работа №6 по Администрированию систем и сетей

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Преподаватель

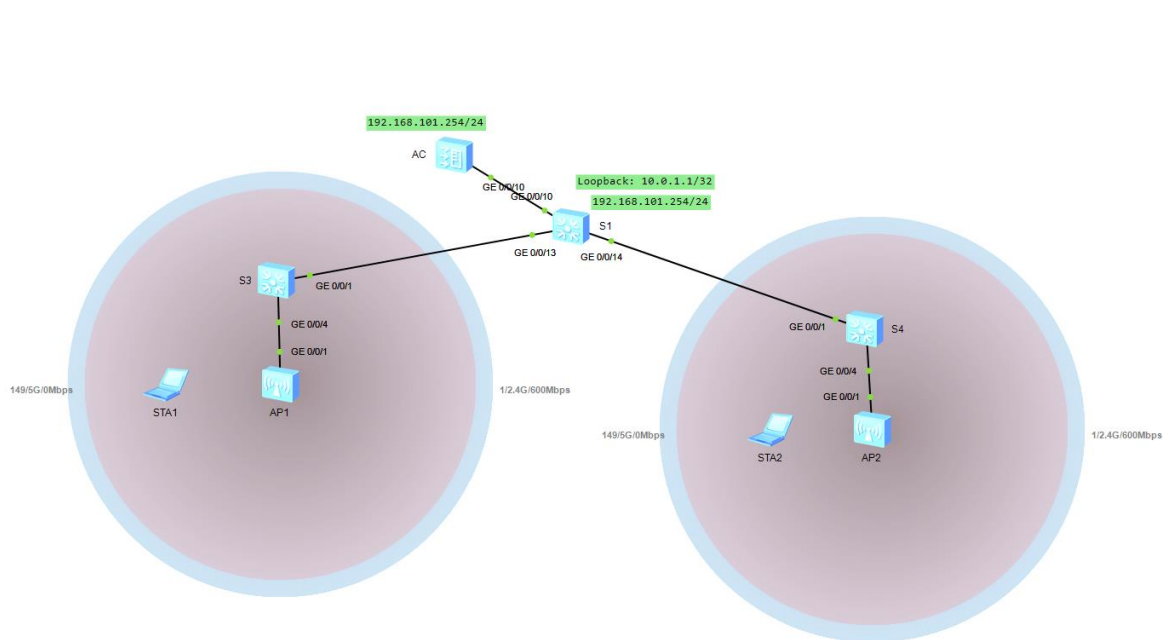
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Желаемая оценка: «3»

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Топология



Шаг 1. Настройте основные параметры устройств.

Отключите ненужные порты между S1 и AC.

```
[S1] interface GigabitEthernet 0/0/11
[S1-GigabitEthernet0/0/11] shutdown
[S1-GigabitEthernet0/0/11] quit
[S1] interface GigabitEthernet 0/0/12
[S1-GigabitEthernet0/0/12] shutdown
[S1-GigabitEthernet0/0/12] quit
```

Шаг 2. Настройте параметры проводной сети.

Настройте VLAN

```
[S1]vlan batch 100 101
```

Info: This operation may take a few seconds. Please wait for a moment...done.

```
[S1]interface GigabitEthernet 0/0/13
[S1-GigabitEthernet0/0/13]port link-type trunk
[S1-GigabitEthernet0/0/13]port trunk allow-pass vlan 100 101
[S1-GigabitEthernet0/0/13]quit
[S1]interface GigabitEthernet 0/0/14
[S1-GigabitEthernet0/0/14]port link-type trunk
[S1-GigabitEthernet0/0/14]port trunk allow-pass vlan 100 101
[S1-GigabitEthernet0/0/14]quit
[S1]interface GigabitEthernet 0/0/10
[S1-GigabitEthernet0/0/10]port link-type trunk
[S1-GigabitEthernet0/0/10]port trunk allow-pass vlan 100 101
[S1-GigabitEthernet0/0/10]quit
[AC]vlan batch 100 101

Info: This operation may take a few seconds. Please wait for
a moment...done.

[AC]interface GigabitEthernet 0/0/10
[AC-GigabitEthernet0/0/10]port link-type trunk
[AC-GigabitEthernet0/0/10]port trunk allow-pass vlan 100 101
[AC-GigabitEthernet0/0/10]quit
[S3]vlan batch 100 101

Info: This operation may take a few seconds. Please wait for
a moment...done.

[S3]interface GigabitEthernet 0/0/1
[S3-GigabitEthernet0/0/1]port link-type trunk
[S3-GigabitEthernet0/0/1]port trunk allow-pass vlan 100 101
[S3-GigabitEthernet0/0/1]quit
```

```
[S3]interface GigabitEthernet 0/0/4
```

```
[S3-GigabitEthernet0/0/4]port link-type trunk
```

```
[S3-GigabitEthernet0/0/4]port trunk pvid vlan 100
```

```
[S3-GigabitEthernet0/0/4]port trunk allow-pass vlan 100 101
```

```
[S3-GigabitEthernet0/0/4]quit
```

```
[S4]vlan batch 100 101
```

