Content

Chapter 1 Commands for AP Configuration Management 1-1

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1.1 aeroscout

Command: aeroscout

         no aeroscout

Function: Configure the managed AP supports Aeroscout engine. The no command configures the managed AP does not support Aeroscout engine.

Parameters: None.

Command Mode: wireless ap profile config.

Default: Disable.

Usage Guide: Aeroscout engine is the software platform of device location service. It can locate the position of 802.11 device. Aeroscout engine communicates with the AP which supports Aeroscout protocol, AP collects the rf information with location device and sends it to Aeroscout engine. After configured this function, issue to make the configuration effective through **wireless ap profile apply** command.

Example: Configure the managed ap supports Aeroscout engine.

AC(config-ap-profile)# aeroscout

AC#wireless ap profile apply 1

1.2 ap address A.B.C.D A.B.C.D profile <1-1024>

Command: ap address A.B.C.D A.B.C.D profile <1-1024>

         no ap address A.B.C.D A.B.C.D profile <1-1024>

Function: Set profile ID for the IP address range interval AP. The no command deletes profile ID that AP specified in the interval.

Parameters: A.B.C.D: it is the specified IP address interval, the former is start IP address, the latter is end IP address.

         <1-1024>: it is the ID for specified profile.

Command mode: Wireless Global Mode.

Default: None.

Usage Guide: The command can set a profile for a IP address range interval AP or delete specified profile. The priority of the command is lower than ap profile ID in ap database configuration, the start address and end address is same. It can configure more profile and the profile hardware type is different.

Example: Configure the profile ID of AP is 3 and the AP address is between 192.168.1.1 to 192.168.1.10.

AC(config-wireless)#ap address 192.168.1.1 192.168.1.10 profile 3

1.3 ap auto-upgrade

Command：**ap auto-upgrade**

　　　　　　 no ap auto-upgrade

Function：Enable/disable the automatical update function of AP.

Parameters：None.

Command Mode：Wireless Global Mode.

Default：Disable.

Usage Guide：This command is used to enable/disable the automatical update function of AP. The Image version in AC is different to the Image version in AP when AP is on-line by enabling this command, and the automatical update of AP will be touched off.

Example：Enable the automatical update function of AP.

AC(config-wireless)#ap auto-upgrade

1.4 ap profile

Command：**ap profile *<1-1024>***

　　　　　　 no ap profile *<1-1024>*

Function：Add a configuration file and enter the AP configuration file mode from the wireless global mode. The no command deletes the appointed configuration file.

Parameters：*<1-1024>* is the ID of profile which needs to be added.

Command Mode：Wireless Global Mode.

Default：None.

Usage Guide：This command is used to add a configuration file and enter the AP configuration file mode to configure profile. The no command deletes the configuration file with the appointed ID. The default configuration file of 1 cannot be deleted.

Example：Add a configuration file of 3 and enter the AP configuration file mode.

AC(config-wireless)#ap profile 3

AC(config-ap-profile)#

1.5 ap profile copy <1-1024> <1-1024>

Command：**ap profile copy *<1-1024> <1-1024>***

Function：Copy the content of a configuration file to another configuration file. (If this destination file does not exist, it will be created.)

Parameters：*<1-1024> <1-1024>*：The former is the ID of the copying original profile, the latter is the ID of the copying destination profile.

Command Mode：Admin Mode.

Default：None.

Usage Guide：This command is used to copy the content of a configuration file to another configuration file. If this destination file does not exist, it will be created. The content includes the configuration content of all profile.

Example：Copy the content of the configuration file 1 to the configuration file 3.

AC#ap profile copy 1 3

All contents in the source profile will be copied to the destination profile. Are you sure you want to copy? [Y/N] y

AP Profile Configuration Copy Successful.

1.6 clear

Command：**clear**

Function：Configure all except AP profile name in profile as default.

Parameters：None.

Command Mode：AP Profile Configuration Mode.

Default：None.

Usage Guide：This command is used to configure all except AP profile name in profile as default.

Example：Recover the configuration.

AC(config-ap-profile)#clear

All configurations will be set to the default values for this profile except the profile name.

Are you sure you want to clear the profile configuration? [Y/N] y

AP Profile Configuration Clear Successful.

1.7 clear wireless statistics

Command：**clear wireless statistics**

Function：Reset the statistics information of global AC.

Parameters：None.

Command Mode：Admin Mode.

Default：None.

Usage Guide：This command is used to reset the statistics information of global AC. It is

0.

Example：Reset the statistics information of global AC.

AC#clear wireless statistics

All the statistics on the switch will be cleared. Are you sure you want to clear all the statistics on the switch? [Y/N]y

Wireless statistics are cleared.

1.8 debug wireless ap-config internal

Command：**debug wireless ap-config internal <*macaddr*>**

    no debug wireless ap-config internal <*macaddr*>

Function：Enable the debugging information on-off of AP configuration update. The no command disables the on-off.

Parameters：**<*macaddr*>** is the MAC address of AP.

Command Mode：Admin Mode.

Default：Disable.

Usage Guide：Examine the debugging information of AP configuration update through this command.

Example：Enable the debugging information on-off of AP configuration update.

AC#debug wireless ap-config internal 00-03-0f-18-ec-b0

MAC:00-03-0f-18-ec-b0 internal WD_LEVEL_WSAP_CONF_INFO debug is on

1.9 debug wireless ap-config packet

Command：**debug wireless ap-config packet {send | receive | dump} <*macaddr*>**

    no debug wireless ap-config {send | receive | dump} <*macaddr*>

Function：Enable the packets information on-off of AP configuration update. The no command disables the on-off.

Parameters：**send** is the packets sent by AC;

    receive is the packets received by AC;

    dump is the detailed content of packets;

    <*macaddr*> is the MAC address of AP.

Command Mode：Admin Mode.

Default：Disable.

Usage Guide：Examine the packets information of AP configuration update through this command.

Example：Enable the packets information on-off of AP configuration update.

AC#debug wireless ap-config packet send 00-03-0f-18-ec-b0

MAC:00-03-0f-18-ec-b0 packet WD_LEVEL_AP_CONFIG_TX debug is on

1.10 debug wireless ap-reset internal

Command：**debug wireless ap-reset internal <*macaddr*>**

         no debug wireless ap-reset internal <*macaddr*>

Function：Enable the relevant debugging information on-off of AP restart. The no command disables the on-off.

Parameters：**<*macaddr*>** is the MAC address of AP.

Command Mode：Admin Mode.

Default：Disable.

Usage Guide：Examine the relevant debugging information of AP restart through this command.

Example：Enable the relevant debugging information on-off of AP restart.

AC#debug wireless ap-reset internal 00-03-0f-18-ec-b0

MAC:00-03-0f-18-ec-b0 internal WD_LEVEL_WSAP_RESET_INFO debug is on

1.11 debug wireless ap-reset packet dump

Command：**debug wireless ap-reset packet dump <*macaddr*>**

         no debug wireless ap-reset packet dump <*macaddr*>

Function：Enable the relevant packets information on-off of AP restart. The no command disables the on-off.

Parameters：**<*macaddr*>** is the MAC address of AP.

Command Mode：Admin Mode.

Default：Disable.

Usage Guide：Examine the relevant packets information of AP restart through this command. The packets are shown with hexadecimal.

Example：Enable the relevant packets information on-off of AP restart.

AC#debug wireless ap-reset packet dump 00-03-0f-18-ec-b0

MAC:00-03-0f-18-ec-b0 packet WD_LEVEL_WSAP_RESET_PKT debug is on

1.12 debug wireless ap-statistics internal

Command：**debug wireless ap-statistics internal <*macaddr*>**

         no debug wireless ap-statistics internal <*macaddr*>

Function：Enable the debugging information on-off of AP statistics information. The no

command disables the on-off.

Parameters：*<macaddr>* is the MAC address of AP.

Command Mode：Admin Mode.

Usage Guide：Examine the debugging information of AP statistics information through this command.

Example：Enable the debugging information on-off of AP statistics information

AC#debug wireless ap-statistics internal 00-03-0f-18-ec-b0

MAC:00-03-0f-18-ec-b0 internal WD_LEVEL_WSAP_STATS_INFO debug is on

1.13 debug wireless ap-statistics packet

Command：**debug wireless ap-statistics packet {send | receive | dump} *<macaddr>***

no debug wireless ap-statistics packet {send | receive | dump} *<macaddr>*

Function：Enable the packets information on-off of AP statistics information. The no command disables the on-off.

Parameters：**send** is the packets sent by AC;

receive is the packets received by AC;

dump is the detailed content of packets;

<macaddr> is the MAC address of AP.

Command Mode：Admin Mode.

Usage Guide：Examine the packets information of AP statistics information through this command.

Example：Enable the packets information on-off of AP statistics information.

AC#debug wireless ap-statistics packet send 00-03-0f-18-ec-b0

MAC:00-03-0f-18-ec-b0 packet WD_LEVEL_STATS_INTVL_TX debug is on

MAC:00-03-0f-18-ec-b0 packet WD_LEVEL_STATS_CLEAR_TX debug is on

1.14 debug wireless ap-update fsm

Command：**debug wireless ap-update fsm {global | ap *<macaddr>*}**

no debug wireless ap-update fsm {global | ap *<macaddr>*}

Function：Enable the state machine debugging on-off of the global AP or the appointed AP when enabling the Image update. The no command disables the on-off.

Parameters：**global** is the global state machine;

<macaddr> is the MAC address of the appointed AP.

Command Mode：Admin Mode.

