WiNG5 DESIGN GUIDE

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WiNG5 Wireless Association Filters

How To Guide

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WiNG5 Wireless Association Filters How To Guide

INTRODUCTION

OVERVIEW

Wireless filters can be applied to specific WLANs to grant or deny access to MUs based on individual or ranges of MAC addresses. Wireless filters may be applied to one or more WLANs and are used to grant or deny access to MUs during association.

APPLICATIONS

Wireless filters can be used for multiple applications including blacklisting malicious devices as well as providing an additional layer of security for less secure WLANs by restricting access to specific devices. Wireless filters may be applied to the WiNG5 Access Points using the CLI and Web UI of RFS Switch or from a Motorola AirDefense Enterprise server using SNMP when a threat is detected

RESTRICTIONS

Wireless filters are only used to allow or deny MUs from associating with a WLAN and are not intended to be used to filter layer 2 traffic passing through the Access Points. To restrict or limit traffic at layer 2, MAC firewall rules can be created which permits or denies traffic based on specific or wildcard source or destination MAC addresses.

CONFIGURATION

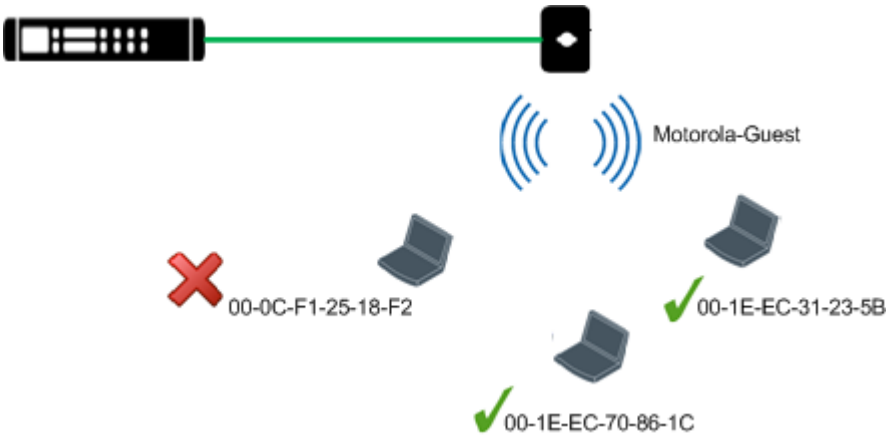
The following sections outline the configuration steps required to enable wireless filters on an RF Switch:

- Deny Wireless Association Filters
- Allow Wireless Association Filters

In WiNG5 since the Access Points perform all the WLAN functions, the enforcement happens at the Access Point.

DENY WIRELESS FILTERS

Wireless filters can be used to block devices and a common application for wireless filtering is to block (or blacklist) associations from a suspicious of malicious device. Administrators can create up to 1000 wireless filter entries on the RF Switch which pushes the configuration to all the Access Points. The Access Points can deny access to individual MAC addresses or range of MAC addresses as required. All MAC addresses not matched by the wireless filter list will be able to associate to the WLAN.