Info: This operation may take a few seconds. Please wait for a moment...done.

```
[S4]interface GigabitEthernet0/0/1
```

```
[S4-GigabitEthernet0/0/1] port link-type trunk
```

```
[S4-GigabitEthernet0/0/1] port trunk allow-pass vlan 100 to 101
```

```
[S4-GigabitEthernet0/0/1]quit
```

```
[S4]interface GigabitEthernet0/0/4
```

```
[S4-GigabitEthernet0/0/4] port link-type trunk
```

```
[S4-GigabitEthernet0/0/4] port trunk pvid vlan 100
```

```
[S4-GigabitEthernet0/0/4] port trunk allow-pass vlan 100 to 101
```

```
[S4-GigabitEthernet0/0/4]quit
```

Настройте IP-адреса интерфейсов.

```
[S1]interface Vlanif 101
```

```
[S1-Vlanif101]ip address 192.168.101.254 24
```

```
[S1-Vlanif101]quit
```

```
[S1]interface LoopBack 0
```

```
[S1-LoopBack0] ip address 10.0.1.1 32
```

```
[S1-LoopBack0]quit
```

```
[AC]interface Vlanif 100
```

```
[AC-Vlanif100]ip address 192.168.100.254 24
```

Настройте DHCP.

```
[S1]dhcp enable
```

Info: The operation may take a few seconds. Please wait for a moment.done.

```
[S1]ip pool sta
```

Info:It's successful to create an IP address pool.

IP address pool for STAs

```
[S1-ip-pool-sta]network 192.168.101.0 mask 24
```

```
[S1-ip-pool-sta]gateway-list 192.168.101.254
```

```
[S1-ip-pool-sta]quit
```

```
[S1]interface Vlanif 101
```

```
[S1-Vlanif101]dhcp select global
```

```
[S1-Vlanif101]quit
```

```
[AC]dhcp enable
```

Info: The operation may take a few seconds. Please wait for a moment.done.

```
[AC]ip pool ap
```

Info: It is successful to create an IP address pool.

IP address pool for APs

```
[AC-ip-pool-ap]network 192.168.100.254 mask 24
```

```
[AC-ip-pool-ap]gateway-list 192.168.100.254
```

```
[AC-ip-pool-ap]quit
```

```
[AC]interface Vlanif 100
```

```
[AC-Vlanif100]dhcp select global
```

```
[AC-Vlanif100]quit
```

Шаг 3. Настройте параметры точек доступа для выхода в сеть.

Создайте группу AP и назовите ее ap-group1

```
[AC]wlan
```

```
[AC-wlan-view]ap-group name ap-group1
```

Info: This operation may take a few seconds. Please wait for a moment.done.

```
[AC-wlan-ap-group-ap-group1]quit
```

Создайте профиль регулирующего домена и настройте код страны AC в профиле.

```
[AC]wlan
```

```
[AC-wlan-view]regulatory-domain-profile name default
```

```
[AC-wlan-regulate-domain-default]country-code cn
```

Info: The current country code is same with the input country code

```
[AC-wlan-regulate-domain-default]quit
```

Установите привязку профиля регулирующего домена к группе AP

```
[AC]wlan
```

```
[AC-wlan-view]ap-group name ap-group1
```

```
[AC-wlan-ap-group-ap-group1]regulatory-domain-profile default
```

Warning: Modifying the country code will clear channel, power and antenna

gain configurations of the radio and reset the

AP. Continue?[Y/N]:y

[AC-wlan-ap-group-ap-group1]quit

Укажите интерфейс-источник на AC для установления туннелей CAPWAP.

[AC]capwap source interface Vlanif 100

Импортируйте точки доступа в AC и добавьте их в группу AP с именем ap-group1.

