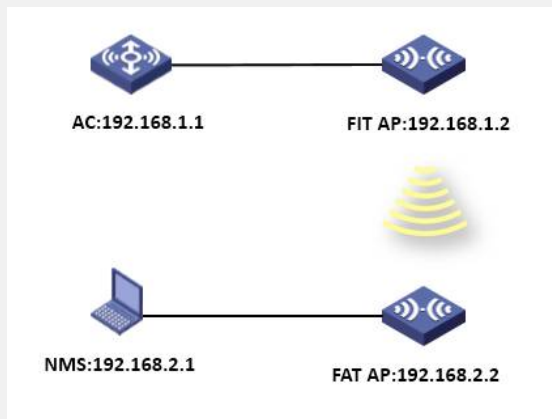


## H3C WA系列AP自动信道桥接配置

### 一、 组网需求

无线控制器 (AC)、无线接入点 (FIT AP)，无线桥接设备 (FAT AP)，网管服务器 (MIB Browser)。

### 二、 组网图



本次配置举例中使用AC为WX5004，FIT AP为WA2620i-AGN，FAT AP 为WA2220E-AG，AC作为DHCP服务器，AP在AC上自动获取IP地址（192.168.1.0/24），并在AC上注册成功。AC对FIT AP下发桥接相关配置，FAT AP上配置好桥接参数，保证与FIT AP桥接成功。NMS通过网管软件MIB Browser设置FAT AP信道为自动信道，FAT AP通过扫描信道与FIT AP建立MESH链路并转发数据报文。

### 三、 特性介绍

无线网桥是无线射频技术和传统的有线网桥技术相结合的产物，无线网桥可以无缝地将相隔较远距离的局域网络连接在一起，创建统一的企业或小型城域网络系统，在最简单的网络构架中，网桥的以太网端口连接到局域网中的某个接入层的交换机上，信号发射端口则通过电缆和天线相连接，通过这样的方式实现现有网络系统的扩展。其特点就是省去了有线的架设，可以方便地将有线网络或者无线网络孤岛连接到一个现有的网络中，或者将几个有线或者无线网络的孤岛连接成一个局域网络，并在两点之间提供数据传输，而传输链路包括两个方面的内容：

？链路的建立：通过对等体之间交换消息来建立连接

？链路的安全：提供PSK + CCMP的无线安全连接

在轨道交通车辆段方案上，可以采用自动信道方式建立MESH链路，解决车辆段数据传输问题。当列车回库时，列车根据压轨信号通知网管服务器更改车载MR信道为自动信道，MR切换为自动信道后，扫描各个信道桥接信号，当扫描到桥接信号之后将与轨旁的AP建立MESH链路并转发数据。车辆段轨旁AP可以部署多个不同信道，降低信道拥塞率，提高空间转发带宽，解决车辆段干扰大、带宽小的问题。

### 四、 配置步骤

#### 1. AC配置信息

##### (1) 开启端口安全

```
[AC]port-security enable
```

##### (2) 使能MKD服务绑定，为Mesh Profile使能MKD服务

```
[AC]mkd-service enable mesh-profile 1
```

##### (3) 配置桥接接口

```
[AC]int wlan-mesh 1
```

```
[AC-WLAN-MESH1] port link-type trunk
```

```
[AC-WLAN-MESH1] port trunk permit vlan all
```

```
[AC-WLAN-MESH1]port-security port-mode psk
```

```
[AC-WLAN-MESH1] port-security tx-key-type 11key
```

