Alcatel-Lucent Instant in OV3600 8.2

Deployment Guide

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This document describes the Alcatel-Lucent Instant access point and Virtual Controller systems, as well as the procedure to integrate this system with OV3600. This section contains the following information:

- "Overview of Alcatel-Lucent Instant" on page 5
- "Instant Management with OV3600" on page 5
- "Using Instant with OV3600" on page 7
- "OV3600 Pages with Instant-Specific Features" on page 8
- "Supported Firmware" on page 8

Overview of Alcatel-Lucent Instant

Alcatel-Lucent Instant (Instant) is a system of access points in a Layer 2 subnet. The OAW-IAPs are controlled by a single OAW-IAP that serves a dual role as an OAW-IAP and primary Virtual Controller (VC), eliminating the need for dedicated controller hardware. This system can be deployed through a simplified setup process appropriate for smaller organizations, or for multiple geographically dispersed locations without an on-site administrator.

Only the first OAW-IAP/Virtual Controller you add to the network must be configured; the subsequent OAW-IAPs will all inherit the necessary configuration information from the Virtual Controller. Alcatel-Lucent Instant continually monitors the network to determine the OAW-IAP that should function as the Virtual Controller at any time, and the Virtual Controller will move from OAW-IAP to OAW-IAP as necessary without impacting network performance.

The Virtual Controller technology in Alcatel-Lucent Instant is capable of OAW-IAP auto discovery, 802.1X authentication, role-based and device-based policy enforcement, rogue detection, and Adaptive Radio Management (ARM).

Instant Management with OV3600

Unlike other WLAN management products, OV3600 eliminates the need to configure and troubleshoot individual APs or dispatch IT personnel on-site. With OV3600, IT can centrally configure, monitor, and troubleshoot Alcatel-Lucent Instant WLANs, upload new software images, track devices, generate reports, and perform other vital management tasks, all from a remote location.

OV3600 Security Options

A Virtual Controller or Instant AP can authenticate to the OV3600 server using a pre-shared key, or using two-way certificate-based authentication using an SSL certificate sent from OV3600 to the Instant device.

The Certificate-based authentication feature requires you upload the a certificate from a supported certificate authority to the OV3600 server, as the default OV3600 certificate will not be recognized by the Instant AP, and will cause the SSL handshake to fail. Certificate authentication also requires that the **OV3600 IP address** information configured on the Instant AP is a domain name, and not an IP address.

OV3600 supports the following trusted certificate authorities:

- **Chain 1**: Trusted Root CA: C=SE, O=AddTrust AB, OU=AddTrust External TTP Network, CN=AddTrust External CA Root Intermediate CA: C=GB, ST=Greater Manchester, L=Salford, O=COMODO CA Limited, CN=COMODO High-Assurance Secure Server CA
- **Chain 2**: Trusted Root CA: C=US, O=GeoTrust Inc., CN=GeoTrust Global CA Intermediate CA: Subject: C=US, O=Google Inc, CN=Google Internet Authority G2

- **Chain 3**: Trusted Root CA: C=US, O=VeriSign, Inc., OU=VeriSign Trust Network, OU=(c) 2006 VeriSign, Inc. - For authorized use only, CN=VeriSign Class 3 Public Primary Certification Authority - G5 Intermediate CA: C=US, O=VeriSign, Inc., OU=VeriSign Trust Network, OU=Terms of use at https://www.verisign.com/rpa (c)10, CN=VeriSign Class 3 Secure Server CA - G3
- **Root C**A: Trusted Root CA: C=US, O=Equifax, OU=Equifax Secure Certificate Authority

By default, OV3600 supports only pre-shared key authentication. To enable support for certificate authentication with a failthrough to pre-shared key authentication or certificate authentication only, navigate to **OV3600 Setup>General>Alcatel-Lucent Instant Options**, and select the option **PSK and Certificate** or **Certificate only**. If you enable certificate authentication, you can view the current OV3600 certificate using the **View Certificate** link on that page, or click **Change** to upload a new certificate file to the OV3600 server.

Virtual Controllers push data to OV3600 via HTTPS. If your enterprise has a security policy that restricts the use of port 443 for inbound communication, you can change the port OV3600 uses to communicate with Instant devices on the **OV3600 Setup>General>Alcatel-LucentInstant Options.**

Intrusion Detection System

OV3600 automatically detects rogue IAPs irrespective of their location in the network. It prevents authorized IAPs from being detected as rogue IAPs, and tracks and correlates the IDS events to provide a comprehensive picture of your network's security.

Managing the Firmware Image

OV3600 pushes firmware to the Alcatel-Lucent Instant Virtual Controller, and the Virtual Controller pushes the firmware to the rest of its IAPs. When using OV3600 to manage IAPs, you can upgrade the firmware by loading the firmware onto OV3600, and then scheduling an upgrade from OV3600.

If you have a mixed deployment with multiple Instant products, you can upload firmware for each of the device types.

To manage the firmware image, complete the following tasks in this order:

- Task 1: Uploading the Firmware to OV3600 on page 6
- Task 2: Configuring Automatic Firmware Updates on page 6

Task 1: Uploading the Firmware to OV3600

The first task in preparing for a firmware upgrade is loading the software image to OV3600. To add an Instant software image to OV3600, complete the following steps.

1. Download the Instant firmware from the Alcatel-Lucent support site.
2. In the OV3600 UI, navigate to **Device Setup > Upload Firmware & Files**.
3. Click the **Add** button next to **New Firmware File**.
4. Specify **Alcatel-Lucent Device (Any Model)** from the **Type** drop-down list.
5. Check the **Upload firmware files (and use built-in firmware file server)** radio button.
6. The **Server Protocol** field is not required for Instant, but setting it to **HTTPS** in the drop-down menu is recommended to avoid confusion.
7. Click the **Choose File** button and locate the firmware file you downloaded in Step 1.
8. Click **Add** to complete the upload.

Task 2: Configuring Automatic Firmware Updates

To configure an OV3600 group for automatic upgrades as new devices are added, complete the following steps:

1. Navigate to the **Groups** tab and select your Instant group from the list.
2. On the group's page, click the **Firmware** tab.

3. Check the **Yes** radio button next **Enforce Group Firmware Version**.
4. Select the version of Instant from the **Alcatel-LucentInstant Virtual Controller** drop-down menu.
5. (Optional) To allow the downgrade of new device, the **Yes** radio button next to **Allow Downgrade of Devices**.
6. Click **Save** to complete the configuration or **Save and Upgrade Devices** to complete the configuration and immediately upgrade devices in the selected group.

Using Instant with OV3600

OV3600 can be used to provision and manage a multi-site deployment of Alcatel-Lucent Instant networks. For example, if you have 100 retail offices that require Instant to provide WLAN connectivity at each office, OV3600 can be used to provision all the 100 offices from a central site. OV3600 also provides the administrator with the ability to monitor these geographically dispersed Instant networks using an OV3600 server (depending on the scalability recommendations for OV3600).

With a distributed deployment where multiple locations have a Virtual Controller and OAW-IAPs, OV3600 serves as a centralized management console. OV3600 provides all functionality for normal WLAN deployments, including long-term trend reporting, PCI compliance, configuration auditing, role-based administration, location services, RF visualization, and many other features.

Integrating Instant systems into OV3600 is unique from the setup of any other device class due to the following considerations:

- **Discovery:** OV3600 does not discover Instant devices via scanning (SNMP or HTTP) the network. Each Instant deployment will automatically check-in to the OV3600 configured within the IAP's user interface. The first Virtual Controller for an organization will automatically appear as a new device in OV3600. Subsequent IAPs are discovered via the Virtual Controller, just like standard controller/thin AP deployments.
- **Auto-provisioning:** The first authorized Virtual Controller requires manual authorization into OV3600 via shared secret to ensure security. Along with the shared secret, the Virtual Controller sends an Organization String which automatically initializes and organizes the IAPs in OV3600. Unlike the traditional infrastructure of a physical controller and thin APs, Instant automates many tedious steps of developing a complex hierarchical structure of folders, config groups, templates, admin users, and admin roles for Instant.
- **Communication via HTTPS:** Because Instant devices may be deployed behind NAT-enabled firewalls, Virtual Controllers push data to OV3600 via HTTPS. OV3600 initiates no connections to Instant devices via SNMP, TFTP, SSH, and the like. This enables quick remote setup without having to modify firewall rules.
- **Virtual controller listed as separate device:** The Virtual Controller is listed as an additional device, even though it is part of the existing set of IAPs. If you have 10 physical IAPs, OV3600 will list 10 Instant IAPs and one Instant Virtual Controller. An asterisk icon (*) beside the device name indicates that a device is acting as a Virtual Controller. You can also identify the IAP acting as the Virtual Controller by the identical LAN MAC addresses on the **APs/Devices > List** page, Device Inventory reports, and any other OV3600 pages that list your network devices.

A device that is added as a Virtual Controller does not count as a license for OV3600.

Refer to the OAW-IAP product data sheet for full operational and regulatory specifications, hardware capabilities, antenna plots, and radio details.

Secure Access to OV3600

By default, virtual controllers use a pre-shared key to authenticate to OV3600. To enable support for a different security method, navigate to **OV3600 Setup>General>Alcatel-Lucent Instant Options**, and select **PSK**, **PSK**

and Certificate or **Certificate only**. If you select a security method that supports certificate authentication, you can view the currently valid certificate using the **View Certificate** link in **OV3600 Setup>General>Alcatel-Lucent Instant Options**, or click **Change** to upload a new certificate file.

OV3600 Pages with Instant-Specific Features

The following is a summary of OV3600 pages affected by Alcatel-Lucent Instant support:

- **APs/Devices > New**: When an Alcatel-Lucent Instant device appears in the **APs/Devices > New** page, an admin user can mouse over the value on the Type column to display the device's Shared Secret with OV3600.
- **APs/Devices > List**: The Virtual Controller is listed as an additional device, even though it is part of the existing set of IAPs. An asterisk icon (*) beside a device name indicates that the device is acting as a Virtual Controller. You can also identify the IAP acting as the Virtual Controller by the identical LAN MAC addresses on the **APs/Devices > List** page, Device Inventory reports, and any other OV3600 pages that list your network devices.
- **Clients > Client Detail**: Once IAPs are serving clients, the IAPs can use user-agent strings to extract operating systems and device descriptions of its clients, and then populate the Device Description and Device OS fields in **Clients > Client Detail**.
- **APs/Devices > Audit**: Alcatel-Lucent Instant configuration fetching can be performed in **APs/Devices > Audit**. When template configuration is used to manage devices, the running configuration is stored on the IAP and verified by the template.
- **APs/Devices > Monitor > Radio Statistics**: The Radio Statistics page for Alcatel-Lucent Instant devices displays Clients, Usage, Radio Channel, Radio Noise, Radio Power, Radio Errors, and Channel Utilization.
- **Groups > Instant Config**: This feature is available if **Enable Instant GUI Config** is enabled on the **Groups > Basic** page. This feature allows you to use OV3600 as a management console with the same UI as the OAW-IAP device.
- **RAPIDS**: Because Instant does not support mitigation or high-level rogue reporting, it does not synchronize classification. All rogue devices are reported and stored in OV3600 for evaluation based on high-level rule sets. Instant currently does not match wireless BSSIDs to local MAC addresses within an IAP's ARP table, and does not currently support IDS event notification.
- **Reports**: Instant Virtual Controllers appear as a separate device in the Device Inventory Report and most other reports that list devices.