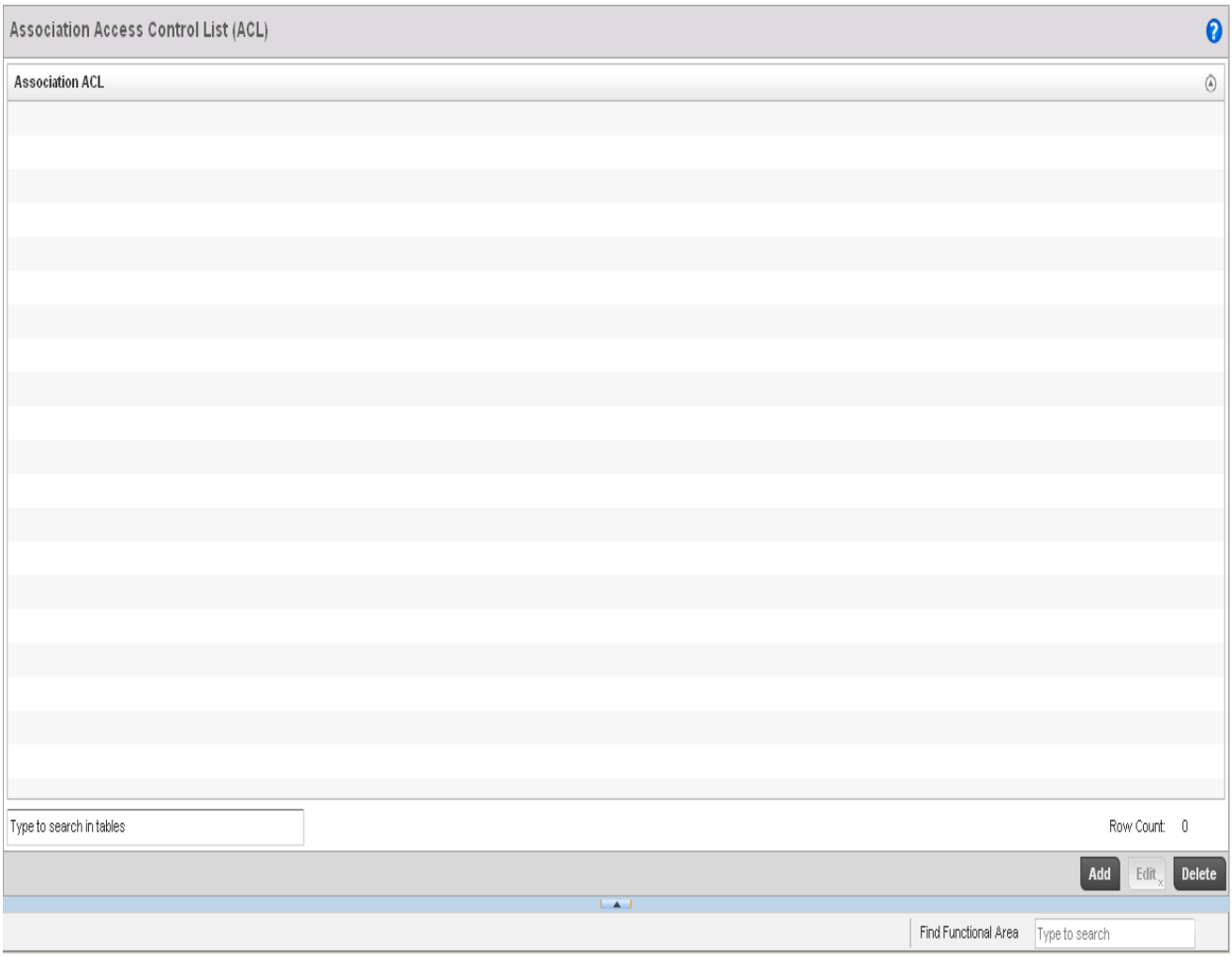
As shown in above figure wireless filtering has been deployed on a guest WLAN named MOTO-GUEST to block a device with the MAC address 00-0C-F1-25-18-F2. A wireless filter has been created on the RF Switch with a Start MAC and End MAC set to a specific devices MAC address. If the device attempts to associate with the MOTO-GUEST SSID, the AP will deny the association attempt and a log entry for the association attempt will be made.

