H3C 無線製品トレーニング
トラブルシュート演習ガイド v1.0

内容

実習内容と目標

この実習を修了すると、以下のことが可能になります。

- HCL シュミレータの操作に慣れる
- 起動した装置へのコマンドの投入
- 無線のトラブルシュート

ネットワーク図

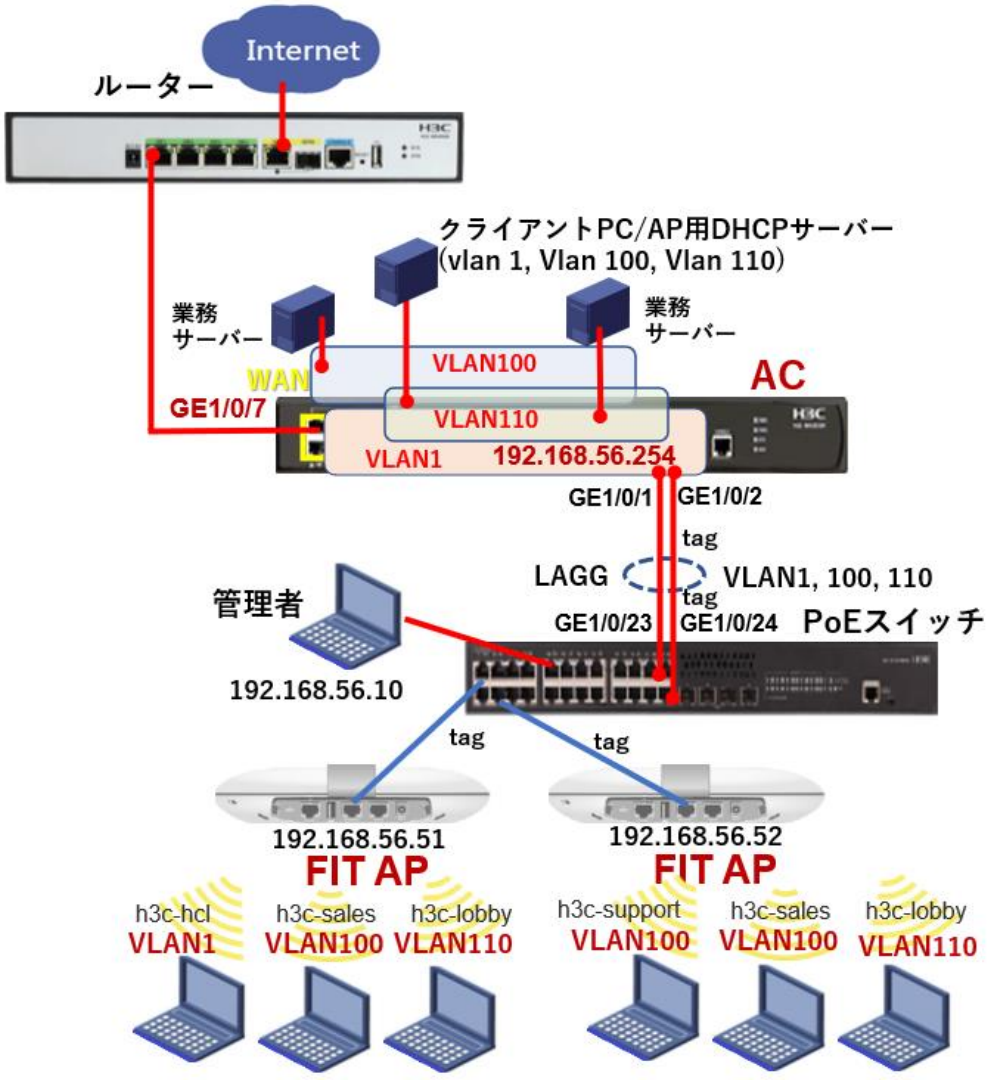


図 1 完成実習ネットワーク

SSID	Password	VLAN	Hidden	Radio
h3c-support	@helpdesk99	100	yes	radio1 5GHz
h3c-sales	@bigsale	100	yes	Radio2 5GHz
h3c-lobby	thankyou	110	no	Raido3 2.4GHz

図 2 設定してある SSID 一覧

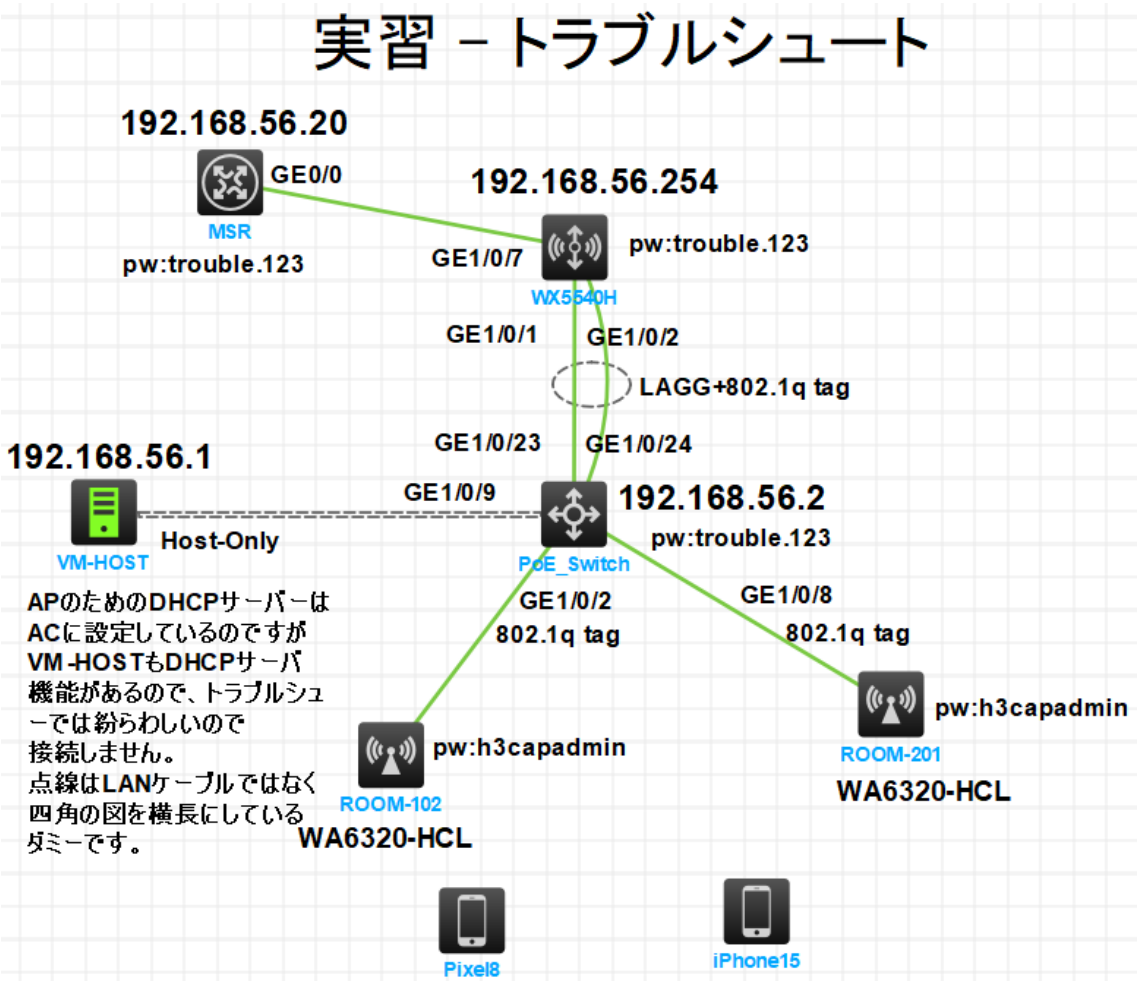


図 3 誤った実習ネットワーク(HCL で作図)

なお、設定に関する詳しい説明は以下のリンクから「H3C_WLAN 製品 AC ハンズオントレーニング(GUI 編)v2.0」をダウンロードして確認してみてください。

https://knowledge-jp.h3c.com/TechDoc/details/203

現状

- ルーター、無線コントローラ、PoE スイッチ、FIT AP、WiFi 端末は、上の図 2 のように配線します。

実習装置

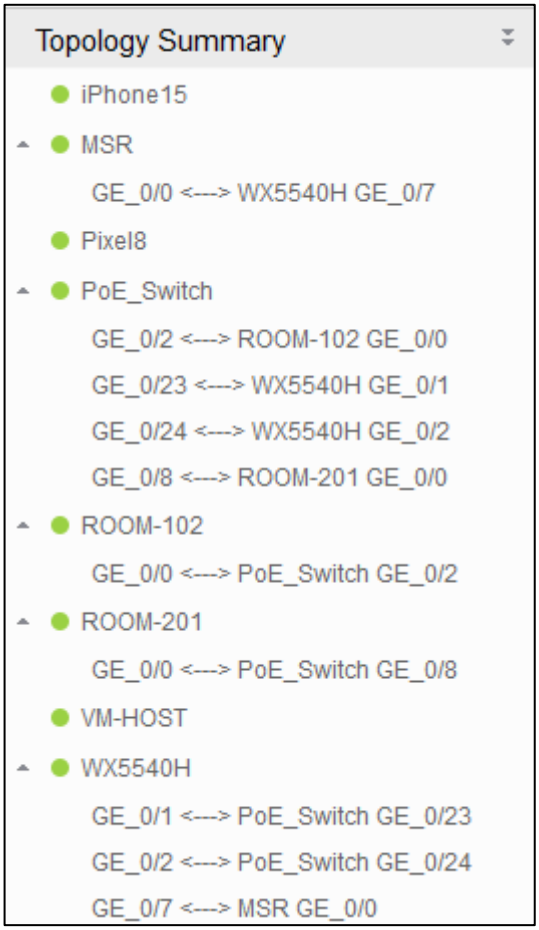
本実験に必要な主な設備機材 実験装置名前とモデル番号	バージョン	数量	特記事項
MSRルーター	Version 7.1.064, Release 0427P22	1	なし
PoEスイッチ	Version 7.1.075, Alpha 7571	1	なし
無線コントローラ	Version 7.1.064, Alpha 7165	1	なし
FIT AP WA6320-HCL	Version 7.1.064, Alpha 7165	2	なし
WiFi端末	--	1	なし
ホスト	--	1	なし
ネットワークケーブルの接続	--	5	なし

実習手順

手順1：各装置を図のように配置します

HCL はお絵描きツールのように配置は自由にレイアウトできますので、トポロジーがわかりやすいように配置してください。

手順2：各装置を図のように配線します



手順3：それぞれの装置を起動します

HOST は常に起動している状態なので、起動も停止も行えません。

手順4：それぞれの装置の CLI を起動してそれぞれの装置に課題のコンフィグを流し込みます

装置を起動したら CLI にアクセスします。
次にそれぞれの装置のコンフィグを初期化します。

```
<SWA>reset saved-configuration
The saved configuration file will be erased. Are you sure? [Y/N]:y
Configuration file in flash: is being cleared.
Please wait ...
Configuration file is cleared.
<SWA>reboot
Start to check configuration with next startup configuration file, please wait.....DONE!
```

Current configuration may be lost after the reboot, save current configuration? [Y/N]:y

Please input the file name(*.cfg)[flash:/startup.cfg]

(To leave the existing filename unchanged, press the enter key):y

.....