OV3600 does not provide a Device Uptime report for Alcatel-Lucent Instant devices.

Supported Firmware

OV3600 supports Alcatel-Lucent OAW-IAPs running Instant 6.4.4.0-4.2.3.0 and prior versions, including the management of configuration settings and software upgrades. The following table shows when each new version of Instant was initially supported in OV3600.

Table 1: *Instant support in OV3600*

Instant Version	Support Introduced	Support for Instant Config
6.4.3.x-4.2.0.0	OV3600 8.1/ OV3600 8.0.9	Yes

Table 1: *Instant support in OV3600 (Continued)*

Instant Version	Support Introduced	Support for Instant Config
6.4.2.3-4.1.2.0	OV3600 8.1/ OV3600 8.0.9	Yes
6.4.2.0-4.1.1.0	OV3600 8.0.4	Yes
6.4.0.0-4.1.0.0	OV3600 8.0	Yes, introduced in OV3600 8.0.4
6.3.1.0-4.0.0.0	OV3600 8.0 and 7.7.10	Yes
6.2.1.0-3.4.0.0	OV3600 7.7.2	Yes
6.2.0.0-3.3.0.0	OV3600 7.6.4	Yes
6.2.0.0-3.2.0.0	OV3600 7.6.1	Yes
6.1.3.4-3.1.0.0	OV3600 7.5.6	No
6.1.3.1-3.0.0.0	OV3600 7.5.0	No

Overview

You can set up Alcatel-Lucent Instant in one of the following ways:

- Manually. See "Setting up Instant Manually" on page 11.
- Automatically (through DHCP). See "Setting up Instant Automatically" on page 14.

The automatic setup is most suited for a multi-site Instant deployment. Both options are summarized here, but refer to the Alcatel-Lucent Instant documentation for more information on setting up the hardware and configuring the network.

For each remote location, an on-site installer is required to physically mount the IAPs, connect to the Alcatel-Lucent Instant SSID, configure the WLAN, configure the names of the IAPs, and enter the information in the first IAP's user interface that will enable communication with OV3600. The first Instant network that is added to OV3600 includes the 'golden' configuration that is used as a template to provision other Instant networks at other locations as the locations are brought online. It is recommended that the 'golden' configuration is validated and pre-tested in a non-production environment prior to applying it to a production network.

Users have the option to add additional devices into managed mode automatically by setting the **Automatically Authorized Virtual Controller Mode** option to **Manage Read/Write** on the **OV3600 Setup > General** page. Refer to the *OmniVista 3600 Air Manager 8.2 User Guide* for more information. It is also important to note that any changes that are made to the template variables will have to be manually applied to each deployed device.

Setting up Instant Manually

When setting up Alcatel-Lucent Instant manually, you will be requested to provide an Organization string, the OV3600 IP address, and a Shared Key. The steps to create this information are described in the following sections:

- "Creating your Organization String" on page 11
- "Authenticating to the OV3600 Server" on page 12
- "Entering the Organization String and OV3600 Information into the IAP" on page 13

Creating your Organization String

The Organization String is a set of colon-separated strings created by the OV3600 administrator to accurately represent the deployment of each Alcatel-Lucent Instant system. This string is entered into the Alcatel-Lucent Instant UI by the on-site installer.

The format of the Organization String is Org:subfolder1:subfolder2... and so on, up to 31 characters long. Org, the top-level string, is generally the name of your organization and is used to automatically generate the following (if not already present) in OV3600:

- OV3600 Role: Org Admin (initially disabled)
- OV3600 User: Org Admin (assigned to the role Org Admin)
- Folder: Org (under the Top folder in OV3600)
- Configuration Group: Org

Additional strings in the Organization String are used to create a hierarchy of subfolders under the folder named Org:

- subfolder1 would be a folder under the Org folder
- subfolder2 would be a folder under subfolder1

To create your Organization String, consider the plan of how your Alcatel-Lucent Instant IAPs are to be physically distributed. As a best practice, the Organization String should mirror your company's geographical or internal reporting structure. For example, if you plan to deploy Alcatel-Lucent Instant in four stores in two different cities for Acme Corporation, your Organization Strings might look like these:

- Acme:New York:Times Square Store
- Acme:New York:Queens Store
- Acme:San Francisco:Sunset Store
- Acme:San Francisco:SOMA Store

Authenticating to the OV3600 Server

When the OV3600 administrator manually authorizes the first Virtual Controller for an organization, OmniVista 3600 Air Manger uses the Virtual Controller's shared key or authentication certificate to authenticate other Instant devices on the network. Once individual Instant access points successfully completed authentication, they can also be validated against a predefined whitelist before they appear in the **APs/Devices > New** list.

Users have the option to add additional devices into managed mode automatically by setting the **Automatically Authorized Virtual Controller Mode** option to **Manage Read/Write** on the **OV3600 Setup > General** page. Refer to the *OmniVista 3600 Air Manager 8.2 User Guide* for more information. It is also important to note that any changes that are made to the template variables will have to be manually applied to each deployed device.

Shared Key Authentication

The OV3600 administrator can use a shared key to manually authorize the first Virtual Controller for an organization. Any string is acceptable, but this string must be the same for all devices in your organization.

The OV3600 administrator sends the shared secret key, Organization String and the OV3600 IP address to the on-site installer setting up the Virtual Controller and other Instant devices on the network. The OV3600 administrator then manually authorizes the Virtual Controller shared secret key when it appears in the **APs/Devices > New** list. After the VC has been validated, other Instant devices using that shared key will automatically to the OV3600 server, and appear in the **APs/Devices > New** list.

Always ensure the protection of your organization's shared secret. Knowledge of this shared secret, the organization string, and communication protocol could allow a rogue device to masquerade as an Alcatel-Lucent Instant device.

Whitelist Authentication

The Instant whitelist database is a list of the Instant APs that are allowed to access the OV3600 server after completing pre-shared key or certificate authentication. The Instant AP whitelist can be manually configured using the OV3600 UI, or imported into OV3600 in comma-separated values (CSV) format.

Whitelist files can include the following data columns. The **Name** field is mandatory, and each entry must also contain either a serial number or a LAN MAC address.

- name
- LAN MAC Address
- serial number
- Virtual Controller name
- group name

- folder name
- custom_variable_1...custom_variable_10

An example of a whitelist entry using this format is as follows:

```
Name,LAN MAC Address,Serial Number,Virtual Controller Name,Group Name,Folder Name IAP_Canada_
1,ff:c7:c8:c4:21:ff,BD0086086,Canada-Office,Canada,Vancouver:Downtown IAP_US_
1,F0:0B:86:CF:93:FF,BE0542245,US-Office,US,San Fancisco:CenterTown:HillTop
```

When this feature is enabled and an Instant AP attempts to connect to OV3600, OV3600 checks the MAC address or serial number of the Instant AP against this whitelist, and authorizes the device if it's MAC address or serial number matches a whitelist entry. Once authorized, that device appears in the **APs/Devices > New** page, where it can be assigned to an OmniVista 3600 Air Manger group and folder.

To enable whitelist authentication and add Instant APs to a whitelist:

1. Navigate to **OV3600 Setup>General**
2. In the **Automatic Authorization** section, select **Whitelist.**
3. Click **Add devices to Whitelist**.
4. Click **Add an Instant AP to the Whitelist**.
5. Enter whitelist information for the Instant AP. Each whitelist entry must have an Instant AP name and either a serial number or a MAC address.
6. Click **Add**. You are prompted to confirm changes. Click **Apply Changes Now**, or specify a time that the device should be added to the whitelist.

To import a whitelist file to the OV3600 server:

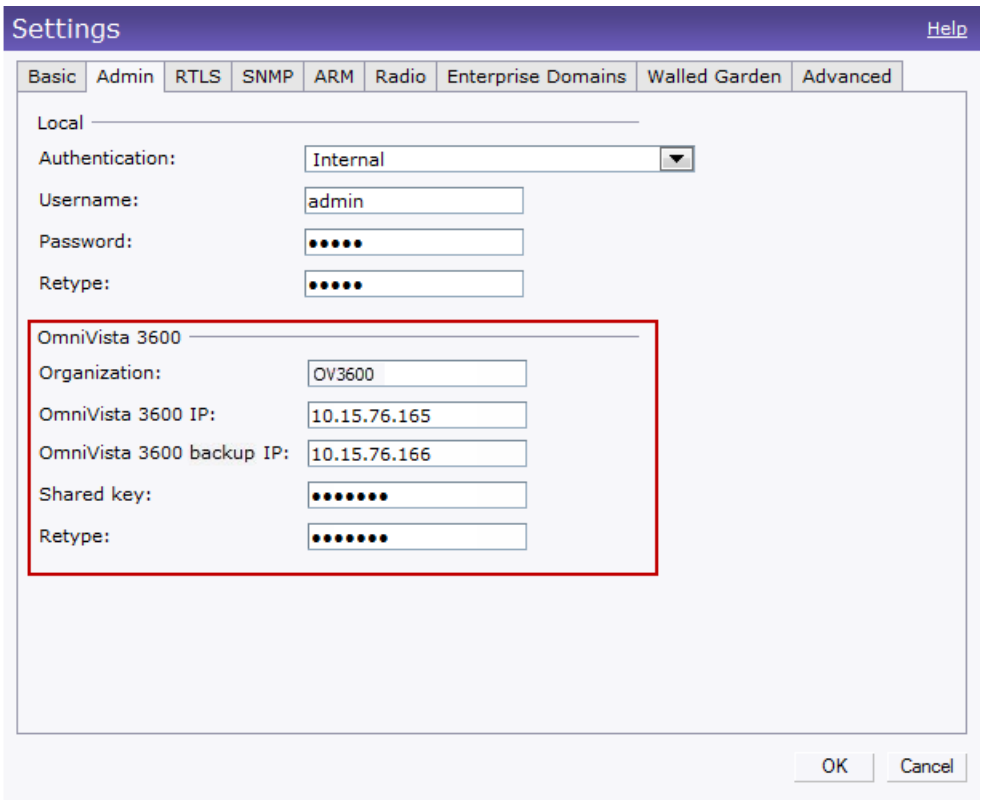
1. Navigate to **OV3600 Setup>General>Automatic Authorization**
2. Click **Add devices to Whitelist**.
3. Click **Import Instant AP Whitelist from CSV**. The **Upload Options** page opens. This page describes the required fields and format for the whitelist file.
4. Select one of the following upload modes.
   - Update: Add new information to the existing whitelist database
   - Replace: Delete the existing whitelist database, and replace it with the new file.
5. Click **Browse** to select the CSV file, then click **Upload**.

Entering the Organization String and OV3600 Information into the IAP

For the initial IAP/Virtual Controller set up in each location, the on-site installer logs in to the first IAP's web interface via the Alcatel-Lucent Instant configuration SSID, and navigates to **Settings > OV3600**. The installer then enters the correct Organization String, the OV3600 IP address, and the Shared Secret key, as shown in Figure 1. Perform the following steps to set up OV3600 in Instant.

1. Log into your IAP.
2. Click on either the **Set up Now** at the bottom of the UI or on the **Settings** tab in the top right corner. This opens the **Settings** menu.
3. Locate the OmniVista 3600 Air Manger section on the **Admin** tab.