Default：Disable.

Usage Guide：Examine the state transition of the global AP or the appointed AP through this command.

Example：Enable the state machine debugging on-off of the global AP when enabling the Image update.

Swtich#debug wireless ap-update fsm global

fsm WD_LEVEL_GLOBAL_UPD_FSM debug is on

1.15 debug wireless ap-update internal

Command：**debug wireless ap-update internal <*macaddr*>**

          no debug wireless ap-update internal <*macaddr*>

Function：Enable the relevant debugging information on-off of Image update of AP. The no command disables the on-off.

Parameters：**<*macaddr*>** is the MAC address of AP.

Command Mode：Admin Mode.

Default：Disable.

Usage Guide：Examine the relevant debugging information of Image update of AP through this command.

Example：Enable the relevant debugging information on-off of Image update of AP.

AC#debug wireless ap-update internal 00-03-0f-18-ec-d0

MAC:00-03-0f-18-ec-d0 internal WD_LEVEL_WSAP_UPD_INFO debug is on

1.16 debug wireless ap-update packet

Command：**debug wireless ap-update packet { send | receive | dump} <*macaddr*>**

          no debug wireless ap-update packet { send | receive | dump} <*macaddr*>

Function：Enable the relevant packets information on-off of Image update of AP. The no command disables the on-off.

Parameters：**send** is the packets sent by AC;

          receive is the packets received by AC;

          dump is the detailed content of packets;

          <*macaddr*> is the MAC address of AP.

Command Mode：Admin Mode.

Default：Disable.

Usage Guide：Examine the relevant packets information of Image update of AP through this command. Dump is the detailed content of the packets with hexadecimal.

Example： Enable the relevant packets information on-off of Image update of AP.

AC#debug wireless ap-update packet dump 00-03-0f-18-ec-d0

MAC:00-03-0f-18-ec-d0 packet WD_LEVEL_WSAP_UPD_PKT debug is on

1.17 disconnected-ap forwarding-mode

Command: disconnected-ap forwarding-mode

         no disconnected-ap forwarding-mode

Function: Enable data forwarding function of the disconnected ap. The no command disables this function.

Parameters: None.

Default: Disable.

Command Mode: Wireless AP Profile Config.

Usage Guide: After enabled this function, ap disconnects with ac and then it can still conduct forwarding work. After configured this function on AC, issue to make the configuration effective through **wireless ap profile apply** command.

Example: Enable data forwarding function of the disconnected ap.

AC(config-ap-profile)#disconnected-ap forwarding-mode

AC#wireless ap profile apply 1

1.18 disconnected-ap management-mode

Command: disconnected-ap management-mode

         no disconnected-ap management-mode

Function: Enable management mode of the ap connected to port. The no command disables this mode.

Parameters: None.

Default: Enable.

Command Mode: Wireless AP Profile Config.

Usage Guide: Enable management mode of the ap connected to port. After configured this function on AC, issue to make the configuration effective through **wireless ap profile apply** command.

Example: Disable management mode of the ap connected to port.

AC(config-ap-profile)# no disconnected-ap management-mode

AC#wireless ap profile apply 1

1.19 dns-server {primary|backup} <ipv4/6-address>

Command：**dns-server {primary|backup} <ipv4/6-address>**

　　　　　　no dns-server {primary|backup }

Function：Appoint a dns server for an ap of the configuration file. The no command deletes it.

Parameters：{primary|backup }, primary: Configure host DNS server; backup: Configure the backup DNS server.

　　　　　　<ipv4/6-address>: ip address of DNS server.

Command Mode：AP profile Configuration Mode.

Default：DNS server address of AP is not configured.

Usage Guide：Configure dns server for ap through this command, issue configuration to be effective.

Example：Configure host DNS server for ap. When configure the host DNS, please pay attention that the host DNS must be configured the same address race (IPv4 or IPv6).

AC(config-ap-profile)# dns-server primary 192.168.1.254

AC(config-ap-profile)# dns-server backup 192.168.2.254

1.20 hwtype

Command：**hwtype <1-255>**

　　　　　　no hwtype

Function：Appoint a type of AP hardware for a configuration file. The no command appoints the type of AP hardware of profile to be 0. (Appoint this profile that it does not match any hardware type.)

Parameters：**<1-255>** is the type of AP hardware.

Command Mode：AP profile Configuration Mode.

Default：0.

Usage Guide：Please pay attention that if the profile supports the hardware type of AP when configure ID. If it does not support the type, the profile cannot be configured for AP. After modifying the hwtype value, the state of all VAP will be configured to be default.

Example：Appoint the hardware type of AP as 5.

AC(config-ap-profile)#hwtype 5

1.21 management vlan

Command：**management vlan <1-4094>**

no management vlan

Function：Appoint a managed vlan for ap of the configuration file. The no command appoints the vlan as 1.

Parameters：<1-4094> is vlan id and it is compulsory parameter.

Command Guide：AP profile Configuration Mode.

Default: 1.

Usage Guide: Modify the managed vlan of ap through this command, issue the configuration to be effective after modifying.

Example: Appoint the managed vlan of ap profile 1 as 4094

AC(config-ap-profile)#management vlan 4094

AC(config-ap-profile)#wireless ap profile apply 1

1.22 management vlan priority

Command：**management vlan priority <0-7>**

no management vlan priority

Function：Appoint the priority of managed vlan for a configuration file. The no command recovers it to 0.

Parameters：<0-7> is the priority of managed vlan and it is the compulsory parameter.

Command Mode：AP profile Configuration Mode.

Default：The priority is 0 as default.

Usage Guide：Modify the priority of managed vlan for ap through this command, issue the configuration to be effective after modifying.

Example：Appoint the priority of managed vlan for ap profile 1 as 7

AC(config-ap-profile)# management vlan priority 7

AC(config-ap-profile)#wireless ap profile apply 1

1.23 ethernet native-vlan vlan

Command: ethernet native-vlan <1-4094>

Function: Appoint a untagged-vlan for ap of the configuration file. The no command appoints the AP untagged-vlan as 1.

Parameters: <1-4094> is vlan id and it is compulsory parameter.

Command Guide: AP profile Configuration Mode.

Default: 1.

Usage Guide: Modify the untagged-vlan of ap through this command, issue the configuration to be effective after modifying.

Example: Appoint the managed vlan of ap profile 1 as 4094

AC(config-ap-profile)# ethernet native-vlan 4094

AC(config-ap-profile)#wireless ap profile apply 1

1.24 name

Command：**name <*name*>**

          no name

Function：Configure a descriptive name for a configuration file. The no command resets the descriptive name of profile to be default, and profile 1 is reseted to be default, others are reseted to be free.

Parameters：*<name>* is the descriptive name of profile.

Command Mode：AP profile Configuration Mode.

Default：Free.

Usage Guide：The AP profile whose ID is 1 is the default configuration, the descriptive name is default, the descriptive names of other new profile are free as default. The no command resets the descriptive name, and profile 1 is reseted to be default, others are reseted to be free.

Example：Configure the descriptive name of profile as abc.

AC(config-ap-profile)#name abc

1.25 ntp server

Command: ntp server {domain <word>|ipv4 <A.B.C.D>|ipv6 <X:X::X:X>}

          no ntp server

Function: Appoint ntp server domain name or IP address for AP of the profile. The no command cancels the domain name or IP address.

Parameters: <word> is domain name of server; <A.B.C.D> is server address of IPv4; <X:X::X:X> is server address of IPv6.

Command Mode: Ap Profile Configuration Mode.

Default: ntp server is not configured.

Usage Guide: This command is used to configure NTP server for AP under the appointed profile. If AC enables NTP server function, ntp server can be configured as address of AC. Then, AC is as server, AP is as client; the time of AP and AC is synchronous.

Example: Configure server (AC address) for AP under ap profile 1 as 192.168.1.1.

AC(config-ap-profile)#ntp server ipv4 192.168.1.1

1.26 profile

Command：**profile** *<1-1024>*

         no profile *<1-1024>*

Function：Appoint a profile ID for an AP. The no command deletes the profile ID appointed by AP and recovers it to be the default profile ID.

Parameters：*<1-1024>* is the appointed profile ID.

Command Mode：AP Configuration Mode.

Default：The profile ID of AP is 1 as default.

Usage Guide：This command can appoint a profile ID for AP or delete it to recover to be the default. Restart the relevant AP after the command configured successfully. The profile will be effective after the new association.

Example：Configure the profile ID of AP as 3.

AC(config-ap)#profile 3

The valid AP entry is updated. This AP is already managed, to update the managed AP configuration with the new value(s) you need to reset the AP.

1.27 rate-limit ethernet

Command: rate-limit ethernet

         no rate-limit ethernet

Function: Enable rate restriction function of AP ethernet ingress. The no command disables this function.

Parameters: None.

Default: Enable.

Command Mode: AP Configuration Mode.

Usage Guide: Enable rate restriction function of AP ethernet ingress. After configured this function on AC, issue to make the configuration effective through **wireless ap eth-parameter apply** command.

Example: Disable rate restriction function of AP ethernet ingress.

AC(config-wireless)#ap database 00-03-0f-02-45-40

AC(config-ap)# no rate-limit ethernet

AC#wireless ap eth-parameter apply 00-03-0f-02-45-40

1.28 rate-limit ethernet arp

Command: rate-limit ethernet arp<0-1000000>

         no rate-limit ethernet arp

Function: Configure ARP packets rate restriction of AP ethernet ingress. The no command recovers to be default.