以下のコンフィグをコピーして MSR ルーターへ貼り付けます

```
#
 version 7.1.064, Release 0427P22
#
 sysname MSR36
#
 telnet server enable
#
 system-working-mode standard
 xbar load-single
 password-recovery enable
 lpu-type f-series
#
vlan 1
#
interface Serial1/0
#
interface Serial2/0
#
interface Serial3/0
#
interface Serial4/0
#
interface NULL0
#
interface GigabitEthernet0/0
 port link-mode route
 combo enable copper
 ip address 192.168.56.20 255.255.255.0
#
interface GigabitEthernet0/1
 port link-mode route
```

```
 combo enable copper
#
interface GigabitEthernet0/2
 port link-mode route
 combo enable copper
#
interface GigabitEthernet5/0
 port link-mode route
 combo enable copper
#
interface GigabitEthernet5/1
 port link-mode route
 combo enable copper
#
interface GigabitEthernet6/0
 port link-mode route
 combo enable copper
#
interface GigabitEthernet6/1
 port link-mode route
 combo enable copper
#
 scheduler logfile size 16
#
line class aux
 user-role network-operator
#
line class console
 user-role network-admin
#
line class tty
 user-role network-operator
#
line class vty
 user-role network-operator
#
```

```
line aux 0
 user-role network-operator
#
line con 0
 user-role network-admin
#
line vty 0 63
 authentication-mode scheme
 user-role network-operator
#
domain system
#
 domain default enable system
#
role name level-0
 description Predefined level-0 role
#
role name level-1
 description Predefined level-1 role
#
role name level-2
 description Predefined level-2 role
#
role name level-3
 description Predefined level-3 role
#
role name level-4
 description Predefined level-4 role
#
role name level-5
 description Predefined level-5 role
#
role name level-6
 description Predefined level-6 role
#
role name level-7
```

```
 description Predefined level-7 role
#
role name level-8
 description Predefined level-8 role
#
role name level-9
 description Predefined level-9 role
#
role name level-10
 description Predefined level-10 role
#
role name level-11
 description Predefined level-11 role
#
role name level-12
 description Predefined level-12 role
#
role name level-13
 description Predefined level-13 role
#
role name level-14
 description Predefined level-14 role
#
user-group system
#
local-user admin class manage
 password                                                                    hash
$h$6$h7h81/KXwCRCcgNM$TaMXtmtDGRSvjOyxCfLeouU2//wdU5uBAsFTvLFlSZJug+
n3GBTdrzuDCGUjmv2F8om0PnD0Bh2fJaf1t8LI+w==
 service-type telnet
 authorization-attribute user-role network-admin
 authorization-attribute user-role network-operator
#
return
```

以下のコンフィグをコピーして無線コントローラへ貼り付けます

```
#
 version 7.1.064, Alpha 7165
#
 sysname WX5540H
#
wlan global-configuration
 region-code JP
 region-code-lock enable
#
 telnet server enable
#
 irf mac-address persistent timer
 irf auto-update enable
 undo irf link-delay
 irf member 1 priority 1
#
 xbar load-single
 password-recovery enable
 lpu-type f-series
#
vlan 1
#
vlan 100
#
vlan 110
#
dhcp server ip-pool "for ap management"
 gateway-list 192.168.56.254
 network 192.168.56.0 mask 255.255.255.0
 address range 192.168.56.51 192.168.56.100
 dns-list 8.8.8.8
#
dhcp server ip-pool "for vlan100"
 gateway-list 192.168.100.254
 network 192.168.100.0 mask 255.255.255.0
```

```
 address range 192.168.100.51 192.168.100.100
 dns-list 8.8.8.8
#
dhcp server ip-pool "for vlan110"
 gateway-list 192.168.110.254
 network 192.168.110.0 mask 255.255.255.0
 address range 192.168.110.51 192.168.110.100
 dns-list 8.8.8.8
#
wlan service-template h3c-hcl
 ssid h3c-hcl
#
wlan service-template h3c-lobby
 ssid h3c-lobby
 vlan 110
 client forwarding-location ap
 user-isolation enable
 akm mode psk
 preshared-key                    pass-phrase                    cipher
$c$3$FYnBqv8eHOwvCnMvMOoYswW4u0ZYz4KjUPjj0oc=
 cipher-suite ccmp
 cipher-suite tkip
 security-ie rsn
 security-ie wpa
 service-template enable
#
wlan service-template h3c-sales
 ssid h3c-sales
 vlan 100
 beacon ssid-hide
 client forwarding-location ap
 user-isolation enable
 akm mode psk
 preshared-key                    pass-phrase                    cipher
$c$3$2UhOVibylWPyzpPasuyzh+b4qPdIfzntG9QN/uU=
 cipher-suite ccmp
```

```
 cipher-suite tkip
 security-ie rsn
 security-ie wpa
 service-template enable
#
wlan service-template h3c-support
 ssid h3c-support
 vlan 100
 beacon ssid-hide
 client forwarding-location ap
 user-isolation enable
 akm mode psk
 preshared-key                    pass-phrase                    cipher
$c$3$au2v+x8y/fNWGF1gtPvXraB6XFtDRUizvJUnEME=
 cipher-suite ccmp
 cipher-suite tkip
 security-ie rsn
 security-ie wpa
 service-template enable
#
interface Bridge-Aggregation1
 port link-type trunk
 port trunk permit vlan 1 100 110
 link-aggregation load-sharing mode destination-ip
#
interface NULL0
#
interface Vlan-interface1
 ip address 192.168.56.254 255.255.255.0
#
interface Vlan-interface100
 ip address 192.168.100.254 255.255.255.0
#
interface Vlan-interface110
 ip address 192.168.110.254 255.255.255.0
#
```

```
interface GigabitEthernet1/0/0
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/1
 port link-mode bridge
 port link-type trunk
 port trunk permit vlan 1 100 110
 combo enable fiber
 port link-aggregation group 1
#
interface GigabitEthernet1/0/2
 port link-mode bridge
 port link-type trunk
 port trunk permit vlan 1 100 110
 combo enable fiber
 port link-aggregation group 1
#
interface GigabitEthernet1/0/3
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/4
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/5
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/6
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/7
 port link-mode bridge
```

```
 combo enable fiber
#
interface GigabitEthernet1/0/8
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/9
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/10
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/11
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/12
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/13
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/14
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/15
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/16
 port link-mode bridge
```

```
 combo enable fiber
#
interface GigabitEthernet1/0/17
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/18
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/19
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/20
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/21
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/22
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/23
 port link-mode bridge
 combo enable fiber
#
interface Ten-GigabitEthernet1/0/24
 port link-mode bridge
 combo enable fiber
#
interface Ten-GigabitEthernet1/0/25
 port link-mode bridge
```

```
 combo enable fiber
#
interface Ten-GigabitEthernet1/0/26
 port link-mode bridge
 combo enable fiber
#
interface Ten-GigabitEthernet1/0/27
 port link-mode bridge
 combo enable fiber
#
 scheduler logfile size 16
#
line class aux
 user-role network-operator
#
line class console
 user-role network-admin
#
line class tty
 user-role network-operator
#
line class vty
 authentication-mode scheme
 user-role network-operator
#
line aux 0
 user-role network-operator
#
line con 0
 user-role network-admin
#
line vty 0 31
 authentication-mode scheme
 user-role network-operator
#
domain system
```

```
#
 domain default enable system
#
role name level-0
 description Predefined level-0 role
#
role name level-1
 description Predefined level-1 role
#
role name level-2
 description Predefined level-2 role
#
role name level-3
 description Predefined level-3 role
#
role name level-4
 description Predefined level-4 role
#
role name level-5
 description Predefined level-5 role
#
role name level-6
 description Predefined level-6 role
#
role name level-7
 description Predefined level-7 role
#
role name level-8
 description Predefined level-8 role
#
role name level-9
 description Predefined level-9 role
#
role name level-10
 description Predefined level-10 role
#
```

```
role name level-11
 description Predefined level-11 role
#
role name level-12
 description Predefined level-12 role
#
role name level-13
 description Predefined level-13 role
#
role name level-14
 description Predefined level-14 role
#
user-group system
#
local-user admin class manage
 password                                                                    hash
$h$6$Vxq7dMRF1nV67+WG$Eaq1Yq0krdH7s3UV84YSZk2tswZr0IJjzR80C88z/XnrWju
Z6kl37M9AQHfszySuZmIEUvsGbUmFMTkLal8HFg==
 service-type telnet http https
 authorization-attribute user-role network-admin
 authorization-attribute user-role network-operator
#
 ip http enable
 ip https enable
#
wlan ap-group default-group
 region-code JP
 vlan 1
 ap-model WA6638-JP
  radio 1
   radio enable
   service-template h3c-sales vlan 100
  radio 2
   radio enable
   service-template h3c-support vlan 110
  radio 3
```

```
    radio enable
    service-template h3c-lobby vlan 110
   gigabitethernet 1
   ten-gigabitethernet 1
    port link-type trunk
    port trunk permit vlan all
    port trunk pvid vlan 1
#
wlan virtual-ap-group default-virtualapgroup
#
wlan ap ROOM-101 model WA6638-JP
 serial-id 219801A2KF8209E0007R
 region-code JP
 vlan 1
 radio 1
  service-template h3c-lobby vlan 1
 radio 2
 radio 3
  radio enable
 gigabitethernet 1
 ten-gigabitethernet 1
#
wlan ap ROOM-102 model WA6320-HCL
 serial-id H3C_66-EA-50-9B-04-00
 vlan 1
 radio 1
  service-template h3c-hcl
 radio 2
 gigabitethernet 1
  port link-type trunk
  port trunk permit vlan all
  port trunk pvid vlan 1
#
wlan ap ROOM-201 model WA6320-HCL
 serial-id H3C_8C-CE-8A-5A-06-00
 vlan 1
```

```
 radio 1
  radio enable
 radio 2
 gigabitethernet 1
  port link-type trunk
  port trunk permit vlan all
  port trunk pvid vlan 1
#
return
```

以下のコンフィグをコピーして PoE スイッチへ貼り付けます

```
#
 version 7.1.075, Alpha 7571
#
 sysname POE
#
 telnet server enable
#
 irf mac-address persistent timer
 irf auto-update enable
 undo irf link-delay
 irf member 1 priority 1
#
 lldp global enable
#
 system-working-mode standard
 xbar load-single
 password-recovery enable
 lpu-type f-series
#
vlan 1
#
vlan 100
#
vlan 110
#
```

```
interface Bridge-Aggregation1
 port link-type trunk
 port trunk permit vlan 1 100 110
 link-aggregation mode dynamic
#
interface NULL0
#
interface Vlan-interface1
 ip address 192.168.56.2 255.255.255.0
#
interface FortyGigE1/0/53
 port link-mode bridge
#
interface FortyGigE1/0/54
 port link-mode bridge
#
interface GigabitEthernet1/0/1
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/2
 port link-mode bridge
 port link-type trunk
 port trunk permit vlan all
 combo enable fiber
#
interface GigabitEthernet1/0/3
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/4
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/5
 port link-mode bridge
```

```
 combo enable fiber
#
interface GigabitEthernet1/0/6
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/7
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/8
 port link-mode bridge
 port link-type trunk
 port trunk permit vlan all
 combo enable fiber
#
interface GigabitEthernet1/0/9
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/10
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/11
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/12
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/13
 port link-mode bridge
 combo enable fiber
#
```

```
interface GigabitEthernet1/0/14
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/15
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/16
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/17
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/18
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/19
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/20
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/21
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/22
 port link-mode bridge
 combo enable fiber
#
```

```
interface GigabitEthernet1/0/23
 port link-mode bridge
 port link-type trunk
 port trunk permit vlan 1 100 110
 combo enable fiber
 port link-aggregation group 1
#
interface GigabitEthernet1/0/24
 port link-mode bridge
 port link-type trunk
 port trunk permit vlan 1 100 110
 combo enable fiber
#
interface GigabitEthernet1/0/25
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/26
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/27
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/28
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/29
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/30
 port link-mode bridge
 combo enable fiber
```

```
#
interface GigabitEthernet1/0/31
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/32
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/33
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/34
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/35
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/36
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/37
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/38
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/39
 port link-mode bridge
 combo enable fiber
```

```
#
interface GigabitEthernet1/0/40
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/41
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/42
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/43
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/44
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/45
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/46
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/47
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/48
 port link-mode bridge
 combo enable fiber
```

```
#
interface M-GigabitEthernet0/0/0
#
interface Ten-GigabitEthernet1/0/49
 port link-mode bridge
 combo enable fiber
#
interface Ten-GigabitEthernet1/0/50
 port link-mode bridge
 combo enable fiber
#
interface Ten-GigabitEthernet1/0/51
 port link-mode bridge
 combo enable fiber
#
interface Ten-GigabitEthernet1/0/52
 port link-mode bridge
 combo enable fiber
#
 scheduler logfile size 16
#
line class aux
 user-role network-operator
#
line class console
 user-role network-admin
#
line class tty
 user-role network-operator
#
line class vty
 user-role network-operator
#
line aux 0
 user-role network-operator
#
```

```
line con 0
 user-role network-admin
#
line vty 0 63
 authentication-mode scheme
 user-role network-operator
#
radius scheme system
 user-name-format without-domain
#
domain name system
#
 domain default enable system
#
role name level-0
 description Predefined level-0 role
#
role name level-1
 description Predefined level-1 role
#
role name level-2
 description Predefined level-2 role
#
role name level-3
 description Predefined level-3 role
#
role name level-4
 description Predefined level-4 role
#
role name level-5
 description Predefined level-5 role
#
role name level-6
 description Predefined level-6 role
#
role name level-7
```

```
 description Predefined level-7 role
#
role name level-8
 description Predefined level-8 role
#
role name level-9
 description Predefined level-9 role
#
role name level-10
 description Predefined level-10 role
#
role name level-11
 description Predefined level-11 role
#
role name level-12
 description Predefined level-12 role
#
role name level-13
 description Predefined level-13 role
#
role name level-14
 description Predefined level-14 role
#
user-group system
#
local-user admin class manage
 password                                                                    hash
$h$6$sKh9znnSNsxLZynH$ZBwdDPMGh0MT0ZmXl5J82rAWkVe4NjaFHdd/ks6yoIuoH
YSCLDZ338fD3CI/4fOC11KR8t9l2uIYrRGR00/cow==
 service-type telnet http https
 authorization-attribute user-role network-admin
 authorization-attribute user-role network-operator
#
 ip http enable
 ip https enable
#
```