Figure 1: *Alcatel-Lucent Instant > Settings page*



4. Enter the Organization string, the OV3600 IP address, and the Shared key.
5. Click **OK** when you are finished.

Setting up Instant Automatically

Instant can be configured automatically using DHCP options 60 and 43.

The Alcatel-Lucent Instant Virtual Controller initiates a DHCP request with the DHCP option 60 string 'Alcatel-Lucent Instant.' If the DHCP server is configured to recognize this option 60 string, it will return an option 43 string containing the organization, OV3600 IP, and pre-shared key (Organization is optional). The three pieces of information should be specified using comma separators without any spaces. For example,

```
option 43 text "TME-Instant,10.169.240.8,alcatellucent123"
```

The OV3600 information in the option 43 will be used to connect to OV3600, if OV3600 is not otherwise configured manually on the Virtual Controller.

The organization string can be hierarchical and define sub-folders for different stores. This supports an architecture that is required to manage multiple branches or stores where individual stores can be managed by local administrators.

DHCP server options:

```
ip dhcp pool IAP-Pool
 default-router 10.169.241.1
 option 60 text "AlcatellucentInstantAP"
 option 43 text "Acme:Store1,10.169.240.8,alcatellucent123"
 network 10.169.241.0 255.255.255.0
 authoritative
!
ip dhcp pool IAP-Pool2
 default-router 10.169.242.1
```

```
option 60 text "AlcatellucentInstantAP"
option 43 text "Acme:Store2,10.169.240.8,alcatellucent123"
network 10.169.242.0 255.255.255.0
authoritative
```

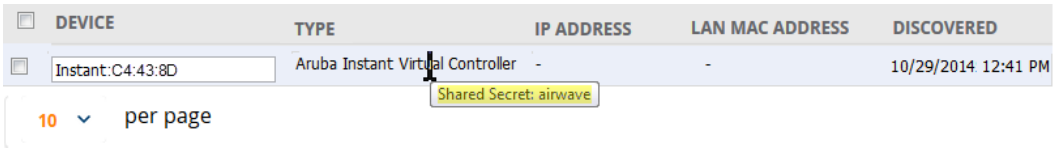
In the example configuration shown above, the following group and folder structure is created on OV3600:

- A group called Acme is created.
- A top-level folder called Acme is created.
- Two sub-folders called Store1 and Store2 are created which will contain the IAPs.

Verifying the Shared Secret

After the role is enabled, the Alcatel-Lucent Instant device will appear in the **APs/Devices > New** page, the admin user should mouse over the value under the **Type** column to verify the device's Shared Secret with OV3600, as shown in Figure 2.

Figure 2: *Mouse over the Type column to view the Shared Secret*



If the incoming Shared Secret matches the one you created, select **Add**, then **Save and Apply** in the confirmation page.

NOTE

With an Organization specified, you do not have to select any Group or Folder from the drop-down menus on the **APs/Devices > New** page. In fact, if you do change the Group/Folder drop-down menus, all Organization-specified Virtual Controllers will ignore these values and will use the folder/group values from the Organization String instead. If you select **Add** for some non-Alcatel-Lucent Instant devices as well as some Organization-specified Virtual Controllers, the drop-down menus will apply to the non-IAPs but not the Virtual Controllers. If you have any Virtual Controllers with no Organization specified the first time they communicate with OV3600 then they will be placed in the Folder/Group drop-box values you have selected.

Completing the Setup

After the setup is completed, determine whether the devices in your groups will be managed using template-based configuration or using Instant Config, and then refer to the following sections.

- Using Template Configuration on page 17
- Using Instant Config on page 25

NOTE

Devices will revert to Monitor Only mode when you change group configuration from Instant Config to Template based.

Template configuration allows you manage OAW-IAP devices with minimal administrative intervention by applying a group-based template configuration to all devices that are added to the group.

NOTE

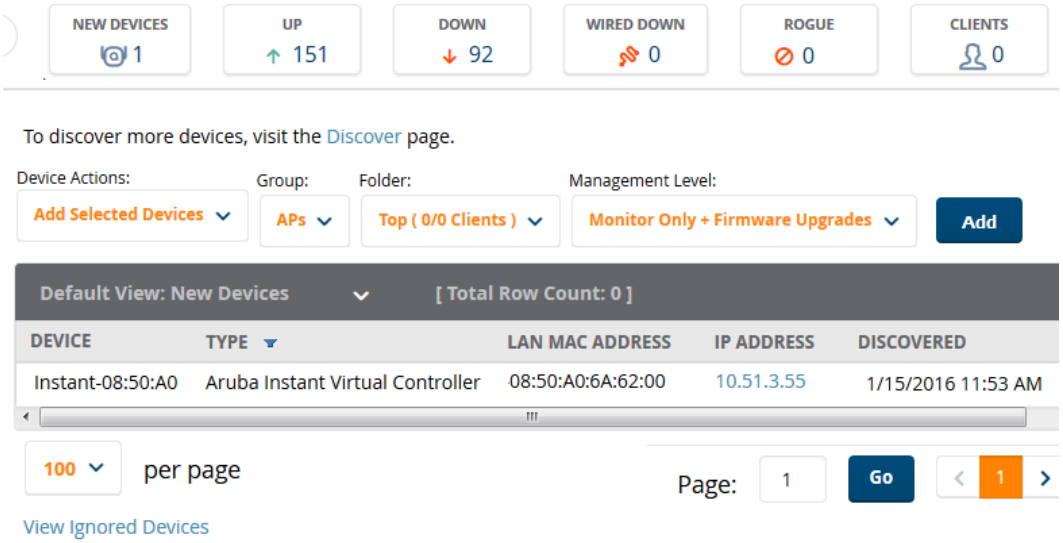
Be sure that the default configuration is validated and has been pre-tested in a non-production environment prior to applying it to a production network.

Additional information about creating templates for Alcatel-Lucent Instant is available in the *OmniVista 3600 Air Manager 8.2 User Guide*.

Adding the First Instant Device to OV3600

After the first Instant device receives the OV3600 server information from the DHCP server, or after OV3600 server information is manually configured, the Instant device appears as a new device in OV3600. This Virtual Controller is added in **Monitor Only** mode.

Figure 3: *A new Instant device in OV3600*



1. Click **Add** to add the device. A Group and Folder do not have to be selected. The Instant device will automatically get added to the new group that was created.
2. Select **Apply Changes Now** to add the Instant device to the group.

Updating the Instant Template

As stated previously, the first Instant network that is added to OV3600 automatically includes the default configuration that is used as the template to provision other Instant networks. You can view and, if necessary, edit this template directly on the **Groups > Templates** configuration page.

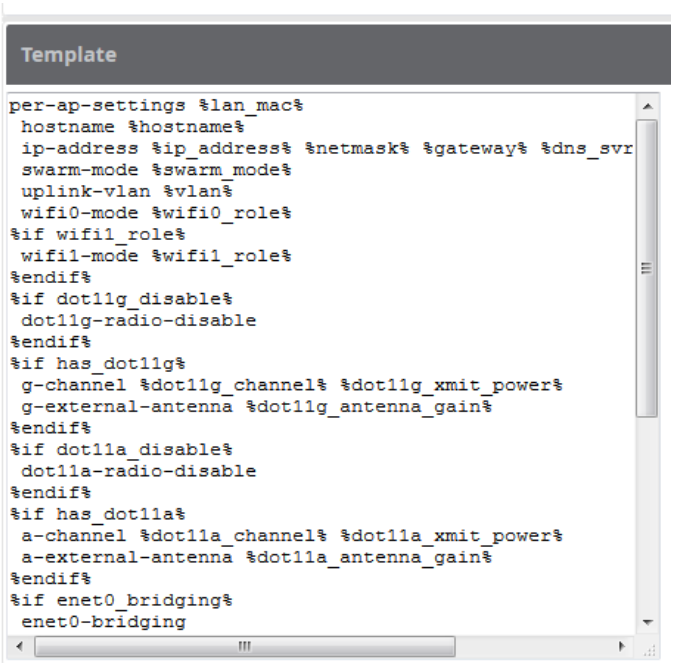
NOTE

The **Groups > Templates** page is not available if Instant Config is enabled.

NOTE

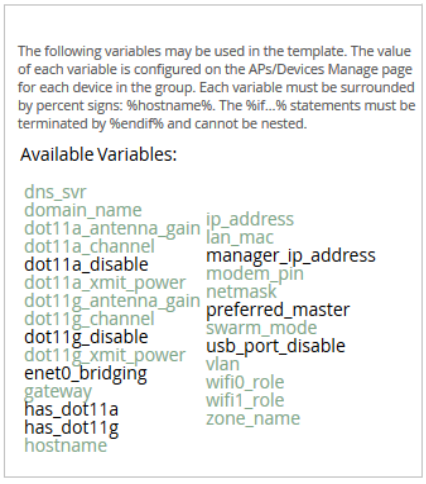
Be sure that the default configuration is validated and has been pre-tested in a non-production environment prior to applying it to a production network. Any changes that are made to this configuration will follow the same process each time and will be applied to other Instant networks.

Figure 4: *The Instant template editor*



If you want to add additional variables to the template, the Allowed Variables section just to the right of the Instant template editor shows you the set of variables that can be added.

Figure 5: *Sample Allowed Variables*

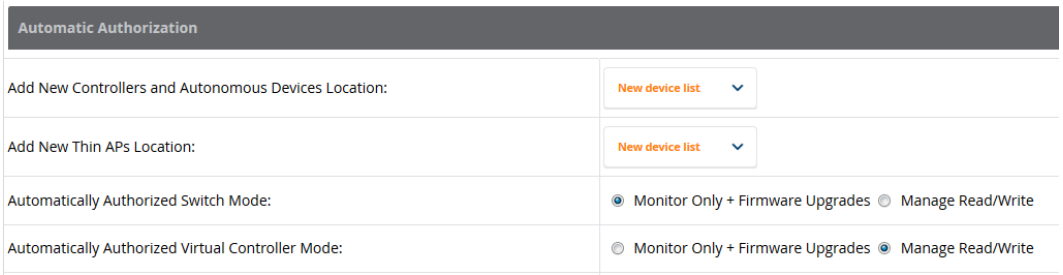


Refer to the *OmniVista 3600 Air Manager 8.2 User Guide* or detailed information about templates and variables.

Adding Additional Instant APs to OV3600

After the first Instant device has been provisioned and set up in OV3600, additional Instant networks in other locations can be added and provisioned automatically. To do this, set the **Automatically Authorized Virtual Controller Mode** option to **Manage Read/Write** on the **OV3600 Setup > General** page.

Figure 6: *Setting devices to Manage Read/Write mode*



When the second Instant contacts OV3600 using the DHCP server options as described previously, and that second Instant device has the same Shared key, it shows up on OV3600. Because the devices are in **Manage Read/Write** mode, there is no need for manual intervention to provision these new Instant networks. The new networks will automatically be placed into the same group (if this is the desired configuration), but a new folder will be created to contain these devices.

NOTE

Keep Alcatel-Lucent Instant devices in Monitor Only mode to audit the device and to ensure that configurations are not automatically pushed. This practice is consistent with the rest of OV3600.