Parameters: <0-1000000> is ARP packets rate range, unit is pps.

Default: 500pps

Command Mode: AP Configuration Mode.

Usage Guide: Configure ARP packets rate restriction of AP ethernet ingress. After configured this function on AC, issue to make the configuration effective through **wireless ap eth- parameter apply** command.

Example: Configure ARP packets rate restriction of AP ethernet ingress as 100pps.

AC(config-wireless)#ap database 00-03-0f-02-45-40

AC(config-ap)# rate-limit ethernet arp 100

AC#wireless ap eth-parameter apply 00-03-0f-02-45-40

1.29 rate-limit ethernet broadcast

Command: rate-limit ethernet broadcast<0-1000000>

         no rate-limit ethernet broadcast

Function: Configure broadcast packets rate restriction of AP ethernet ingress. The no command recovers to be default.

Parameters: <0-1000000> is broadcast packets rate range, unit is pps.

Command Mode: AP Configuration Mode.

Default: 1000pps

Usage Guide: Configure broadcast packets rate restriction of AP ethernet ingress. After configured this function on AC, issue to make the configuration effective through **wireless ap eth- parameter apply** command.

Example: Configure broadcast packets rate restriction of AP ethernet ingress as 100pps.

AC(config-wireless)#ap database 00-03-0f-02-45-40

AC(config-ap)# rate-limit ethernet arp 100

AC#wireless ap eth-parameter apply 00-03-0f-02-45-40

1.30 rate-limit ethernet multicast

Command: rate-limit ethernet multicast<0-1000000>

no rate-limit ethernet multicast

Function: Configure multicast packets rate restriction fof AP ethernet ingress. The no command recovers to be default.

Parameters: <0-1000000> is multicast packets rate range, unit is pps.

Command Mode: AP Configuration Mode.

Default: 10000pps

Usage Guide: Configure multicast packets rate restriction fof AP ethernet ingress. After configured this function on AC, issue to make the configuration effective through **wireless ap eth- parameter apply** command.

Example: Configure multicast packets rate restriction fof AP ethernet ingress as 100pps.

AC(config-wireless)#ap database 00-03-0f-02-45-40

AC(config-ap)# rate-limit ethernet multicast 100

AC#wireless ap eth-parameter apply 00-03-0f-02-45-40

1.31 rate-limit ethernet timer

Command: rate-limit ethernet timer<10-1000>

          no rate-limit ethernet timer

Function: Configure speed limit time interval of AP ethernet ingress. The no command recovers to be default.

Parameters: <10-1000> is the time interval which can be configured, unit is ms.

Default: 100ms

Command Mode: AP Configuration Mode.

Usage Guide: Configure speed limit time interval of AP ethernet ingress. After configured this function on AC, issue to make the configuration effective through **wireless ap eth- parameter apply** command.

Example: Configure speed limit time interval of AP ethernet ingress as 1000ms.

AC(config-wireless)#ap database 00-03-0f-02-45-40

AC(config-ap)# rate-limit ethernet timer 1000

AC#wireless ap eth-parameter apply 00-03-0f-02-45-40

1.32 rate-limit ethernet unicast

Command: rate-limit ethernet unicast<0-1000000>

          no rate-limit ethernet unicast

Function: Configure unicast packets rate restriction of AP ethernet ingress. The no command recovers to be default.

Parameters: <0-1000000> is unicast packets rate range, unit is pps.

Command Mode: AP Configuration Mode.

Default: 60000pps

Usage Guide: Configure unicast packets rate restriction of AP ethernet ingress. After configured this function on AC, issue to make the configuration effective through **wireless ap eth- parameter apply** command.

Example: Configure unicast packets rate restriction of AP ethernet ingress as 100pps.

AC(config-wireless)#ap database 00-03-0f-02-45-40

AC(config-ap)# rate-limit ethernet unicast 100

AC#wireless ap eth-parameter apply 00-03-0f-02-45-40

1.33 rate-limit ethernet unicast-promiscuous

Command: rate-limit ethernet unicast-promiscuous<0-1000000>

          no rate-limit ethernet unicast-promiscuous

Function: Configure unicast packets rate restriction of AP ethernet ingress under mix mode. The no command recovers to be default.

Parameters: <0-1000000> is unicast packets rate range in mix mode, unit is pps.

Command Mode: AP Configuration Mode.

Default: 60000pps

Usage Guide: Configure unicast packets rate restriction of AP ethernet ingress under mix mode. After configured this function on AC, issue to make the configuration effective through **wireless ap eth- parameter apply** command.

Example: Configure unicast packets rate restriction of AP ethernet ingress under mix mode as 100pps.

AC(config-wireless)#ap database 00-03-0f-02-45-40

AC(config-ap)# rate-limit ethernet unicast-promiscuous 100

AC#wireless ap eth-parameter apply 00-03-0f-02-45-40

1.34 wireless ap download abort

Command：wireless ap download abort

Function： Get over the AP Image update process.

Parameters： None.

Command Mode： Admin Mode.

Default： None.

Usage Guide： When AP renew the Image file, all the AP except the AP which are got over to download in the current group will continue to download if inputting this command, after downloading, the updating will not be triggered. The AP in the download group which does

not start to download the Image will not download and update.

Example：Get over the current AP Image update.

AC#wireless ap download abort

1.35 wireless ap download group-size

Command：**wireless ap download group-size** *<1-48>*

Function：Configure the number of AP which download the Image file at the same time
per group.

Parameters：*<1-48>* is the number of AP which download the Image file to TFTP Server
at the same time per group.

Command Mode：Wireless Global Mode.

Default：10.

Usage Guide：Configure the number of AP which download the Image file at the same
time per group through this command. The minimum is 1 and the maximum is 48.

Example：Configure the number of AP which download the Image file at the same time
per group as 20.

AC(config-wireless)#wireless ap download group-size 20

1.36 wireless ap download image-type

Command：**wireless ap download image-type** *<1-7><word>*

　　　　　　　no wireless ap download image-type *<1-7>*

Function：Configure the TFTP address that a specific AP Image type is in and configure
the full path of this file. Or configure FTP server address, user name, password and the
full path of this file.

Parameters：*<1-7>* is the type of image.

　　　　　<word> is the full path information of a specific image and it is required
parameter.

Command Mode：Wireless Global Mode.

Default：None.

Usage Guide：Configure a TFTP address and full path of file or FTP server address, user
name, password and full path of this file for every specific image file through this
command. server addresses can be different, please configure the image file which has
existed on server. If it does not exist or the file is wrong, AC will not prompt. AP will prompt
downloading failure when downloading or prompt the image file is not correct after
downloading. The no command deletes the TFTP address and full path or FTP server
address, user name, password and full path of this file.

Example：Configure TFTP address and the full file path for the image file of type 1.

AC(config-wireless)#wireless ap download image-type 1 tftp://1.1.1.1/image.tar

1.37 wireless ap download start

Command：**wireless ap download start [image-type <*1-7*>] [<*macaddr*>]**

Function：Touch off the AP which agrees a specific image type or MAC address or agrees both of them to start to download the image file which has been configured completely.

Parameters：**image-type <*1-7*>** is the type of image.

        <*macaddr*> is the MAC address of AP.

Command Mode：Admin Mode.

Default：None.

Usage Guide：This command touches off all AP which operate a specific image type to start to download the image file or touches off one or all AP to start to download the path information of the image file which is configured completely. Now the image type of AP is not considered. If the image type which is requested to download does not exist, the image downloading will not start.

Example：Touch off the appointed AP whose type is 1 to start to download the image file.

AC#wireless ap download start imagetype 1 00-03-0f-18-ec-b0

Touch off all the AP to start to download the image file.

AC#wireless ap download start

Wireless system initiated code download for managed AP 00-03-0f-04-01-40

1.38 wireless ap factory-reset

Command：**wireless ap factory-reset [mac]**

Function：Make AP managed by AC reset with factory configuration.

Parameters：[mac] is mac value of the managed ap.

Default：None.

Command Mode：Admin Mode.

Usage Guide: Input this command on ac to make the ap managed by ac reset with factory configuration. When the parameter of mac is not input, the aps associated with ac will all reset with factory configuration. When the parameter of mac value is input, the ap which corresponds this mac of ac will reset with factory configuration.

Example：Configure the ap managed by ac with mac of 00-03-0f-26-72-00 to reset with factory configuration; reset all APs managed by ac with factory configuration.

AC#wireless ap factory-reset 00-03-0f-26-72-00

AC#wireless ap factory-reset

1.39 wireless ap integrated image-type

Command：**wireless ap integrated image-type** *<1-7>* **WORD**

        no wireless ap integrated image-type *<1-7>*

Function：Appoint the image file for the AP which uses the updating method of Integrated.

The no command deletes the image file.

Parameters：*<1-7>* is the image file type of AP.

        WORD appoint the URL of image file.

Command Mode：Wireless Global Mode.

Default：None.

Usage Guide：This command is used to appoint the image file for the AP which uses the updating method of Integrated. When using this command, check the corresponding hardware type image file according to the hardware type of the AP which needs updating and through **show wireless ap capability image-table** command.

Example：Appoint an image file for a type of device of AP.

AC(config-wireless)#wireless ap integrated image-type 1 flash:/image.tar

1.40 wireless ap profile apply

Command：**wireless ap profile apply** *<1-1024>*

Function：Issue the appointed profile configuration file to the AP which is configured the relevant file.

Parameters：*<1-1024>* is the ID of profile.

Command Mode：Admin Mode.

Default：None.