return

以下のコンフィグをコピーして ROOM-102 の AP へ貼り付けます

```
#
 version 7.1.064, Alpha 7165
#
 sysname ROOM-102
#
 telnet server enable
#
 system-working-mode standard
 xbar load-single
 password-recovery enable
 lpu-type f-series
#
vlan 1
#
interface NULL0
#
interface Vlan-interface1
 ip address dhcp-alloc
 ipv6 address auto
 ipv6 address dhcp-alloc
#
interface GigabitEthernet0/0/0
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet0/0/1
 port link-mode bridge
 combo enable fiber
#
interface WLAN-Radio0/0/2
#
interface WLAN-Radio0/0/3
#
```

```
  scheduler logfile size 16
#
line class aux
  user-role network-operator
#
line class console
  user-role network-admin
#
line class tty
  user-role network-operator
#
line class vty
  user-role network-operator
#
line aux 0
  user-role network-operator
#
line con 0
  user-role network-admin
#
line vty 0 4
  user-role network-admin
  user-role network-operator
  set authentication password hash
$h$6$7UpPAzew7VURnsBg$KHP8kBjwRI/lQe4PN8JqgbljRaW5E3bJxi4N9RLg6qfSota
W12QnTmDuiRnmodYg7Bn7itJbmZBAJbHROdw6aw==
#
line vty 5 63
  user-role network-operator
#
domain system
#
  domain default enable system
#
role name level-0
  description Predefined level-0 role
```

```
#
role name level-1
 description Predefined level-1 role
#
role name level-2
 description Predefined level-2 role
#
role name level-3
 description Predefined level-3 role
#
role name level-4
 description Predefined level-4 role
#
role name level-5
 description Predefined level-5 role
#
role name level-6
 description Predefined level-6 role
#
role name level-7
 description Predefined level-7 role
#
role name level-8
 description Predefined level-8 role
#
role name level-9
 description Predefined level-9 role
#
role name level-10
 description Predefined level-10 role
#
role name level-11
 description Predefined level-11 role
#
role name level-12
 description Predefined level-12 role
```

```
#
role name level-13
 description Predefined level-13 role
#
role name level-14
 description Predefined level-14 role
#
user-group system
#
return
```

以下のコンフィグをコピーして-201 の AP へ貼り付けます

```
#
 version 7.1.064, Alpha 7165
#
 sysname ROOM-201
#
 telnet server enable
#
 system-working-mode standard
 xbar load-single
 password-recovery enable
 lpu-type f-series
#
vlan 1
#
interface NULL0
#
interface Vlan-interface1
 ip address dhcp-alloc
 ipv6 address auto
 ipv6 address dhcp-alloc
#
interface GigabitEthernet0/0/0
 port link-mode bridge
 combo enable fiber
```

```
#
interface GigabitEthernet0/0/1
 port link-mode bridge
 combo enable fiber
#
interface WLAN-Radio0/0/2
#
interface WLAN-Radio0/0/3
#
 scheduler logfile size 16
#
line class aux
 user-role network-operator
#
line class console
 user-role network-admin
#
line class tty
 user-role network-operator
#
line class vty
 user-role network-operator
#
line aux 0
 user-role network-operator
#
line con 0
 user-role network-admin
#
line vty 0 4
 user-role network-admin
 user-role network-operator
 set authentication password hash
$h$6$NkRcYeqrsxiKVqLm$QctQUu2Rdi7OYqZOqJDo9BloQjhaonX10kbsz+P0yeqn5qg
yJpEFdgCs/rBoLJW0tCmfEJ9euzdVgqyx5iHNFg==
#
```

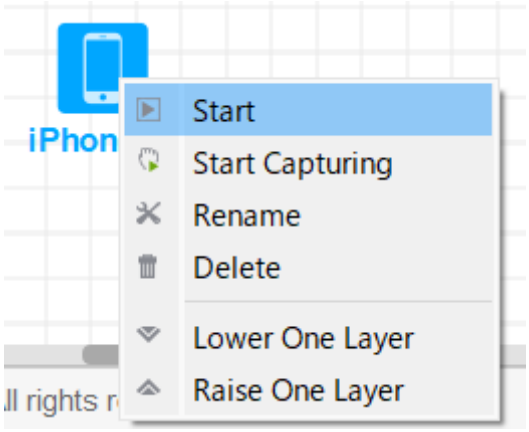
```
line vty 5 63
 user-role network-operator
#
domain system
#
 domain default enable system
#
role name level-0
 description Predefined level-0 role
#
role name level-1
 description Predefined level-1 role
#
role name level-2
 description Predefined level-2 role
#
role name level-3
 description Predefined level-3 role
#
role name level-4
 description Predefined level-4 role
#
role name level-5
 description Predefined level-5 role
#
role name level-6
 description Predefined level-6 role
#
role name level-7
 description Predefined level-7 role
#
role name level-8
 description Predefined level-8 role
#
role name level-9
 description Predefined level-9 role
```

```
#
role name level-10
  description Predefined level-10 role
#
role name level-11
  description Predefined level-11 role
#
role name level-12
  description Predefined level-12 role
#
role name level-13
  description Predefined level-13 role
#
role name level-14
  description Predefined level-14 role
#
user-group system
#
return
```

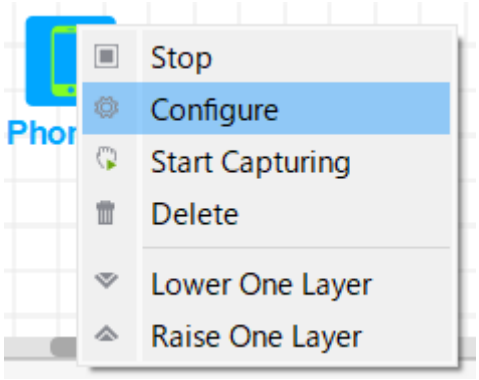
手順 5：では、CLI のコマンドを駆使してトラブルシュートをしましょう

携帯端末の WiFi を有効にする:

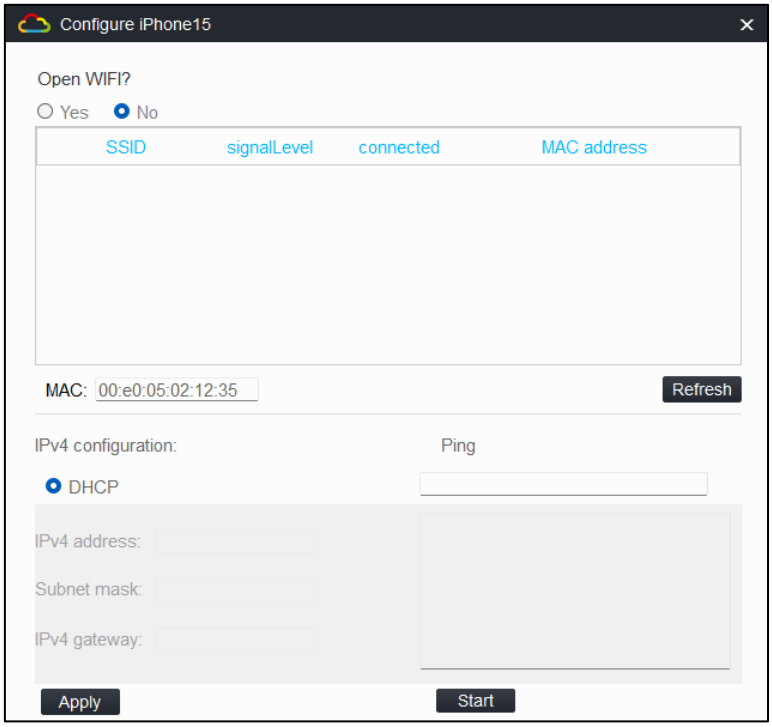
WiFi 端末に電源をいれます。



WiFi がスタートしたら、Configure をクリックします。



Open WiFi を Yes にして、WiFi を有効にします。



Yes にしても SSID は表示されません。AP が電波を出していないので当然です。

テストの結果:

AP が電波を出していません。その結果、当然 WiFi 端末は AP に接続できませんでした。

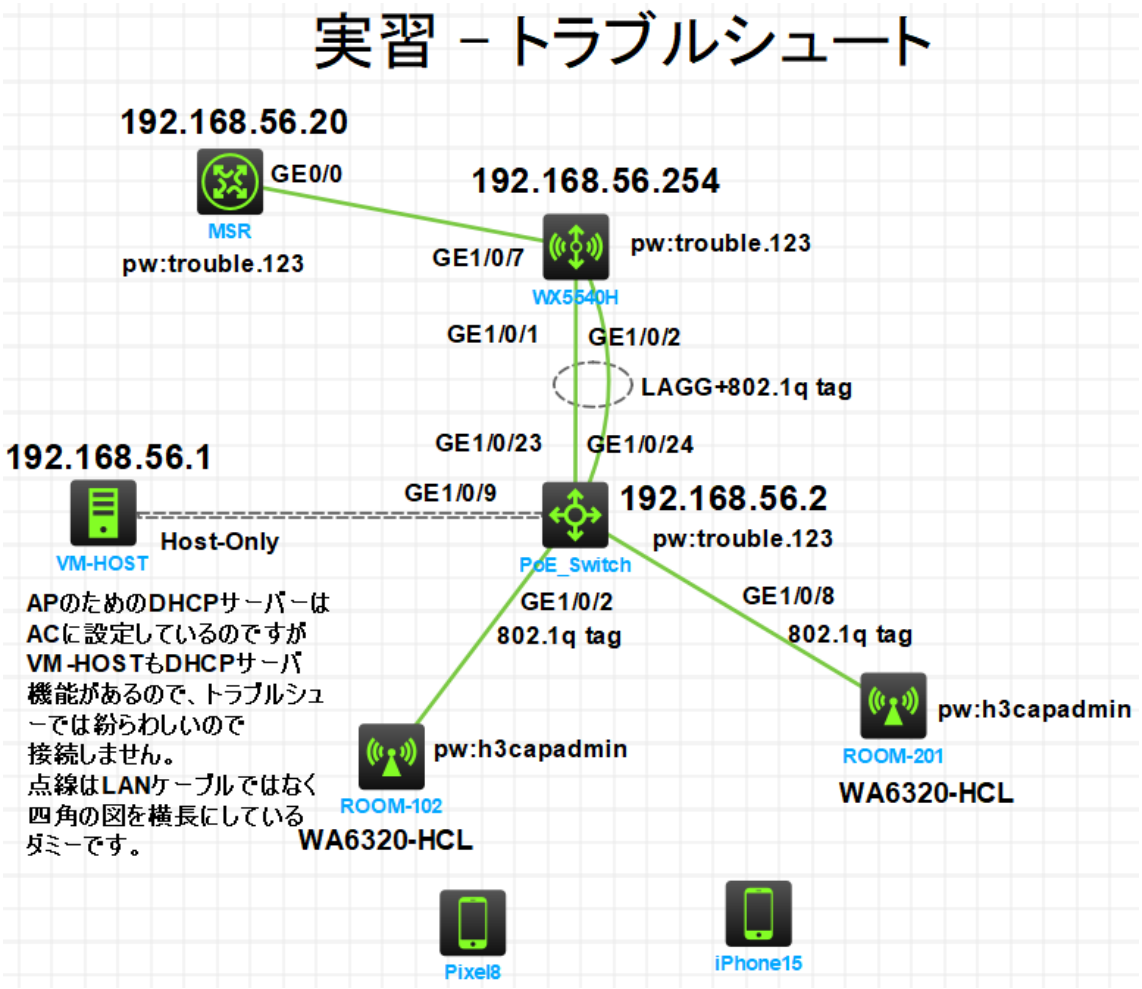


図 4 トラブルのある実習ネットワーク

トラブルのある設定は何が間違いか:

何が間違いかは、トラブルコンフィグと模範解答コンフィグを比べてみてください。
自分で間違いを探すことが大事です。

トラブルシュートに役立つコマンド:

バグのあるコンフィグでは:

<WX5540H>**dis wlan ap all**
Total number of APs: 3
Total number of connected APs: 0
Total number of connected manual APs: 0
Total number of connected auto APs: 0
Total number of connected common APs: 0
Total number of connected WTUs: 0
Total number of inside APs: 0
Maximum supported APs: 60000
Remaining APs: 60000
Total AP licenses: 60000
Local AP licenses: 60000
Server AP licenses: 0
Remaining local AP licenses: 60000
Sync AP licenses: 0

AP information
State : **I = Idle**, J = Join, JA = JoinAck, IL = ImageLoad
C = Config, DC = DataCheck, R = Run, M = Master, B = Backup

AP name	APID	State	Model	Serial ID
ROOM-101	2	I	WA6638-JP	219801A2KF8209E0007R
ROOM-102	3	**I**	WA6320-HCL	H3C_66-EA-50-9B-04-00
ROOM-201	1	**I**	WA6320-HCL	H3C_8C-CE-8A-5A-06-00

<WX5540H>**dis wlan ap all address**
Total number of APs : 3
Total number of connected APs : 0
Total number of connected manual APs : 0
Total number of connected auto APs : 0
Total number of inside APs : 0

AP name	IP address	MAC address
ROOM-101	**N/A**	**N/A**
ROOM-102	**N/A**	**N/A**
ROOM-201	**N/A**	**N/A**

<WX5540H>**dis wlan client**
<WX5540H>

<WX5540H>**display logbuffer**
Log buffer: Enabled
Max buffer size: 1024
Actual buffer size: 512
Dropped messages: 0
Overwritten messages: 0
Current messages: 10
%May 28 05:16:31:142 2024 WX5540H SYSLOG/6/SYSLOG_RESTART: System restarted --
H3C Comware Software.
%May 28 05:16:36:862 2024 WX5540H APMGR/6/RADIO: [APID:1,Radio:1] Channel was changed to 52.
%May 28 05:16:36:866 2024 WX5540H APMGR/6/RADIO: [APID:1,Radio:2] Channel was changed to 6.

