

About this Document

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

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Overview of Alcatel-Lucent Instant

Alcatel-Lucent Instant is a system of access points per Layer 2 subnet. Alcatel-Lucent Instant IAPs are controlled by a single IAP that serves a dual role as a primary Virtual Controller, 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 IAP/Virtual Controller you add to the network must be configured; the subsequent IAPs will all inherit the necessary configuration information from the Virtual Controller. Alcatel-Lucent Instant continually monitors the network to determine the IAP that should function as the Virtual Controller at any time, and the Virtual Controller will move from IAP to IAP as necessary without impacting network performance.

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

Using Alcatel-Lucent Instant with OV3600

OV3600 can be used to provision and manage a multi-site deployment of 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 and also give the administrator 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 each have an Alcatel-Lucent Instant Virtual Controller and 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 Alcatel-Lucent Instant systems into OV3600 is unique from the setup of any other device class due to the following considerations:

- **Discovery:** OV3600 does not discover Alcatel-Lucent Instant devices via scanning (SNMP or HTTP) the network. Each Alcatel-Lucent 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, Alcatel-Lucent Instant automates many tedious steps of developing a complex hierarchical structure of folders, config groups, templates, admin users, and admin roles for Alcatel-Lucent Instant.
- **Communication via HTTPS:** Because Alcatel-Lucent Instant devices may be deployed behind NAT-enabled firewalls, Virtual Controllers push data to OV3600 via HTTPS. OV3600 initiates no connections to Alcatel-Lucent 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 Alcatel-Lucent Instant IAPs and one Alcatel-Lucent Instant Virtual Controller. You can identify the IAP acting as the Virtual Controller by their identical LAN MAC addresses in **APs/Devices > List** pages, 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 Alcatel-Lucent Instant data sheet for full operational and regulatory specifications, hardware capabilities, antenna plots, and radio details.

Setting up Alcatel-Lucent Instant

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

- Manually. See ["Setting up Alcatel-Lucent Instant Manually"](#) on page 3.
- Automatically (through DHCP). See ["Setting up Alcatel-Lucent Instant Automatically"](#) on page 4.
- Using Aruba Activate. Refer to the documentation that accompanies Aruba Activate for detailed information.

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.

An OV3600 administrator sends an Organization String and Shared Secret key along with OV3600's IP address to the on-site installer. The OV3600 admin later validates the first Virtual Controller's Organization String and its Shared Secret when it appears in the **APs/Devices > New** list. The administrator also enables user roles to administer the Alcatel-Lucent Instant systems, makes any other changes in OV3600 as necessary.



The first Instant network that is added to 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 *OV3600 7.6 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 Alcatel-Lucent 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

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

The Shared Key

The Shared key is used by the administrator to manually authorize the first Virtual Controller for an organization that appears in the **APs/Devices > New** page in OV3600. Any string is acceptable, but this string must be the same for all devices in your organization.



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.

At this point, the admin in our example should send the Organization String, Shared Secret key, and OV3600 IP address to the on-site installers setting up Alcatel-Lucent Instant hardware inside the storefronts.

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.

Figure 1 Alcatel-Lucent Instant > Settings page.

The screenshot shows the 'Settings' window with the 'Local' tab selected. Under 'Local', there is a dropdown menu for 'Authentication' set to 'Internal', and text input fields for 'Username' (containing 'admin'), 'Password', and 'Retype'. Under 'AirWave', there are text input fields for 'Organization', 'AirWave IP', 'AirWave backup IP', 'Shared key', and 'Retype'. At the bottom left, there is a link 'Hide advanced options'. At the bottom right, there are 'OK' and 'Cancel' buttons.

3. Locate the OV3600 section on the **Admin** tab.
4. Enter the Organization string, the OV3600 IP address, and the Shared key.
5. Click **OK** when you are finished.

Setting up Alcatel-Lucent Instant Automatically

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

The Alcatel-Lucent Instant Virtual Controller initiates DHCP request with the DHCP option 60 string 'AlcatelLucent 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-Pool1
  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.

Remaining Manual Admin Tasks in OV3600

Once the setup is complete, what remains is to verify the shared secret and add the device.