The golden template configuration from the first Instant network is used to provision the second Instant network in the new folder. When provisioning is complete, the status of the device will change from **Verifying** to **Good**.

Adding Multiple Devices from a File

You can add devices in bulk from a file to OV3600. Here you also have the option of specifying vendor name only, and OV3600 will automatically determine the correct type while bringing up the device. If the .csv file includes make and model information, OV3600 will add the information provided in the file. It will not override what you have specified in this file in any way.

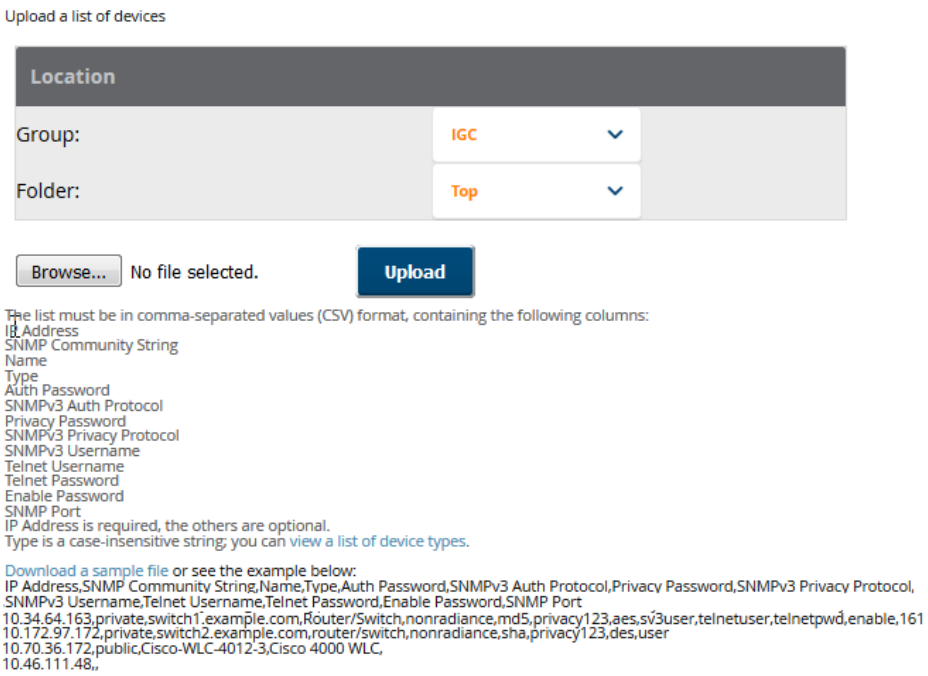
The CSV list must contain the following columns:

- IP Address
- SNMP Community String
- Name
- Type
- Auth Password
- SNMPv3 Auth Protocol
- Privacy Password
- SNMPv3 Privacy Protocol
- SNMPv3 Username
- Telnet Username
- Telnet Password
- Enable Password
- SNMP Port

You can download and customize a file.

1. To import a CSV file, go to the **Device Setup > Add** page.
2. Click the **Import Devices via CSV** link. The **Upload a list of devices** page displays. See Figure 7.

Figure 7: *Device Setup > Add > Import Devices via CSV Page Illustration*



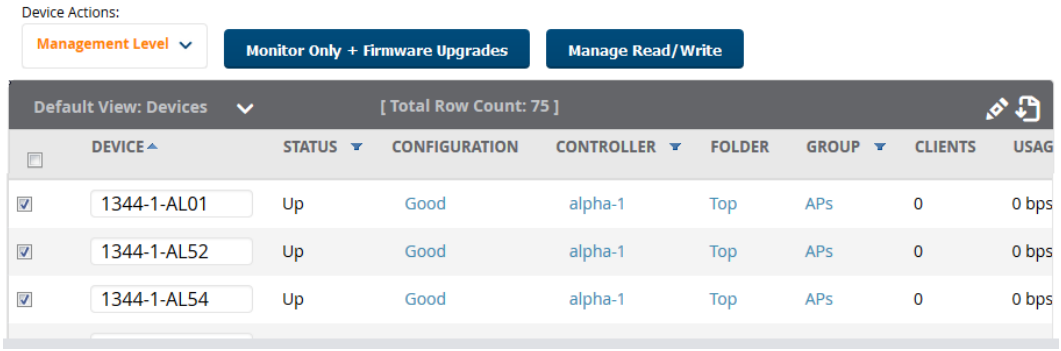
3. Select a group and folder into which to import the list of devices.
4. Click **Choose File** and select the CSV list file on your computer.
5. Click **Upload** to add the list of devices to OV3600.

Changing the Mode to Monitor Only for New Instant Devices

A best practice for using Instant in OV3600 is to change the mode for new devices to Monitor Only. This ensures that the configuration for the new devices does not get unintentionally overwritten and is a consistent behavior and practice throughout OV3600.

1. Navigate to **AP/Devices > List** page.
2. Filter the devices by the folder name using the Folder drop down menu on the top portion of the page.
3. Select the **Modify Devices** (pencil) icon, and select all devices.
4. Click the **Device Actions** drop-down list and select **Management Level**.
5. Select **Monitor Only + Firmware Upgrades** .
6. You can apply the changes immediately or schedule the change to be applied later.

Figure 8: *Changing the mode to Monitor Only*



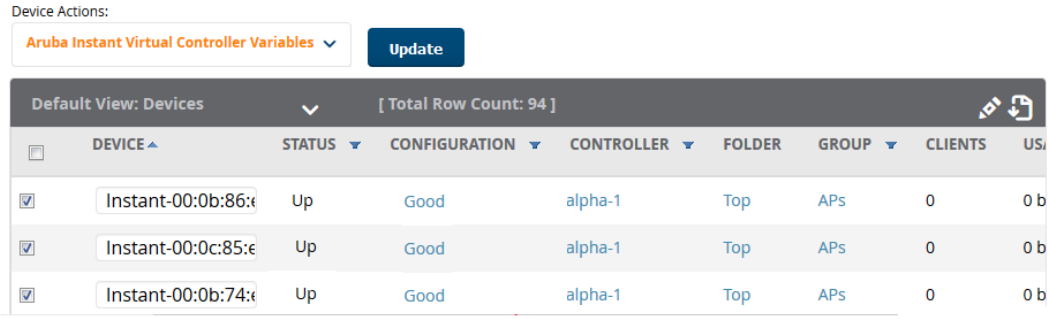
Editing Variables

OmniVista 3600 Air Manger includes support for editing variables on virtual controllers that have different values. Some common variables include Name, LAN IP Address, Syslog Server, Timezone, Radius Servers, and RF Band Selection. OmniVista 3600 Air Manger also supports additional generic variables that you can customize (such as adding a new WLAN). The defaults for all VC variables can be changed from the Template page.

Perform the following steps to begin editing variables on virtual controllers.

1. On the **APs/Devices > List** page, select **Modify Devices** (wrench icon), and then select the check box beside the virtual controllers that you want to edit.

Figure 9: *Select the VCs to update*



2. Click the **Update** button next to the Alcatel-Lucent Instant Virtual Controller Variables field. The opens the Variable Edit page.

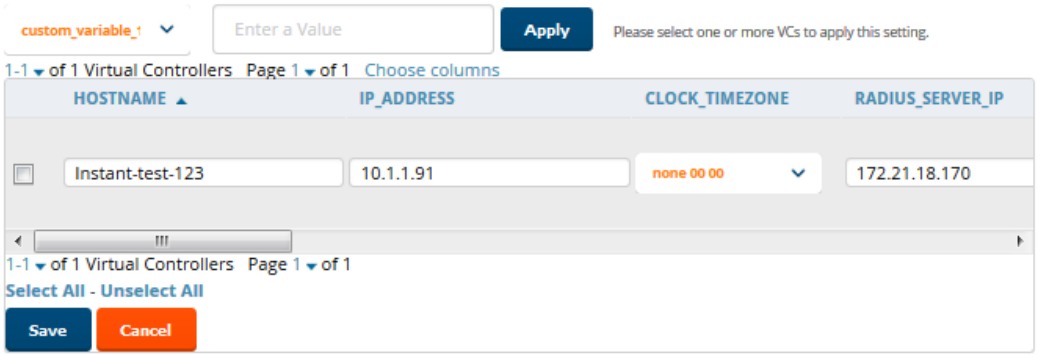
Refer to the following sections for information on using the Variable Edit page:

- "Editing Individual Virtual Controller Values" on page 21
- "Bulk Editing of Multiple Virtual Controllers" on page 22
- "Using Custom Variables" on page 22
- "Applying Changes" on page 23

Editing Individual Virtual Controller Values

After you click **Update** in the Modify Devices form, the Variable Edit screen displays. This screen includes two sections. The lower section includes editable fields. Enter values or select options directly in these fields.

Figure 10: *Change the Individual VC Names*



Bulk Editing of Multiple Virtual Controllers

The upper section of the **Variable Edit** page includes a drop down menu of variables that can be used to apply bulk changes to all VCs that you select in the lower section.

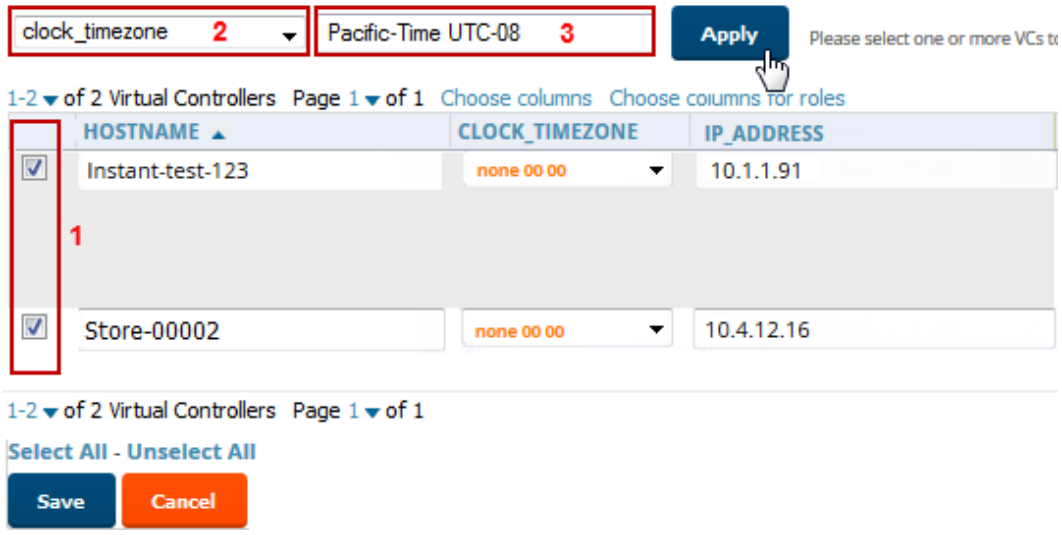
Perform the following steps to apply bulk edits.

1. In the edit screen, select the check box beside the virtual controller(s) that will be edited. (See Figure 11.)
2. Select the variable that you want to change from the drop down list in the upper section.
3. Enter or select the new value. In the example below, clock_timezone is changed to Pacific time for both VCs.
4. Click **Apply** when you are finished making each change. The selected virtual controllers will display the updated information. Follow these same steps for each variable that you want to edit.

NOTE

The **Apply** button remains disabled until a virtual controller is selected (via its check box).