Precedence	Start MAC	End MAC	Allow / Deny
1	00-0C-F1-25-18-F2	00-0C-F1-25-18-F2	Deny

Configuration through Web UI

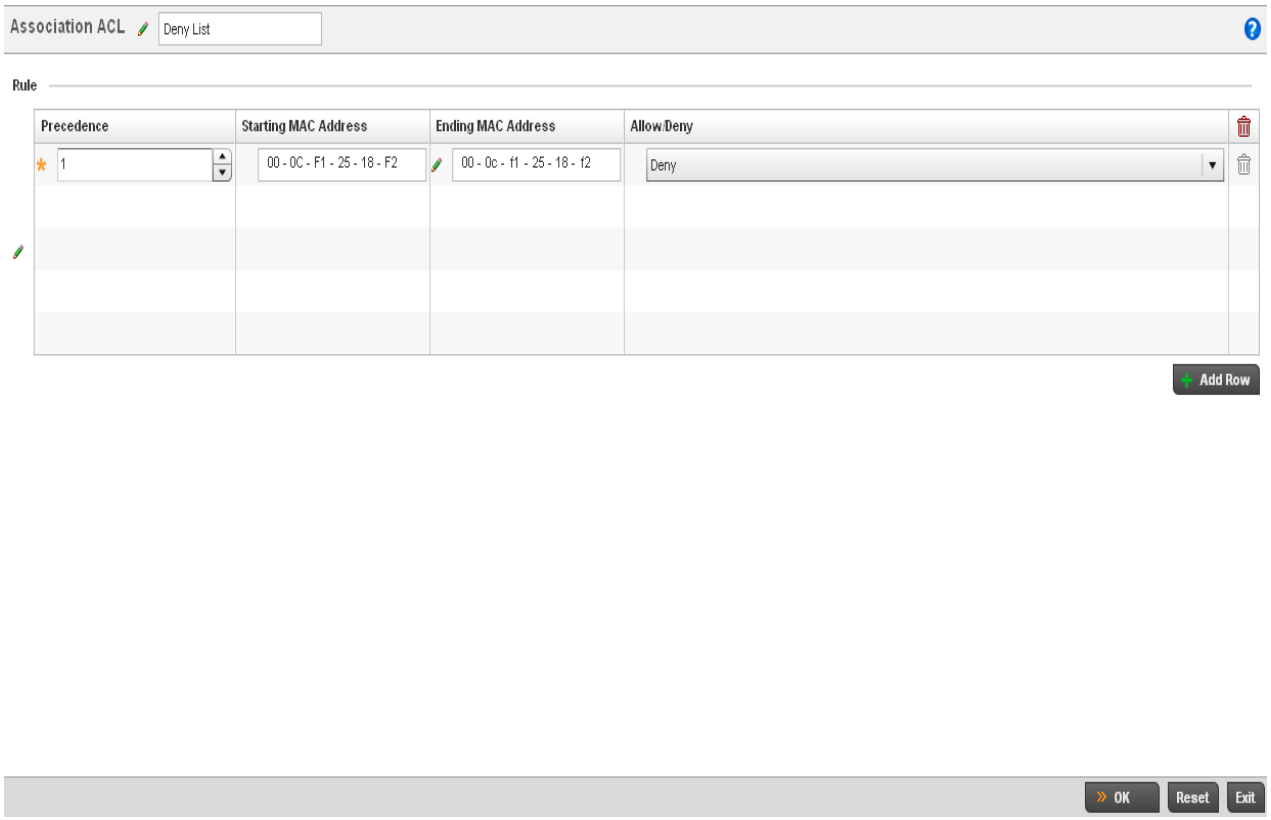
1. Create Association ACL

    a. Under the context: Configuration->Wireless->Association ACL click ‘Add’



b. Enter Association ACL Name ‘Deny List’ and Click Add Row

c. Enter Precedence as 1, Starting MAC Address as ‘**00-0C-F1-25-18-F2’**, Ending MAC Address ‘**00-0C-F1-25-18-F2’** and action as ‘Deny’ and click ‘OK’.

