

WLAN Installation Guidelines

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Contents

- 1 Pre-Installation Tasks 2
 - 1.1 Vendor Responsibilities 2
 - 1.1.1 Complete design documentation. 2
 - 1.1.2 Stage WLAN controller. 2
 - 1.1.3 Stage access points (AP’s). 3
 - 1.1.4 If necessary pick up copper patch cables and Ten Gigabit DAC cables from AISD..... 3
- 2 Controller Installation Tasks..... 4
 - 2.1 Vendor Responsibilities 4
 - 2.1.1 Install the campus Master WLAN controller. 4
 - 2.1.2 Verify campus controller installation. 4
- 3 Access Point Installation Tasks 5
 - 3.1 Vendor Responsibilities 5
 - 3.1.1 Prepare for access point (AP) installation..... 5
 - 3.1.2 Install new access points (AP’s)..... 6
 - 3.1.3 Verify new access point (AP) installation..... 6
 - 3.1.4 Remove old access points (AP’s) 7
- 4 Post Installation Tasks..... 7
 - 4.1 Vendor Responsibilities 7
 - 4.1.1 Update AirWave. 7

1 Pre-Installation Tasks

1.1 Vendor Responsibilities

1.1.1 Complete design documentation.

To be completed by vendor before staging.

- a. Add AP numbers to the AISD provided planned AP placement diagram. Post this document (e.g. "williams with numbers.doc") on the Wireless vendor FTP site.
- b. Using the AISD excel template file "WLAN Info.xls", create a WLAN info spreadsheet for each school. Add a row for each AP and include the following information. See the "WLAN AP General Design Guidelines" document for details. Post this document (e.g. "williams info.xls") on the Wireless vendor FTP site.
 - School #
 - AP Model
 - AP #
 - Wiring To
 - Closet Letter
 - Access Point Hostname
 - IP Addr
 - Rack ID#
 - Stack Hostname (Switch label)
 - Switch Port #
 - Identify Patch port 0
 - Gym Mount
 - Wall Mount
 - Location – this will match what is provisioned into AP
 1. Classroom AP's [AP half of name,Port,Rm#,Drop#]
 2. Portable AP's [Portable#whiteSign,Switch#-Port#,Rm#,Drop#]
 - Serial #
 - Gym Mount
 - Wall Mount

1.1.2 Stage WLAN controller.

To be completed by vendor at least one (1) day before installation.

- a. With the controller not connected to any network, power it up and verify a successful power-on self-test (POST).
- b. Run the controller Setup Wizard. Use default values except for the following:
 - Admin Password: **goaruba**
 - Enable Mode Password: **enable**
 - Controller Mode: **Standalone**

- c. Install the appropriate AOS version. Contact AISD prior to installation for version number.
- d. Replace the default controller configuration with one provided by AISD.
 - i. Copy the AISD controller config (e.g. C1SWilliams166-ArubaConfig.txt) to the controller flash directory.
 - ii. Copy AISD config to default.cfg.
 - iii. Reboot the controller.
 - iv. Delete the AISD config from flash directory once it is successfully in system.
 - v. After rebooting, you can manage the controller by connecting to port G0/0/0 on model 7210 and 7205 or GE1/3 on model 3400/3600 and pointing your web browser or SSH client to **172.16.0.254** and using Management User Name **wanlocal**, Management User Password (**provided by AISD**) and Enable Password **enable**.
- e. Enter the AISD asset tag number for the controller's "System Contact" on the **Configuration > Management > Security page**.
- f. Place a host name and IP address label on the front of the controller.
- g. Place an AISD asset tag on the side of the 7210/7205 controller, preferably the side most visible and accessible related to the rack and closet space.
- h. Update the WLAN info spreadsheet with the following information.
 - Serial Number
 - AISD Asset Tag #
- i. Create a label for each end of each interconnection cable. Identify both Aruba & switch ports at both ends of cable. Ex. 166alc01 Te0/0/2 to
 166c4k01 Te1/7.

