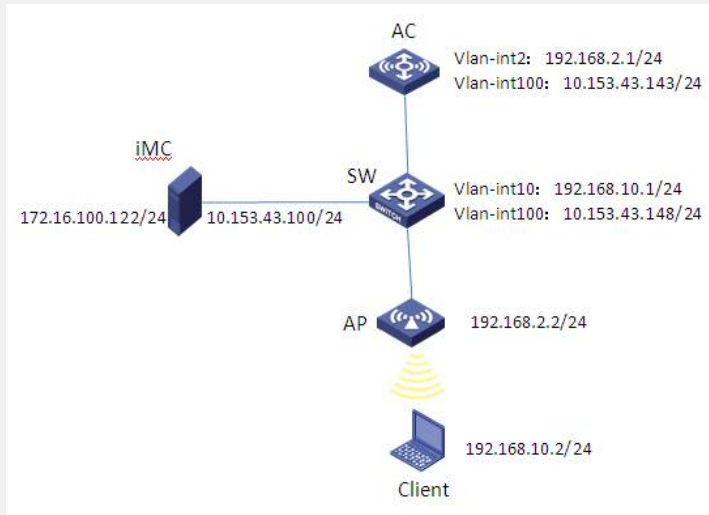


WX系列AC+Fit AP二层Portal典型配置（ARP表项方式）

一、组网需求：

WX系列AC、FIT AP、便携机（安装有无线网卡）、iMC（PLAT、UAM）

二、组网图：



本典型配置举例中AC使用WX5004无线控制器，版本为R2308P18。AC作为AP网关（Vlan-int2: 192.168.2.1/24）并配置DHCP Serve为FIT AP分配IP地址，设置互联地址（Vlan-int100: 10.153.43.143/24）与iMC进行通信。SW作为Client网关（Vlan-int10: 192.168.10.1/24）并配置DHCP Serve为Client分配IP地址，设置互联地址（Vlan-int100: 10.153.43.148/24）与iMC进行通信。AC作为接入设备对VLAN 10的用户进行Portal认证，iMC的IP地址172.16.100.122提供Portal服务和AAA服务。

三、特性介绍：

AC作为接入设备对无线用户进行Portal认证，无线用户的网关位于上层设备SW上。当AC上用户VLAN接口设置IP地址时，Portal设备可以在接入设备上根据用户IP地址查找用户ARP表项信息以完成Portal认证。Portal认证通过后，无线用户可以对资源进行访问（案例中通过对iMC接口10.153.43.100的ping操作进行测试）。

四、配置信息：

1. AC的配置信息：

```
#
version 5.20, Release 2308P18
#
sysname AC
#
domain default enable system
#
telnet server enable
#
port-security enable
#
portal server h3c-portal ip 172.16.100.122 key cipher $c$3$uDGtFFtWMQH6VTGbBg3tVMYIv+F00
w== url http://172.16.100.122/portal server-type imc
portal free-rule 0 source mac 3822-d6c0-ad73 destination any
#
```

```
vlan 1
#
vlan 2
#
vlan 10
#
vlan 100
#
radius scheme portal
server-type extended
primary authentication 172.16.100.122
primary accounting 172.16.100.122
key authentication cipher $c$3$So1jrlBnKIVhr5s6BS5Ck3pV2XGtpFQ==
key accounting cipher $c$3$JvB3TU6DkwokktR2uX/6vl5S+5XWvg==
user-name-format without-domain
#
domain portal
authentication portal radius-scheme portal
authorization portal radius-scheme portal
accounting portal radius-scheme portal
access-limit disable
state active
idle-cut disable
self-service-url disable
domain system
access-limit disable
state active
idle-cut disable
self-service-url disable
#
dhcp server ip-pool pool-ap
network 192.168.2.0 mask 255.255.255.0
gateway-list 192.168.2.1
#
user-group system
group-attribute allow-guest
#
local-user admin
password cipher $c$3$4CSnRqvYBd2xHeUsyDKNVbcG7cl1Q/IT
authorization-attribute level 3
service-type telnet
#
wlan rrm
dot11a mandatory-rate 6 12 24
dot11a supported-rate 9 18 36 48 54
dot11b mandatory-rate 1 2
dot11b supported-rate 5.5 11
```

```
dot11g mandatory-rate 1 2 5.5 11
dot11g supported-rate 6 9 12 18 24 36 48 54
#
wlan service-template 1 clear
ssid h3c-portal
bind WLAN-ESS 1
service-template enable
#
interface NULL0
#
interface Vlan-interface1
ip address 192.168.0.100 255.255.255.0
#
interface Vlan-interface2
ip address 192.168.2.1 255.255.255.0
#
interface Vlan-interface10
ip address 192.168.10.254 255.255.255.0
portal server h3c-portal method direct
portal domain portal
portal nas-port-type wireless
portal nas-ip 10.153.43.143
#
interface Vlan-interface100
ip address 10.153.43.143 255.255.255.0
#
interface GigabitEthernet1/0/1
port link-type trunk
port trunk permit vlan all
#
interface GigabitEthernet1/0/2
#
interface GigabitEthernet1/0/3
#
interface GigabitEthernet1/0/4
#
interface Ten-GigabitEthernet1/0/5
#
interface WLAN-ESS1
port access vlan 10
#
wlan ap ap01 model WA2220-AG id 1
serial-id 210235A29EB092002600
radio 1
service-template 1
radio enable
radio 2
```

```
service-template 1
radio enable
#
ip route-static 172.16.100.122 255.255.255.255 10.153.43.100
#
undo info-center logfile enable
#
snmp-agent
snmp-agent local-engineid 800063A2033CE5A684342E
snmp-agent community read public
snmp-agent community write private
snmp-agent sys-info version all
#
dhcp enable
#
arp-snooping enable
#
load xml-configuration
#
user-interface con 0
user-interface vty 0 4
authentication-mode scheme
user privilege level 3
#
return
```