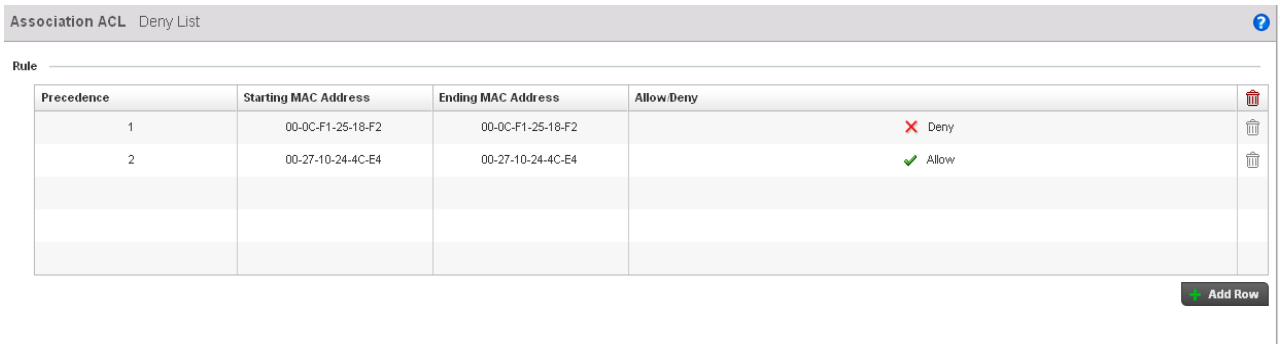


Note:

- ✓ This will block the client 00-0C-F1-25-18-F2 to connect to the wireless network

✓ The default rule is in an association ACL is ‘allow all’. So if a client does not match any of the rules, it will be allowed association.

d. Enter Precedence as 2, Starting MAC Address as ‘**00-27-10-24-4C-E4’**, Ending MAC Address as ‘**00-27-10-24-4C-E4’,** action as ‘Allow’ and click ‘OK’.



Note:

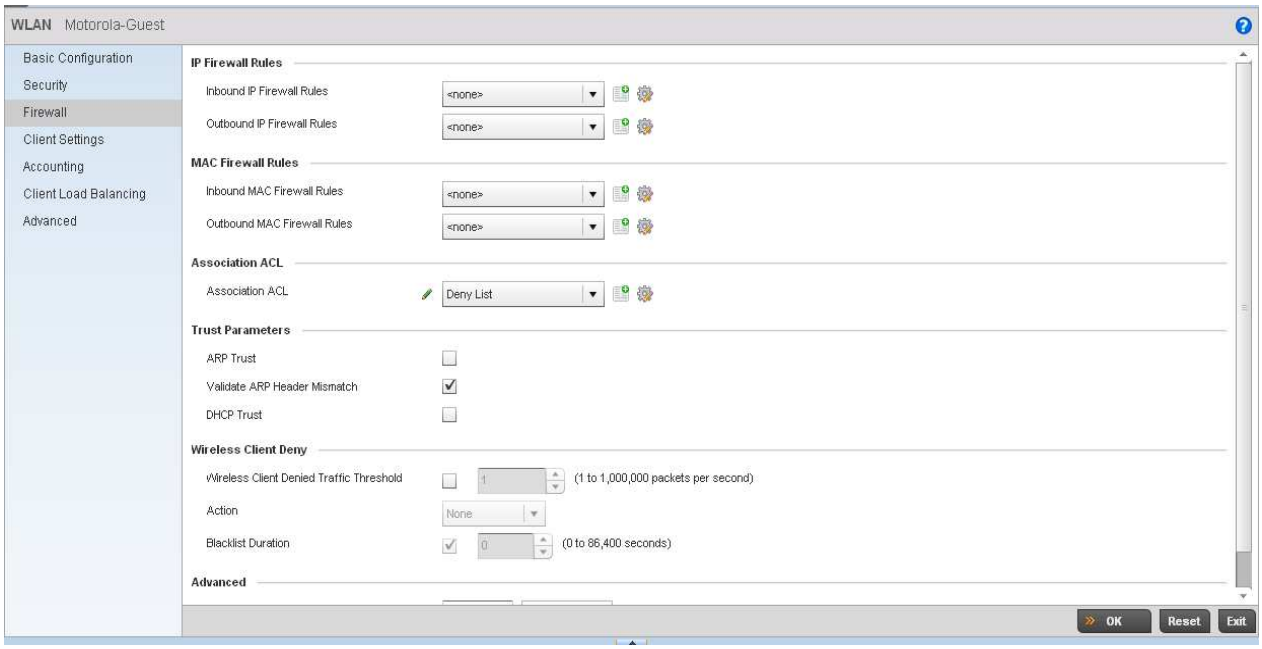
- ✓ This will ensure that WLAN access is granted to the client with MAC address 00-27-10-24-4C-E4.
- ✓ All other clients will be denied access, as the default rule is deny all.