[AC-WLAN-MESH1]port-security preshared-key pass-phrase mesh1234

(4) 配置桥接mesh-profile

[AC]wlan mesh-profile 1

[AC-wlan-mshp-1]mesh-id mesh1

[AC-wlan-mshp-1]bind WLAN-MESH 1

[AC-wlan-mshp-1]mesh-profile enable

(5) 配置AP模板

[AC]wlan ap 1 model WA2620i-AGN id 1

[AC-wlan-ap-1] serial-id 5866-BA6B-F2C0

[AC-wlan-ap-1] portal-service enable

[AC-wlan-ap-1]radio 1

[AC-wlan-ap-1-radio-1] channel 149

[AC-wlan-ap-1-radio-1] mesh-profile 1

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

## 2. FAT（车载MR）配置

(1) 开启端口安全

[MR]port-security enable

(2) 配置桥接接口

[MR]int wlan-mesh 1

[MR-WLAN-MESH1] port link-type trunk

[MR-WLAN-MESH1] port trunk permit vlan all

[MR-WLAN-MESH1]port-security port-mode psk

[MR-WLAN-MESH1] port-security tx-key-type 11key

[MR-WLAN-MESH1]port-security preshared-key pass-phrase mesh1234

(3) 配置桥接mesh-profile

[MR]wlan mesh-profile 1

[MR-wlan-mshp-1]mesh-id mesh1

[MR-wlan-mshp-1]bind WLAN-MESH 1

[MR-wlan-mshp-1]mesh-profile enable

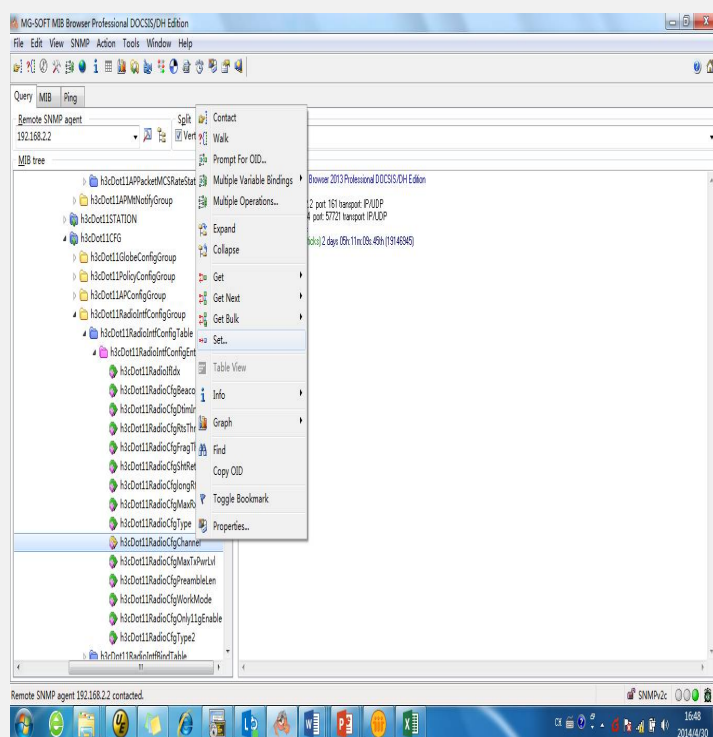
(4) 射频口绑定信息

[MR-WLAN-Radio1/0/1] mesh-profile 1

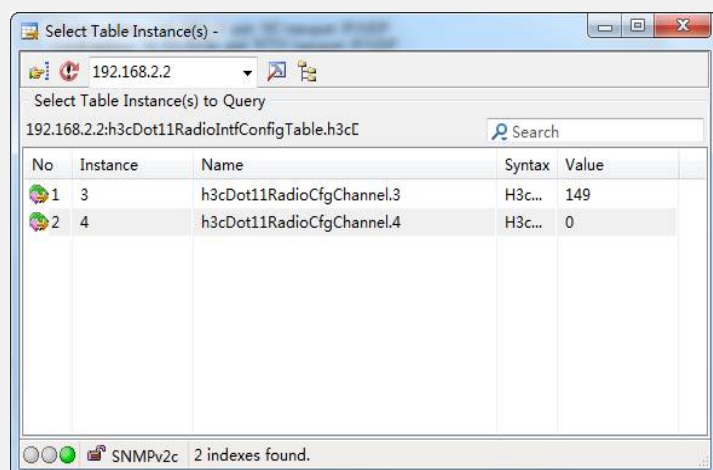
## 3. 网管设置车载AP为自动信道

h3cDot11RadioCfgChannel : 1.3.6.1.4.1.2011.10.2.75.4.4.1.1.10

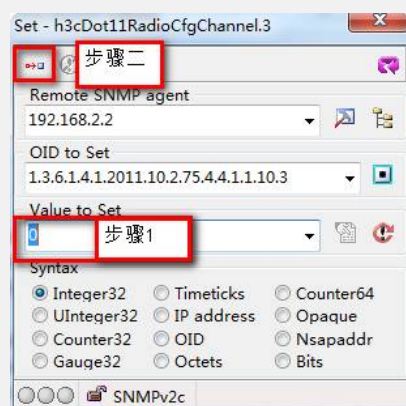
在网管软件MiB Browser上找到节点，右击选择set:



点击set之后弹出新的对话框，instance对于数值3和4分别代表射频1和射频2，选择桥接的射频并设置：



点击instance数值之后弹出新的对话框，按照下面步骤设置



设置之后，网管软件反馈设置之后的数值，数值0代表自动信道：

```
***** SNMP SET-RESPONSE START *****
1: h3cDot11RadioCfgChannel.3 (H3cDot11ChannelScopeType) 0
***** SNMP SET-RESPONSE END *****
```

在轨道交通车辆段应用中，当车辆进入车辆段时，MR（FAT AP）的信道由固定信道切换至可变自动信道，在这个过程中原有MESH链路会断开，相关日志：

#Aug 13 15:17:22:956 2013 MR IFNET/4/INTERFACE UPDOWN:

Trap 1.3.6.1.6.3.1.1.5.3: Interface 13369344 is Down, ifAdminStatus is 1, ifOperStatus is 2

%Aug 13 15:17:22:957 2013 MR IFNET/3/LINK\_UPDOWN: WLAN-MESHLINK4 link status is DOWN.

%Aug 13 15:17:22:957 2013 MR WMSH/6/WMESH\_PEER\_LINK\_CLOSED: Peer link is closed with neighbor 5866-ba6b-f2c0 for reason:LINK\_CANCELED.

而MR (FAT AP) 会扫描信道，并建立新的MESH链路：

%Aug 13 15:17:28:034 2013 MR WMAC/6/WMAC\_CHANNEL\_CHANGE: Channel change for APID 1, Radioid 1 from channel 0 to channel 165.

#Aug1315:17:54:9942013MRWMAC/4/ChannelChange:

Channel:1.3.6.1.4.1.2011.10.2.75.2.3.0.5 Serial Id:210235A29FB094000055 Serial Id:210235A29FB094000055 Radio Id:12386305 ChangeMode:2 Old:165 New:0 Count:2

%Aug 13 15:17:54:995 2013 MR WMAC/6/WMAC\_CHANNEL\_CHANGE: Channel change for APID 1, Radioid 1 from channel 165 to channel 0.

#Aug 13 15:17:57:465 2013 MR IFNET/4/INTERFACE UPDOWN:

Trap 1.3.6.1.6.3.1.1.5.4: Interface 13369344 is Up, ifAdminStatus is 1, ifOperStatus is 1

%Aug 13 15:17:57:466 2013 MR IFNET/3/LINK\_UPDOWN: WLAN-MESHLINK6 link status is UP.

%Aug 13 15:17:57:466 2013 MR WMSH/6/WMESH\_PEER\_LINK\_ESTABLISH: Peer link is established with neighbor 5866-ba6b-f2c0 in MESH h3c,on radio 1 with BSSID 000f-e2fb-f8e0.

%Aug 13 15:17:57:486 2013 MR WMSH/6/WMESH\_AUTH\_SUCCESS: Authentication success with neighbor 5866-ba6b-f2c0 in MESH h3c,on radio 1 with BSSID 000f-e2fb-f8e0.

#Aug13 15:17:58:008 2013 MR WMAC/4/Channel Change: Channel:1.3.6.1.4.1.2011.10.2.75.2.3.0.5 Serial Id:210235A29FB094000055 Serial Id:210235A29FB094000055 Radio Id:12386305 ChangeMode:2 Old:0 New:149 Count:3

%Aug 13 15:17:58:009 2013 MR WMAC/6/WMAC\_CHANNEL\_CHANGE: Channel change for APID 1, Radioid 1 from channel 0 to channel 149.

