Standalone Sensor
HOW TO GUIDE

January 2012

Revision 2.0

Default Configuration

Access Points running WiNG 5.x firmware include the following factory default configuration:

1) No regulatory, regional or contact information.
2) A default username ***admin*** and password ***Zebra***.
3) HTTPS and SSHv2 management interfaces are enabled.
4) A DHCP client enabled on VLAN 1.
5) A zero configuration IPv4 address is assigned to VLAN 1.

Zero Configuration IPv4 Addressing

New Access Points running WiNG 5.X firmware are automatically assigned a link-local zero configuration IPv4 address which can be used to connect to the Access Point using a standard web browser or SSHv2 client when a DHCP server is un-available.

The link-local zero configuration IPv4 address uses the 169.254.0.0/16 block as described in RFC 3927 which is combined with the last two octets of the Access Points base Ethernet MAC address to determine the zero configuration address assigned to the Access Points.

To connect to an Access Point using the zero configuration IPv4 address:

1) Obtain the Access Points base Ethernet MAC address (example 00-23-68-31-14-2D)
2) Convert the last two octets of the Access Points base Ethernet MAC address from HEX to Decimal (example 00-23-68-31-***14-2D***):

Hex	Decimal
14	20
2D	45

3) Add the values to the zero configuration block to determine the zero configuration link-local address (example (example 169.254.20.45/16)

Initial Login

Using a SSH terminal emulation tool such as PuTTy, connect to the dynamic or zero configuration IP address assigned to the Access Point:

1) Login using the default username/password:

```
ap6XX-31142D login: admin
Password: Zebra

System is currently using the factory default login credentials.
Please change the default password to protect from unauthorized access.
```

2) When prompted enter a new password:

```
Enter new password: hellomoto
Confirm new password: hellomoto
```

Basic Configuration Procedure

Use the following procedure to configure a WiNG 5.x AP6XX Dependent, AP65XX Independent and AP71XX Independent Access Points as standalone sensor:

1) Enable the Privileged Exec mode:

```
ap6XX-31142D> enable
```

2) Access the Access Points device configuration:

```
ap6XX-31142D# self
Enter configuration commands, one per line.  End with CNTL/Z.
ap6XX-31142D(config-device-00-23-68-31-14-2D)#
```

3) Define the ISO country code:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# country-code us
```

Note – You can display a list of available ISO country codes by issuing the ***show wireless regulatory country-code*** command.

4) (Dependent Access Points) Enable configuration persistence:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# configuration-persistence
```

Note – Dependent Access Points will not remember their startup configuration by default. The ***configuration-persistence*** parameter is required to tell the Dependent Access Points to remember their startup configuration. Failure to enable this parameter will result in the default config being loaded upon the next reset.

5) Define a hostname:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# hostname ap6xx-sensor1
```

6) Disable Adoption:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# no mint mlcp vlan
ap6XX-31142D(config-device-00-23-68-31-14-2D)# no mint mlcp ip
```

7) Optionally define a contact and location:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# contact admin@example.com
ap6XX-31142D(config-device-00-23-68-31-14-2D)# location 1st-floor-lobby
```

8) Define primary and optionally a secondary and tertiary sensor server IP addresses or hostnames:

ADSP Server IP Address Example:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# sensor-server 1 ip 192.168.10.35
ap6XX-31142D(config-device-00-23-68-31-14-2D)# sensor-server 2 ip 192.168.10.36
ap6XX-31142D(config-device-00-23-68-31-14-2D)# sensor-server 3 ip 192.168.10.37
```

ADSP Server Hostname Example:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# sensor-server 1 ip adsp1.example.com
ap6XX-31142D(config-device-00-23-68-31-14-2D)# sensor-server 2 ip adsp2.example.com
ap6XX-31142D(config-device-00-23-68-31-14-2D)# sensor-server 3 ip adsp3.example.com
```

Note – Each Access Point can support up to three sensor server IP addresses. At least one sensor server IP address must be defined

Note – By default Access Points will communicate with sensor servers using TCP port 443. This port can be changed if required using the ***sensor-server <1-3> ip <sensor-server-ip-address> port <1-65535>*** command:

Note – ADSP server hostname support is provided in WiNG 5.3 and above. The use of hostnames requires that you define one or more domain name servers on the sensor.

9) Optionally define a DNS domain name and Name Servers:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# ip domain-name example.com
ap6XX-31142D(config-device-00-23-68-31-14-2D)# ip name-server 192.168.10.6
```

