Cloning an access point

It is possible to create copies or *clones* of an access point.

Mobile applications often require subscriber units to function at multiple locations. Clone access points can be installed at each location and subscriber units will communicate with the clone access point within its range.

Other applications may require over 16 subscribers in a single location. Clone access points can be operated on different channels to provide connectivity for up to 192 total subscribers at 900Mhz and up to 928 total subscribers at 5.8Ghz.

Certain applications may require more data rate than a single access point can provide. Clone access points can be operated on different channels to provide more aggregate data bandwidth at a specific location. It is possible to operate 12 access points at 900Mhz to provide up to 18Mbps and 58 access points at 5.8Ghz to provide up to 87Mbps.

Sample application

A city bus company would like to wirelessly monitor their bus diagnostics and onboard cameras. To do this, the company would install an AvaLAN subscriber unit in each bus and connect the radio to the diagnostic system and onboard camera. Each subscriber unit would then be linked to an access point located at the bus depot. As each bus is driven into range of the access point, its subscriber unit sends data to the access point, which downloads to the bus depot's server. If more than 16 buses were expected to be in the depot's range at once, a clone access point could be added to the system, making it possible for many buses to communicate with the network simultaneously. The company could also install clone access points at other bus stations or refueling areas in order to access the diagnostic and camera information at various locations.

Setup

1) Select which radio will operate as the clone access point.
2) Set all DIP switches to the ON position.
3) Disconnect the primary access point from the existing network and remove power.
4) Connect an Ethernet cable from the primary access point to the clone access point.
5) Apply power first to the clone access point and then to the primary access point.
   - The Link Quality LEDs on both radios will blink sequentially until the communication keys are exchanged.
   - After successful key exchange, the clone's top green Link Quality LED will blink slowly.
   - After successful key exchange, the primary access point's Link Quality LED will continue to blink sequentially.
6) Detach the Ethernet cable and power cable from the clone radio.
7) On the clone access point, set DIP switches 2 through 8 to the OFF position.
8) To create additional clones, repeat steps 1 through 7.
9) Connect the primary and clone access points to the network.

IMPORTANT NOTES:

Clone access points do not issue keys to subscriber units. If new or additional subscriber units are to be added, they must be keyed by the primary access point. Up to 63 subscribers units and an unlimited number of clones can be keyed by the primary access point. (For applications that require over 63 subscribers, it is possible to key up to 1023 subscribers using a custom version of the AvaLAN product.)

AvaLAN recommends using directional sector antennae when operating multiple access points in close proximity to each other.

In their default mode, access points (primary and clones) automatically select a low noise channel and will change channels to adapt to changing interference levels. To manually select the channel for the access point, use the DIP switches 3-8 as described in the owner's manual. AvaLAN recommends using manual channel selection when operating multiple access points in the same area.

In their default mode, subscriber units automatically connect to the first clone or primary access point they hear as they power up. In some applications, it may be preferred for a subscriber unit to connect *only* on a specific radio channel. To restrict the operation of the subscriber unit to a specific radio channel, set the channel DIP switches 3-8 on the subscriber unit.

In their default mode, primary access points assign a unique "subscriber ID" to each subscriber unit during key exchange. These IDs are issued sequentially in order from 1 to 63. In some applications, it may be preferred to manually assign the ID to a subscriber unit. To manually assign the ID: (1) key the subscriber unit to the access point using the standard procedure, (2) on the subscriber unit, set DIP 2 ON and use DIP 3-8 to set the ID. (3) Power cycle the subscriber unit to activate the setting. Notes: Do not use the same ID as another active subscriber unit. Cloned access points connect with all subscriber IDs 1 to 63. Primary access points connect to subscribers with an ID equal to or lower than the access point's internal counter for quantity of ID's issued.