## 五、配置信息：

### 1. AC配置信息

display current-configuration

#

version 5.20, Release 2507P18

#

sysname AC

#

domain default enable system

#

telnet server enable

#

port-security enable

#

password-recovery enable

#

```
vlan 1

#
vlan 2

#
domain system

access-limit disable

state active

idle-cut disable

self-service-url disable

#
dhcp server ip-pool 1

network 192.168.1.0 mask 255.255.255.0

gateway-list 192.168.1.1

#
user-group system

group-attribute allow-guest

#
local-user admin

password cipher $c$3$c4L1HLDZysGa7aqT0aMAtJ4t1fQpw3KL

authorization-attribute level 3

service-type telnet

#
wlan mesh-profile 1

mesh-id h3c

bind WLAN-MESH 1

mesh-profile enable

#
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 ap-group default_group

ap ap1

#
interface NULL0

#
interface Vlan-interface1

ip address 192.168.1.1 255.255.255.0

#
interface GigabitEthernet1/0/1

#
interface GigabitEthernet1/0/2
```

```

#
interface GigabitEthernet1/0/3
#
interface GigabitEthernet1/0/4
port link-type trunk
port trunk permit vlan 1 3 to 4094
#
interface Ten-GigabitEthernet1/0/5
#
interface WLAN-MESH1
port link-type trunk
port trunk permit vlan all
port-security port-mode psk
port-security tx-key-type 11key
port-security preshared-key pass-phrase cipher
$c$3$cXqAkh+F7V0/MmTapJ0tk8XM3OMV/BMiy9AI
#
wlan ap ap1 model WA2620i-AGN id 1
serial-id 5866-BA6B-F2C0
portal-service enable
radio 1
channel 149
mesh-profile 1
radio enable
radio 2
radio enable
#
wlan ips
malformed-detect-policy default
signature deauth_flood signature-id 1
signature broadcast_deauth_flood signature-id 2
signature disassoc_flood signature-id 3
signature broadcast_disassoc_flood signature-id 4
signature eapol_logoff_flood signature-id 5
signature eap_success_flood signature-id 6
signature eap_failure_flood signature-id 7
signature pspoll_flood signature-id 8
signature cts_flood signature-id 9
signature rts_flood signature-id 10
signature addba_req_flood signature-id 11
signature-policy default
countermeasure-policy default
attack-detect-policy default
virtual-security-domain default
attack-detect-policy default
malformed-detect-policy default

```

```
signature-policy default
countermeasure-policy default
#
undo info-center logfile enable
#
dhcp enable
#
mkd-service enable mesh-profile 1
#
user-interface con 0
user-interface vty 0 4
authentication-mode scheme
user privilege level 3
#
return
```

## 2. MR配置信息

```
display current-configuration
#
version 5.20, Feature 1117P17
#
sysname MR
#
domain default enable system
#
telnet server enable
#
port-security enable
#
password-recovery enable
#
vlan 1
#
vlan 2
#
domain system
access-limit disable
state active
idle-cut disable
self-service-url disable
#
user-group system
group-attribute allow-guest
#
local-user admin
password cipher $c$3$BcBPzkTT/3nGrNIPRy/ZlGOYjw7fCH7LGkpyUTg=
authorization-attribute level 3
```

```
service-type telnet

#
wlan mesh-profile 1
    mesh-id h3c
    bind WLAN-MESH 1
    mesh-profile enable
#
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
#
interface NULL0
#
interface Vlan-interface1
    ip address dhcp-alloc
#
interface Vlan-interface2
    ip address 192.168.2.2 255.255.255.0
#
interface Ethernet1/0/1
    port link-type trunk
    port trunk permit vlan all
#
interface WLAN-MESH1
    port link-type trunk
    port trunk permit vlan all
    port-security port-mode psk
    port-security tx-key-type 11key
    port-security preshared-key pass-phrase cipher $c$3$hCExxOrUqQDAHtoN
nmBMe/57F1tx3CrR4ELn
#
interface WLAN-Radio1/0/1
    mesh-profile 1
#
interface WLAN-Radio1/0/2
#
snmp-agent
    snmp-agent local-engineid 800063A203000FE2FBF8E0
    snmp-agent community read public
    snmp-agent community write private
    snmp-agent sys-info version all
#
```

```

arp-snooping enable

#

load xml-configuration

#

user-interface con 0

user-interface vty 0 4

authentication-mode scheme

#

return

```

## 六、 结果验证:

### 1. 查看MESH链路

```
display wlan mesh-link all
```

#### Peer Link Information

```

-----
Nbr-Mac(rssi)  BSSID      Interface  Link-state  Uptime(hh:mm:ss)
-----
5866-ba6b-f2c0(43) 000f-e2fb-f8e0 WLAN-MESHLINK7  Active      0: 3:40
-----

```

### 2. MR自动获取IP地址, 能够与AC通信

```
ping 192.168.1.1
```

```
PING 192.168.1.1: 56 data bytes, press CTRL_C to break
```

```
Reply from 192.168.1.1: bytes=56 Sequence=1 ttl=255 time=2 ms
```

```
Reply from 192.168.1.1: bytes=56 Sequence=2 ttl=255 time=3 ms
```

```
Reply from 192.168.1.1: bytes=56 Sequence=3 ttl=255 time=2 ms
```

```
Reply from 192.168.1.1: bytes=56 Sequence=4 ttl=255 time=2 ms
```

```
Reply from 192.168.1.1: bytes=56 Sequence=5 ttl=255 time=2 ms
```

```
--- 192.168.1.1 ping statistics ---
```

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

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

```
0.00% packet loss
```

```
round-trip min/avg/max = 2/2/3 ms
```