Figure 11: *Change the Timezone variable*



Using Custom Variables

The Variable Edit page includes additional generic fields, labeled as **custom_variable_1** through **custom_variable_10**. The custom_variable_1 field can be used to add multiple lines of text rather than a single entry (as indicated by the larger note field on the UI.) This is useful, for example, if you want to add a new WLAN configuration to a VC. Other variables can be used to enter additional, single support commands.

The process for creating custom variables is the same as that used in editing available variables. To create a custom variable on a single VC, use the horizontal scroll bar (if necessary) to locate the variable you want to edit, and type directly into that field. To add the same custom variable to all virtual controllers, select the check box beside the VCs you want to edit, select the variable from the drop-down menu at the top of the edit page, enter the variable information, and then click **Apply**.

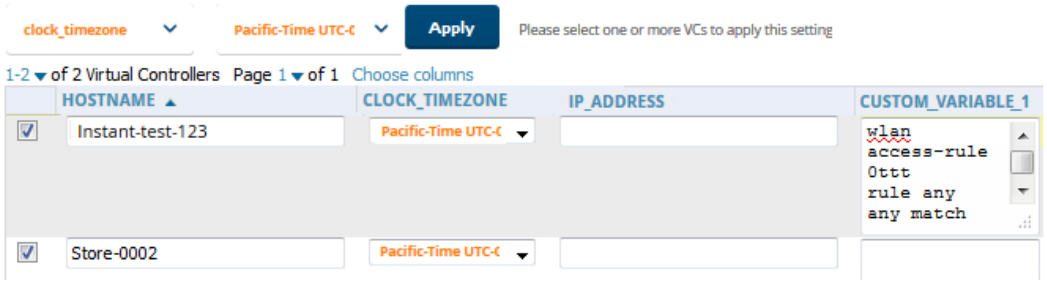
NOTE

Your template must support or contain the commands and/or configuration that you add using the custom variables in order for any changes to be pushed to your devices.

In the image below, a new WLAN config is added to Store-00001 with the following configuration:

```
wlan access-rule 0ttt
rule any any match any any any permit
wlan ssid-profile 0ttt
type employee
essid 0ttt
wpa-passphrase 8d072cdea5bcec1eaae3cb597975951fbd7d7124120e3217
opmode wpa2-psk-aes
max-authentication-failures 0
rf-band all
captive-portal disable
dtim-period 1
inactivity-timeout 1000
broadcast-filter none
dmo-channel-utilization-threshold 90
```

Figure 12: *Entering a custom variable (cropped)*



Applying Changes

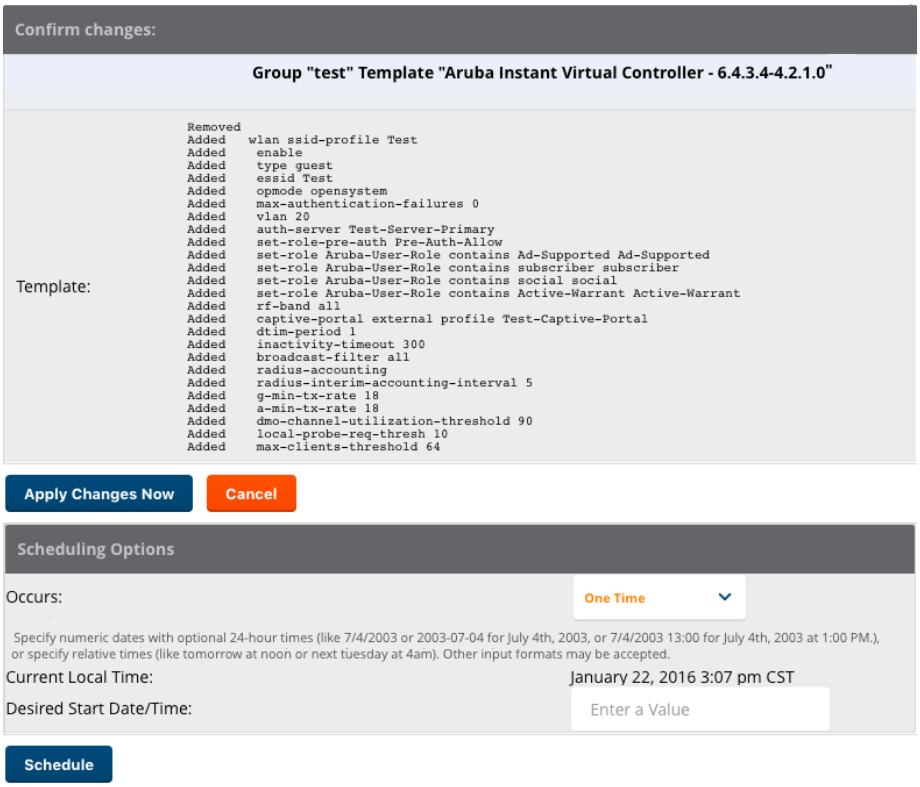
Select **Save** when you are done updating variables.

NOTE

All changes will be lost if you do not click **Save**.

The **Confirm Changes** page opens, displaying your recent edits. At this point, you can apply changes immediately, you can schedule to apply the changes at a later time, or you can cancel.

Figure 13: *Confirm Changes page*



Selecting **Cancel** returns you to the Variable Edit page, where your latest edits will still be visible. Click **Cancel** again to return to the **APs/Devices > List** page with no changes saved or applied.

Instant Config provides an alternate method for configuring and managing devices running Instant 3.2 to Instant 4.2.3. After Instant devices are added to a group, this feature is available when you select **Enable Instant GUI Config** option on the **Groups > Basic** page. When this feature is enabled, the **Groups > Templates** , **APs/Devices > Manage**, and **APs/Devices > Audit** pages are unavailable. Instead, all OAW-IAP management is performed from the **Instant Config** pages in OV3600.

NOTE

Instant Config is fully compatible with devices running Instant version 3.2 to 4.2.3. Instant devices running different firmware versions cannot reside in the same group. Each group can only include devices with the same firmware version.

Refer to the following sections for more information:

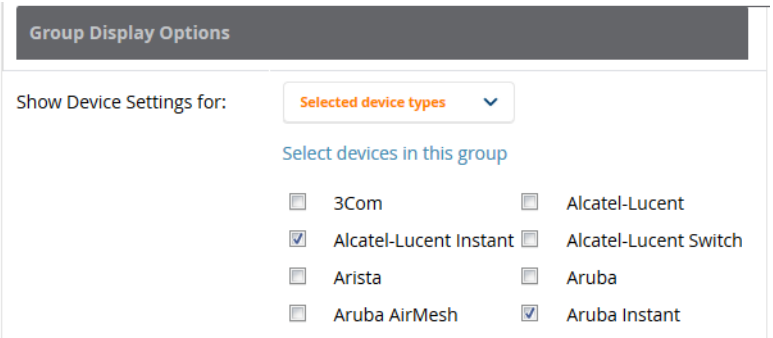
- "Enabling Instant Config" on page 25
- "Importing Devices for Instant Config" on page 27
- "The Instant Config UI" on page 28
- "Where to Get Additional Information" on page 32

Enabling Instant Config

The **Groups > Instant Config** pages are not available by default. Perform the following steps to enable this feature.

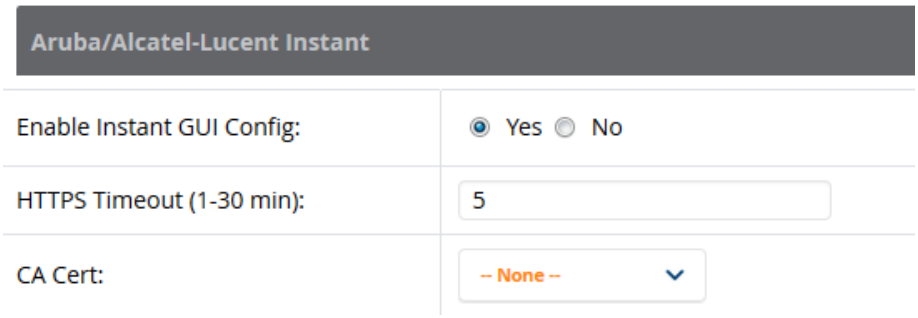
1. On the **Groups > List** page, click **Add**.
2. Name the group, and click **Add**.
3. On the **Groups > Basic** page, scroll down to the Group Display Options section. Ensure that the **Show Device Settings** for option includes Instant devices. Instant Config is only available for groups that include Instant devices. The following image specifies to include only selected Instant devices.

Figure 14: *Include Instant devices*



4. Save and apply changes. Upon completion, you are directed to the **Groups > Monitor** page. Navigate back to the **Groups > Basic** page.
5. In the Aruba/Alcatel-Lucent Instant section, specify **Yes** for the **Enable Instant GUI Config** option.
6. Click **Save and Apply**.

Figure 15: *Enable Instant Config*



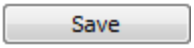
Buttons and Icons in Instant Config

Table 2 describes the buttons and icons that are available on the Instant Config pages.

Table 2: *Instant Config Buttons and Icons*

Function	Image	Description
Audit	Audit	On the **OV3600 > Config Archive** page for a device, select this to audit a device's configuration.
Auditing or applying configuration		Indicates that the device is undergoing an audit or that a new configuration is being applied.
Cancel	Cancel	Cancels the current edit or task.
Delete		Deletes a network.
Down		Indicates a device is down.
Employee Usage	Employee	Indicates the network is used for Employee data.
Filter (Funnel icon)		Filters a list by values of the selected column. To reset all filters in all columns, click the Reset filters link at the bottom of the table.
Guest Usage	Guest	Indicates that the network is used for Guest data. This is normally used when captive portal is enforced.
Mismatched		Indicates a mismatched device configuration.

Table 2: *Instant Config Buttons and Icons (Continued)*

Function	Image	Description
Multi-Edit		Used with text entry fields to perform an edit across multiple devices. This option is only available when the Instant Config focus is the Group. It is not available when viewing devices or networks.
Note		Drag a note from the menu bar onto the configuration page. Notes that are placed on configuration pages can be used to indicate why you changed an option or setting.
Override	*	Indicates that an override exists. Navigate to the **OV3600 > Overrides** page for the selected device to view the override(s).
Policy Error	!	Indicates that OV3600 is unable to push or compare configurations because the policy version does not match the firmware version.
Save		Saves the information on the current page in the OV3600 database.
Save & Apply		Saves changes to OV3600's database and applies all changes. **NOTE:** Instant Config does not currently allow users to apply individual edits. After you click **Save and Apply**, changes made on other pages that have not been canceled will also be applied.
Voice Usage		Indicates that the network is used for voice traffic. This is normally used when all traffic must be prioritized.

Importing Devices for Instant Config

The section "Enabling Instant Config" on page 25 describes how to set up an Instant Config group. Devices that are added to this group can be managed using Instant Config.