2. Attach Association ACL to WLAN

a. Under the context: Configuration->Wireless->Wireless LANS, click on the WLAN that you want to apply the ACL to

b. Under the selected Wireless LAN, go to Firewall settings

c. Select Association ACL as ‘Deny List’ from the drop down box. The deny list is the Association ACL that was created above.



Configuration through CLI

1. Create Association ACL

```
rfs4000-22A5DC(config)*#association-acl-policy Deny\ List

rfs4000-22A5DC(config-assoc-acl-Deny List)*#deny 00-0C-F1-25-18-F2 00-0C-F1-25-18-F2


rfs4000-22A5DC(config-assoc-acl-Deny List)*#show context

association-acl-policy Deny\ List

 deny 00-0C-F1-25-18-F2 00-0C-F1-25-18-F2 precedence 1
```

2. Attach Association ACL to WLAN

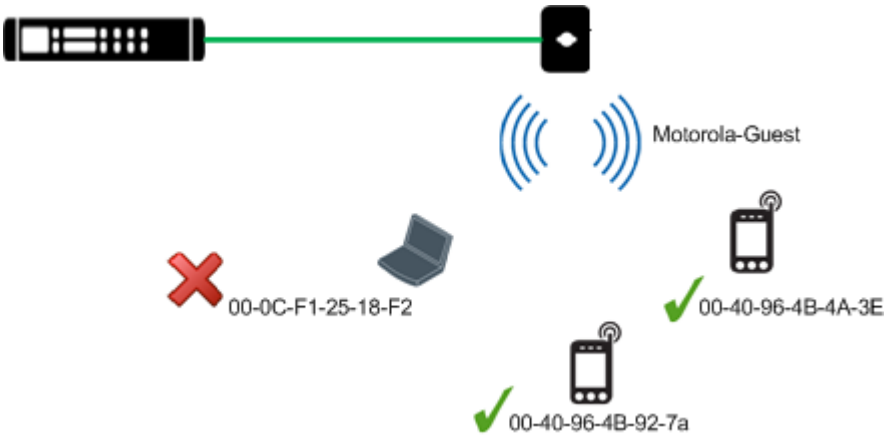
```
rfs4000-22A5DC(config)*#wlan Motorola-Guest

rfs4000-22A5DC(config-wlan-Motorola-Guest)*#

rfs4000-22A5DC(config-wlan-Motorola-Guest)*#use association-acl-policy Deny\ Lis
t


rfs4000-22A5DC(config-wlan-Motorola-Guest)*#show context
wlan Motorola-Guest
 description WLAN for Guest  Access
 ssid Motorola-Guest
 vlan 10
 bridging-mode tunnel
 encryption-type none
 authentication-type none
 use association-acl-policy Deny\ List
```

ALLOW WIRELESS FILTERS

Wireless filters may also be used to allow access to a specific group of devices such as mobile handhelds or VoIP handsets while blocking associations for all other devices. As most enterprises typically deploy mobile devices from a common vendor, the vendors OUI can be leveraged in a wireless filter to restrict access to a range of the vendor's devices. As no implicit deny is provided an additional wireless filter must be created after the allow filter to block access from all other vendor devices

Note:

A current list of vendor assigned OUIs may be downloaded directly from the IEEE website http://standards.ieee.org/develop/regauth/oui/oui.txt