%May 28 05:16:36:867 2024 WX5540H APMGR/6/RADIO: [APID:2,Radio:1] Channel was changed to 36.
%May 28 05:16:36:868 2024 WX5540H APMGR/6/RADIO: [APID:2,Radio:2] Channel was changed to 100.
%May 28 05:16:36:877 2024 WX5540H APMGR/6/RADIO: [APID:3,Radio:2] Channel was changed to 1.
%May 28 05:16:38:031 2024 WX5540H SCMD/5/PROCESS_ABNORMAL: The process hcld exited abnormally.
%May 28 05:16:46:129 2024 WX5540H LAGG/6/LAGG_ACTIVE: Member port GE1/0/1 of aggregation group BAGG1 changed to the active state.
%May 28 05:16:46:140 2024 WX5540H LAGG/6/LAGG_INACTIVE_PARTNER: Member port GE1/0/1 of aggregation group BAGG1 changed to the inactive state, because the aggregation configuration of its peer port is incorrect.
%May 28 05:16:46:142 2024 WX5540H LAGG/6/LAGG_ACTIVE: Member port GE1/0/1 of aggregation group BAGG1 changed to the active state.

模範解答のコンフィグでは:

<WX5540H>**dis wlan ap all**
Total number of APs: 3
Total number of connected APs: 2
Total number of connected manual APs: 2
Total number of connected auto APs: 0
Total number of connected common APs: 2
Total number of connected WTUs: 0
Total number of inside APs: 0
Maximum supported APs: 60000
Remaining APs: 59998
Total AP licenses: 60000
Local AP licenses: 60000
Server AP licenses: 0
Remaining local AP licenses: 59998
Sync AP licenses: 0

AP information
State : I = Idle, J = Join, JA = JoinAck, IL = ImageLoad
C = Config, DC = DataCheck, **R = Run**, **M = Master**, B = Backup

AP name	APID	State	Model	Serial ID
ROOM-101	2	I	WA6638-JP	219801A2KF8209E0007R
ROOM-102	3	**R/M**	WA6320-HCL	H3C_66-EA-50-9B-04-00
ROOM-201	1	**R/M**	WA6320-HCL	H3C_8C-CE-8A-5A-06-00

<WX5540H>**dis wlan ap all address**
Total number of APs : 3
Total number of connected APs : 2
Total number of connected manual APs : 2
Total number of connected auto APs : 0
Total number of inside APs : 0

AP name	IP address	MAC address
ROOM-101	N/A	N/A
ROOM-102	**192.168.56.52**	66ea-509b-0400
ROOM-201	**192.168.56.51**	8cce-8a5a-0600

<WX5540H>**dis wlan client**
Total number of clients: 2

MAC address	User name	AP name	R	IP address	VLAN
00e0-0502-1235	N/A	**ROOM-201**	**1**	**192.168.56.53**	1
00e0-0702-1235	N/A	**ROOM-102**	**1**	**192.168.56.54**	1

<WX5540H>**display dhcp server ip-in-use**

IP address	Client identifier/ Hardware address	Lease expiration	Type
192.168.56.51	**018c-ce8a-5a06-02**	**May 29 04:55:53 2024**	**Auto(C)**
192.168.56.52	**0166-ea50-9b04-02**	**May 29 04:56:00 2024**	**Auto(C)**
192.168.56.53	**0100-e005-0212-35**	**May 29 04:56:08 2024**	**Auto(C)**
192.168.56.54	**0100-e007-0212-35**	**May 29 04:56:14 2024**	**Auto(C)**

<WX5540H>**dis wlan client status**
Total number of clients: 2

MAC address	RSSI Rx/Tx(bps)	Speed(bps)	Discard	AP name	RID
00e0-0502-1235 22	**0M/0M**	**N/A**	**0.00%**	**ROOM-201**	**1**
00e0-0702-1235 22	**0M/0M**	**N/A**	**0.00%**	**ROOM-102**	**1**

<WX5540H>**dis wlan license**
Installed common AP licenses**:200**
Installed WTU licenses **:0**

<WX5540H>**dis wlan ap name ROOM-102 connection-record**

AP name	IP address	State	Time
ROOM-102	**192.168.56.52**	**Run**	**05-28 20:23:11**

<WX5540H>**dis wlan ap name ROOM-201 connection-record**

AP name	IP address	State	Time
ROOM-201	**192.168.56.51**	**Run**	**05-28 20:23:02**

<WX5540H>**display logbuffer**
Log buffer: Enabled
Max buffer size: 1024
Actual buffer size: 512
Dropped messages: 0
Overwritten messages: 0
Current messages: 19
%May 28 04:55:20:088 2024 WX5540H SYSLOG/6/SYSLOG_RESTART: System restarted --
H3C Comware Software.
%May 28 04:55:25:902 2024 WX5540H APMGR/6/RADIO: [APID:2,Radio:2] Channel was changed to 116.
%May 28 04:55:25:902 2024 WX5540H APMGR/6/RADIO: [APID:2,Radio:3] Channel was changed to 1.
%May 28 04:55:25:904 2024 WX5540H APMGR/6/RADIO: [APID:3,Radio:1] Channel was changed to 52.
%May 28 04:55:27:070 2024 WX5540H SCMD/5/PROCESS_ABNORMAL: The process hcld exited abnormally.
%May 28 04:55:35:484 2024 WX5540H LAGG/6/LAGG_ACTIVE: Member port GE1/0/1 of aggregation group BAGG1 changed to the active state.
%May 28 04:55:35:498 2024 WX5540H LAGG/6/LAGG_INACTIVE_PARTNER: Member port GE1/0/1 of aggregation group BAGG1 changed to the inactive state, because the aggregation configuration of its peer port is incorrect.
%May 28 04:55:35:499 2024 WX5540H LAGG/6/LAGG_ACTIVE: Member port GE1/0/1 of aggregation group BAGG1 changed to the active state.
%May 28 04:55:35:504 2024 WX5540H LAGG/6/LAGG_ACTIVE: Member port GE1/0/2 of aggregation group BAGG1 changed to the active state.
%May 28 04:55:57:854 2024 WX5540H APMGR/6/APMGR_AP_ONLINE: AP ROOM-201 came online. State changed to Run.
%May 28 04:55:57:854 2024 WX5540H CWS/6/CWS_AP_UP: Master CAPWAP tunnel to AP ROOM-201 went up.
%May 28 04:55:57:895 2024 WX5540H STAMGR/6/SERVICE_ON: BSS 8cce-8a5a-0610 was created after service template h3c-hcl with SSID h3c-hcl was bound to radio 1 on AP ROOM-201.
%May 28 04:56:05:086 2024 WX5540H APMGR/6/APMGR_AP_ONLINE: AP ROOM-102 came online. State changed to Run.
%May 28 04:56:05:087 2024 WX5540H CWS/6/CWS_AP_UP: Master CAPWAP tunnel to AP ROOM-102 went up.
%May 28 04:56:05:217 2024 WX5540H STAMGR/6/SERVICE_ON: BSS 66ea-509b-0410 was created after service template h3c-hcl with SSID h3c-hcl was bound to radio 1 on AP ROOM-102.
%May 28 04:56:07:273 2024 WX5540H STAMGR/6/STAMGR_CLIENT_ONLINE: Client 00e0-0502-1235 went online from BSS 8cce-8a5a-0610 vlan 1 with SSID h3c-hcl on AP ROOM-201 Radio ID 1. State changed to Run.
%May 28 04:56:08:924 2024 WX5540H STAMGR/6/STAMGR_CLIENT_SNOOPING: Detected client IP change: Client MAC: 00e0-0502-1235, IP: 192.168.56.53, -NA-, -NA-, -NA-, Username: -NA-, AP name: ROOM-201, Radio ID: 1, Channel number: 36, SSID: h3c-hcl, BSSID: 8cce-8a5a-0610.
%May 28 04:56:13:783 2024 WX5540H STAMGR/6/STAMGR_CLIENT_ONLINE: Client 00e0-0702-1235 went online from BSS 66ea-509b-0410 vlan 1 with SSID h3c-hcl on AP ROOM-102 Radio ID 1. State changed to Run.
%May 28 04:56:15:035 2024 WX5540H STAMGR/6/STAMGR_CLIENT_SNOOPING: Detected client IP change: Client MAC: 00e0-0702-1235, IP: 192.168.56.54, -NA-, -NA-, -NA-, Username: -NA-, AP name: ROOM-102, Radio ID: 1, Channel number: 149, SSID: h3c-hcl, BSSID: 66ea-509b-0410.

AP に telnet してダイアグ情報を取得し、ftp 機能を有効にした POE に ftp で put する:

< WX5540H >sys
System View: return to User View with Ctrl+Z.
[WX5540H]**probe**
[WX5540H-probe]**wlan ap-execute all exec-console enable**
[WX5540H-probe]**quit**
[WX5540H]**quit**

```
<WX5540H>display wlan ap all address
Total number of APs : 3
Total number of connected APs : 2
Total number of connected manual APs : 2
Total number of connected auto APs : 0
Total number of inside APs : 0
AP name                         IP address                      MAC address
ROOM-101                         N/A                             N/A
ROOM-102                         192.168.56.53                   66ea-509b-0400
ROOM-201                         192.168.56.51                   8cce-8a5a-0600

<WX5540H>telnet 192.168.56.53
Trying 192.168.56.53 ...
Press CTRL+K to abort
Connected to 192.168.56.53 ...

******************************************************************************
* Copyright (c) 2004-2023 New H3C Technologies Co., Ltd. All rights reserved.*
* Without the owner's prior written consent,                                 *
* no decompiling or reverse-engineering shall be allowed.                    *
******************************************************************************
Password: h3capadmin
<ROOM-102>display diagnostic-information
Save or display diagnostic information (Y=save, N=display)? [Y/N]:y
Please input the file name(*.tar.gz)[flash:/diag_ROOM-102_20240528-133909.tar.gz]:ROOM-102.tar.gz
Diagnostic information is outputting to flash:/ROOM-102.tar.gz.
Please wait...
Save successfully.
<ROOM-102> dir
Directory of flash:
     0 -rw-          119 May 28 2024 13:39:19    ROOM-102.tar.gz
     1 drw-            - Feb 18 2024 07:07:12    diagfile
     2 -rw-          139 May 28 2024 13:22:56    ifindex.dat
     3 -rw-        43136 Feb 18 2024 07:07:12    licbackup
     4 drw-            - Feb 18 2024 07:07:12    license
     5 -rw-        43136 Feb 18 2024 07:07:12    licnormal
     6 drw-            - Feb 18 2024 07:07:12    logfile
     7 drw-            - Feb 18 2024 07:07:12    seclog
     8 -rw-            0 Feb 18 2024 07:07:12    simware-cmw710-boot-a6429.bin
     9 -rw-            0 Feb 18 2024 07:07:12    simware-cmw710-system-a6429.bin
    10 -rw-         2101 May 28 2024 13:22:56    startup.cfg
    11 -rw-        38511 May 28 2024 13:22:56    startup.mdb
1046512 KB total (1046340 KB free)

<ROOM-102> ftp 192.168.56.2
Press CTRL+C to abort.
Connected to 192.168.56.2 (192.168.56.2).
%May 28 13:40:11:943 2024 WX5540H FTP/6/AUTH: -MDC=1; User N/A@192.168.56.53 for connection.
220 FTP service ready.
User (192.168.56.2:(none)): admin
331 Password required for admin.
Password: trouble.123
230 User logged in.
Remote system type is UNIX.
Using binary mode to transfer files.
%May 28 13:40:25:312 2024 POE FTP/6/AUTH: -MDC=1; User admin@192.168.56.53 login.
ftp> put ROOM-102.tar.gz
227 Entering Passive Mode (192,168,56,2,191,38)
150 Accepted data connection.
226 File successfully transferred
119 bytes sent in 0.001 seconds (116.21 Kbytes/s)
ftp> quit
221-Goodbye. You uploaded 1 and downloaded 0 kbytes.
221 Logout.
<ROOM-102>quit
The connection was closed by the remote host!
```