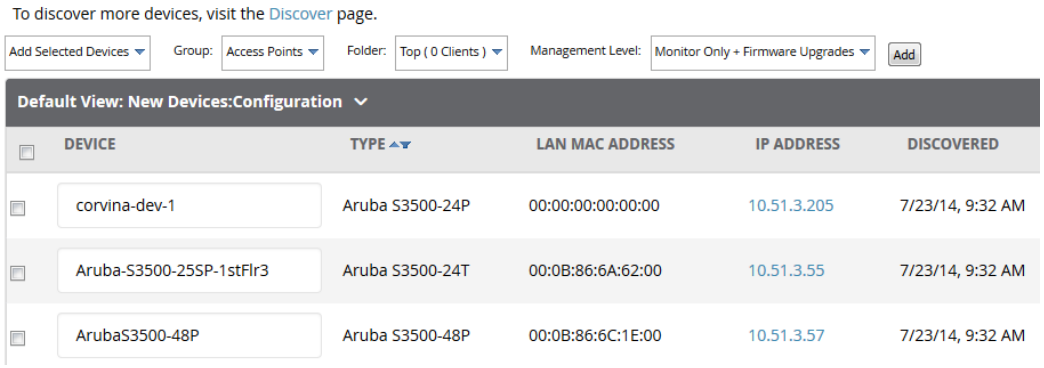
When importing Instant devices in bulk to a new group, OV3600 randomly selects the first device that it encounters and uses that device as the "golden" configuration. The configuration is used across all other Instant networks. As a recommended best practice, select a device that can be used as the golden configuration, and add it to the group before adding any others. New devices that are added after the golden configuration device will include the configuration from that golden device.

Add Newly Discovered Devices to a Group

1. Select the **New Devices** link in the header to launch the **APs/Devices > New** page where information about all newly discovered devices is displayed Figure 16). You might launch a different page if you specified a different location while defining a scan set.

   The information on this page includes the related switch (when known/applicable), the device type (including vendor and model), the LAN MAC Address, the IP address, and the date/time of discovery. See Figure 16.

Figure 16: *APs/Devices > New Page*



2. Select the check box beside the device or devices that you want to add.
3. Use the drop-down lists to select the **Group** and **Folder** to which the devices will be added. The default group appears at the top of the Group list.
4. Select **Add** when you are done. At this point, you can go to the **APs/Devices > List** page and select the folder that contains the newly added devices. This enables you to verify that the devices have been properly assigned.

NOTE

Devices cannot be added to a Global Group because groups designated as "Global Groups" cannot contain access points.

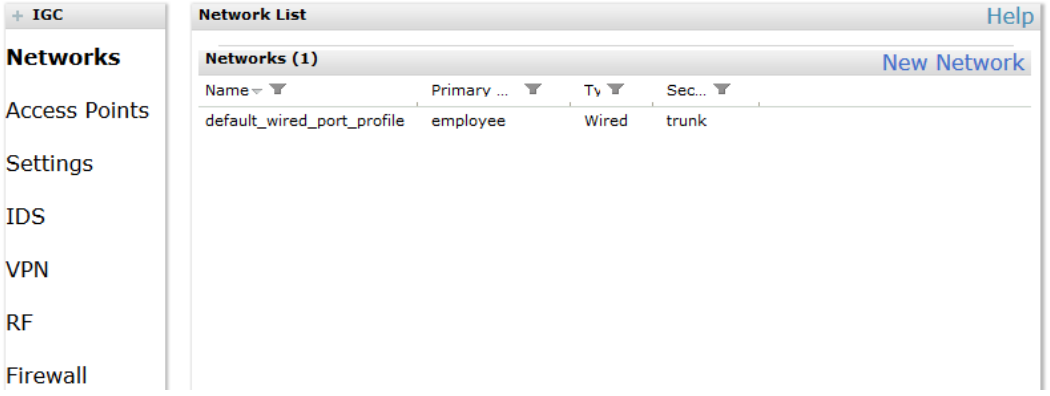
The Instant Config UI

The **Groups > Instant Config** feature allows network administrators to configure Instant access points on the network remotely through OV3600. The flow of pages within the Instant Config UI closely resemble the pages available in Alcatel-Lucent Instant.

NOTE

When performing Instant configurations within OV3600, be sure to have a copy of the *Alcatel-Lucent Instant User Guide* available.

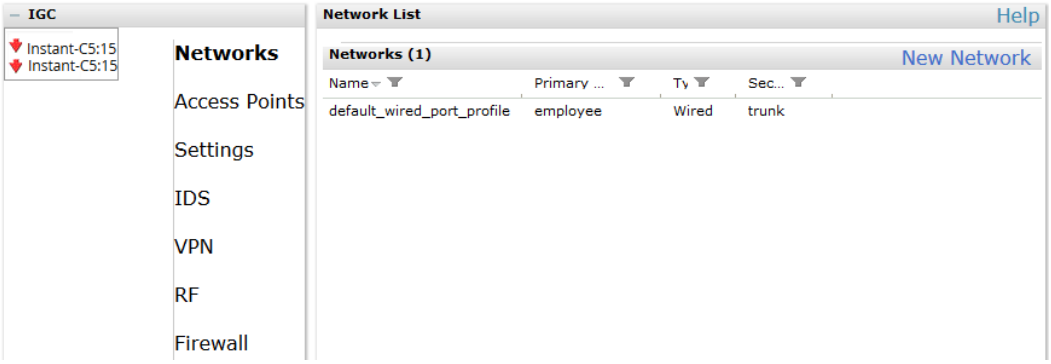
Figure 17: *Groups > Instant Config*



Group Focus

The Instant Config page opens in the Group focus. Figure 18 shows a group named "IGC." Click the group name to view the available devices.

Figure 18: *Group Focus*



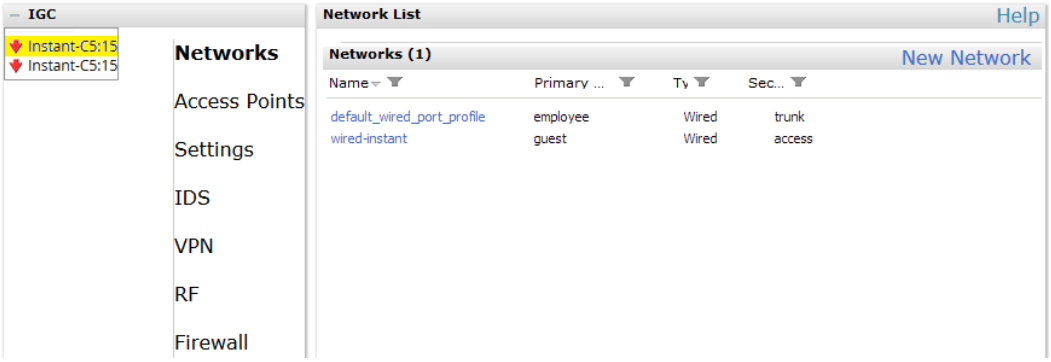
Group focus is used to changes settings and apply those changes to all devices within the group.

Virtual Controller Focus

Virtual Controller focus is used to change settings for selected devices. From this page, you can add and configure wired and wireless networks. Select a device from the Group list to change to Device focus. Navigation at the top of the page indicates the currently selected device. The selected device is also highlighted in the list of Devices.

In Figure 19, the Instant-C5:15:F6 device is selected. You can see that the device currently has two networks configured.

Figure 19: *Device Focus*

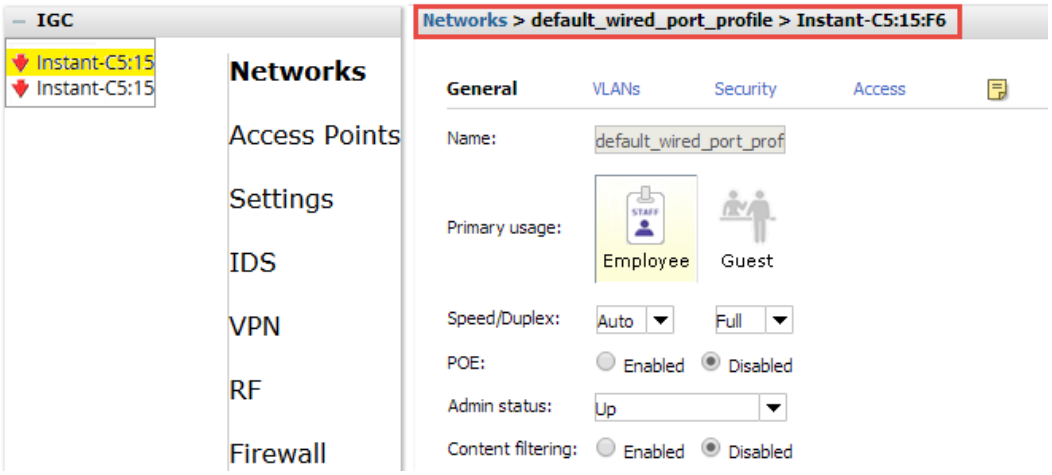


Network Focus

Network focus is used to configure settings for the networks available on each device, for example, the authentication mode, access point radio settings, VPN settings, etc. From this page, you can also add and delete wired and wireless networks.

Figure 20 shows the General settings for the "default_wired_port_profile" network on the Instant-C5:15:F6 device.

Figure 20: *Network Focus*



Instant Config > OV3600

The IGC's OV3600 menu provides options to view configuration history, configuration mismatches, and AP events, as well as, settings that dictate how OV3600interacts with IAP groups and virtual controllers.

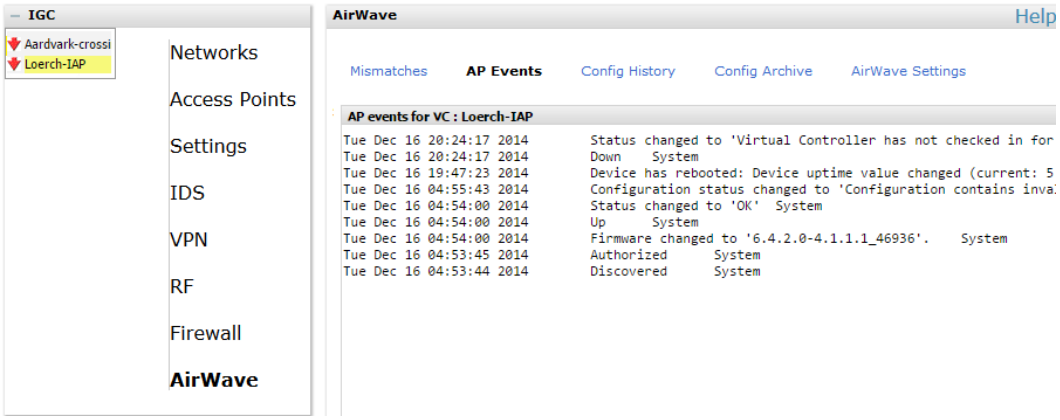
Mismatches

The **Mismatches** page displays the configuration mismatches for the selected virtual controller. For more information about resolving mismatches through the Instant Config, see "Resolving Mismatches when Instant Config is Enabled" on page 34.

AP Events

The **AP Events** page provides a list of events pertaining to the selected virtual controller since being discovered by OV3600.