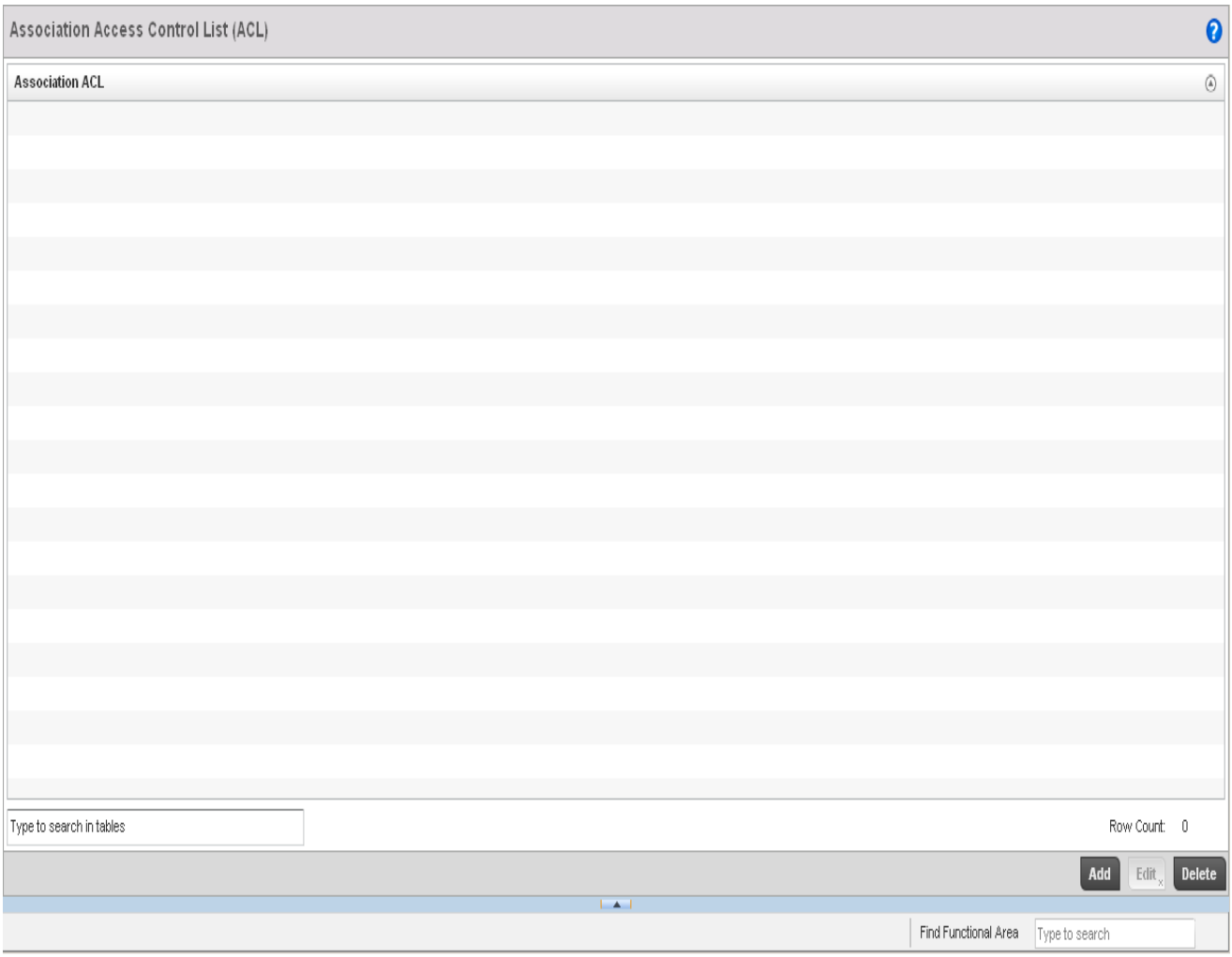
As shown in above figure, wireless filtering has been deployed on a voice WLAN named MOTO-VOICE to only allow select SpectraLink VoIP handsets to associate with the WLAN. The first wireless filter has been created on the RF Switch / AP allowing a range of MAC addresses (00-40-96-4b-00-00 through 00-40-96-4b-ff-ff) to associate with the WLAN. A second 'catch all' wireless filter has been created denying access to all MAC addresses from 00-00-00-00-00-01 through ff-ff-ff-ff-ff-fe. In this example an device with a MAC address that matches the range in the allow list will be allowed to associated with the WLAN. Devices which do not match the allowed list will be denied association from the Access Point and a log entry for the association attempt will be made