[AC]wlan

[AC-wlan-view]ap auth-mode mac-auth

[AC-wlan-view]ap-id 0 ap-mac 00E0-FCE1-19E0

[AC-wlan-ap-0]ap-name ap1

[AC-wlan-ap-0]ap-group ap-group1

Warning: This operation may cause AP reset. If the country code changes, it

will clear channel, power and antenna gain

configurations of the radio, Whether to continue? [Y/N]:y

//Введите y для

подтверждения.

Info: This operation may take a few seconds. Please wait for a moment.. done.

[AC-wlan-ap-0]quit

[AC-wlan-view]ap-id 1 ap-mac 00E0-FCD0-3C00

[AC-wlan-ap-1]ap-name ap2

[AC-wlan-ap-1]ap-group ap-group1

Warning: This operation may cause AP reset. If the country code changes, it

will clear channel, power and antenna gain

configurations of the radio, Whether to continue? [Y/N]:y

//Введите y для

подтверждения.

Info: This operation may take a few seconds. Please wait for a moment.. done.

[AC-wlan-ap-1]quit

Выведите на экран информацию о текущей AP

[AC]display ap all

Info: This operation may take a few seconds. Please wait for a moment.done.

Total AP information:

nor : normal [2]

ID	MAC	Name	Group	IP	Type	State	STA	Uptime
----	-----	------	-------	----	------	-------	-----	--------

0	00e0-fce1-19e0	ap1	ap-group1	192.168.100.190	AP9131DN	nor	0	8M:7S
---	----------------	-----	-----------	-----------------	----------	-----	---	-------

1	00e0-fcd0-3c00	ap2	ap-group1	192.168.100.186	AP9131DN	nor	0	51S
---	----------------	-----	-----------	-----------------	----------	-----	---	-----

Total: 2

Шаг 4. Настройте параметры сервисов WLAN.

Создайте профиль безопасности HCIA-WLAN и настройте политику безопасности

```
[AC-wlan-view]security-profile name HCIA-WLAN

[AC-wlan-sec-prof-HCIA-WLAN]security wpa-wpa2 psk pass-
phrase HCIA-Datacom

aes

[AC-wlan-sec-prof-HCIA-WLAN]quit
```

Создайте профиль SSID HCIA-WLAN и задайте имя SSID HCIA-WLAN.

```
[AC]wlan

[AC-wlan-view]ssid-profile name HCIA-WLAN

SSID profile HCIA-WLAN is created.

[AC-wlan-ssid-prof-HCIA-WLAN]ssid HCIA-WLAN

The SSID name is set to HCIA-WLAN.

Info: This operation may take a few seconds, please
wait.done.

[AC-wlan-ssid-prof-HCIA-WLAN]quit
```

Создайте профиль VAP HCIA-WLAN, настройте режим передачи данных и сервисную

VLAN и примените профиль безопасности и профиль SSID к профилю VAP.

```
[AC]wlan

[AC-wlan-view]vap-profile name HCIA-WLAN

[AC-wlan-vap-prof-HCIA-WLAN]forward-mode direct-forward

[AC-wlan-vap-prof-HCIA-WLAN]service-vlan vlan-id 101
```

Info: This operation may take a few seconds, please wait.done.

```
[AC-wlan-vap-prof-HCIA-WLAN]security-profile HCIA-WLAN
```

Security profile HCIA-WLAN is bound.

Info: This operation may take a few seconds, please wait.done.

```
[AC-wlan-vap-prof-HCIA-WLAN]ssid-profile HCIA-WLAN
```

SSID profile HCIA-WLAN is bound.

Info: This operation may take a few seconds, please wait.done.

```
[AC-wlan-vap-prof-HCIA-WLAN]quit
```

Установите привязку профиля VAP к группе AP и примените конфигурацию профиля

VAP HCIA-WLAN к радиомодулю 0 и радиомодулю 1 точек доступа в группе AP.

```
[AC]wlan
```

```
[AC-wlan-view]ap-group name ap-group1
```