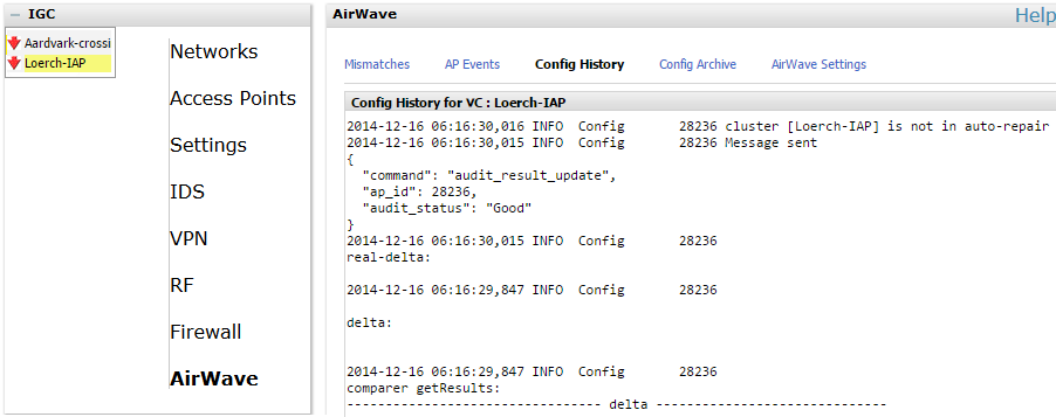
Figure 21: *OV3600 > AP Events*



Config History

Config History displays the current and previous configurations on the selected virtual controller as well the delta between the two configurations.

Figure 22: *OV3600 > Config History*



Config Archive

The Config Archive page displays the current running configuration on the selected virtual controller. Additionally, you can run an audit on the selected virtual controller's configuration.

Clicking on the caret displays drop-down list of all audited configurations. By selecting two configurations and clicking **Delta**, you can view the difference between any two configurations.

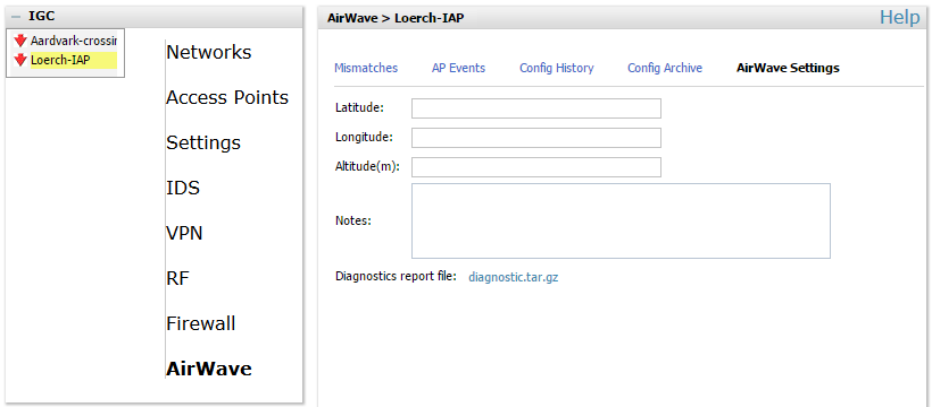
AirWave Settings

The OV3600 Setting page changes depending on whether or not a virtual controller is specified.

With A Virtual Controller Specified

This page allows you to enter and save the latitude, longitude, altitude in meters, and any notes about the specified virtual controller.

Figure 23: *OV3600 Settings (VC Selected)*



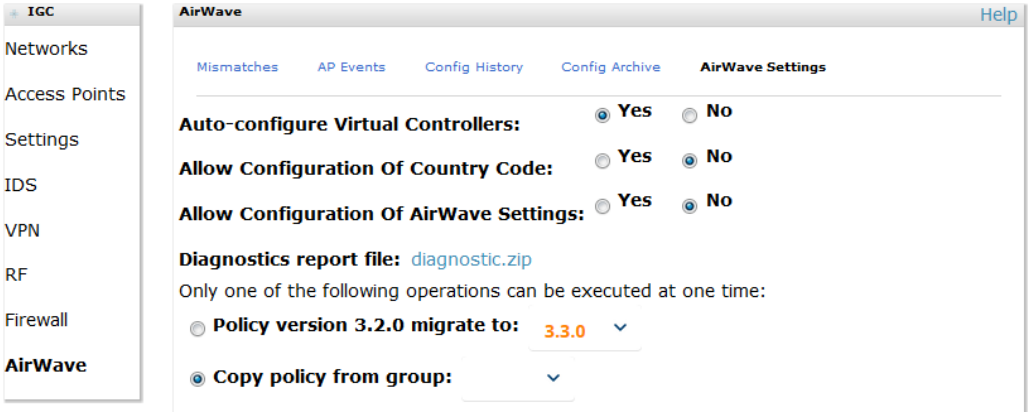
Without A Virtual Controller Specified

This page contains a number options that allow OV3600 to automatically make changes to certain settings on any virtual controller connected to the OV3600 server.

- **Auto-configure Virtual Controller** - Selecting **Yes** allows OV3600 to automatically push configuration to new virtual controllers when the are added to the group.
- **Allow Configuration of Country Code**: Selecting **Yes** allows you to manually configure the country code for the group under **IGC > Settings > General > Country Code**. When No is selected, the previouly described feild is grayed-out. This is set to **No** by default.

- **Allow configuration of OV3600 Settings**: Selecting **Yes** allows you manually configure the OV3600 field under **IGC > Settings > Admin**. When **No** is selected, the previously descibed field is grayed-out and OV3600 pushes this information to each virtual controller in the group. This is set to **No** be default.
- **Policy Version** and **Copy policy from group**: These options cannot be executed at the same time.
  - **Policy Version**: This displays the current policy version, and when selected, allows you to select another from the drop-down menu.
  - **Copy policy from group**: When selected, this option allows you to copy the policy from another group.

Figure 24: *OV3600 Settings (No VC Selected)*



Where to Get Additional Information

Click the Help link (Help) in the upper-right portion of the page open the Instant Configuration User Guide, or refer to the following documents for additional information.

- *Alcatel-Lucent Instant 6.4.4.0-4.2.3.0 User Guide*
- *Alcatel-Lucent Instant 6.4.4.0-4.2.3.0 User Guide*
- *Alcatel-Lucent Instant 6.4.4.0-4.2.3.0 User Guide*
- *OmniVista 3600 Air Manager 8.2 Release Notes*

The following additional tasks can be completed in OV3600. These include configuration and monitoring tasks.

- "Resolving Mismatches" on page 33
- "Enabling the IAP Role" on page 35
- "Monitoring Devices" on page 35
- "Run Commands" on page 36

Resolving Mismatches

After adding a device, the new device will appear in OV3600 as two devices: the first is the Virtual Controller for that Instant network, and the second is the access point itself. In some cases, the Instant device shows up as having Mismatched configuration. This occurs when the OV3600 information was received from Instant via the DHCP server (i.e, was not manually configured). The method for resolving mismatches varies based on whether Instant Config is enabled.

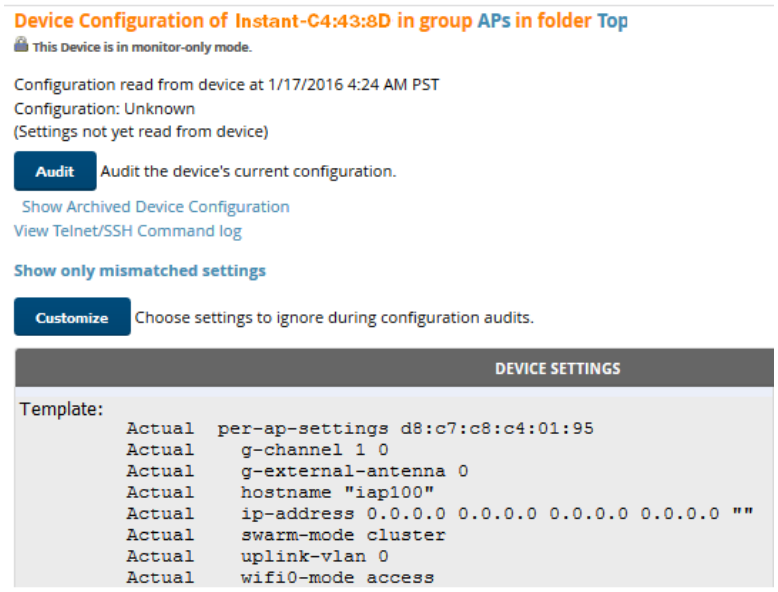
- "Resolving Mismatches when Instant Config is Disabled" on page 33
- "Resolving Mismatches when Instant Config is Enabled" on page 34

Resolving Mismatches when Instant Config is Disabled

When Instant Config is disabled, configuration for OAW-IAP devices is done via the Instant UI. In this case, OV3600 is used to monitor the devices, and when necessary, to update the Instant template and variables within the template.

Clicking on the mismatched device opens the audit page of the device, showing the reason for the mismatch. The configuration shows the desired configuration versus the current Instant configuration. As shown in the following image, the OV3600 IP address, shared secret, and organization string has to be provisioned on the Instant device.

Figure 25: *APs/Devices > Audit page*



Perform the following steps to resolve the mismatch.

1. Navigate to the **AP/Devices > Manage** page for that Instant device.

NOTE

The **APs/Devices > Manage** page is not available when Instant Config is enabled.

2. Change the **Management Mode** option to **Manage Read/Write**.
3. Click on **Save and Apply** at the bottom on the page.
4. When the **Confirm changes** page opens, click on **Apply Changes Now** for the changes take effect.

Upon completion, the configuration will be synced to the Instant network. The status of the device will initially display as 'Verifying' during this process. The status will change to 'Good' after the provisioning is successful.

NOTE

This is the same process for any configuration change sync that is done in future.

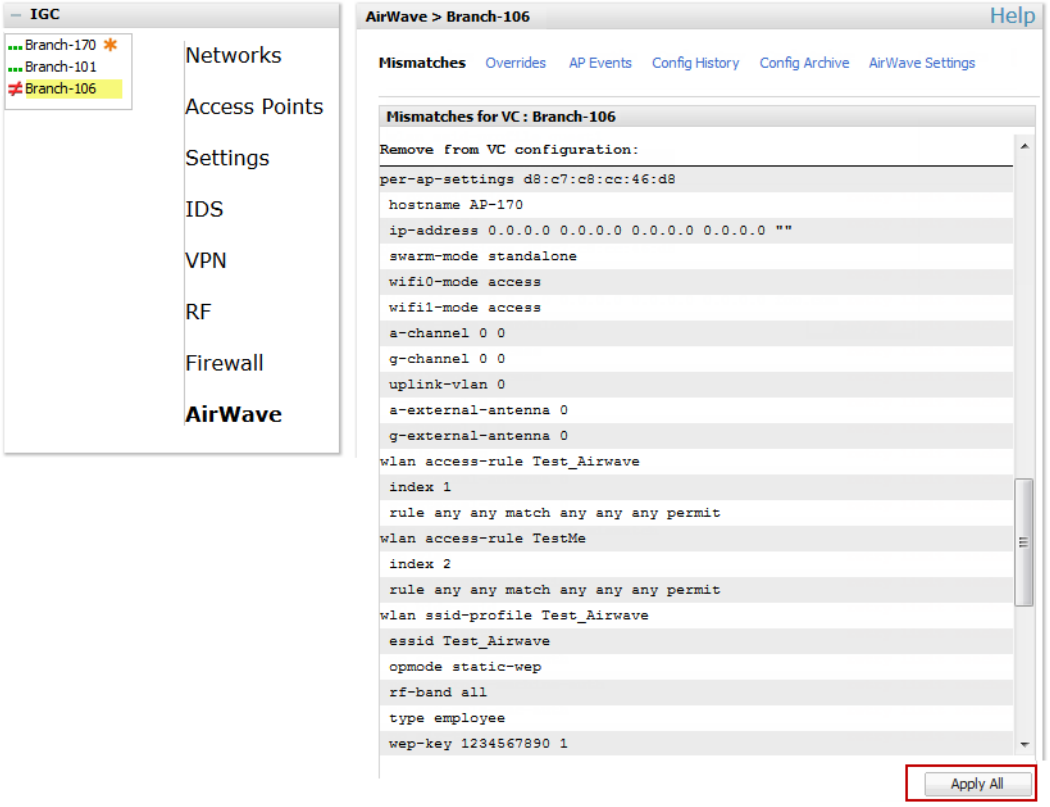
Resolving Mismatches when Instant Config is Enabled

In Instant Config, mismatches are indicated with a red, unequal symbol (≠) beside the device name. Click on the device name, then navigate to **OV3600 > Mismatches** to view the details for mismatch. Click **Apply All** at the bottom of the page to resolve the mismatches.