Usage Guide：Issue the configuration file that the management AP configured the file, otherwise, it cannot be issued. When issuing the configuration, the hwtype of profile should match the hardware type of AP, otherwise, it cannot be issued. When AP is related to AC at the first time, issue the configuration file whose profile ID is 1 to AP if AC does not appoint the configuration file for AP. In issued configuration, if there are 3 configuration does not need to be issued, it can become effective. Update the central tunnel VLAN list, distribute configuration and client QoS configuration.

Example：Issue the profile whose ID is 1 for AP.

AC#wireless ap profile apply 1

All configurations will be send to the aps associated   to this profile . Are you sure you want to apply the profile configuration?   [Y/N] y

AP Profile apply is in progress.

1.41 wireless ap reset

Command：**wireless ap reset [<*macaddr*>]**

Function：Restart the AP appointed MAC address at the AC management or restart all management AP in manual.

Parameters：**<*macaddr*>** is the MAC address of AP.

Command Mode：Admin Mode.

Default：None.

Usage Guide：Using this command on controller AC can restart the AP at the peer management, but on peer it cannot restart the AP on controller.

Example：Restart the AP appointed the address.

AC#wireless ap reset 00-03-0f-18-ec-b0

Are you sure you want to reset WS managed AP? [Y/N] y

Reset Requested for WS Managed AP

1.42 statistics-interval

Command：**statistics-interval <5-3600>**

　　　　　　no statistics-interval

Function：Stipulate the time interval of ap reporting the status statistic data. The no command makes the time interval automatic.

Parameters：<5-3600> is the range of time interval. Unit is s.

Default：auto.

Command Mode：Wireless Global Mode.

Usage Guide：The status information of ap should be monitored by the managed ac in time. For the management mode of ac to ap, it is the best information updating mode that ap repords the information itself. If configured statistic-interval on ac, when issued to ap, ap will receive the time interval of reporting information stipulated by ac to adjust it self to that time interval. When using auto mode (no statistics-interval), ap will adjust the time interval automatically according to the specific situation.

Example：Configure the time interval of ap reporting data as 200s; recover the time interval as auto.

AC(config-wireless)#statistics-interval   200

AC(config-wireless)#no statistics-interval

1.43 show wireless

Command：**show wireless**

Function：Show the global configuration parameters information of AC and the operation status information.

Parameters：None.

Command Mode：Admin Mode.

Default：None.

Usage Guide：This command is used to show the global configuration parameters information of AC and the operation status information. It includes wireless global on-off, wireless AC address, automatic update mode starting and QoS mode on-off.

Example：Show the global configuration parameters information of AC and the operation status information.

AC#show wireless

Administrative Mode............................ Enable

Operational Status.............................. Enabled

WS IP Address.................................. 1.1.1.1

WS IPv6 Address................................ 2012::1:1

WS Auto IP Assign Mode .... Enable

WS Switch Static IP .... -----

WS Switch Static IPv6 .... -----

AP Authentication Mode......................... Mac

AP Auto Upgrade Mode........................... Disable

AP Validation Method........................... Local

Client Roam Timeout (secs)..................... 30

Country Code................................... CN - China

Peer Group ID.................................. 1

Cluster Priority............................... 1

Cluster Controller............................. Yes

Cluster Controller IP Address.................. 1.1.1.1

Cluster Controller IPv6 Address................ 2012::1:1

Wireless System IP control port................ 57775

AP Client QoS Mode............................. Disable

AP Igmp Snooping Mode.......................... Disable

Switch Provisioning............................ Enable

Network Mutual Authentication Mode............. Disable

Unmanaged AP Re-provisioning Mode............. Enable

Network Mutual Authentication Status........... Not Started

Regenerate X.509 Certificate Status............ Not In Progress

Force Wifi Compatible.......................... Disable

Statistics Interval............................ Auto

1.44 show wireless agetime

Command：**show wireless agetime**

Function：Show the age time information of every table in status database.

Parameters：None.

Command Mode：Admin Mode.

Default：None.

Usage Guide：This command is used to Show the age time information of every tabel in status database. It includes the agetime of AP relevance failure table, RF scanning table, client finding table and client relevance failure table.

Example：Show the agetime of every table of AC.

AC#show wireless agetime

Ad Hoc Client Statue Age (hours)............... 24

AP Failure Status Age (hours).................. 24

RF Scan Status Age (hours)..................... 24

Detected Clients Age (hours)................... 24

agetime client-failure......................... 24

AP Provisioning Database Age Time (hours)...... 72

1.45 show wireless ap capability

Command：**show wireless ap capability [<*1-255*> radio <*1-2*>]**

Function：Show the AP function of the hardware type the current system supports or show the radio hardware type function of an AP hardware type.

Parameters：<*1-255*> is the ID of AP hardware type.

<*1-2*> is the number of radio.

Command Mode：Admin Mode.

Default：None.

Usage Guide：Examine the AP function of the hardware type the current system supports or show the radio hardware type function of an AP hardware type through this command.

Example：

1. Show the AP function of all hardware types the current system supports.

AC#show wireless ap capability

dual-boot   image-table

AC#show wireless ap capability

HardWare type: 1

HW type Desc: DCWL-7952AP(R3), Indoor Single Radio a/b/g/n

CPU type Desc: CN5010p1.1-400-SCP

RadioCount: 1

DualBootSupport: 1

IntegratedImage:

ImageType: 1

Radio 1 Info:

RadioType: 1

RadioDescription: 802.11 a/b/g/n

VAP Count: 16

a ModeSuport: 1

b/g ModeSuport: 1

n ModeSupport: 1

HardWare type: 2

HW type Desc: DCWL-7942AP(R3), Indoor Single Radio b/g/n

CPU type Desc: CN5010p1.1-400-SCP

RadioCount: 1

DualBootSupport: 1

IntegratedImage:

ImageType: 1

Radio 1 Info:

RadioType: 2

RadioDescription: 802.11 b/g/n

VAP Count: 16

a ModeSuport: 0

b/g ModeSuport: 1

n ModeSupport: 1

……

2. Show the radio hardware type function of the AP appointed the hardware type.

AC#show wireless ap capability 1 radio 1

Hardware Type ID............................... 1

Hardware Type Description.....................DCWL-7952AP(R3), Indoor Single Radio a/b/g/n

Radio Count..................................... 1

Image Type..................................... 1-DCWL-79XX(R3) Serials AP

Radio... 1

Radio Type Description......................... 802.11 a/b/g/n

VAP Count..................................... 16

802.11a Support............................... Enable

802.11bg Support.............................. Enable

802.11n Support............................... Enable

1.46 show wireless ap capability dual-boot

Command：**show wireless ap capability dual-boot**

Function：Show the various kinds of hardware types of AP support the dual enabling or not.

Parameters：None.

Command Mode：Admin Mode.

Default：None.

Usage Guide：Examine the hardware type the current system supports of AP support the dual enabling or not through this command.

Example：Show the various kinds of hardware types of AP support the dual enabling or not.

AC#show wireless ap capability dual-boot

Hardware Type ID	Hardware Type Description	Dual Boot Support
0	Any	Not Supported
1	DCWL-7952AP(R3), Indoor Single Radio a/b/g/n	Supported
2	DCWL-7942AP(R3), Indoor Single Radio b/g/n	Supported
3	DCWL-7962AP(R3), Indoor Dual Radio a/n, b/g/n	Supported
4	DCWL-7962OT(R3), Outdoor Dual Radio a/n, b/g/n	Supported
5	DCWL-7942AP(R4), Indoor Single Radio b/g/n	Supported
6	DCWL-7942AP(R4)-HP, Indoor Single Radio b/g/n	Supported
7	DCWL-7962AP(R4), Indoor Dual Radio a/n, b/g/n	Supported
8	DCWL-7942AP-E, Indoor Single Radio b/g/n	Supported

9	DCWL-7962AP-E, Indoor Dual Radio a/n, b/g/n	Supported
10	DCWL-7962OT, Outdoor Dual Radio a/n, b/g/n	Supported
11	DCWL-7942AP-W, Indoor Single Radio b/g/n	Supported
12	DCWL-7942AP-WH, Indoor Single Radio b/g/n	Supported

1.47 show wireless ap capability image-table

Command：**show wireless ap capability image-table**

Function：Show the type of AP image the current system supports.

Parameters：None.

Command Mode：Admin Mode.

Default：None.

Usage Guide：Show the type of AP image the current system supports through this command.

Example：Show the type of AP image the current system supports.

AC#show wireless ap capability image-table

Image Type ID   Image Type Description

-------------- ----------------------

1	Supportted AP Hardware Type:	1 2 3 4
2	Supportted AP Hardware Type:	5 6 7
3	Supportted AP Hardware Type:	8 9 10
4	Supportted AP Hardware Type:	11 12

1.48 show wireless ap download

Command：**show wireless ap download**

Function：Show the global downloading status of AP.

Parameters：None.

Command Mode：Admin Mode.

Default：None.

Usage Guide：This command is used to examine the global downloading status of AP. It can examine the full path of image file of the appointed AP type, the tftp server address, the global downloading status and the downloading status of every AP.

Example：Show the global downloading status.

AC#show wireless ap download

image 1 User Mode.............................. tftp

image 1 File Name............................. image.tar

image 1 File Path............................ soft

image 1 Server Address......................... 2.2.2.2

image 2 User Mode.............................

image 2 File Name.............................

image 2 File Path.............................

image 2 Server Address.........................

image 3 User Mode.............................

image 3 File Name.............................

image 3 File Path.............................

image 3 Server Address.........................

image 4 User Mode.............................

image 4 File Name.............................

image 4 File Path............................

image 4 Server Address.........................