解説:

AC に足りない設定

以下の設定がないと DHCP サーバー機能は有効になりません

dhcp enable

service-template enable を設定しないとこの SSID は有効になりません

```
wlan service-template h3c-hcl
 ssid h3c-hcl
 service-template enable
```

dhcp server apply が設定されている方が、どのプールでアドレスが割り当てられるかが明白となります。

```
interface Vlan-interface1
 ip address 192.168.56.254 255.255.255.0
 dhcp server apply ip-pool "for ap management"
#
interface Vlan-interface100
 ip address 192.168.100.254 255.255.255.0
 dhcp server apply ip-pool "for vlan100"
#
interface Vlan-interface110
 ip address 192.168.110.254 255.255.255.0
 dhcp server apply ip-pool "for vlan110"
```

多くの AP を最初に登録する際に、以下の設定があると自動的に AP 定義が登録されます。
数台をマニュアルで登録する際には必要ではありませんが、マニュアルではシリアル番号とか MAC アドレスをしているので
間違いが起こりやすく AP に接続できないことがあります。

wlan auto-ap enable

wlan auto-persistent enable

これはよく忘れやすいのですが、電波のハードウェアを ON にしないと電波は出ません。
GUI では忘れやすいので CLI で確認することも有効です。

```
wlan ap ROOM-102 model WA6320-HCL
 serial-id H3C_66-EA-50-9B-04-00
```

```
 vlan 1
 radio 1
  radio enable
  service-template h3c-hcl
 radio 2
 gigabitethernet 1
  port link-type trunk
  port trunk permit vlan all
  port trunk pvid vlan 1
```

これも GUI で設定しているとよく忘れやすいのですが、電波のハードウェアを ON にしても
どの SSID を送信するか指示しないと SSID が電波に乗って送信されることはありません。

```
wlan ap ROOM-201 model WA6320-HCL
 serial-id H3C_8C-CE-8A-5A-06-00
 vlan 1
 radio 1
  radio enable
   service-template h3c-hcl
 radio 2
 gigabitethernet 1
  port link-type trunk
  port trunk permit vlan all
  port trunk pvid vlan 1
```

PoE スイッチに足りない設定

Link aggregation グループはポート 23 と 24 で成り立っていますが、ポート 24 で
グループの設定が抜けていますので、24 番ポートはグループに入っていないため、
実質 1 ポートだけで AC と接続されています。
しかし、通信はできるため気づかないことがあります。

```
interface GigabitEthernet1/0/24
 port link-mode bridge
 port link-type trunk
 port trunk permit vlan 1 100 110
 combo enable fiber
 port link-aggregation group 1
```

模範コンフィグ:

以下のコンフィグをコピーして MSR ルーターへ貼り付けます

```
#
 version 7.1.064, Release 0427P22
#
 sysname MSR36
#
 telnet server enable
#
 system-working-mode standard
 xbar load-single
 password-recovery enable
 lpu-type f-series
#
vlan 1
#
interface Serial1/0
#
interface Serial2/0
#
interface Serial3/0
#
interface Serial4/0
#
interface NULL0
#
interface GigabitEthernet0/0
 port link-mode route
 combo enable copper
 ip address 192.168.56.20 255.255.255.0
#
interface GigabitEthernet0/1
 port link-mode route
 combo enable copper
#
```

```
interface GigabitEthernet0/2
 port link-mode route
 combo enable copper
#
interface GigabitEthernet5/0
 port link-mode route
 combo enable copper
#
interface GigabitEthernet5/1
 port link-mode route
 combo enable copper
#
interface GigabitEthernet6/0
 port link-mode route
 combo enable copper
#
interface GigabitEthernet6/1
 port link-mode route
 combo enable copper
#
 scheduler logfile size 16
#
line class aux
 user-role network-operator
#
line class console
 user-role network-admin
#
line class tty
 user-role network-operator
#
line class vty
 user-role network-operator
#
line aux 0
 user-role network-operator
```

```
#
line con 0
 user-role network-admin
#
line vty 0 63
 authentication-mode scheme
 user-role network-operator
#
domain system
#
 domain default enable system
#
role name level-0
 description Predefined level-0 role
#
role name level-1
 description Predefined level-1 role
#
role name level-2
 description Predefined level-2 role
#
role name level-3
 description Predefined level-3 role
#
role name level-4
 description Predefined level-4 role
#
role name level-5
 description Predefined level-5 role
#
role name level-6
 description Predefined level-6 role
#
role name level-7
 description Predefined level-7 role
#
```

```
role name level-8
 description Predefined level-8 role
#
role name level-9
 description Predefined level-9 role
#
role name level-10
 description Predefined level-10 role
#
role name level-11
 description Predefined level-11 role
#
role name level-12
 description Predefined level-12 role
#
role name level-13
 description Predefined level-13 role
#
role name level-14
 description Predefined level-14 role
#
user-group system
#
local-user admin class manage
 password                                                                    hash
$h$6$h7h81/KXwCRCcgNM$TaMXtmtDGRSvjOyxCfLeouU2//wdU5uBAsFTvLFlSZJug+
n3GBTdrzuDCGUjmv2F8om0PnD0Bh2fJaf1t8LI+w==
 service-type telnet
 authorization-attribute user-role network-admin
 authorization-attribute user-role network-operator
#
return
```

以下のコンフィグをコピーして無線コントローラへ貼り付けます

```
#
 version 7.1.064, Alpha 7165
```

```
#
 sysname WX5540H
#
wlan global-configuration
 region-code JP
 region-code-lock enable
#
 telnet server enable
#
 irf mac-address persistent timer
 irf auto-update enable
 undo irf link-delay
 irf member 1 priority 1
#
 dhcp enable
#
 xbar load-single
 password-recovery enable
 lpu-type f-series
#
vlan 1
#
vlan 100
#
vlan 110
#
dhcp server ip-pool "for ap management"
 gateway-list 192.168.56.254
 network 192.168.56.0 mask 255.255.255.0
 address range 192.168.56.51 192.168.56.100
 dns-list 8.8.8.8
#
dhcp server ip-pool "for vlan100"
 gateway-list 192.168.100.254
 network 192.168.100.0 mask 255.255.255.0
 address range 192.168.100.51 192.168.100.100
```

```
 dns-list 8.8.8.8
#
dhcp server ip-pool "for vlan110"
 gateway-list 192.168.110.254
 network 192.168.110.0 mask 255.255.255.0
 address range 192.168.110.51 192.168.110.100
 dns-list 8.8.8.8
#
wlan service-template h3c-hcl
 ssid h3c-hcl
 service-template enable
#
wlan service-template h3c-lobby
 ssid h3c-lobby
 vlan 110
 client forwarding-location ap
 user-isolation enable
 akm mode psk
 preshared-key                    pass-phrase                    cipher
$c$3$FYnBqv8eHOwvCnMvMOoYswW4u0ZYz4KjUPjj0oc=
 cipher-suite ccmp
 cipher-suite tkip
 security-ie rsn
 security-ie wpa
 service-template enable
#
wlan service-template h3c-sales
 ssid h3c-sales
 vlan 100
 beacon ssid-hide
 client forwarding-location ap
 user-isolation enable
 akm mode psk
 preshared-key                    pass-phrase                    cipher
$c$3$2UhOVibylWPyzpPasuyzh+b4qPdIfzntG9QN/uU=
 cipher-suite ccmp
```

```
 cipher-suite tkip
 security-ie rsn
 security-ie wpa
 service-template enable
#
wlan service-template h3c-support
 ssid h3c-support
 vlan 100
 beacon ssid-hide
 client forwarding-location ap
 user-isolation enable
 akm mode psk
 preshared-key                    pass-phrase                    cipher
$c$3$au2v+x8y/fNWGF1gtPvXraB6XFtDRUizvJUnEME=
 cipher-suite ccmp
 cipher-suite tkip
 security-ie rsn
 security-ie wpa
 service-template enable
#
interface Bridge-Aggregation1
 port link-type trunk
 port trunk permit vlan 1 100 110
 link-aggregation mode dynamic
#
interface NULL0
#
interface Vlan-interface1
 ip address 192.168.56.254 255.255.255.0
 dhcp server apply ip-pool "for ap management"
#
interface Vlan-interface100
 ip address 192.168.100.254 255.255.255.0
 dhcp server apply ip-pool "for vlan100"
#
interface Vlan-interface110
```

```
 ip address 192.168.110.254 255.255.255.0
 dhcp server apply ip-pool "for vlan110"
#
interface GigabitEthernet1/0/0
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/1
 port link-mode bridge
 port link-type trunk
 port trunk permit vlan 1 100 110
 combo enable fiber
 port link-aggregation group 1
#
interface GigabitEthernet1/0/2
 port link-mode bridge
 port link-type trunk
 port trunk permit vlan 1 100 110
 combo enable fiber
 port link-aggregation group 1
#
interface GigabitEthernet1/0/3
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/4
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/5
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/6
 port link-mode bridge
 combo enable fiber
```

```
#
interface GigabitEthernet1/0/7
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/8
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/9
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/10
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/11
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/12
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/13
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/14
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/15
 port link-mode bridge
 combo enable fiber
```

```
#
interface GigabitEthernet1/0/16
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/17
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/18
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/19
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/20
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/21
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/22
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/23
 port link-mode bridge
 combo enable fiber
#
interface Ten-GigabitEthernet1/0/24
 port link-mode bridge
 combo enable fiber
```

```
#
interface Ten-GigabitEthernet1/0/25
 port link-mode bridge
 combo enable fiber
#
interface Ten-GigabitEthernet1/0/26
 port link-mode bridge
 combo enable fiber
#
interface Ten-GigabitEthernet1/0/27
 port link-mode bridge
 combo enable fiber
#
 scheduler logfile size 16
#
line class aux
 user-role network-operator
#
line class console
 user-role network-admin
#
line class tty
 user-role network-operator
#
line class vty
 authentication-mode scheme
 user-role network-operator
#
line aux 0
 user-role network-operator
#
line con 0
 user-role network-admin
#
line vty 0 31
 authentication-mode scheme
```

```
 user-role network-operator
#
domain system
#
 domain default enable system
#
role name level-0
 description Predefined level-0 role
#
role name level-1
 description Predefined level-1 role
#
role name level-2
 description Predefined level-2 role
#
role name level-3
 description Predefined level-3 role
#
role name level-4
 description Predefined level-4 role
#
role name level-5
 description Predefined level-5 role
#
role name level-6
 description Predefined level-6 role
#
role name level-7
 description Predefined level-7 role
#
role name level-8
 description Predefined level-8 role
#
role name level-9
 description Predefined level-9 role
#
```

```
role name level-10
 description Predefined level-10 role
#
role name level-11
 description Predefined level-11 role
#
role name level-12
 description Predefined level-12 role
#
role name level-13
 description Predefined level-13 role
#
role name level-14
 description Predefined level-14 role
#
user-group system
#
local-user admin class manage
 password                                                                hash
$h$6$Vxq7dMRF1nV67+WG$Eaq1Yq0krdH7s3UV84YSZk2tswZr0IJjzR80C88z/XnrWju
Z6kl37M9AQHfszySuZmIEUvsGbUmFMTkLal8HFg==
 service-type telnet http https
 authorization-attribute user-role network-admin
 authorization-attribute user-role network-operator
#
 ip http enable
 ip https enable
#
 wlan auto-ap enable
 wlan auto-persistent enable
#
wlan ap-group default-group
 region-code JP
 vlan 1
 ap-model WA6638-JP
  radio 1
```

```
    radio enable
    service-template h3c-sales vlan 100
   radio 2
    radio enable
    service-template h3c-support vlan 110
   radio 3
    radio enable
    service-template h3c-lobby vlan 110
   gigabitethernet 1
   ten-gigabitethernet 1
    port link-type trunk
    port trunk permit vlan all
    port trunk pvid vlan 1
#
wlan virtual-ap-group default-virtualapgroup
#
wlan ap ROOM-101 model WA6638-JP
 serial-id 219801A2KF8209E0007R
 region-code JP
 vlan 1
 radio 1
  service-template h3c-lobby vlan 1
 radio 2
 radio 3
  radio enable
 gigabitethernet 1
 ten-gigabitethernet 1
#
wlan ap ROOM-102 model WA6320-HCL
 serial-id H3C_66-EA-50-9B-04-00
 vlan 1
 radio 1
  radio enable
  service-template h3c-hcl
 radio 2
 gigabitethernet 1
```

```
  port link-type trunk
  port trunk permit vlan all
  port trunk pvid vlan 1
#
wlan ap ROOM-201 model WA6320-HCL
 serial-id H3C_8C-CE-8A-5A-06-00
 vlan 1
 radio 1
  radio enable
  service-template h3c-hcl
 radio 2
 gigabitethernet 1
  port link-type trunk
  port trunk permit vlan all
  port trunk pvid vlan 1
#
return
```