NOTE

The **Apply All** button resolves all mismatches. You cannot select individual mismatches to resolve.

Figure 26: *Viewing mismatches in Instant Config*

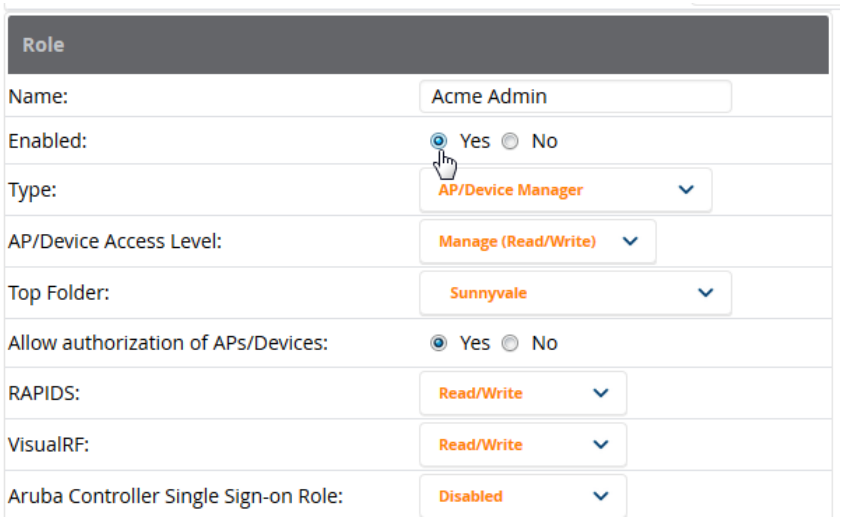


Enabling the IAP Role

As shown previously, new IAP devices can be added to OV3600 automatically. In some cases, after a device is added, the Admin may want to enable store-specific access. In this case, the Admin might enable a specific IAP role.

1. Enable the newly created Admin User Role in **OV3600 Setup > Roles**, as shown in Figure 27.

Figure 27: *Enable Admin User Roles in* ***OV3600 Setup > Roles***



2. In **Groups > Template** for the newly created group, verify the first Virtual Controller's auto-created template.

NOTE

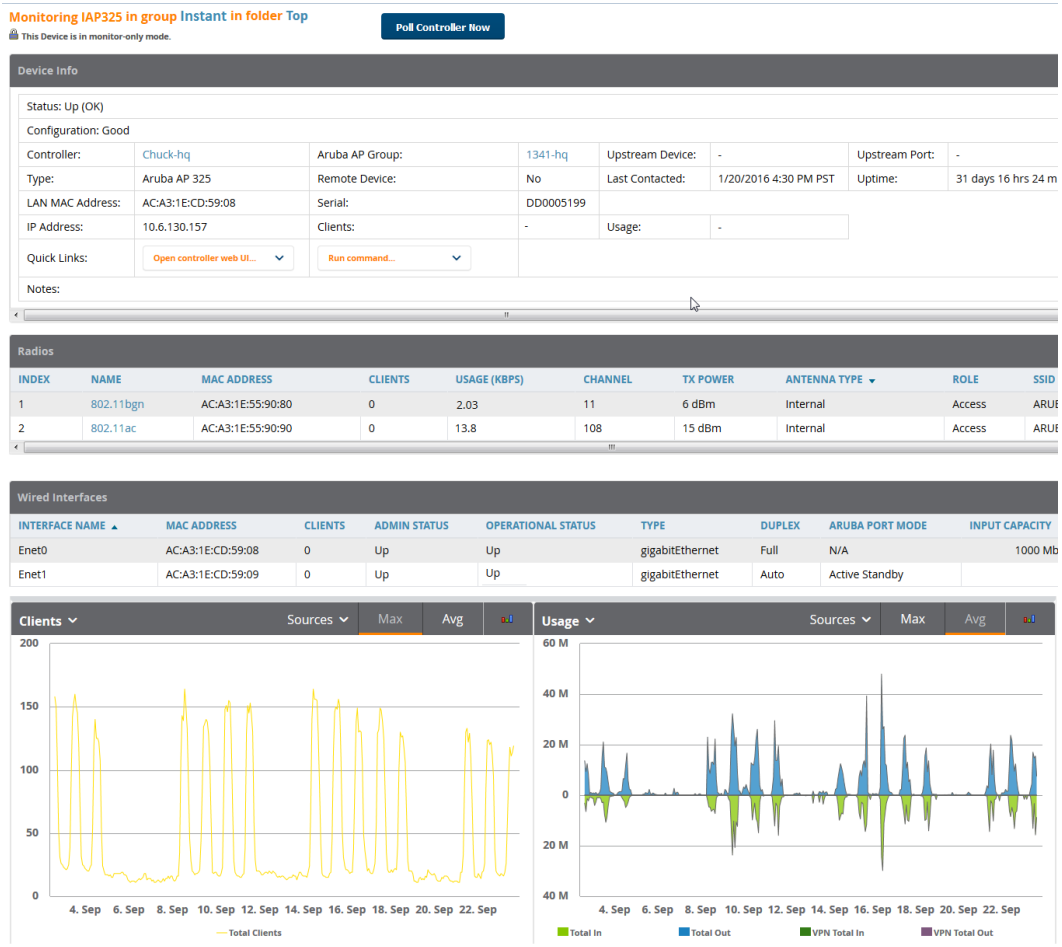
The auto-created template is most useful if the first Virtual Controller for the top-level Organization String is fully configured on-site *before* it is pointed at OV3600 in the Virtual Controller's UI.

3. Evaluate, approve, or ignore incoming Virtual Controllers with a different top level Organization String and/or Shared Secret in the **APs/Devices > New** list. Subsequent IAPs are auto-authorized if they have an Organization/Shared Secret key that matches the Shared Secret key of any existing authorized Virtual Controller in the top-level Organization String.
4. Set the initial Virtual Controller to **Manage Read/Write** mode and push the good configuration to the subsequent IAPs.
5. Set up OV3600 users to have access to specific folders, if desired.

Monitoring Devices

Use the **APs/Devices > Monitor** page to monitor your Instant devices. OV3600 provides you with detailed information for your virtual controller, APs, and radios. This information includes spectrum interferers, rogue clients, and channel utilization. The image below shows an example of radio statistics.

Figure 28: *Monitoring Radios*

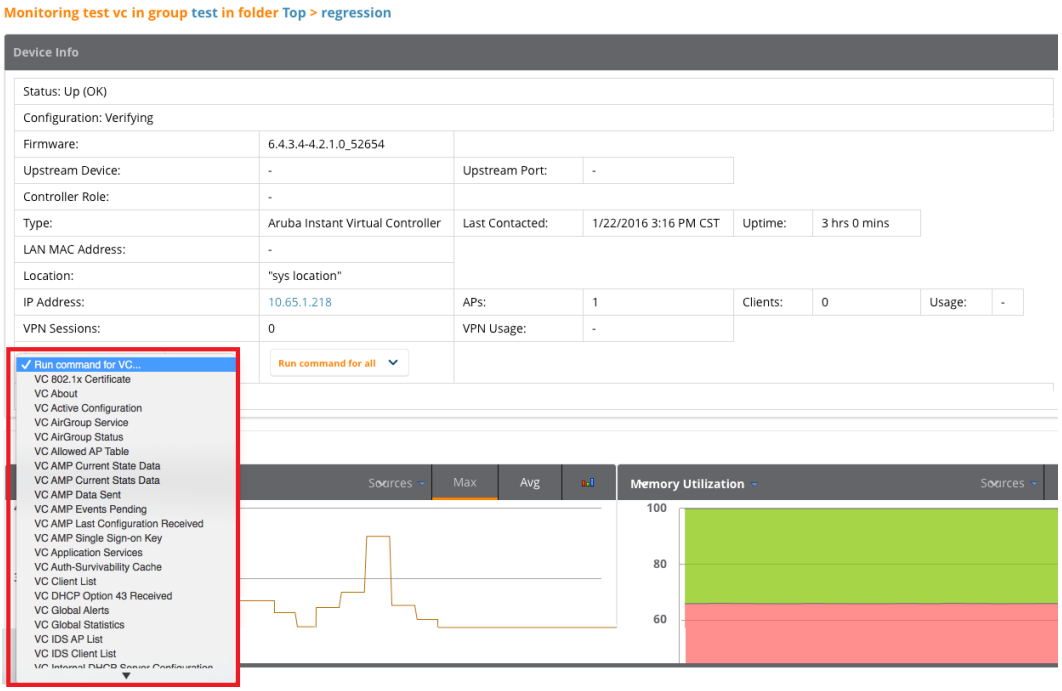


Run Commands

If you are running a minimum of IAP 3.2, the OV3600 **APs/Devices > Monitor** page provides a set of quick links that allow you to specify a command you can run from the virtual controller or from the AP. On the virtual controller, you also have option to run commands for all APs as well as for the current virtual controller.

When you first run a command, the results can take up to a minute to appear. For subsequent commands, the results will appear after one or two seconds.

Figure 29: *Run Commands*



This section describes some best practices to follow when using OV3600 to monitor and configure Instant devices. It also includes some known issues to take into consideration when using OV3600. This list is inclusive of the OV3600 release notes and Instant release notes.

Best Practices

- Keep Instant devices in Monitor Only mode to audit the device and to ensure that configurations are not automatically pushed. This practice is consistent with the rest of OV3600.
- Be sure that the default configuration is validated and has been pre-tested in a non-production environment prior to applying it to a production network. Any changes that are made to this configuration will follow the same process each time and will be applied to other Instant networks.
- If you modify an OAW-IAP device's configuration through the Instant user interface, we recommend that you put the device in Manage Mode, and then use the **Import Settings** button from the **APs/Devices > Manage** page. When using this method instead of Instant Config, you can import settings and update the template from a single page. Import the settings and then wait approximately a minute. If you find that you need to also update the template, the **APs/Devices > Manage** page for the Virtual Controller provides a link to quickly access the template.

Known Issues with the Instant Integration with OV3600

- If the Organization String configured on the Instant device is different than what is statically written in the template, OV3600 will overwrite the configured Organization String to match the template.
- The Instant primary device sends an update message to OV3600 every minute. If the send fails, then the device will continue to send a state message every two seconds. If the send fails 25 times, then Instant will determine that OV3600 is down.