Group Size.................................... 10

Download Type................................. None

Download Status............................... Not Started

Total Count................................... 0

Success Count................................. 0

Failure Count................................. 0

Abort Count................................... 0

1.49 show wireless ap image availability

Command：**show wireless ap image availability**

Function：Show the AP image software information saved by AC.

Parameters：None.

Command Mode：Admin Mode.

Default：None.

Usage Guide：This command is used to examine the AP image software information saved by AC. It includes the version information of AP image software, communication version information and the device type information this image supports.

Example：Examine the AP image software information saved by AC.

AC#show wireless ap image availability

flash:/7952r3_0.0.0.6.tar

SoftWare-Version: 0.0.0.6

Protocol-Version: 2

device-type list:1　2

1.50 show wireless ap profile

Command：**show wireless ap profile [<*1-1024*> [radio [<*1-2*>]]]**

Function：Show the details information of a configuration file.

Parameters：<*1-1024*> is the ID of profile.

　　　　　<*1-2*> is the radio ID.

Command Mode：Admin Mode.

Default：None.

Usage Guide：This command is used to examine the information of profile. If the parameters are not input, show the global profile information. If inputting the profile ID (radio ID), show the details information under the parameters.

Example：Show the details information of the configuration file of 1.

AC#show wireless ap profile 1

AP Profile ID................................. 1

Profile Name.................................. Default

Hardware Type................................. DCWL-7952AP(R3), Indoor Single Radio a/b/g/n

Wired Network Detection VLAN ID................ 1

Profile Status................................ Associated

Valid APs Configured........................... 1

Managed APs Configured......................... 1

schedulemode………………default

显示全部配置文件信息。

AC#show wireless ap profile

AP Profile ID	Profile Name	Associated APs	Profile Status(APs)
1	Default	1	Associated(0)
3	Default	0	Configured(0)

schedulemode………………default

1.51 show wireless ap statistics

Command：**show wireless ap <*macaddr*> statistics**

Function：Show the global statistics information of an appointed management AP.

Parameters：*<macaddr>* is the MAC address of AP.

Command Mode：Admin Mode.

Default：None.

Usage Guide：This command is used to show the global statistics information of an appointed management AP. It includes the transmission, reception, dropping number and size of the wireless packets of AP.

Example：Show the global statistics information of an appointed management AP.

AC#show wireless ap 00-03-0f-04-01-40 statistics

MAC address.................................... 00-03-0f-04-01-40

Location.......................................

WLAN Packets Received.......................... 0

WLAN Packets Transmitted....................... 11380

WLAN Bytes Received............................ 0

WLAN Bytes Transmitted......................... 933704

WLAN Packets Receive Dropped................... 0

WLAN Packets Transmit Dropped.................. 0

WLAN Bytes Receive Dropped..................... 0

WLAN Bytes Transmit Dropped.................... 0

Ethernet Packets Received...................... 11100

Ethernet Packets Transmitted................... 10699

Ethernet Bytes Received........................ 944880

Ethernet Bytes Transmitted..................... 8701842

Ethernet Multicast Packets Received............ 200

Total Transmit Errors.......................... 0

Total Receive Errors........................... 0

Central L2 Tunnel Bytes Received............... 0

Central L2 Tunnel Packets Received............. 0

Central L2 Tunnel Multicast Packets Received... 0

Central L2 Tunnel Bytes Transmitted............ 0

Central L2 Tunnel Packets Transmitted.......... 0

Central L2 Tunnel Multicast Packets Transmitt.. 0

ARP Reqs Converted from Bcast to Ucast......... 0

Filtered ARP Requests.......................... 0

Broadcasted ARP Requests....................... 0

1.52 show wireless ap status

Command：**show wireless ap [<*macaddr*>] status**

Function：Show the status information of all the current AP or the appointed AP.

Parameters：*<macaddr>* is the MAC address of AP.

Command Mode：Admin Mode.

Default：None.

Usage Guide：If the parameter is not input, show the status information of all the current management AP. It includes the MAC address of AP, configuration file and the management status. If the parameter is input, show the detailed information of the appointed AP.

Example：Show the status information of all the AP.

AC#show wireless ap status

MAC Address				Configuration	
(*) Peer Managed	IP Address	Profile	Status	Status	Age
--------------------------	--------------------	------------	--------------	--------------------	------------------
00-03-0f-18-ec-b0	1.1.1.10	1	Managed	Success	0d:00:00:02
*00-03-0f-04-01-40	1.1.1.11	1	Managed	Success	0d:00:00:04

1.53 show wireless ap radio statistics

Command：**show wireless ap <*macaddr*> radio <*1-2*> statistics**

Function：Show the radio statistics information of an appointed management AP.

Parameters：*<macaddr>* is the MAC address of AP.

　　　　　<1-2> is radio ID.

Command Mode：Admin Mode.

Default：None.

Usage Guide：This command is used to show the radio statistics information of an appointed management AP. The statistics is according to the appointed radio.

Example：Show the statistics information of radio 1 of an appointed management AP.

AC#show wireless ap 00-03-0f-04-01-40 radio 1 statistics

MAC address.................................... 00-03-0f-04-01-40

Location......................................

Radio... 1 - 802.11b/g/n

WLAN Packets Received........................... 0

WLAN Packets Transmitted....................... 13479

WLAN Bytes Received........................... 0

WLAN Bytes Transmitted......................... 1094258

WLAN Packets Receive Dropped................... 0

WLAN Packets Transmit Dropped................. 0

WLAN Bytes Receive Dropped.................... 0

WLAN Bytes Transmit Dropped................... 0

Fragments Received............................ 3066096

Fragments Transmitted.......................... 13480

Multicast Frames Received...................... 0

Multicast Frames Transmitted................... 13479

Duplicate Frame Count.......................... 0

Failed Transmit Count.......................... 4

Transmit Retry Count........................... 0

Multiple Retry Count........................... 0

RTS Success Count.............................. 0

RTS Failure Count.............................. 0

ACK Failure Count.............................. 28

FCS Error Count................................ 682415

Frames Transmitted............................. 13480

WEP Undecryptable Count........................ 0

1.54 show wireless ap radio vap statistics

Command：**show wireless ap *<macaddr>* radio *<1-2>* vap *<0-15>* statistics**

Function：Show the VAP statistics information of an appointed management AP.

Parameters：*<macaddr>* is the MAC address of AP.

 <1-2> is radio ID.

 <0-15> is VAP number.

Command Mode：Admin Mode.

Default：None.

Usage Guide：This command is used to show the VAP statistics information of an
appointed management AP. The statistics information is according to the appointed VAP.

Example：Show the statistics information of vap 0 in radio 1 of an appointed management
AP.

AC#show wireless ap 00-03-0f-04-01-40 radio 1 vap 0 statistics

AP MAC Address................................ 00-03-0f-04-01-40

Location.......................................

Radio.. 1 - 802.11b/g/n

VAP ID.. 0

WLAN Packets Received........................... 0

WLAN Packets Transmitted....................... 13492

WLAN Bytes Received............................ 0

WLAN Bytes Transmitted......................... 1095116

WLAN Packets Receive Dropped................... 0

WLAN Packets Transmit Dropped.................. 0

WLAN Bytes Receive Dropped..................... 0

WLAN Bytes Transmit Dropped.................... 0

Client Association Failures.................... 0

Client Authentication Failures................. 0

1.55 show wireless statistics

Command：**show wireless statistics**

Function：Show the statistics information of the current global AC.

Parameters：None.

Command Mode：Admin Mode.

Default：None.

Usage Guide：This command is used to show the statistics information of the current global AC. If the current AC is Controller, show the total information of AC of the whole Cluster. Otherwise, show the information of this AC.

Example：Show the statistics information of the current global AC.

AC#show wireless statistics

WLAN Bytes Received............................ 0

WLAN Bytes Transmitted......................... 1102488

WLAN Packets Received........................... 0

WLAN Packets Transmitted....................... 13590

WLAN Bytes Receive Dropped..................... 0

WLAN Bytes Transmit Dropped.................... 0

WLAN Packets Receive Dropped................... 0

WLAN Packets Transmit Dropped.................. 0

1.56 show wireless status

Command：**show wireless status**

Function：Show the status parameters of the global AC.

Parameters：None.

Command Mode：Admin Mode.

Default：None.

Usage Guide：This command is used to show the status parameters of the global AC. If the current AC is Controller, show the total information of AC of the whole Cluster. Otherwise, show the information of this AC.

Example：Show the status parameters of the global AC.

AC#show wireless status

Total Access Points............................ 0

Managed Access Points.......................... 0

Connection Failed Access Points................ 0

Discovered Access Points....................... 0

Maximum Managed APs in Peer Group.............. 2000

Rogue AP Mitigation Count...................... 0

Rogue AP Mitigation Limit...................... 16

Total Clients.................................. 0

Authenticated Clients.......................... 0

Maximum Associated Clients..................... 30000

Detected Clients............................... 0

Maximum Detected Clients....................... 60000

Peer Switches.................................. 0

Unknown Access Points.......................... 0

Rogue Access Points............................ 0

Standalone Access Points....................... 0

AP Provisioning Count.......................... 0

Maximum AP Provisioning Entries................ 4000

Distributed Tunnel Clients..................... 0

WLAN Utilization............................... 0

Maximum Pre-authentication History Entries..... 500

Total Pre-authentication History Entries....... 0

Maximum Roam History Entries................... 500

Total Roam History Entries..................... 0

1.57 show wireless switch statistics

Command：show wireless switch { <ipaddr> | local } statistics

Function： Show the statistics information of the current AC.