Precedence	Start MAC	End MAC	Allow / Deny
1	00-40-96-4B-00-00	00-40-96-4B-FF-FF	Allow
2	00-00-00-00-00-01	FF-FF-FF-FF-FF-FE	Deny

Configuration through Web UI

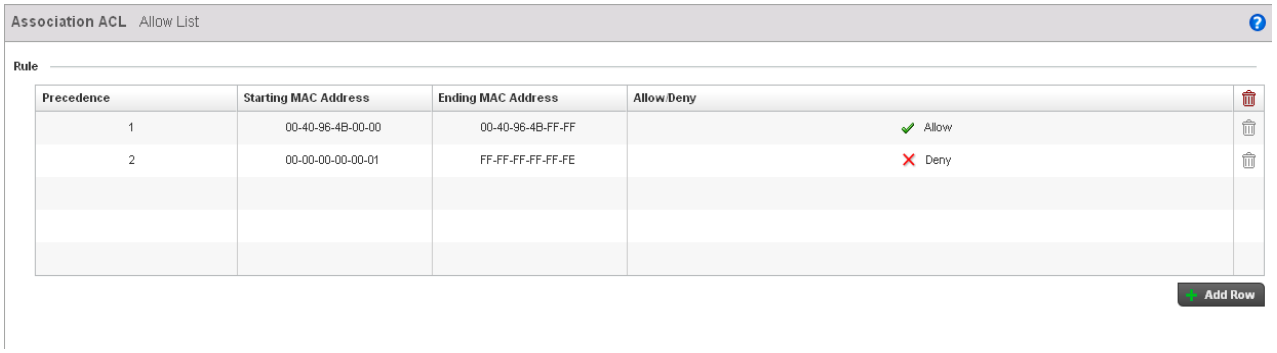
1. Create Association ACL

   a. Under the context: Configuration->Wireless->Association ACL click 'Add'



b. Enter Association ACL Name ‘Allow List’ and Click Add Row

c. Enter Precedence as 1, Starting MAC Address as ‘**00-40-96-4B-00-00’**, Ending MAC Address ‘**00-40-96-4B-FF-FF’** and action as ‘Allow’ and click ‘OK’.



This will allow all the clients with MAC address in the range **00-40-96-4B-00-00** and **00-40-96-4B-FF-FF** to associate to the WLAN

Note:

✓ The default rule is in an association ACL is ‘allow all’. So if a client does not match any of the rules, it will be allowed association.

d. Click Add Row. Enter Precedence as 2, Starting MAC Address as ‘**00-00-00-00-00-01**, Ending MAC Address as ‘**FF-FF-FF-FF-FF-FE’,** action as ‘Deny’ and click ‘OK’.