- "Verifying the Shared Secret" on page 5
- "Adding the First Instant Device to OV3600" on page 5

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



Device	Type	IP Address	LAN MAC Address	Discovered
<input type="checkbox"/> Instant-C4:43:8D	Aruba Instant Virtual Controller	-	-	10/29/2012 12:41 PM

Shared Secret: airwave

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

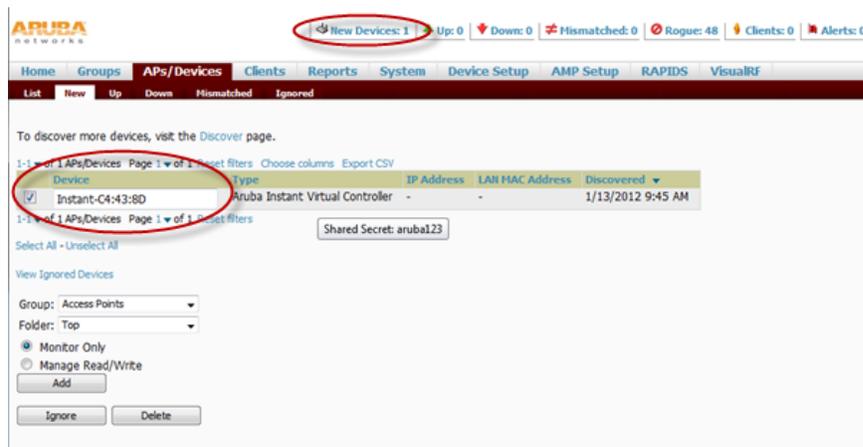
With an Organization specified, you do not have to select any Group or Folder from the drop-down menus on the **APs/Devices > New** page. In fact, if you do change the Group/Folder drop-down menus, all Organization-specified Virtual Controllers will ignore these values and will use the folder/group values 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.



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 appear as a new device in OV3600. As shown, 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.

Resolving Mismatches

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).

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 4 APs/Devices > Audit page

Device Configuration of **Instant-C4:43:8D** in group **TME-Instant** in folder **Top > TME-Instant > Store1**
 This Device is in monitor-only mode.
 Configuration read from device at 1/13/2012 9:47 AM

Template: **Aruba Instant Virtual Controller - 6.1.2.3-2.0.0.3_31389**
 Configuration: **Mismatched**

Audit Audit the device's current configuration.

Refresh this page

Controller Settings	
Template:	allow-new-aps
	allowed-ap d8:c7:c8:c4:43:8d
Desired	ams-ip 10.169.240.8
Desired	ams-key 5d4f50485e4f5048dded7c804bc32e2222cfff541975d4ae
	enet-vlan guest
	mgmt-user admin 5d4f50485e4f50482daf2c017496eb3e
	name Instant-C4:43:8D
Desired	organization "TME-Instant:Store1"
	rf-band all
	syslog-level warn ap-debug
	syslog-level warn network
	syslog-level warn security
	syslog-level warn system
	syslog-level warn user
	syslog-level warn user-debug
	syslog-level warn wireless
	version 6.1.2.0-2.0.0
	virtual-controller-country US
	virtual-controller-key 000c283001c93f1a41ff2a53516b6955dac5f7e22b063891c8

Perform the following steps to resolve the mismatch.

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



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

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 5 Setting devices to Manage Read/Write mode

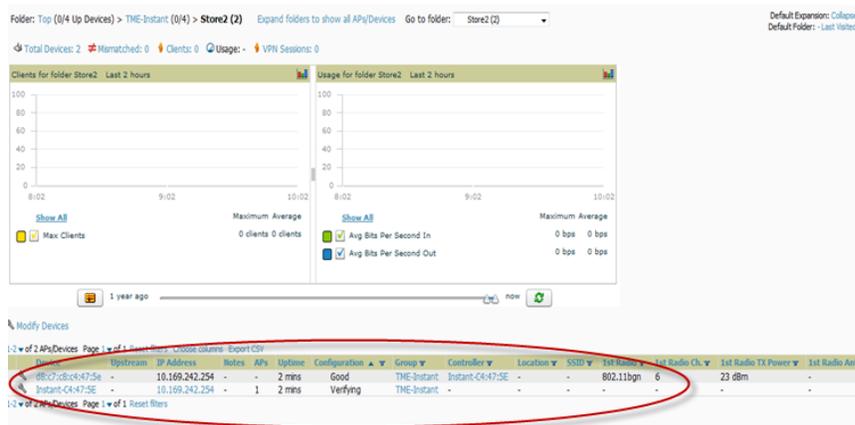


When the second Instant contacts OV3600 using the DHCP server options as described previously, and that second Instant device has the same Shared key, it shows up on OV3600 as shown below. Because the devices are in **Manage Read/Write** mode, there is no need for manual intervention to provision these 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.



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.

Figure 6 Adding an additional Instant device to 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**.