2. SW的配置信息:

```
#
version 5.20, Release 2103
#
sysname SW
#
domain default enable system
#
telnet server enable
#
vlan 1
#
vlan 2
#
vlan 10
#
vlan 100
#
radius scheme system
server-type extended
primary authentication 127.0.0.1 1645
primary accounting 127.0.0.1 1646
```

```
user-name-format without-domain
#
domain system
access-limit disable
state active
idle-cut disable
self-service-url disable
#
dhcp server ip-pool pool-client
network 192.168.10.0 mask 255.255.255.0
gateway-list 192.168.10.1
#
user-group system
group-attribute allow-guest
#
local-user admin
#
interface NULL0
#
interface Vlan-interface10
ip address 192.168.10.1 255.255.255.0
#
interface Vlan-interface100
ip address 10.153.43.148 255.255.255.0
#
interface Ethernet1/0/1
port link-mode bridge
port access vlan 2
poe enable
#
interface Ethernet1/0/23
port link-mode bridge
port access vlan 100
#
interface Ethernet1/0/24
port link-mode bridge
port link-type trunk
port trunk permit vlan all
#
ip route-static 172.16.100.122 255.255.255.255 10.153.43.100
#
dhcp server forbidden-ip 192.168.10.254
#
dhcp enable
#
load xml-configuration
#
```

```
load tr069-configuration
#
user-interface aux 0
user-interface vty 0 15
#
return
```