10) Enable sensor services on radio 1:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# interface radio 1
ap6XX-31142D(config-device-00-23-68-31-14-2D-if-radio1)# rf-mode sensor
ap6XX-31142D(config-device-00-23-68-31-14-2D-if-radio1)# exit
```

11) Enable sensor services on radio 2:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# interface radio 2
ap6XX-31142D(config-device-00-23-68-31-14-2D-if-radio2)# rf-mode sensor
ap6XX-31142D(config-device-00-23-68-31-14-2D-if-radio2)# exit
```

12) Commit and Save the changes:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# end
ap6XX-31142D# commit write
```

Co-Existence with Wireless Controllers running WiNG 4.x

By default the AP650 Dependent Access Points will automatically downgrade their firmware if they discover and adopt to an Integrated Services Controller running WiNG 4.x. Use the following procedure will disable automatic downgrades and allow the AP650 to co-exist on a network with Wireless Controllers running WiNG 4.x firmware:

1) Enable the Privileged Exec mode:

```
ap6XX-31142D> enable
```

2) Access the Access Points device configuration:

```
ap6XX-31142D# self
Enter configuration commands, one per line.  End with CNTL/Z.
ap6XX-31142D(config-device-00-23-68-31-14-2D)#
```

3) Disable legacy automatic downgrades:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# no legacy-auto-downgrade
```

4) Commit and Save the changes:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# end
ap6XX-31142D# commit write
```

Static IPv4 Addressing

By default WiNG 5.x Access Points will automatically obtain an IP address, default gateway and DNS option on VLAN 1 using DHCP. Use the following procedure to assign static IP address, default gateway, name server and domain name to WiNG 5.x Access Points operating as a standalone sensor:

13) Enable the Privileged Exec mode:

```
ap6XX-31142D> enable
```

14) Access the Access Points device configuration:

```
ap6XX-31142D# self
Enter configuration commands, one per line.  End with CNTL/Z.
ap6XX-31142D(config-device-00-23-68-31-14-2D)#
```

15) Remove the overrides for the virtual IP interface VLAN 1:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# remove-override interface vlan 1
```

16) Create a virtual IP interface for VLAN 1 and assign a static IP address:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# interface vlan 1
ap6XX-31142D(config-device-00-23-68-31-14-2D-if-vlan1)# ip address 192.168.21.90/24
ap6XX-31142D(config-device-00-23-68-31-14-2D-if-vlan1)# exit
```

17) Define the default gateway:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# ip default-gateway 192.168.21.1
```

18) Optionally define a DNS domain name and Name Servers:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# ip domain-name example.com
ap6XX-31142D(config-device-00-23-68-31-14-2D)# ip name-server 192.168.10.6
```

19) Commit and Save the changes:

```
ap6XX-31142D(config-device-00-23-68-31-14-2D)# end
ap6XX-31142D# commit write
```

Changing the Admin Password

The default password is changed when you initially login to a WiNG 5.X Access Point. Use the following procedure to change the default password post login if required:

1) Enable the Privileged Exec mode:

```
ap6XX-31142D> enable
```

2) Access the Access Points Global Configuration context:

```
ap6XX-31142D# configure terminal
ap6XX-31142D(config)#
```

3) Access the Access Points default Management Policy and change the password for the admin user account:

```
ap6XX-31142D(config)#management-policy default
ap6XX-31142D(config-management-policy-default)# user admin password <new-password>
role superuser access all
```

4) Commit and Save the changes:

```
ap6XX-31142D(config-management-policy-default)# end
ap6XX-31142D# commit write
```

Verification

Use the following procedures to verify sensor radio operation and sensor server communications:

1) Verify the radios are operating in sensor mode:

```
ap6XX-31142D> show wireless radio
-------------------------------------------------------------------------------------------
RADIO               RADIO-MAC             RF-MODE        STATE     CHANNEL    POWER #CLIENT
-------------------------------------------------------------------------------------------
ap6xx-sensor1:R1    00-23-68-2E-6E-38      sensor          Off  N/A ( smt)  0 (smt)       0
ap6xx-sensor1:R2    00-23-68-2E-6F-08      sensor          Off  N/A ( smt)  0 (smt)       0
-------------------------------------------------------------------------------------------
Total number of radios displayed: 2
```

2) Verify the Access Point is communicating with the Sensor Server:

```
ap6XX-sensor1# show wireless sensor-server
-------------------------------------------------------------------------------
     #           SENSOR SERVER IP          PORT              STATUS
-------------------------------------------------------------------------------
  1           192.168.10.35            443            connected
  2           192.168.10.36            443            not connected
  3           192.168.10.37            443            not connected
-------------------------------------------------------------------------------
```