以下のコンフィグをコピーして PoE スイッチへ貼り付けます

```
#
 version 7.1.075, Alpha 7571
#
 sysname POE
#
 telnet server enable
#
 irf mac-address persistent timer
 irf auto-update enable
 undo irf link-delay
 irf member 1 priority 1
#
 lldp global enable
#
 system-working-mode standard
 xbar load-single
 password-recovery enable
```

```
 lpu-type f-series
#
vlan 1
#
vlan 100
#
vlan 110
#
interface Bridge-Aggregation1
 port link-type trunk
 port trunk permit vlan 1 100 110
 link-aggregation mode dynamic
#
interface NULL0
#
interface Vlan-interface1
 ip address 192.168.56.2 255.255.255.0
#
interface FortyGigE1/0/53
 port link-mode bridge
#
interface FortyGigE1/0/54
 port link-mode bridge
#
interface GigabitEthernet1/0/1
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/2
 port link-mode bridge
 port link-type trunk
 port trunk permit vlan all
 combo enable fiber
#
interface GigabitEthernet1/0/3
 port link-mode bridge
```

```
 combo enable fiber
#
interface GigabitEthernet1/0/4
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/5
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/6
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/7
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/8
 port link-mode bridge
 port link-type trunk
 port trunk permit vlan all
 combo enable fiber
#
interface GigabitEthernet1/0/9
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/10
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/11
 port link-mode bridge
 combo enable fiber
#
```

```
interface GigabitEthernet1/0/12
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/13
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/14
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/15
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/16
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/17
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/18
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/19
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/20
 port link-mode bridge
 combo enable fiber
#
```

```
interface GigabitEthernet1/0/21
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/22
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/23
 port link-mode bridge
 port link-type trunk
 port trunk permit vlan 1 100 110
 combo enable fiber
 port link-aggregation group 1
#
interface GigabitEthernet1/0/24
 port link-mode bridge
 port link-type trunk
 port trunk permit vlan 1 100 110
 combo enable fiber
 port link-aggregation group 1
#
interface GigabitEthernet1/0/25
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/26
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/27
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/28
 port link-mode bridge
```

```
 combo enable fiber
#
interface GigabitEthernet1/0/29
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/30
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/31
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/32
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/33
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/34
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/35
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/36
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/37
 port link-mode bridge
```

```
 combo enable fiber
#
interface GigabitEthernet1/0/38
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/39
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/40
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/41
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/42
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/43
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/44
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/45
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/46
 port link-mode bridge
```

```
 combo enable fiber
#
interface GigabitEthernet1/0/47
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet1/0/48
 port link-mode bridge
 combo enable fiber
#
interface M-GigabitEthernet0/0/0
#
interface Ten-GigabitEthernet1/0/49
 port link-mode bridge
 combo enable fiber
#
interface Ten-GigabitEthernet1/0/50
 port link-mode bridge
 combo enable fiber
#
interface Ten-GigabitEthernet1/0/51
 port link-mode bridge
 combo enable fiber
#
interface Ten-GigabitEthernet1/0/52
 port link-mode bridge
 combo enable fiber
#
 scheduler logfile size 16
#
line class aux
 user-role network-operator
#
line class console
 user-role network-admin
#
```

```
line class tty
 user-role network-operator
#
line class vty
 user-role network-operator
#
line aux 0
 user-role network-operator
#
line con 0
 user-role network-admin
#
line vty 0 63
 authentication-mode scheme
 user-role network-operator
#
radius scheme system
 user-name-format without-domain
#
domain name system
#
 domain default enable system
#
role name level-0
 description Predefined level-0 role
#
role name level-1
 description Predefined level-1 role
#
role name level-2
 description Predefined level-2 role
#
role name level-3
 description Predefined level-3 role
#
role name level-4
```

```
 description Predefined level-4 role
#
role name level-5
 description Predefined level-5 role
#
role name level-6
 description Predefined level-6 role
#
role name level-7
 description Predefined level-7 role
#
role name level-8
 description Predefined level-8 role
#
role name level-9
 description Predefined level-9 role
#
role name level-10
 description Predefined level-10 role
#
role name level-11
 description Predefined level-11 role
#
role name level-12
 description Predefined level-12 role
#
role name level-13
 description Predefined level-13 role
#
role name level-14
 description Predefined level-14 role
#
user-group system
#
local-user admin class manage
 password                                                    hash
```

```
$h$6$sKh9znnSNsxLZynH$ZBwdDPMGh0MT0ZmXl5J82rAWkVe4NjaFHdd/ks6yoIuoH
YSCLDZ338fD3CI/4fOC11KR8t9l2uIYrRGR00/cow==
 service-type ftp
 service-type telnet http https
 authorization-attribute user-role network-admin
 authorization-attribute user-role network-operator
#
 ftp server enable
#
 ip http enable
 ip https enable
#
return
```

以下のコンフィグをコピーして ROOM-102 の AP へ貼り付けます

```
#
 version 7.1.064, Alpha 7165
#
 sysname ROOM-102
#
 telnet server enable
#
 system-working-mode standard
 xbar load-single
 password-recovery enable
 lpu-type f-series
#
vlan 1
#
interface NULL0
#
interface Vlan-interface1
 ip address dhcp-alloc
 ipv6 address auto
 ipv6 address dhcp-alloc
#
```

```
interface GigabitEthernet0/0/0
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet0/0/1
 port link-mode bridge
 combo enable fiber
#
interface WLAN-Radio0/0/2
#
interface WLAN-Radio0/0/3
#
 scheduler logfile size 16
#
line class aux
 user-role network-operator
#
line class console
 user-role network-admin
#
line class tty
 user-role network-operator
#
line class vty
 user-role network-operator
#
line aux 0
 user-role network-operator
#
line con 0
 user-role network-admin
#
line vty 0 4
 user-role network-admin
 user-role network-operator
 set authentication password hash
```

h6$7UpPAzew7VURnsBg$KHP8kBjwRI/lQe4PN8JqgbljRaW5E3bJxi4N9RLg6qfSota
W12QnTmDuiRnmodYg7Bn7itJbmZBAJbHROdw6aw==
#
line vty 5 63
 user-role network-operator
#
domain system
#
 domain default enable system
#
role name level-0
 description Predefined level-0 role
#
role name level-1
 description Predefined level-1 role
#
role name level-2
 description Predefined level-2 role
#
role name level-3
 description Predefined level-3 role
#
role name level-4
 description Predefined level-4 role
#
role name level-5
 description Predefined level-5 role
#
role name level-6
 description Predefined level-6 role
#
role name level-7
 description Predefined level-7 role
#
role name level-8
 description Predefined level-8 role

```
#
role name level-9
 description Predefined level-9 role
#
role name level-10
 description Predefined level-10 role
#
role name level-11
 description Predefined level-11 role
#
role name level-12
 description Predefined level-12 role
#
role name level-13
 description Predefined level-13 role
#
role name level-14
 description Predefined level-14 role
#
user-group system
#
return
```

以下のコンフィグをコピーして ROOM-201 の AP へ貼り付けます

```
#
 version 7.1.064, Alpha 7165
#
 sysname ROOM-201
#
 telnet server enable
#
 system-working-mode standard
 xbar load-single
 password-recovery enable
 lpu-type f-series
#
```

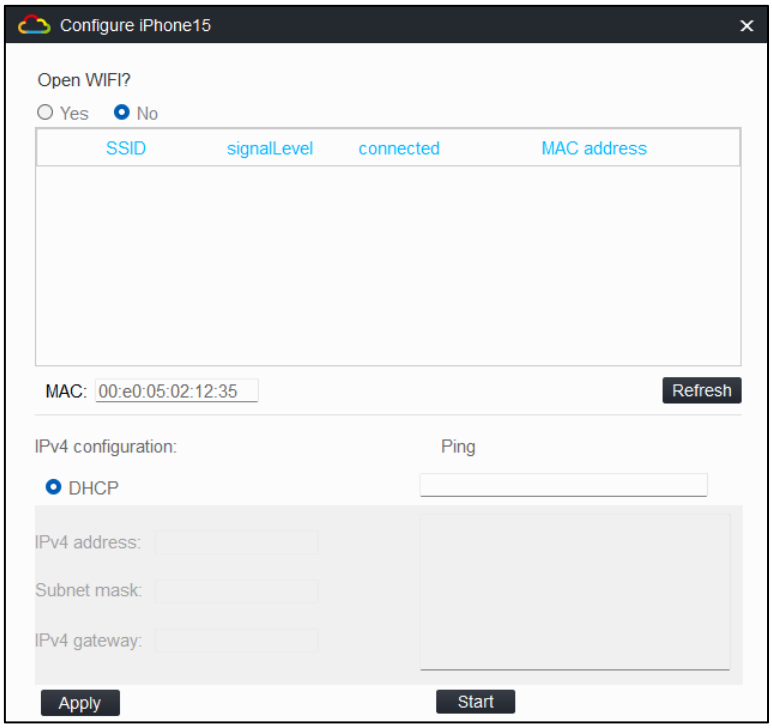
```
vlan 1
#
interface NULL0
#
interface Vlan-interface1
 ip address dhcp-alloc
 ipv6 address auto
 ipv6 address dhcp-alloc
#
interface GigabitEthernet0/0/0
 port link-mode bridge
 combo enable fiber
#
interface GigabitEthernet0/0/1
 port link-mode bridge
 combo enable fiber
#
interface WLAN-Radio0/0/2
#
interface WLAN-Radio0/0/3
#
 scheduler logfile size 16
#
line class aux
 user-role network-operator
#
line class console
 user-role network-admin
#
line class tty
 user-role network-operator
#
line class vty
 user-role network-operator
#
line aux 0
```

```
 user-role network-operator
#
line con 0
 user-role network-admin
#
line vty 0 4
 user-role network-admin
 user-role network-operator
 set authentication password hash
$h$6$NkRcYeqrsxiKVqLm$QctQUu2Rdi7OYqZOqJDo9BloQjhaonX10kbsz+P0yeqn5qg
yJpEFdgCs/rBoLJW0tCmfEJ9euzdVgqyx5iHNFg==
#
line vty 5 63
 user-role network-operator
#
domain system
#
 domain default enable system
#
role name level-0
 description Predefined level-0 role
#
role name level-1
 description Predefined level-1 role
#
role name level-2
 description Predefined level-2 role
#
role name level-3
 description Predefined level-3 role
#
role name level-4
 description Predefined level-4 role
#
role name level-5
 description Predefined level-5 role
```

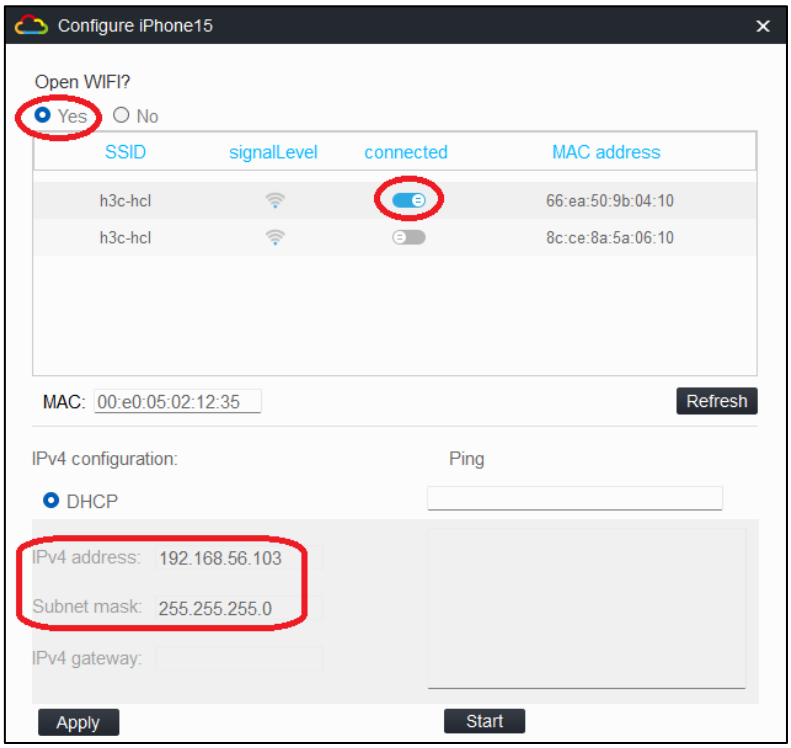
```
#
role name level-6
 description Predefined level-6 role
#
role name level-7
 description Predefined level-7 role
#
role name level-8
 description Predefined level-8 role
#
role name level-9
 description Predefined level-9 role
#
role name level-10
 description Predefined level-10 role
#
role name level-11
 description Predefined level-11 role
#
role name level-12
 description Predefined level-12 role
#
role name level-13
 description Predefined level-13 role
#
role name level-14
 description Predefined level-14 role
#
user-group system
#
return
```