五、主要配置步骤：

1. AC配置：

#创建VLAN，二层端口配置VLAN信息，并配置VLAN接口IP地址。

```
system-view
[AC] vlan 2
[AC~vlan2] quit
[AC] vlan 10
[AC~vlan10] quit
[AC] vlan 100
[AC~vlan100] quit
[AC] interface GigabitEthernet1/0/1
[AC- GigabitEthernet1/0/1] port link-type trunk
[AC- GigabitEthernet1/0/1] port trunk permit vlan all
[AC] interface Vlan-interface2
[AC-Vlan-interface2] ip address 192.168.2.1 255.255.255.0
[AC-Vlan-interface2] quit
[AC] interface Vlan-interface10
[AC-Vlan-interface10] ip address 192.168.10.254 255.255.255.0
[AC-Vlan-interface10] quit
[AC] interface Vlan-interface100
[AC-Vlan-interface100] ip address 10.153.43.143 255.255.255.0
[AC-Vlan-interface100] quit
#配置DHCP server。
[AC] dhcp enable
[AC] dhcp server ip-pool pool-ap
[AC- dhcp server ip-pool pool-ap] network 192.168.2.0 mask 255.255.255.0
[AC- dhcp server ip-pool pool-ap] gateway-list 192.168.2.1
[AC- dhcp server ip-pool pool-ap] quit
#使能ARP Snooping功能，命令display wlan client显示无线客户端的IP地址。命令display wlan client显示的无线客户端的IP地址首先从ARP Snooping模块获取，从ARP Snooping模块获取不到时从DHCP Snooping模块获取。从DHCP Snooping模块也获取不到时显示0.0.0.0。
[AC] arp-snooping enable
#配置静态路由。
[AC] ip route-static 172.16.100.122 255.255.255.255 10.153.43.100
#配置WLAN ESS接口。
[AC] interface WLAN-ESS1
[AC-WLAN-ESS1] port access vlan 10
[AC-WLAN-ESS1]quit
#配置service-template服务模板。
[AC] wlan service-template 1 clear
[AC-wlan-st-1] ssid h3c-portal
[AC-wlan-st-1] bind WLAN-ESS 1
```

```
[AC-wlan-st-1] service-template enable

[AC-wlan-st-1] quit

#配置ap1。

[AC] wlan ap ap01 model WA2220-AG

[AC-wlan-ap-ap01] serial-id 210235A29EB092002600

[AC-wlan-ap-ap01] radio 1

[AC-wlan-ap-ap01-radio-1] service-template 1

[AC-wlan-ap-ap01-radio-1] radio enable

[AC-wlan-ap-ap01-radio-1] quit

[AC-wlan-ap-ap01] radio 2

[AC-wlan-ap-ap01-radio-2] service-template 1

[AC-wlan-ap-ap01-radio-2] radio enable

[AC-wlan-ap-ap01-radio-2] quit

[AC-wlan-ap-ap01] quit

#配置RADIUS方案，创建名称为portal的RADIUS方案。

[AC] radius scheme portal

#配置RADIUS方案的服务器类型。使用iMC服务器时，RADIUS服务器类型应选择extended。

[AC-radius-portal] server-type extended

#配置RADIUS方案的主认证和主计费服务器及其通信密钥。

[AC-radius-portal] primary authentication 172.16.100.122

[AC-radius-portal] primary accounting 172.16.100.122

[AC-radius-portal] key authentication h3c

[AC-radius-portal] key accounting h3c

#配置发送给RADIUS服务器的用户名不携带ISP域名。

[AC-radius-portal] user-name-format without-domain

[AC-radius-portal] quit

#配置认证域，创建并进入名字为portal的ISP域。

[AC] domain portal

[AC-isp-portal] authentication portal radius-scheme portal

[AC-isp-portal] authorization portal radius-scheme portal

[AC-isp-portal] accounting portal radius-scheme portal

[AC-isp-portal] quit

#配置Portal服务器：名称为h3c-portal，IP地址为172.16.100.122，密钥为h3c，URL为http://172.16.100.122/portal。

[AC] portal server h3c-portal ip 172.16.100.122 key h3c url http://172.16.100.122/portal server-type imc

#配置Portal free-rule，允许源MAC地址为用户网关MAC（3822-d6c0-ad73）的所有流量。

[AC] portal free-rule 0 source mac 3822-d6c0-ad73 destination any

#在与用户相连的接口上使能Portal认证，并配置接入的Portal用户使用认证域portal。

[AC] interface Vlan-interface10

[AC-Vlan-interface10] portal server h3c-portal method direct

[AC-Vlan-interface10] portal domain portal

[AC-Vlan-interface10] portal nas-port-type wireless

[AC-Vlan-interface10] portal nas-ip 10.153.43.143

[AC-Vlan-interface10] quit

#配置SNMP。
```

```
[AC] snmp-agent
```

```
[AC] snmp-agent community read public
```

```
[AC] snmp-agent community write private
```

```
[AC] snmp-agent sys-info version all
```

2. SW配置:

#创建VLAN，二层端口配置VLAN信息，并配置VLAN接口IP地址。

```
system-view
```

```
[SW] vlan 2
```

```
[SW -vlan2] quit
```

```
[SW] vlan 10
```

```
[SW -vlan10] quit
```

```
[SW] vlan 100
```

```
[SW -vlan100] quit
```

```
[SW] interface Ethernet1/0/1
```

```
[SW-Ethernet1/0/1] port access vlan 2
```

```
[SW-Ethernet1/0/1] poe enable
```

```
[SW-Ethernet1/0/1] quit
```

```
[SW] interface Ethernet1/0/23
```

```
[SW-Ethernet1/0/23] port access vlan 100
```

```
[SW-Ethernet1/0/23] quit
```

```
[SW] interface Ethernet1/0/24
```

```
[SW-Ethernet1/0/24] port link-type trunk
```

```
[SW-Ethernet1/0/24] port trunk permit vlan all
```

```
[SW-Ethernet1/0/24] quit
```

```
[SW] interface Vlan-interface10
```

```
[SW-Vlan-interface10] ip address 192.168.10.1 255.255.255.0
```

```
[SW-Vlan-interface10] quit
```

```
[SW] interface Vlan-interface100
```

```
[SW -Vlan-interface100] ip address 10.153.43.148 255.255.255.0
```

```
[SW -Vlan-interface100] quit
```