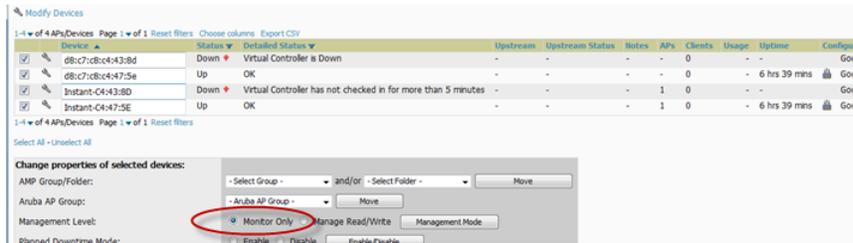
Changing the Mode to Monitor Only for New Instant Devices

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** (wrench) icon, and select all devices.
4. Select the **Monitor Only** radio button.

- Click the **Management Mode** button. This opens the Confirm Changes page. You can apply the changes now or schedule the change to be applied later.

Figure 7 Changing the mode to Monitor Only



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. You can identify the IAP acting as the Virtual Controller by their identical LAN MAC addresses.
- **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**. 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 CPU Utilization, Channel Utilization, Bandwidth, Power, and MAC/Phy Error statistics.
- **RAPIDS:** Because Alcatel-Lucent 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. Alcatel-Lucent 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:** Alcatel-Lucent 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.

Other Available Features

Additional Instant features that are supported in OV3600 include an editor for common variables, monitoring features, CLI commands, and firmware image management.

- "Editing Variables " on page 9
- "Monitoring Features" on page 12
- "Running Commands" on page 12
- "Firmware Image Management" on page 13
- "Intrusion Detection System" on page 13

Editing Variables

OV3600 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. OV3600 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 8 Select the VCs to update

The screenshot shows the 'Modify Devices' interface. At the top, there is a table with columns: Device, Status, Upstream, Upstream Status, and Clients. Two devices are listed: 'Instant-C0:87:54' and 'Instant-CF:93:D2', both with a status of 'Up'. The checkmarks in the first column of the table are circled in red. Below the table, there is a 'Change properties of selected devices:' section. In this section, the 'Aruba Instant Virtual Controller Variables:' field has an 'Update' button circled in red. Other fields include 'AMP Group/Folder', 'Aruba AP Group', 'Management Level', 'Planned Downtime Mode', and 'Desired Radio Status', each with its own 'Update' or 'Enable/Disable' button.

2. Click the **Update** button next to the Aruba Instant Virtual Controller Variables field. This 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 9
- "Bulk Editing on Multiple Virtual Controllers" on page 10
- "Using Custom Variables" on page 11
- "Applying Changes" on page 11

Editing Individual Virtual Controller Values

After you click **Update**, the Variable Edit screen that displays includes two sections. The lower section includes editable fields. Enter values or select options directly in these fields to make changes on individual controllers. In the example below, the VC names are changed from Instant-C0:87:54 and Instant-CF:93:D2 to Store-00001 and Store-00002 respectively.

Figure 9 *Change the Individual VC Names*

custom_variable_10 [] [Apply] Please select one or more \

1-2 of 2 Virtual Controllers Page 1 of 1 Choose columns Choose columns for roles

hostname	clock_timezone	ip_address
<input type="checkbox"/> Store-00001	none 00 00	
<input type="checkbox"/> Store-00002	none 00 00	

1-2 of 2 Virtual Controllers Page 1 of 1

Select All - Unselect All

[Save] [Cancel]

Bulk Editing on 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 9.)
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.



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

Figure 10 *Change the Timezone variable*

clock_timezone 2 Pacific-Time UTC-08 3 [Apply 4] Please select one or more \

1-2 of 2 Virtual Controllers Page 1 of 1 Choose columns Choose columns for roles

hostname	clock_timezone	ip_address
<input checked="" type="checkbox"/> Store-00001	none 00 00	
<input checked="" type="checkbox"/> Store-00002	none 00 00	

1-2 of 2 Virtual Controllers Page 1 of 1

Select All - Unselect All

[Save] [Cancel]

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**.

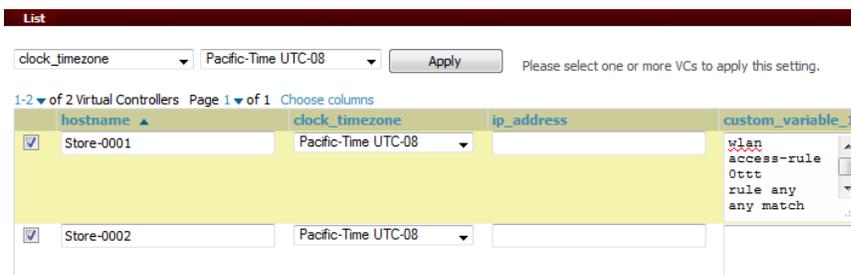


Your template must support or contain the commands and/or configuration that you add using the custom variables in order for any changes to be pushed to your devices.