模範コンフィグでのテストの結果:

Open WiFi を Yes にして、WiFi を有効にします。



Connected をクリックしてボタンが水色に変わるのを確認してください。
PoE スイッチの DHCP 機能が有効であれば、DHCP 項目に IP アドレスとサブネットマスクが表示されます。



WiFi 端末は ROOM-102, ROOM-201 の AP に接続し、別の AP の電波範囲に移動するとローミングに成功(約 10 秒程度で再検索)しました。

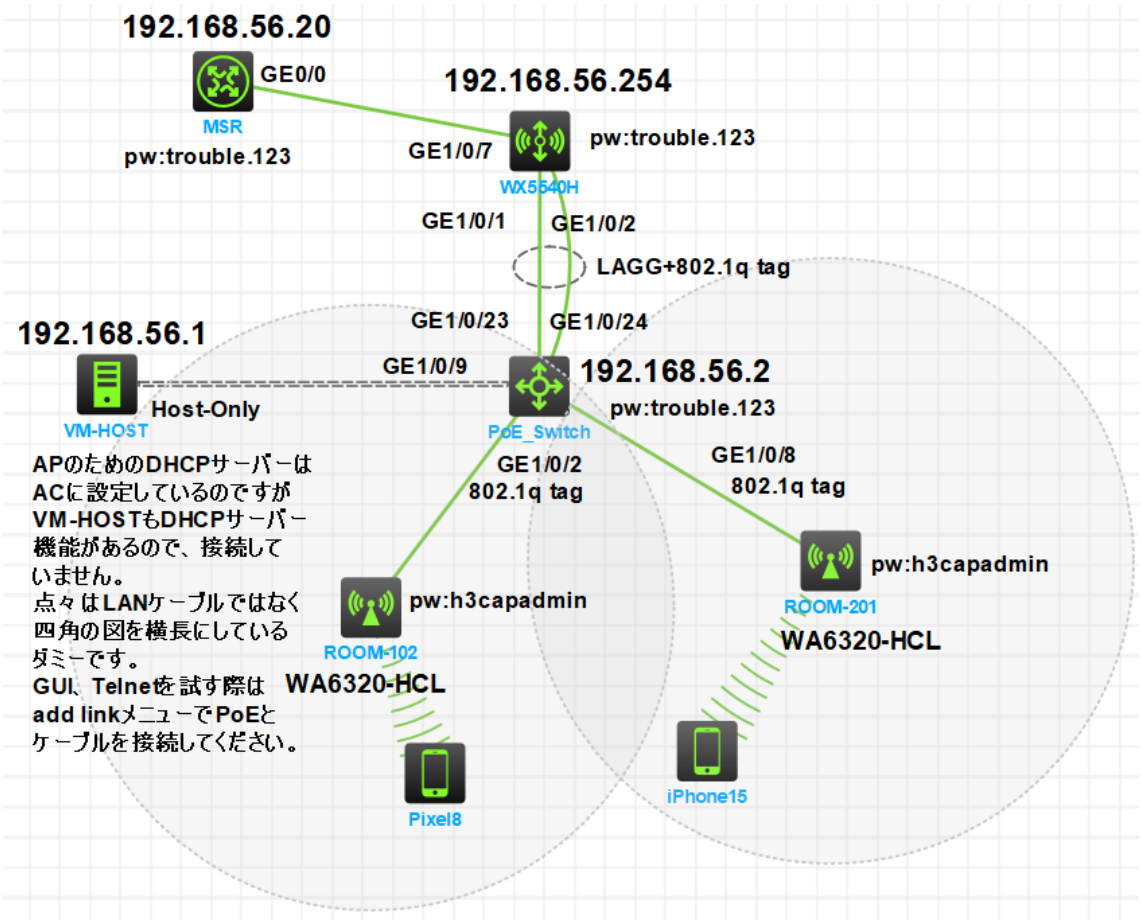


図 4 正しい実習ネットワーク

オプション: GUI にアクセスしてみましょう:

GUI にアクセスするには、まず VM-HOST と PoE スイッチの間を接続します。
次に、ブラウザを開いて以下の URL を入力します。

http://192.168.56.254/
ログイン画面からログインしてみます。
ユーザ名: admin
パスワード: trouble.123
図 5 ログイン画面

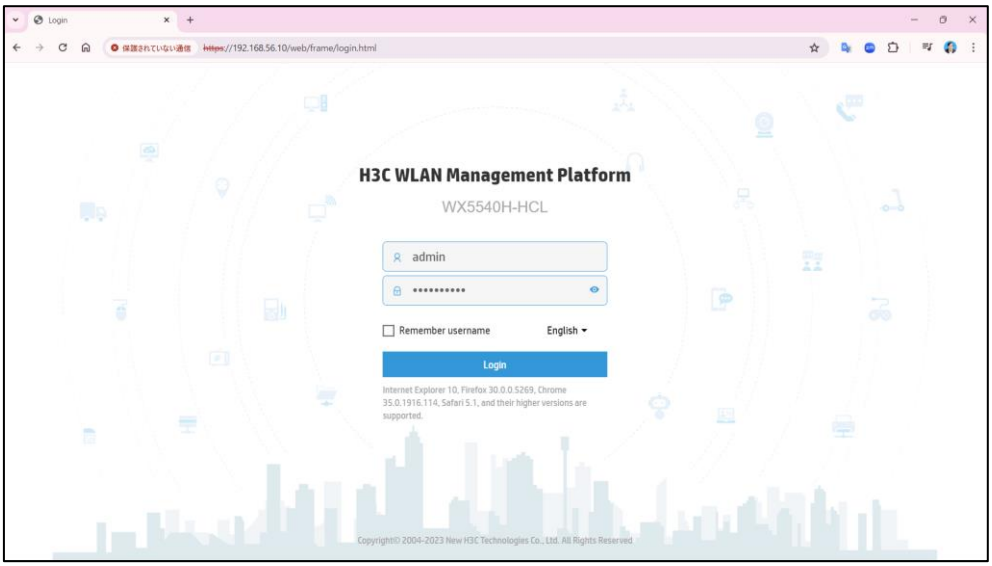


図 6 SSID が 4 つ定義されています

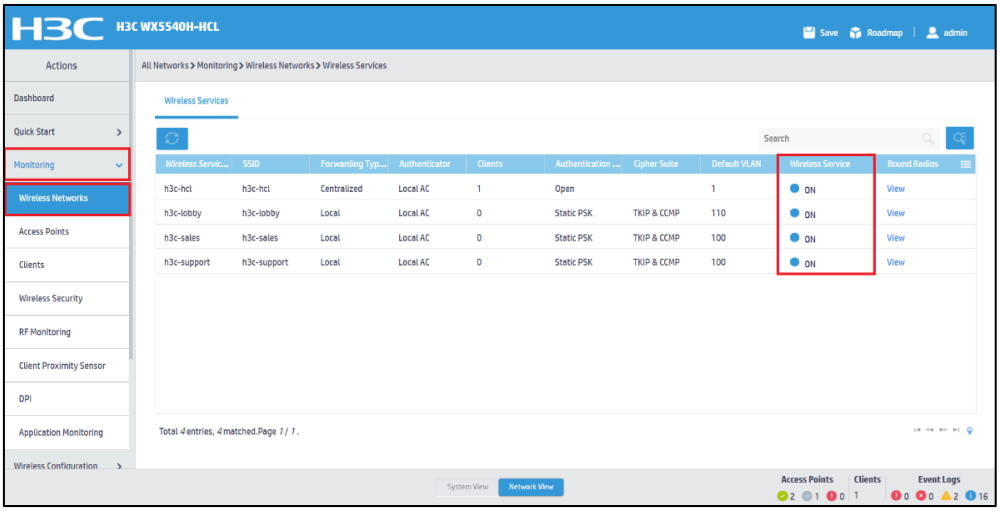


図 7 AP が 3 台存在することを表しています

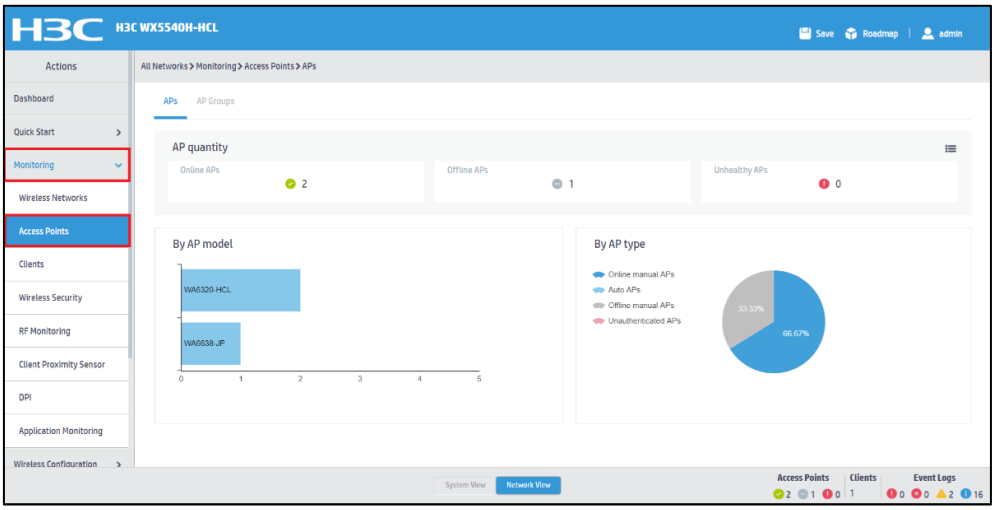
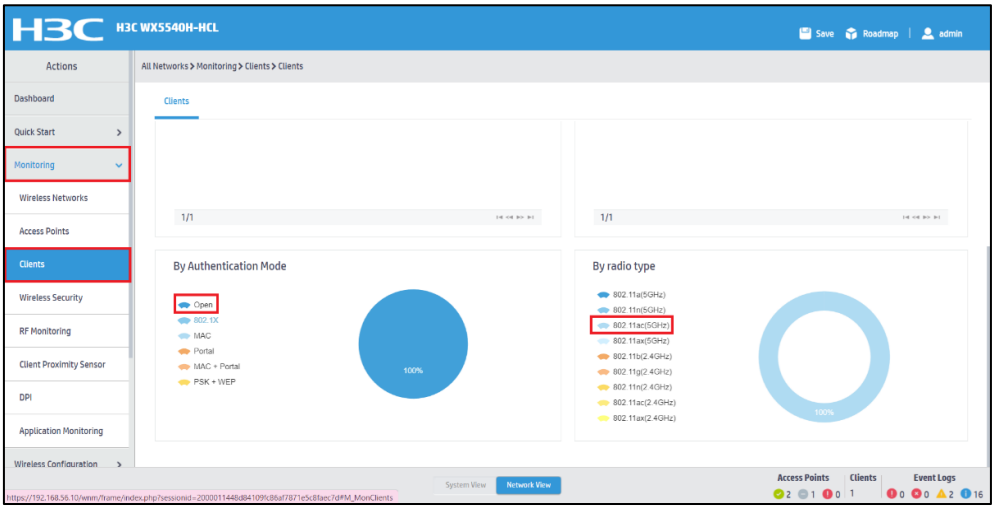
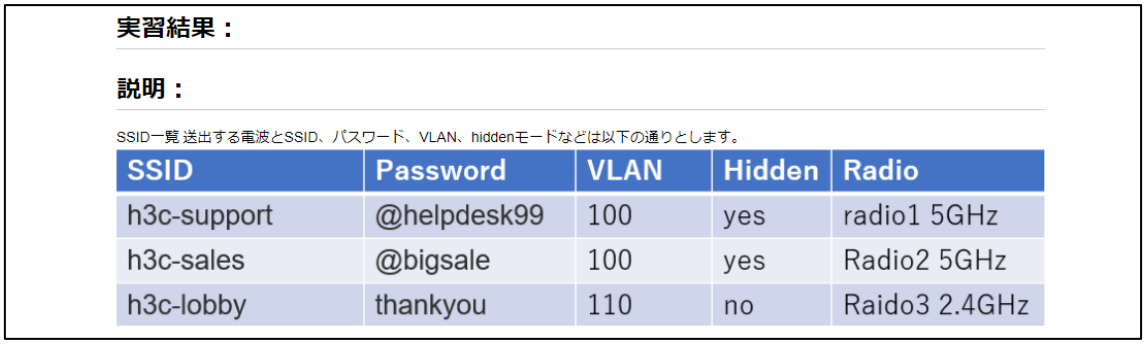