#配置DHCP server。

```
[SW] dhcp enable
```

```
[SW] dhcp server ip-pool pool-client
```

```
[SW- dhcp server ip-pool pool-client] network 192.168.10.0 mask 255.255.255.0
```

```
[SW- dhcp server ip-pool pool-client] gateway-list 192.168.10.1
```

```
[SW- dhcp server ip-pool pool-client] quit
```

```
[SW] dhcp server forbidden-ip 192.168.10.254
```

#配置静态路由。

```
[SW] ip route-static 172.16.100.122 255.255.255.255 10.153.43.100
```

3. iMC配置:

#配置Portal服务器。

登录进入iMC管理平台，选择“业务”页签，点击导航树中的[用户接入管理/Portal服务器管理/服务器配置]菜单项，根据实际组网情况调整参数，本例中使用缺省配置。



#配置IP地址组。

点击导航树中的[Portal服务管理/Portal IP地址组配置]菜单项，进入Portal IP地址组配置页面，在该页面中点击<增加>按钮，进入增加IP地址组配置页面。填写IP地址组名h3c-p-portal；输入起始地址192.168.10.2和终止地址192.168.10.254。用户主机IP地址必须包含在该IP地址组范围内；选择业务分组，本例中使用缺省的“未分组”；选择IP地址组的类型为“普通”。



#增加Portal设备。

点击导航树中的[Portal服务管理/Portal设备配置]菜单项，进入Portal设备配置页面，在该页面中点击<增加>按钮，进入增加设备信息配置页面。填写设备名WX5004；IP地址为接入设备AC上与Portal服务器通信的NAS-IP 10.153.43.143；密钥h3c，与接入设备AC上的配置保持一致；组网方式选择直连；其它参数采用缺省值。



Portal设备关联IP地址组。

在Portal设备配置页面中的设备信息列表中，点击AC设备的<端口组信息管理>链接，进入端口组信息配置页面。

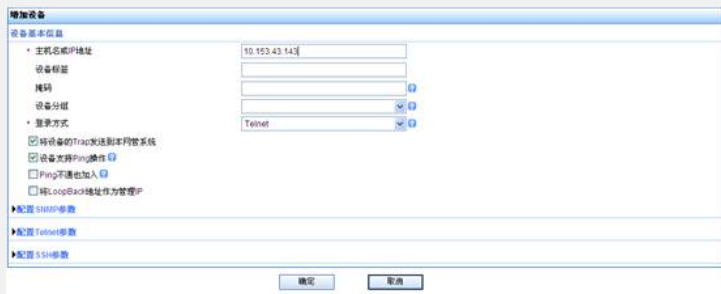


在端口组信息配置页面中点击<增加>按钮，进入增加端口组信息配置页面。填写端口组名h3c-portal；选择IP地址组h3c-portal，用户接入网络时使用的IP地址必须属于所选的IP地址组；其它参数采用缺省值。



#配置接入设备。

选择“资源”页签，点击导航树中的[资源管理/增加设备]菜单项。填写主机名或IP地址10.153.43.143；根据实际组网情况配置登录方式，并配置SNMP参数、Telnet参数、SSH参数。



选择“业务”页签，点击导航树中的[用户接入管理/接入设备管理/接入设备配置]菜单项。在接入设备列表点击<增加>按钮，进入增加接入设备配置页面。填写共享密钥h3c，与接入设备AC上的配置保持一致。



在设备列表点击<选择>，进入选取设备页面，通过设备IP的精确查询查找设备，并添加为<已选择设备>，点击<确定>。



点击 <确定>完成接入设备的配置。



#配置服务配置管理。

选择“业务”页签，点击导航树中的[用户接入管理/服务配置管理]菜单项。在服务列表点击<增加>，进入增加服务配置页面，填写服务名，选择缺省接入规则byodniminservice，其它参数采用缺省值。