1.1.3 Stage access points (AP's).

To be completed by vendor at least one (1) day before installation.

- a. Provision each AP as specified in design documentation.
- b. Place a host name label on the front of each AP. Use the biggest font possible. The front has the AP model number and LED's on it.
- c. Hostname label will be school#, closet letter, partial model #, AP unique 3 digit#. Examples: 166A15001, 166C15033, 166B15040.
- d. Place an AISD asset tag on the back of each AP if required by AISD rules.
- e. Update the WLAN info spreadsheet with the following information.
 - Serial Number
 - AISD Asset Tag # if required.

1.1.4 If necessary pick up copper patch cables and Ten Gigabit DAC cables from AISD.

2 Controller Installation Tasks

2.1 Vendor Responsibilities

2.1.1 Install the campus Master WLAN controller.

To be completed by vendor on the day of the installation, before 5:00 PM.

- a. Place the controller in the specified rack space.
- b. Label and install the interconnection cables as specified.
- c. Connect power cable to the power strip that is connected to the UPS. Label both ends of the cable. With model that has 2 power cords, power supply 0 should go on UPS and power supply 1 on House power, use existing rack mount PDU strips.
- d. Power up the controller and verify a successful POST.
- e. Install one (1) AP on which to test wireless client access.
- f. **Important:** Master controller will contact and register to the License server, re-install the controller config to flash drive and copy to default.cfg. Reboot controller.

2.1.2 Verify campus controller installation.

To be completed by vendor on the day of the installation, before 5:00 PM.

- a. Verify that the correct AOS has been installed on the controller.
- b. Verify that the controller has been configured correctly and confirm connectivity to the License server. See commands below.
 - i. **Show license profile**
 - ii. **show license debug**
 - iii. **show license client-table**
 - iv. **show license heartbeat stats**
- c. Verify that the controller ports are connected to the correct core LAN switch ports.
- d. Verify that AISD roles are installed on controller. If controller does not register with License server, User roles are not created and causes major issues for client authentication. Verify the roles listed below are on the controller.

Show run | inc -role

 - i. user-role student_dcl5
 - ii. user-role AISD-Guest-Role
 - iii. user-role staff_dcl5
 - iv. user-role AISD-psk-Role
- e. Verify AAA profiles have roles assigned. **Show run | beg AAA-**
 - i. aaa profile "AISD-AAA-Guest" -- verify that the item below is included as one of many in list: initial-role "AISD-Initial-Logon-Role"
 - ii. aaa profile "AISD-AAA-Profile" -- verify that the item below is included as one of many in list: dot1x-default-role "AISD-8021x-Default-Role"

- f. Verify that a wireless client can connect to the following wireless networks.
 - education
 - AISD-GUEST [Note: AISD-GUEST is disabled from 11pm-6am]
 - mmshare (Note: this uses a pre-shared key and vendors device MAC address will need to be added into authentication server by AISD)

3 Access Point Installation Tasks

3.1 Vendor Responsibilities

3.1.1 Prepare for access point (AP) installation.

To be completed by vendor on the day of the installation. This can be done before beginning local controller installation.

- a. Use the Cabling As-built Diagrams to determine the jack ID for each AP.
- b. Determine the following information for each AP and add it to the WLAN info spreadsheet.
 - Rack ID#
 - Stack Hostname
 - Switch Port for AP port 0
 - Patch Panel Port
 - Location in the form of AP ID, Room, Jack ID. Examples follow:
 - A15005,Rm101,A006D
 - A15017,MusicRm,A156D
 - A15016,AssocRm,A065D
 - A15002,100Hall,A121
 - A15012,CopyRm,A125
 - A15010,LibEnt,A126
 - A15011,Lib,A127
 - A15013,Lobby,A128
 - A15015,Music,A134
 - A15021,CafeKit,A135
 - A15014,MDF,Direct
 - A15019,Gym,A137
 - A15020,GymOff,A138
 - A15022,Cafe,A140D
 - A15006,WkRm-K,A141
 - P0501,P444,006