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 permit
wlan ssid-profile 0ttt
type employee
ssid 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 11 *Entering a custom variable (cropped)*



Applying Changes

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



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 12 *Confirm Changes page*

Confirm changes:

Controller "Instant-C0:87:54"

Extra Device Commands #1 (empty string) ➔

```
wlan access-rule 0ttt
rule any any match any any any permit
wlan ssid-profile 0ttt
type employee
ssid 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
```

Name Instant-C0:87:54 ➔ Store-00001

Timezone none 00 00 ➔ Pacific-Time UTC-08

Controller "Instant-CF:93:D2"

Name Instant-CF:93:D2 ➔ Store-00002

Timezone none 00 00 ➔ Pacific-Time UTC-08

Scheduling Options

Specify numeric dates with optional 24-hour times (like **7/4/2003** or **2003-07-04** for July 4th, 2003, or **7/4/2003 13:00** for July 4th, 2003 at 1:00 PM.), or specify relative times (like **tomorrow at noon** or **next tuesday at 4am**). Other input formats may be accepted.

Current Local Time: November 14, 2012 6:21 am CST

Desired Start Date/Time:

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.

Monitoring Features

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 13 *Monitoring Radios*

AP Monitoring | Radio Statistics

Monitoring 802.11abgn radio for AP d8:c7:c8:c4:21:9f

Run a command...

Issues Summary

Issue:	Description
Interfering Devices Detected:	Video Device Fixed Freq

Clients

Usage	Channel	Noise	Power	MAC/Phy ...	Utilization
Channel on d8:c7:c8:c4:21:9f Last 2 hours					
Maximum Average					

Noise

Usage	Channel	Noise	Power	MAC/Phy ...	Utilization
Noise on d8:c7:c8:c4:21:9f Last 2 hours					
Maximum Average					

1 year ago now

No ARM Events

Detected Interfering Devices

1/3 of 3 Interfering Devices Page 1 of 1 Choose columns Export CSV

Device Type	Last Seen	Start Channel	End Channel	Signal	Duty Cycle (%)
Cordless Base Freq Hopper	11/5/2012 12:20 PM	1	14	-76	5
Generic Freq Hopper	11/5/2012 7:45 PM	1	14	-57	5
Video Device Fixed Freq	11/6/2012 6:53 AM	4	11	-53	99

1/3 of 3 Interfering Devices Page 1 of 1

Running Commands

If you are running IAP 3.2, then OV3600 provides a set of commands that you can run from the virtual controller and 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 14 *Running Commands*

The screenshot displays the 'Device Info' section for a device named 'junyei'. The status is 'Up (OK)'. The configuration is 'Mismatched'. The firmware is '6.1.3.4-3.1.0.0-arm_0'. The IP address is '192.168.1.102'. There are 2 APs. A dropdown menu is open, showing a list of commands such as 'show ixcert', 'show about', 'show running-config', 'show allowed-aps', 'show app-services', 'show alert global', 'show stats global', 'show users', 'show radius-attributes', 'show radius-servers support', 'show configuration', 'show snmp-configuration', 'show ap debug airwave-config-received', 'show ap debug airwave-events-pending', 'show ap debug airwave-data-sent', 'show ap debug airwave-state', 'show ap debug airwave-stats', 'show dhcpc-opts', and 'show opendns support'. Below the command list, there is a graph showing usage over time, with a peak at 13:39 and a low at 12:39. The graph shows 0 clients at both times.

Firmware Image Management

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, OV3600 allows you to upload firmware for each of the device types.

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.

Optional Tasks

Additional optional tasks include enabling an IAP role for location-specific access and updating the Instant template.

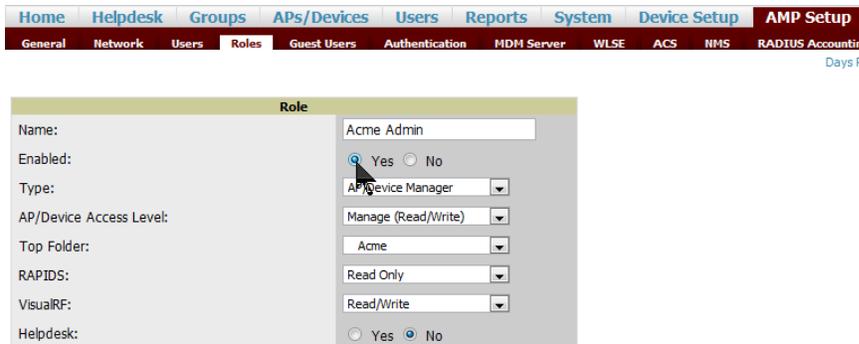
- "Enabling the IAP Role" on page 14
- "Updating the Instant Template" on page 14

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 15](#).