#配置接入用户。

选择“用户”页签，点击导航树中的[用户管理/增加用户]菜单项。填写用户姓名和证件号码。



点击<增加用户账号>，进入增加接入用户界面，填写账号名和密码，并选择接入服务h3c-portal。



六、结果验证：

(1) 查看客户端信息。

```
<AC>dis wlan client
Total Number of Clients      : 1
Client Information
SSID: h3c-portal
-----
MAC Address  User Name      APID/RID IP Address      VLAN
-----
0024-d636-18b2 -NA-      1 /1  192.168.10.2      10
```

```
[AC]display arp vlan 10
Type: S-Static  D-Dynamic  A-Authorized
IP Address      MAC Address      VLAN ID  Interface      Aging Type
192.168.10.2    0024-d636-18b2  10      WLAN-DBSS1:9   17  D
```

```
C:\Documents and Settings\w08903>ipconfig

Windows IP Configuration

Ethernet adapter {DFE5262D-3E94-49E7-9934-D12594F11C78}:

    Media State . . . . . : Media disconnected

Ethernet adapter 无线网络连接:

    Connection-specific DNS Suffix  . : 
    IP Address . . . . . : 192.168.10.2
    Subnet Mask . . . . . : 255.255.255.0
    IP Address . . . . . : fe80::224:d6ff:fe36:18b2%7
    Default Gateway . . . . . : 192.168.10.1

Tunnel adapter Teredo Tunneling Pseudo-Interface:

    Connection-specific DNS Suffix  . : 
    IP Address . . . . . : fe80::ffff:ffff:ffff:6
    Default Gateway . . . . . : 

Tunnel adapter Automatic Tunneling Pseudo-Interface:

    Connection-specific DNS Suffix  . : 
    IP Address . . . . . : fe80::5efe:192.168.10.2%2
    Default Gateway . . . . . :
```

(2) 认证前客户端无法ping通iMC接口10.153.43.100。

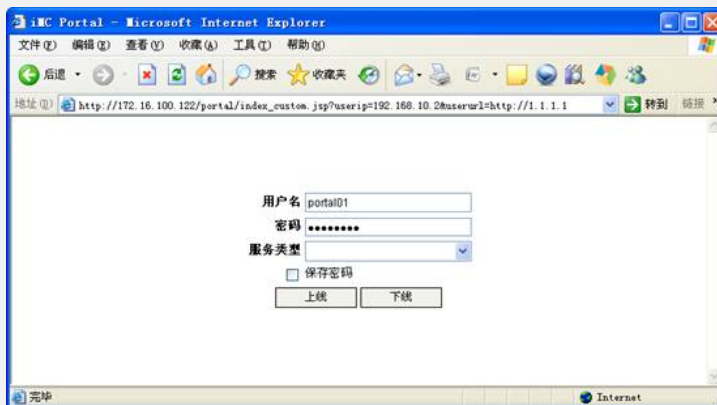
```
C:\Documents and Settings\w08903>ping 10.153.43.100

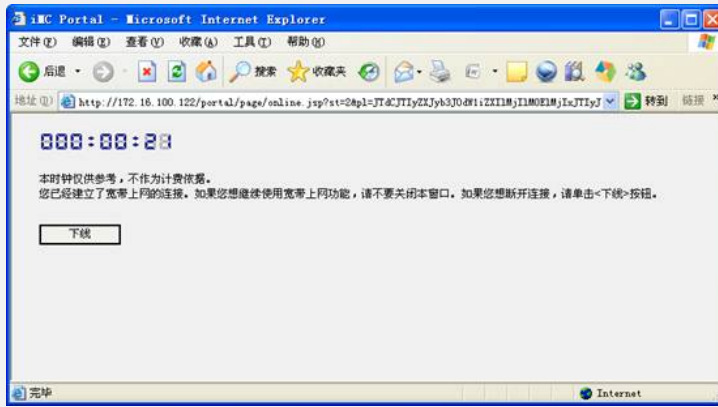
Pinging 10.153.43.100 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 10.153.43.100:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
```

(3) 进行Portal认证。





```
<AC>dis connection
Index=0 , Username=portal01@portal
MAC=00-24-D6-36-18-B2
IP=192.168.10.2
IPv6=N/A
Total 1 connection(s) matched.
```

(4) 认证通过后客户端可以ping通iMC接口10.153.43.100。

```
C:\Documents and Settings\w089703>ping 10.153.43.100
Pinging 10.153.43.100 with 32 bytes of data:
Reply from 10.153.43.100: bytes=32 time=1ms TTL=127
Reply from 10.153.43.100: bytes=32 time=1ms TTL=127
Reply from 10.153.43.100: bytes=32 time=1ms TTL=127
Reply from 10.153.43.100: bytes=32 time=1ms TTL=127
Ping statistics for 10.153.43.100:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 1ms, Average = 1ms
```