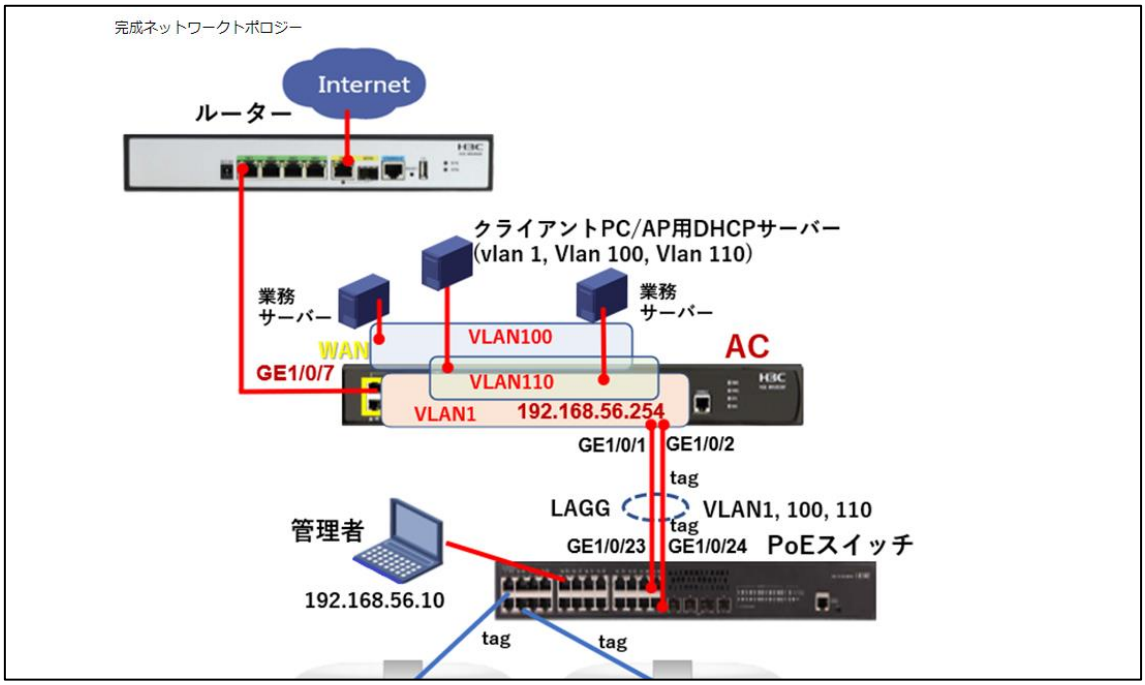
図 8 クライアント(WiFi 端末)に接続されています

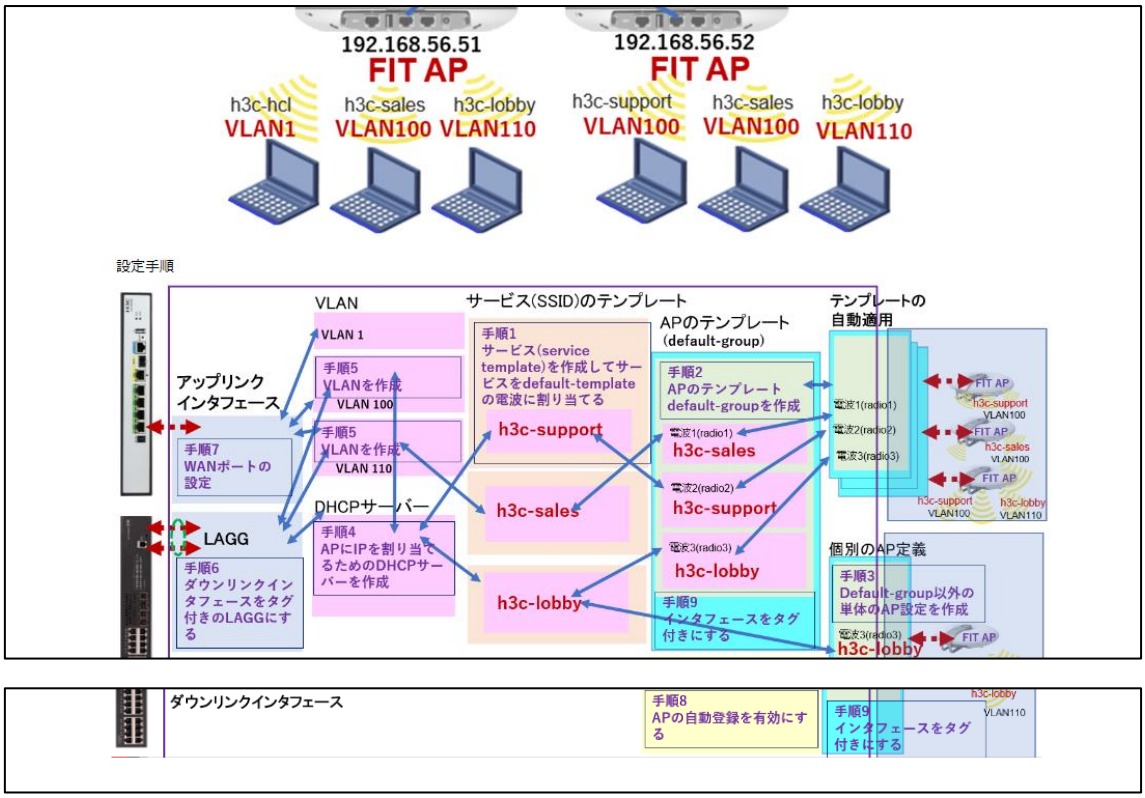


HCL の便利な機能:

プロジェクトの説明を書きこむ

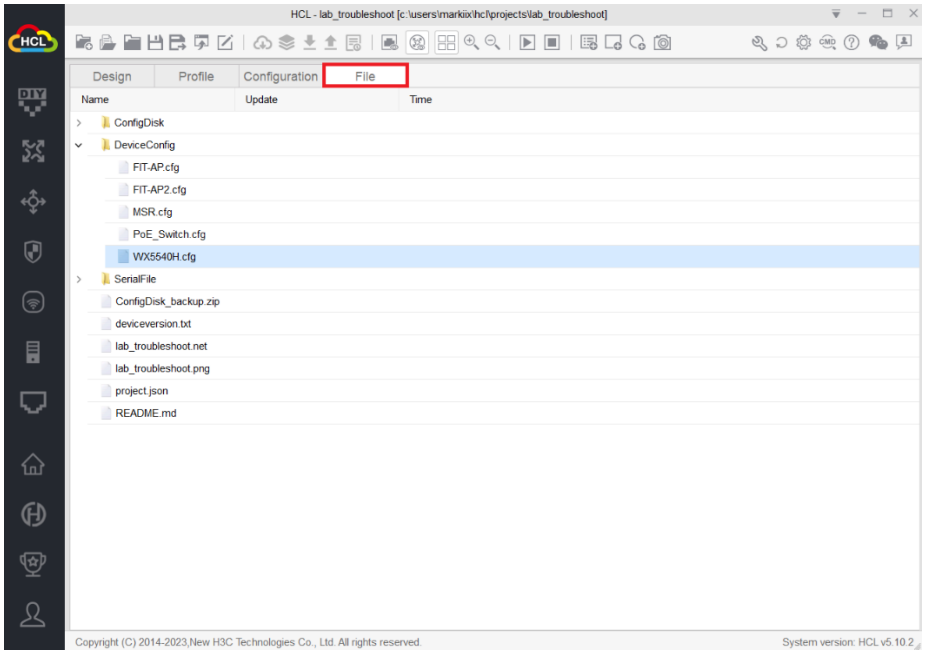


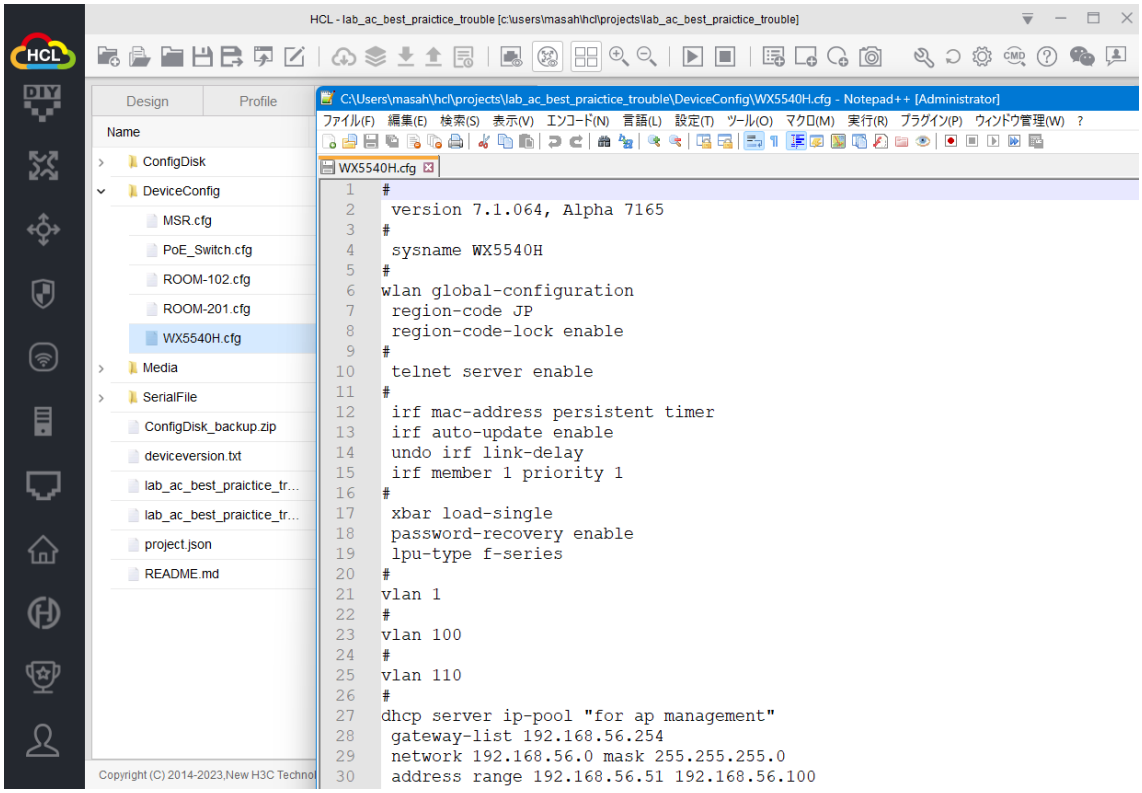




コンフィグファイルの取り出し

完成したコンフィグファイルは File タブで DeviceConfig フォルダーをクリックすると一覧がでてきます。各.cfg ファイル名をダブルクリックするとテキストエディタが開きますので、ファイルとして保存することができます。


HCL - lab_troubleshoot [c:\users\markix\hcl\projects\lab_troubleshoot]
Design
Profile
Configuration
File
Name
Update
Time
ConfigDisk
DeviceConfig
FIT-AP.cfg
FIT-AP2.cfg
MSR.cfg
PoE_Switch.cfg
WX5540H.cfg
SerialFile
ConfigDisk_backup.zip
deviceversion.txt
lab_troubleshoot.net
lab_troubleshoot.png
project.json
README.md
Copyright (C) 2014-2023,New H3C Technologies Co., Ltd. All rights reserved.
System version: HCL v5.10.2


HCL - lab_ac_best_praictice_trouble [c:\users\masah\hcl\projects\lab_ac_best_praictice_trouble]
Design
Profile
Name
ConfigDisk
DeviceConfig
MSR.cfg
PoE_Switch.cfg
ROOM-102.cfg
ROOM-201.cfg
WX5540H.cfg
Media
SerialFile
ConfigDisk_backup.zip
deviceversion.txt
lab_ac_best_praictice_tr...
lab_ac_best_praictice_tr...
project.json
README.md
C:\Users\masah\hcl\projects\lab_ac_best_praictice_trouble\DeviceConfig\WX5540H.cfg - Notepad++ [Administrator]
ファイル(F) 編集(E) 検索(S) 表示(V) エンコード(N) 言語(L) 設定(T) ツール(O) マクロ(M) 実行(R) プラグイン(P) ウィンドウ管理(W) ?
WX5540H.cfg
#
version 7.1.064, Alpha 7165
#
sysname WX5540H
#
wlan global-configuration
region-code JP
region-code-lock enable
#
telnet server enable
#
irf mac-address persistent timer
irf auto-update enable
undo irf link-delay
irf member 1 priority 1
#
xbar load-single
password-recovery enable
lpu-type f-series
#
vlan 1
#
vlan 100
#
vlan 110
#
dhcp server ip-pool "for ap management"
gateway-list 192.168.56.254
network 192.168.56.0 mask 255.255.255.0
address range 192.168.56.51 192.168.56.100