Parameters： **<ipaddr>** is the address of the AC which needs to be shown. Use this
parameter when the AC is the Controller.

　　　　　　Local: Use this parameter when the current AC is the common AC.

Command Mode： Admin Mode.

Default： None.

Usage Guide： This command is used to show the statistics information of the current AC.
If the AC is Controller, show the information of every peer AC of the current Cluster.
Otherwise, show the local information only.

Example： Show the statistics information of the current AC.

AC#show wireless switch local statistics

WLAN Bytes Received............................ 0

WLAN Bytes Transmitted......................... 1139885

WLAN Packets Received.......................... 0

WLAN Packets Transmitted....................... 14094

WLAN Bytes Receive Dropped..................... 0

WLAN Bytes Transmit Dropped.................... 0

WLAN Packets Receive Dropped................... 0

WLAN Packets Transmit Dropped.................. 0

1.58 show wireless switch status

Command：show wireless switch { <ipaddr> | local } status

Function： Show the status parameter information of the current global AC.

Parameters： **<ipaddr>** is the address of the AC which needs to be shown. Use this
parameter when the AC is Controller.

　　　　　　Local: Use this parameter when the current AC is the common AC.

Command Mode： Admin Mode.

Default： None.

Usage Guide： This command is used to show the status parameter information of the

current global AC. If the AC is Controller, show the information of every peer AC of the current Cluster. Otherwise, show the local information only.

Example：Show the status parameter information of the current global AC.

AC#show wireless switch local status

Switch IP Address............................. 1.1.1.200

Cluster Priority............................... 1

AP Image Download Mode........................ Integrated, Independent

Total Access Points........................... 1

Managed Access Points......................... 1

Connection Failed Access Points............... 0

Discovered Access Points...................... 0

Maximum Managed Access Points................. 32

Total Clients................................. 0

Authenticated Clients......................... 0

Distributed Tunnel Clients.................... 0

WLAN Utilization.............................. 64

1.59 show wireless switch tspec statistics

Command：**show wireless switch { <ipaddr> | local } tspec statistics**

Function：Show the TSPEC statistics information of AC.

Parameters：*<ipaddr>* is the address of the AC which needs to be shown. Use this parameter when the AC is Controller.

Local: Use this parameter when the current AC is the common AC.

Command Mode：Admin Mode.

Default：None.

Usage Guide：This command is used to show the TSPEC statistics information of AC. If the AC is Controller, show the information of every peer AC of the current Cluster. Otherwise, show the local information only.

Example：Show the TSPEC statistics information of AC.

AC#show wireless switch local tspec statistics

Switch IP Address............................. 1.1.1.200

Access Category............................... Voice

Total TSPEC Packets Received.................. 0

Total TSPEC Packets Transmitted............... 0

Total TSPEC Bytes Received.................... 0

Total TSPEC Bytes Transmitted.................. 0

Total TSPECs Accepted.......................... 0

Total TSPECs Rejected.......................... 0

Total Roaming TSPECs Accepted.................. 0

Total Roaming TSPECs Rejected.................. 0

Access Category............................... Video

Total TSPEC Packets Received................... 0

Total TSPEC Packets Transmitted................ 0

Total TSPEC Bytes Received..................... 0

Total TSPEC Bytes Transmitted.................. 0

Total TSPECs Accepted.......................... 0

Total TSPECs Rejected.......................... 0

Total Roaming TSPECs Accepted.................. 0

Total Roaming TSPECs Rejected................. 0

1.60 show wireless switch tspec status

Command：**show wireless switch { *<ipaddr>* | local } tspec status**

Function：Show the TSPEC status parameter information of AC.

Parameters：*<ipaddr>* is the address of the AC which needs to be shown. Use this parameter when the AC is Controller.

     Local: Use this parameter when the current AC is the common AC.

Command Mode：Admin Mode.

Default：None.

Usage Guide：This command is used to show the TSPEC status parameter information of AC. If the AC is Controller, show the information of every peer AC of the current Cluster. Otherwise, show the local information only.

Example：Show the TSPEC status parameter information of AC.

AC#show wireless switch local tspec status

Switch IP Address............................. 1.1.1.200

Total Voice Traffic Streams.................... 0

Total Video Traffic Streams.................... 0

Total Traffic Stream Clients................... 0

Total Traffic Stream Roaming Clients........... 0

Chapter 2 Commands for License Control

2.1 copy license

Command: copy license *<source-url> <destination-url>*

Function: Install license to the controller.

Parameter: *<source-url>*, source path of License file.

        <destination-url>, the copied destination path of License file.

Command Mode: Admin user configuration mode.

Default: None.

Usage Guide: Perform license file importing. Resole the license file saved in the path of the user inputting to test the legality of the License file, import the legal license file into the controller. The license file takes effect only after the controller restarting.

Example: Perform License file importing.

AC#copy license ftp://admin:admin@192.168.1.10/abc.lic abc.lic

2.2 show license

Command: show license

Function: Show the information of license file installed to the controller. Use this command to view the contained information of license file imported into the controller.

Parameter: None.

Command Mode: Admin user configuration mode.

Default: None.

Usage Guide: Controller resolves all license file imported and show the information of file contained.

Example: Show the information of license file installed to the controller.

AC#show license

    License name: abc.lic

    License ap-count: 32

License module: none

    License total period: forever

License name: name of the license; license ap-count: the max number of managed ap this license supports; License module: the module this license supports; License total period: the valid period of the license.

2.3 show device information

Command: show device information

Function: Show the serial number and the MAC address of controller.

Parameter: None.

Command Mode: Admin user configuration mode.

Default: None.

Usage Guide: Show the serial number and the MAC address of the controller which is used to generate the license file.

Example: Show the serial number and the MAC address of controller.

AC#show device information

   Controller serial number:abcd123456

   Controller mac:00-03-0f-18-28-28

Chapter 3 Commands for Upgrading Based on AP Group

3.1 name (default-mac-name|WORD)

Command: name (default-mac-name|WORD)

         no name

Funticon: Name the current AP through configuring the command of name. The no command cancels the name.

Parameters: WORD is the string with 1 to 64 characters only including the letters of [a-z,A-Z], numbers and underlines. The upper and lower case letters should be distinguished and this parameter must be the only one in global.

Command Mode: AP database mode.

Default: The default AP name is the mac address of the current AP.

Usage Guide:

    (1) Name the AP first time: check if other APs use this name globally. If there is no, name the current AP for this name; if there is AP using the name, it will prompt that user should input other name again.

    (2) Updating the AP Name: If the AP is configured oldName, check if the oldName is bound to one AP Group when renames the AP for newName. If bound, it will prompt that user should relieve the binding manually and then rename the AP; if the oldName is not bound, the name can be updated directly.

Example: Name the AP according to the AP location as below:

AC(config-wireless)#ap database 00-03-0f-1e-58-60

AC(config-ap)#name 1_301R4

AC(config-ap)#exi

AC(config-wireless)#ap database 00-03-0f-26-18-60

AC(config-ap)#name 1_302R4

View the ap name through the command of **show wireless ap database**:

AC(config-ap)#show wireless ap database

MAC Address	AP Name	Location	AP Mode
00-03-0f-1e-58-60	1_301R4		ws-managed
00-03-0f-26-18-60	1_302R4		ws-managed

3.2 ap-group <ap-group-name>

Command: ap-group <ap-group-name>

  no ap-group <ap-group-name>

Function: Add an ap-group template and enter into the ap-group mode. Multiple authorized APs can be added or deleted under this mode. The no command can delete the appointed ap group template.

Parameters: ap-group-name is the string with 1 to 64 characters only including the letters of [a-z,A-Z], numbers, horizontal lines and underlines. The upper and lower case letters should be distinguished and this parameter must be the only one in global.

Command Mode: Wireless global mode.

Default: None.

Example: Add the ap group and the test is as below:

AC#config

AC(config)#wireless

AC(config-wireless)#ap-group 1_1

AC(config-ap-group)#exit

AC(config-wireless)#ap-group 1_2

AC(config-ap-group)#exit

AC(config-wireless)#ap-group 1_3

3.3 permit-ap-name <ap-name>

Command: permit-ap-name <ap-name>

  no permit-ap-name <ap-name>

Function: Add the appointed ap name as the authorized AP. The no command can delete it.

Parameters: <ap-name> is the string with 1 to 64 characters only including the letters of [a-z,A-Z], numbers, horizontal lines and underlines. The upper and lower case letters should be distinguished and this parameter must be the only one in global.

Default: None.

Command Mode: ap-group mode.

Usage Guide: Associates the ap name with the current ap group template. One ap name can be only bound to one ap group; one ap group can bind multiple authorized APs which is 128 at most. If the ap name is bound to one ap group, the current ap group fails to bind to the authorized ap name. There will be the prompt of "The AP Name: <ap-name> has already bound to AP-Group: <ap-group-name>."

Example: Bind the AP whose ap name is 1_301R4 and 1_302R4 and default ap name is

00-03-0f-cc-cc-00 to ap-group1_1 as below:

AC(config-wireless)#ap-group 1_1

AC(config-ap-group)#permit-ap-name 1_301R4

AC(config-ap-group)#permit-ap-name 1_302R4

AC(config-ap-group)#permit-ap-name 00-03-0f-cc-cc-00

3.4 wireless ap download image-type

Command: wireless ap download image-type <1-7> <url>

no wireless ap download image-type <1-7>

Function: Configure the tftp (ftp) address and full path of the specific ap image file. The no command deletes them.