Figure 15 Enable Admin User Roles in **OV3600 Setup > Roles**



The screenshot shows the 'Role' configuration page in the OV3600 web interface. The navigation bar at the top includes 'Home', 'Helpdesk', 'Groups', 'APs/Devices', 'Users', 'Reports', 'System', 'Device Setup', and 'AMP Setup'. Below this, a sub-menu shows 'General', 'Network', 'Users', 'Roles', 'Guest Users', 'Authentication', 'MDM Server', 'WLSE', 'ACS', 'NMS', and 'RADIUS Accounting'. The 'Roles' page is titled 'Role' and contains the following fields:

- Name: Acme Admin
- Enabled: Yes No
- Type: AP/Device Manager
- AP/Device Access Level: Manage (Read/Write)
- Top Folder: Acme
- RAPIDS: Read Only
- VisualRF: Read/Write
- Helpdesk: Yes No

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



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.

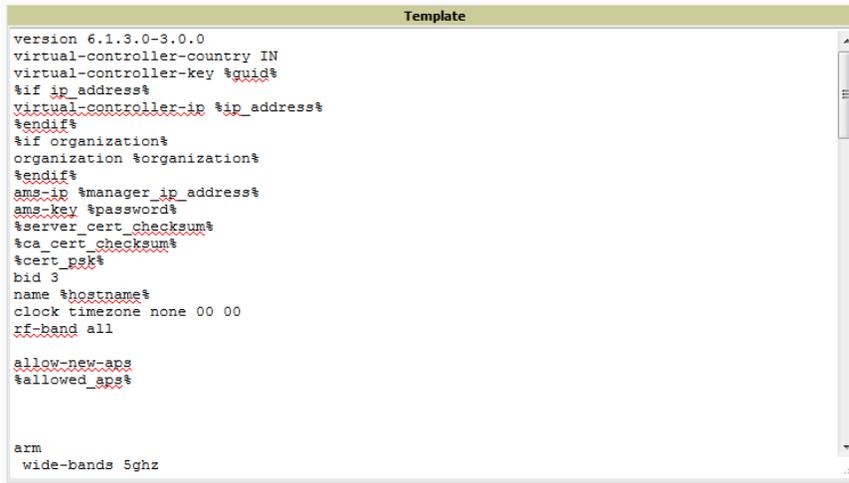
Updating the Instant Template

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.



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 16 *The Instant template editor*



```
version 6.1.3.0-3.0.0
virtual-controller-country IN
virtual-controller-key %guid%
%if ip_address%
virtual-controller-ip %ip_address%
%endif%
%if organization%
organization %organization%
%endif%
ams-ip %manager_ip_address%
ams-key %password%
%server_cert_checksum%
%ca_cert_checksum%
%cert_psk%
bid 3
name %hostname%
clock timezone none 00 00
rf-band all

allow-new-aps
%allowed_aps%

arm
wide-bands 5ghz
```

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 17 *Allowed variables*

The following variables may be used in the template. The value of each variable is configured on the APs/Devices Manage page for each device in the group. Each variable must be surrounded by percent signs: `%hostname%`. The `%if...%` statements must be terminated by `%endif%` and cannot be nested.

Available Variables:

allowed_aps	guid
ams_identity	hostname
ca_cert_checksum	ip_address
cert_psk	ip_address_a
clock_timezone	ip_address_a_b
custom_variable_1	ip_address_a_b_c
custom_variable_10	manager_ip_address
custom_variable_2	organization
custom_variable_3	password
custom_variable_4	radius_server_ip
custom_variable_5	rf_band
custom_variable_6	server_cert_checksum
custom_variable_7	syslog_server
custom_variable_8	
custom_variable_9	

Refer to the *OV3600 7.6 User Guide* for detailed information about templates and variables.

Best Practices

- Keep Alcatel-Lucent 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 Alcatel-Lucent networks.

- If you modify a device's configuration through the Alcatel-Lucent 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. With this method, 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 VC provides a link to quickly access the Template.

Known Issues with the Alcatel-Lucent Instant Integration with OV3600

- If the Organization String configured on the Alcatel-Lucent Instant device is different than what is statically written in the template, OV3600 will overwrite the configured Organization String to match the template.
- The Alcatel-Lucent 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.