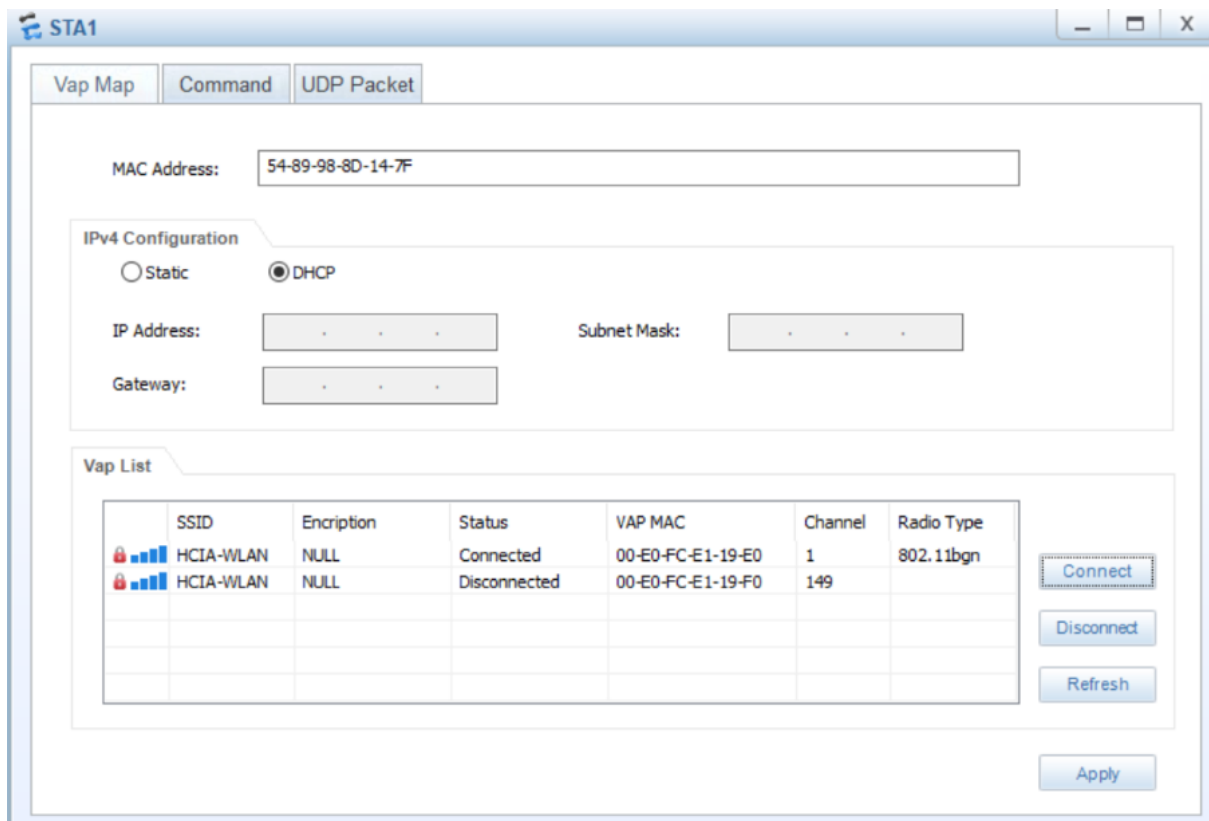
```
[AC-wlan-ap-group-ap-group1]vap-profile HCIA-WLAN wlan 1  
radio all
```

Info: This operation may take a few seconds, please wait...done.

```
[AC-wlan-ap-group-ap-group1]quit
```

Проверка

Подключение к WLAN:



Проверка связи с S1:

```
STA>ping 10.0.1.1
```

```
Ping 10.0.1.1: 32 data bytes, Press Ctrl_C to break
```

```
From 10.0.1.1: bytes=32 seq=1 ttl=255 time=157 ms
```

```
From 10.0.1.1: bytes=32 seq=2 ttl=255 time=125 ms
```

```
From 10.0.1.1: bytes=32 seq=3 ttl=255 time=141 ms
```

```
From 10.0.1.1: bytes=32 seq=4 ttl=255 time=156 ms
```

```
From 10.0.1.1: bytes=32 seq=5 ttl=255 time=125 ms
```

```
--- 10.0.1.1 ping statistics ---
```

```
5 packet(s) transmitted
```

```
5 packet(s) received
```

```
0.00% packet loss
```

round-trip min/avg/max = 125/140/157 ms

Вывод команды “display station all” на AC:

```
[AC]display station all
```

```
Rf/WLAN: Radio ID/WLAN ID
```

```
Rx/Tx: link receive rate/link transmit rate(Mbps)
```

```
-----  
-----
```

```
-----
```

```
STA MAC AP ID Ap name Rf/WLAN Band Type Rx/Tx RSSI VLAN IP address SSID
```

```
-----  
-----
```

```
5489-988d-147f 0 ap1 0/1 2.4G - -/- - 101 192.168.101.253 HCIA-
```

```
WLAN
```

```
-----  
-----
```

```
-----
```

```
Total: 1 2.4G: 1 5G: 0
```