- c. In the MDF/IDF, connect appropriate switch ports to corresponding patch panel ports with blue patch cables. Remove existing patch cables, if necessary. Label both ends of the patch cables, i.e. "AP1", "AP2", "AP112", etc.
- d. Any closet patch panel ports that only have AP# identified as it's port number, needs to be removed and a new label put in place with the current AP#. Label the other end of the cable near AP also. This should primarily apply when re-using an existing AP cable.
- e. Configure the switch port for each AP.
 - i. Use the **default interface** command to reset the port configuration, i.e.

```
(config)#default interface Gi1/0/14.
```
 - ii. Run the "38-access-ap" macro to configure the port, i.e. 166A3701 (config-if)# interface Gi1/0/14

```
#macro trace 38-access-ap $desc A15005,Rm101,A006D.
```

3.1.2 Install new access points (AP's)

To be completed by vendor on the day of the installation.

- a. Remove existing AP's and replace with new AP.
- b. Mount the AP's in the locations specified on the design documentation. Most will be mounted to the ceiling grid in the **center** of classroom or office. Some, however, wall-mounted. The AP should be mounted no higher than 10 feet above finished floor level. Contact AISD to approve any AP's higher than 10'.
- c. At the AP, connect each AP to a data drop located above the lay-in tile ceiling with a patch cable. There should be no visible loops of cable.
- d. Install AP covers for those located in gymnasiums. There should be no visible loops of cable.
- e. Update the SNMP System Location for each AP on the controller. The location should be in the form of AP ID, Rm#, Jack ID. Use the location values defined in the "Prepare for access point (AP) installation" section of this document.
- f. Update planned AP placement diagram (e.g. "Williams 166 PDF AP Plan.pdf"), if necessary if the AP's final location is in a different location than originally planned. This will help place AP's on AirWave with accuracy of its actual location.

3.1.3 Verify new access point (AP) installation.

To be completed by vendor on the day of the installation, after the new AP's in each area have been installed and verified.

- a. Verify that all AP's are associated with the campus Master controller.
- b. Verify that both radios on all AP's are up.
- c. Use the **show log errorlog 100** and **show log system 100** commands to check controller for errors.
- d. Update controller database by remove old access points from database list.

3.1.4 Remove old access points (AP's)

To be completed by vendor on the day of the installation, after the new AP's in each area have been installed and verified.

- a. Remove old AP's -- if an existing AP is **not** replaced by design with a new AP, then remove mounting hardware, and station cables as necessary. Coil drop and place above false ceiling. Where no false ceiling exists, cut drop where it is exposed and dispose of it.
- b. Remove patch cables in MDF/IDF. Old patch cables can be cut and thrown away.

3.1.5 AirWave

- a. Add new AP's into AirWave as they are installed at school. Because of licensing limitations, you will need to remove old AP's from AirWave as they taken offline in order to free up AirWave licenses to accommodate the new AP's coming online.
- b. Set the AP in the proper Group and Folder per school when adding into AirWave.
- c. Place AP's on the school Visual RF Map.
- d. Be sure that the AP placement matches the actual location of AP in each room.

4 Post Installation Tasks

4.1 Vendor Responsibilities

To be completed by vendor the day after the installation.

- a. Remove and dispose of all packing and/or scrap materials.
- b. Submit as-built documentation for review. (Post on FTP site.)
- c. Deliver old AP's to AISD storage at Ridgeview campus.
- d. Update WAN inventory for old AP's to reflect Ridgeview as the location.
- e. Add new controller and AP's to WAN inventory.

4.1.1 Update AirWave.

- a. Confirm old AP's are *not* still online and delete old AP's from within the school folder under AP's/Devices, if not completed during installation day.
- b. In VisualRF, place new AP's on appropriate school map and floor.
- c. Check AP mismatches, run import settings for AP if necessary. Controller mismatches are normal at this time.