Parameters: <1-7> image type, it is the required parameter.

<url>: it is the full path information of that image-type of image and it is the required parameter.

Default: None.

Command Mode: Wireless global mode.

Usage Guide: Using this command can configure the tftp (ftp) address and full path of the specific ap image file.

Example: Configure the tftp address and full path of the image-type2 of ap image file.

AC#config

AC(config)#wireless

AC(config-wireless)#wireless   ap   download   image-type   2
tftp://102.1.1.200/upgrade_2_0_5_10.tar

3.5 wireless ap download start ap-group

<ap-group-name>

Command: wireless ap download start ap-group <ap-group-name>

Function: Trigger all the APs in one ap group to start to download the configured image file. The image-type of AP does not need to be considered. If the requested downloaded image file does not existed, the image downloading cannot start.

Parameters: <ap-group-name>: It is the name of ap-group.

Default: None.

Command Mode: Admin mode.

Usage Guide: Trigger all the APs in one ap group to start to download the configured image file. The image-type of AP does not need to be considered. If the requested

downloaded image file does not existed, the image downloading cannot start.

Example:

AC#wireless ap download start ap-group 1_1

3.6 show wireless ap download

Command: show wireless ap download

Function: Show the downloading status of AP.

Parameters: None.

Default: None.

Command Mode: Admin Mode.

Usage Guide: Use this command to show the downloading status of AP.

Example:

AC#show wireless ap download

image 1 User Mode.............................

image 1 File Name.............................

image 1 File Path.............................

image 1 Server Address.........................

image 2 User Mode............................. tftp

image 2 File Name............................. upgrade_2_0_5_10.tar

image 2 File Path............................. ./

image 2 Server Address......................... 102.1.1.200

image 3 User Mode.............................

image 3 File Name.............................

image 3 File Path.............................

image 3 Server Address.........................

image 4 User Mode.............................

image 4 File Name.............................

image 4 File Path.............................

image 4 Server Address.........................

image 5 User Mode............................. tftp

image 5 File Name............................. DCWL-1000WAP-R1_2_0_3_44.tar

image 5 File Path............................. ./

image 5 Server Address......................... 102.1.1.200

Group Size.................................... 10

Download Type................................. image5

Download Status............................... Code Transfer In Progress

Total Count.................................. 3

Success Count................................. 0

Failure Count................................. 1

Abort Count.................................. 0

MAC Address	Location	Status
----------------	----------------------------	------------------------
00-03-0f-1e-58-60		Code Transfer In Progress
00-03-0f-26-18-60		Code Transfer In Progress
00-03-0f-cc-cc-10		Failure
00-03-0f-cc-cd-30		Failure

3.7 debug wireless ap-update internal

Command: debug wireless ap-update internal <macaddr>

          no debug wireless ap-update internal <macaddr>

Function: Enable the debugging information on-off when AP updates Image. The no command disables the on-off.

Parameters: *<macaddr>* is the MAC address of AP.

Command Mode: Admin Mode.

Default: Disable.

Usage Guide: View the debugging information that AP updates the Image through this command.

Example: Enable the debugging information on-off when AP updates Image.

AC#debug wireless ap-update internal 00-03-0f-18-ec-d0

MAC:00-03-0f-18-ec-d0 internal WD_LEVEL_WSAP_UPD_INFO debug is on

3.8 debug wireless ap-update packet

Command: debug wireless ap-update packet { send | receive | dump} <macaddr>

          no debug wireless ap-update packet { send | receive | dump} <macaddr>

Function: Enable the packets information on-off when AP updates Image. The no command disables the on-off.

Parameters: *send* is the packets sent by AC.

          receive is the packets received by AC.

          dump is the detailed content of the packets.

          <macaddr> is the MAC address of AP.

Command Mode: Admin Mode.

Default: Disable.

Usage Guide: View the packets information that AP updates the Image through this command. Dump means to show the detailed content of the hex packets.

Example: Enable the packets information on-off when AP updates Image.

AC#debug wireless ap-update packet dump 00-03-0f-18-ec-d0

MAC:00-03-0f-18-ec-d0 packet WD_LEVEL_WSAP_UPD_PKT debug is on

3.9 debug wireless ap-update fsm

Command: debug wireless ap-update fsm { global | ap <macaddr> }

   no debug wireless ap-update fsm { global | ap <macaddr> }

Function: Enable the status debugging on-off of the global or appointed AP in Image updating. The no command disables this on-off.

Parameters: *global* is the global status.

   <macaddr> is the MAC address of the appointed AP.

Command Mode: Admin Mode.

Default: Disable.

Usage Guide: View the transformation of the global status and appointed AP status in Image updating.

Example: Enable global status on-off in Image updating.

AC#debug wireless ap-update fsm global

     fsm WD_LEVEL_GLOBAL_UPD_FSM debug is on

Chapter 4 Commands for AP Upgrade Independent Mode

4.1 wireless ap download group-size

Command: Wireless ap download group-size<*1-48*>

Function: Set the AP number of every group download image file at the same time.

Parameters: *<1-48>* is the AP numbers that every group download Image in TFTP Server.

Command Mode: Wireless global mode.

Default: The default is 10, namely the AP numbers is 10 that every group download Image file at same time.

Usage Guide: Use the command can set the AP number that every group download Image file at same time, the minimum is 1, the largest is 48.

Example: Set the AP number that every group download Image file at same time is 20.

AC#(config-wireless)#wireless ap download group-size 20

4.2 show wireless ap capability image-table

Command: show wireless ap capability image-table

Function: Show the AP Image type that current system supported.

Parameters: None.

Command Mode: Admin mode.

Default: None.

Usage Guide: Use the command can display AP Image type that current system supported.

Example: Show the AP Image type that current system supported.

AC#show wireless ap capability image-table

```
Image Type ID     Image Type Description
--------------    ----------------------
1                 Supportted AP Hardware Type:   1 2 3 4
2                 Supportted AP Hardware Type:   5 6 7
```

| 3 | Supportted AP Hardware Type: 8 9 10 |
| 4 | Supportted AP Hardware Type: 11 12 |

4.3 wireless ap download image-type<type WORD> FTP/TFTP

Command: wireless ap download image-type *<1-12word>*
           no wireless ap download image-type *<1-12*
Function: Set TFTP address and the full path of the file or FTP server address, username, password and full path of the file for a specific AP Image type.
Parameters: *<1-12>:* image types.

           <word>: the full path information of the specific type image, and it belongs to required parameters.
Command Mode: Wireless global mode.

Default: None.

Usage Guide: The command can configure a TFTP address and full path of the file or FTP server address, username, password and full path of the file for every specific type file, the server address can be different, please configure image file existed in server, no exist or error file AC will not be prompt, and AP will prompt failed download when download or prompt not correct image file when finished download. The no command delete configured TFTP server address and file full path or FTP server address, username, password and full path of the file.
Example: Configure TFTP address and full path of the file for image file whose type is 1.
AC(config-wireless)#wireless ap download image-type 1 tftp://1.1.1.1/ap_image.tar

4.4 wireless ap download start

Command: wireless ap download start [image-type *<1-12>*] [*<macaddr>*]
Function: Trigger AP that conform to a specific image type , MAC address or both of them
 to download configured Image file.
Parameters: image-type *<1-12>:* it is image type.
           <macaddr>: it is MAC address of AP.
Command Mode: Admin mode.
Default: None.

Usage Guide: The command trigger all AP that operate a specific Image type to download Image file, or trigger a or all AP to download based on configured Image file path information and not consider Image type of AP. If the Image type that needs to download is not exist, Image download will not start.

Example: The specific AP that trigger type is 1 start to download Image file.

AC#wireless ap download start imagetype 1 00-03-0f-18-ec-b0

Trigger all AP to download Image file.

AC#wireless ap download start

4.5 wireless ap download abort

Command: wireless ap download abort

Function: Abort AP Image update.

Parameters: None.

Command Mode: Admin mode.

Default: None.

Usage Guide: When AP update Image file, if input this command, AP except terminated download AP will continue to download in current download group, it will not trigger update after finished download. Other download group AP that have not start down Image will not download update.

Example: Abort current AP Image update.

AC#wireless ap download abort

4.6 show wireless ap download

Command: show wireless ap download

Function: Show AP global download status.

Parameters: None.

Command Mode: Admin mode.

Default: None.

Usage Guide: The command can show AP global download status information, and it can check full path of Image file of specific type AP, tftp server address, global download status, download status of every AP and so on.

Example: Show global download status.

AC#show wireless ap download

image 1 User Mode............................. tftp

image 1 File Name............................ image.tar

image 1 File Path............................ soft

image 1 Server Address........................ 2.2.2.2

image 2 User Mode............................

image 2 File Name............................

image 2 File Path............................

image 2 Server Address........................

image 3 User Mode............................

image 3 File Name............................

image 3 File Path............................

image 3 Server Address........................

image 4 User Mode............................

image 4 File Name............................

image 4 File Path............................

image 4 Server Address........................

Group Size.................................. 10

Download Type................................ None

Download Status.............................. Not Started

Total Count.................................. 0

Success Count................................ 0

Failure Count................................ 0

Abort Count.................................. 0

Chapter 5 Commands for Access Based on AP Location

5.1 ap-group <ap-group-name>

Command: ap-group <ap-group-name>

        no ap-group <ap-group-name>

Function: Add an AP group and enter into the ap-group configuration mode. If the ap-group-name exists, enter into the ap-group configuration mode. The command of **no ap-group** can delete one AP group.