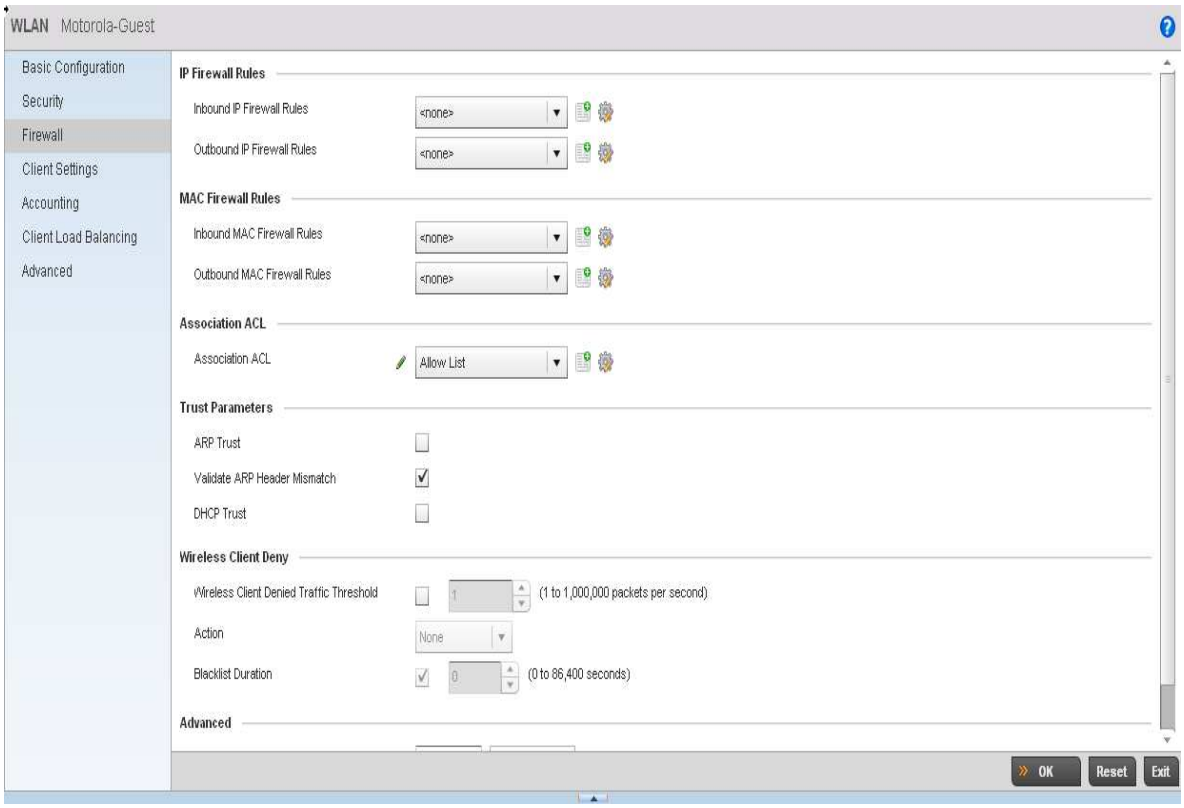
This will ensure that all clients not defined in precedence 1 is denied access to the WLAN

2. Attach Association ACL to WLAN

a. Under the context: Configuration->Wireless->Wireless LANS, click on the WLAN that you want to apply the ACL to

b. Under the selected Wireless LAN, go to Firewall settings

c. Select Association ACL as ‘Allow List’ from the drop down box. The Allow list is the Association ACL that was created above.



Configuration through CLI

1. Create Association ACL

```
rfs4000-22A5DC(config)*#association-acl-policy Allow\ List

rfs4000-22A5DC(config-assoc-acl-Deny List)*# permit 00-40-96-4B-00-00 00-40-96-4B-FF-FF precedence 1

rfs4000-22A5DC(config-assoc-acl-Deny List)*# deny 00-00-00-00-00-01 FF-FF-FF-FF-FF-FE precedence 2
```

2. Attach Association ACL to WLAN

```
rfs4000-22A5DC(config)*#wlan Motorola-Guest

rfs4000-22A5DC(config-wlan-Motorola-Guest)*#

rfs4000-22A5DC(config-wlan-Motorola-Guest)*#use association-acl-policy Allow\ Lis
t
```

Points to Remember

- ✓ To configure wireless association filters follow these 2 steps
  - o Create an Association ACL Policy
  - o Attach Association ACL policy to WLAN
- ✓ The default rule in Association ACL Policy is ‘allow all’. So if a wireless client does not match any rule, then it will be allowed access. So to deny access to a wireless clients, explicit deny rules must be created.