Parameters: <ap-group-name> is the string including 1 to 64 characters. It only includes the letters [a-z, A-Z], numbers, horizontal lines and underlines. The upper and lower case letters should be distinguished and this parameter must be the only one in global.

Default: None.

Command Mode: Wireless Global Configuration Mode.

Usage Guide: After one AP Group is created, 128 authorized APs can be bound. When one AP Group is added into a user profile, the user who uses this user profile can access through all the authorized APs under that AP Group. When one AP Group has been bound to a user profile, this AP Group cannot be deleted.

Example: Create the AP group1 and authorize the ap1.

ac(config)#wireless

ac(config-wireless)#ap-group group1

ac(config-ap-group)#permit-ap-name ap1

5.2 name <default-mac-name|ap-name>

Command: name <default-mac-name|ap-name>

        no name

Function: Configure the name of AP. The no command deletes the name.

Parameters: <ap-name> is the string including 1 to 64 characters. It only includes the letters [a-z, A-Z], numbers, horizontal lines and underlines. The upper and lower case letters should be distinguished and this parameter must be the only one in global.

        <default-mac-name>: it adopts the MAC address of AP as the name of AP.

Default: it adopts the MAC address of AP as the name of AP.

Command Mode: AP database configuration Mode.

Usage Guide: AP name is the only mark of AP. When the AP is added into the AP group for authorization, the AP name must be adopted. AP name is the only one in global and it cannot be repeated. If there is no configuration, the default AP name is the MAC address of AP. When an AP name has been added into an AP group, this AP name cannot be deleted.

Example: Configure the name of the AP with the MAC address of 00-03-0f-00-00-00 as test.

ac(config-wireless)#ap database 00-03-0f-00-00-00

ac(config-ap)#name test

5.3 permit-ap-group <ap-group-name>

Command: permit-ap-group <ap-group-name>

         no permit-ap-group <ap-group-name>

Function: Add an authorized AP group into the user-profile. The no command deletes an authorized AP group.

Parameters: <ap-group-name> is the string including 1 to 64 characters. It only includes the letters [a-z, A-Z], numbers, horizontal lines and underlines. The upper and lower case letters should be distinguished and this parameter must be the only one in global.

Default: Cannot be added into user-profile.

Command Mode: user-profile Mode.

Usage Guide: This command adds the AP Group into a user profile to make all the APs in this group get the user profile authorization. One AP Group can be added into multiple user profile.

Example: Add the AP group named group1 to the user profile named profile1.

ac(config)#wireless

ac(config-wireless)#user-profile profile1

ac(config- user-profile)#permit-ap-group group1

5.4 permit-ap-name <ap-name>

Command: permit-ap-name <ap-name>

         no permit-ap-name <ap-name>

Function: Add an authorized AP for AP Group. The no command deletes an authorized AP.

Parameters: <ap-name> is the string including 1 to 64 characters. It only includes the letters [a-z, A-Z], numbers, horizontal lines and underlines. The upper and lower case letters should be distinguished and this parameter must be the only one in global.

Default: Cannot be added into AP Group.

Command Mode: ap-group Mode.

Usage Guide: This command adds the AP into an AP Group for getting the authorization. One AP must be added into one AP Group to get the authorization. Multiple AP groups can be added into one AP.

Example: Add the AP named ap1 into the AP Group named group1.

ac(config)#wireless

ac(config-wireless)#ap-group group1

ac(config-ap-group)#permit-ap-name ap1

5.5 show wireless ap-group [<ap-group-name>]

Command: show wireless ap-group [<ap-group-name>]

Function: Show the configured AP Groups and the authorized AP name under the Groups.

Parameters: < ap-group-name > is the string including 1 to 64 characters. It only includes the letters [a-z, A-Z], numbers, horizontal lines and underlines. The upper and lower case letters should be distinguished and this parameter must be the only one in global.

Default: None.

Command Mode: Admin Mode.

Usage Guide: If the ap-group-name is not appointed, it will show all the AP groups and the authorized APs of each group. If the parameter of ap-group-name appoints the specific AP Group, it will only show the authorized AP under the appointed AP Group.

Example: Show the AP group named group_name_abc1 and the authorized AP of this group.

AC#show wireless ap-group group_name_abc1

AP Name	MAC Address
ap_name_abc0	00-03-0e-00-00-00
ap_name_abc1	00-03-0e-00-00-10
ap_name_abc2	00-03-0e-00-00-20
ap_name_abc3	00-03-0e-00-00-30

Total permit ap name count:4

5.6 show wireless user-profile [<user-profile-name>]

Command: show wireless user-profile [<user-profile-name>]

Function: Show the configured user profile and the authorized AP Group under the profile.

Parameters: < user-profile-name > is the string including 1 to 64 characters. It only includes the letters [a-z, A-Z], numbers, horizontal lines and underlines. The upper and lower case letters should be distinguished and this parameter must be the only one in global.

Default: None.

Command Mode: Admin Mode.

Usage Guide: If the user-profile-name is not appointed, it will show all the user profiles and the authorized AP groups of each profile. If the parameter of user-profile-name appoints the specific user profile, it will only show the authorized AP group under the appointed user profile.

Example: Show all the user profiles of AC and the authorized AP groups.

AC#show wireless user-profile

User-Profile Name	AP-Group Name
profile1	group_name_abc1
profile1	group_name_abc0
profile1	group_name_abc2
p1	group_name_abc3
p1	group_name_abc2
p1	group_name_abc4

Total user profile count:2

5.7 user-profile <user-profile-name >

Command: user-profile <user-profile-name >

             no user-profile <user-profile-name >

Function: Add a user profile and enter into the user profile configuration mode. If the user profile exists, enter into the user profile configuration mode. The command of **no user-profile <user-profile-name>** can delete one user profile.

Parameters: < user-profile-name > is the string including 1 to 64 characters. It only

includes the letters [a-z, A-Z], numbers, horizontal lines and underlines. The upper and lower case letters should be distinguished and this parameter must be the only one in global.

Default: None.

Command Mode: Wireless Global Configuration Mode.

Usage Guide: The name of user profile must be the same as the user profile name that user configured on the radius server. After a user profile is created, multiple authorized AP Groups can be added. All the APs in the authorized AP group are the APs that the user profile allows accessing.

Example: Create the user profile named profile1, and add the AP group named group1 into this profile.

ac(config)#wireless

ac(config-wireless)#user-profile profile1

ac(config- user-profile)#permit-ap-group group1

5.8 user-profile enable

Command: user-profile enable

           no user-profile enable

Function: Enable the function of access based on AP location. The no command disables this function.

Parameters: None.

Default: Disable.

Command Mode: Wireless Global Configuration Mode.

Usage Guide: If this function is enabled, user can access the network through the authorized AP only; user will be rejected if access the network through the non-authorized AP. AC seeks the AP authorized by user, it means that user finds the authorized AP group of the profile according to the user profile name issued by radius server and finds all the authorized APs according to all the authorized AP Groups. So the network administrator should make sure that the user profile, AP Group and authorized AP are configured correctly on AC when enables this function; and make sure the user profile name configured on the radius server is the same as the name configured on AC.

Example: Enable the function of access based on AP location.

ac(config)#wireless

ac(config-wireless)#user-profile enable

Chapter 6 Commands for LAN Port of Wall AP

6.1 lan port vlan<1-4094>

Command: lan port vlan<1-4094>

　　　　no lan port vlan

Function: Configure the VLAN of LAN port for the wall AP.

Parameters: <1-4094>: range of VLAN number, the default value is 1.

Command Mode: AP Profile Configuration Mode.

Usage Guide: Save in the AC controller configuration.

Example: AC(config-ap-profile)#lan port vlan 1

6.2 lan port down

Command: lan port down

　　　　no lan port down

Function: Disable the LAN port of the wall AP. The no command enables it. The LAN port is enabled as default.

Parameters: None.

Command Mode: AP Profile Configuration Mode.

Usage Guide: Save in the AC controller configuration.

Example: AC(config-ap-profile)#lan port down

6.3 wireless ap lan port configuration apply profile

<profileId>

Command: wireless ap lan port configuration apply profile <profileId>

Function: Send the lan port configuration of AP.

Parameters: <profileId>: AP profile id, 1-1024.

Command Mode: Admin Mode.

Usage Guide: Trigger the AC to send the lan port configuration to the wall AP (only the AP which has lan port).

Example: AC# wireless ap lan port configuration apply profile 1

Chapter 7 Commands for AP Escape Client-persist

7.1 ap escape

Command: ap escape

      no ap escape

Function: Enable ap escape, the no command disable ap escape.

Parameters: None.

Command Mode: ap profile mode.

Default: Disable.

Usage Guide: Enable ap escape under AP profile and save it to AC configuration.

Example: Enable ap escape for ap profile 1.

AC#(config-wireless)#ap profile 1

AC#(config-ap-profile)#ap escape

7.2 ap escape client-persist

Command: ap escape client-persist

      no ap escape client-persist

Function: Enable ap escape client-persist, the no command disable ap escape client-persist.

Parameters: None.

Command Mode: ap profile mode.

Default: Disable.

Usage Guide: Enable ap escape client-persist under AP profile and save it to AC configuration.

Example: Enable ap escape client-persist of ap profile 1.

AC#(config-wireless)#ap profile 1

AC#(config-ap-profile)#ap escape client-persist