Aruba Activate

a Hewlett Packard
Enterprise company

User Guide

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Chapter 1

Welcome to Aruba Activate!

Aruba Activate is a cloud-based service that helps provision your Aruba devices and maintain your inventory.

For network administrators with experience deploying Aruba infrastructure, installing and configuring one or two individual APs is a relatively simple and straightforward process. Provisioning APs in a large corporate network is also a straightforward process, accomplished via ArubaOS Layer-2 discovery, DHCP or DNS. But what if you want to install an AP at a branch office or remote site where no network administrator is available? Or what if you need to deploy several APs all at once? A simple solution for this type of deployment is Aruba Activate.

Activate automates the provisioning process, allowing a single IT technician to easily and rapidly deploy devices throughout a distributed enterprise. When your company orders a new access point (AP) from Aruba, that device is automatically added to your inventory in Activate. Once a device is in your inventory it can be automatically or manually associated to a folder and provisioning rule. A remote technician only needs to connect the Instant AP to the Internet, and that device will securely connect to Activate, retrieve its provisioning information, then use the provisioning information to connect to its configuration master (controller or AMP) and update its configuration. This entire process takes less than ten minutes and requires no human intervention, allowing for true zero-touch provisioning.

Get started here...

The Basic Provisioning Workflow section of this guide provides a general overview of each step required to configure your Aruba Instant points for remote deployment. If you are new to Aruba Activate, this is a good place to start.

...see what's new...

The What's New in Activate section of this guide describes the latest changes and improvements to the Aruba Activate service.

...or find the information you need

Other sections of this guide include detailed information on how to set up, monitor and manage your devices and device data. Select any of the headings in the navigation bar or click a link below for step-by-step instructions on how to accomplish a specific task using Aruba Activate.

- Device Setup and Provisioning on page 10: Create and manage device folders, configure provisioning and notification rules, and assign devices to a specific folder.
- Managing Users on page 22: View and manage your company's user accounts, and set folder permission levels for each account.
- Managing Device Data on page 26: Review configuration details for a specific device, or view and sort an inventory list of all your Instant or Remote AP devices. You can create and export whitelists of Aruba devices that can be input into your controller or an external database.
- The Rules Overview on page 6 provides detailed information about the different rule types that supply provisioning information to Instant APs, auto-assign devices to folders, and trigger notification events.
- Troubleshooting on page 8 provides suggestions for troubleshooting and fixing common issues.

Basic Provisioning Workflow

Activate enables zero-touch auto-configuration of Instant APs by associating the devices to the configuration master (your AirWave server) from which they can retrieve their configurations. Before you begin setting up Aruba Activate to provision your APs, though, you should be able to answer the following questions:

- Will all my devices have similar configuration requirements?
- Do I know which configuration I want to assign to my device? An Instant AP must be assigned to an organization-specific configuration (folder/group) on an AirWave server. If your distributed APs have different requirements, you may want to identify multiple configurations for different AP types or deployment locations.

Step 1: Identify Configurations

Before you can provision new Instant APs, you must identify the AirWave Management Platform (AMP) or Aruba controller information you want to push to new devices.

Step 2: Create Folders

Folders allow you to group devices based on common provisioning scenarios. Each folder may contain one or more rules. Create a new folder for each AMP, or AMP group policy. You may also find it useful to create groups of folders for different device types or branch office locations, then add subfolders with Instant AP provisioning rules under those higher-level folders.

Step 3: Define Rules

Create custom rules to supply provisioning information to Instant APs. You can also use rules to automatically assign devices to folders, and identify events that will trigger email notifications.

Step 4: Select Devices

Sort and filter the device list to display just those devices you want to assign to a new folder. If you want to assign new, unprovisioned devices, consider sorting the list by the "Last Seen" or "Ship Date" table columns to display the newest entries at the top of the list.

To convert an instant AP to a remote AP, you must first create a rule that will supply provisioning information to the AP and add the remote AP's MAC address to the remote AP whitelist on the controller. Aruba Activate allows you to create a remote AP whitelist that you can input into Aruba controller.

Step 5: Assign Devices to Folders

All new devices are assigned to the **default** folder. When you assign devices to a different folder, the device will immediately inherit the rules within the folder.

Rules Overview

Aruba Activate supports three categories of rules:

- **Provisioning Rule**: Provision devices with configuration master information.
- **Move to Folder Rule**: Move all devices matching certain criteria to the specified folder. You can move devices based on shipping info, device category, part number, or customer PO.
- **Notification Rule**: Notify recipients when a device ships to your company, or when a specific provisioning or "move to folder" rule has run, or the device requests a new firmware version.

Each rule category is described in detail in the sections below.

Provisioning Rules

When a device in factory-default mode sends its MAC address, serial number, and mode to Aruba Activate, Activate will respond with proper provisioning information based on the device's operating mode and rule definition within a folder. Activate will only respond to a device when the device is associated with a customer that has enabled Activate by configuring a provisioning rule.

Table 1: *Provisioning Rule Types*

Rule Type	Description
IAP to AirWave	An IAP-to-AirWave rule instructs Activate to send a device operating in Instant AP mode the IP address of the AirWave (AMP) server that will act as the device's configuration master, and the AMP organization and shared secret. AMP uses the organization information to segregate the AP into configuration and reporting groups. The shared secret sent by Activate acts as the trust mechanism between the Instant AP and AMP. **NOTE:** The first device added to a new organization within an AMP must be manually authorized using the AMP user interface. All subsequent APs in that organization with the proper shared secret will be auto-authorized without human intervention into the AMP.
IAP to RAP	This rule instructs Activate to send a device operating in Instant mode the IP address of the remote AP's configuration master, and instructions to convert the device to operate in remote AP mode. IAP-to-RAP rules require you to specify an AP group for the device, but this information is not sent directly to the AP. When you use Activate to generate a remote AP whitelist to upload into the controller, the device's AP group is included in that whitelist information. The AP group instructions tell the controller how to configure the remote AP. For more information on creating a remote AP whitelist, see Create Whitelists.
IAP to CAP	This rule converts an Instant AP to a campus AP, and provisions the campus AP to communicate with its configuration master controller.
Switch to AirWave	A Switch-to-AirWave rule instructs Activate to send an Aruba Mobility Access Switch (MAS) or a HPE ArubaOS Switch, the IP address of the AirWave (AMP) server that will act as the device's configuration master, and the shared secret for the server. AirWave uses the group and folder information in the rule to segregate the switch into configuration and reporting groups. The shared secret sent by Activate acts as the trust mechanism between the switch and the AirWave server.
Controller to AirWave	A Controller-to-AirWave rule instructs Activate to send the controller the IP address of the AirWave (AMP) server that will act as the device's configuration master, the Activate folder and group to which the controller should be associated, and the AMP shared secret, which acts as the trust mechanism between the controller and AMP server.
Branch to Master Controller	Provision an Aruba branch controller to communicate with its configuration master controller.
Managed Device to Master Controller	Provision a managed device to communicate with its configuration master controller.

Move-to-Folder Rules

A move-to-folder rule automatically moves a device to a chosen folder based upon specific device criteria. A **Category** move-to-folder rule moves devices to a selected folder based upon the category of that device.

Activate allows you to define category move-to-folder rules for each of the following category types:

- Instant AP
- Remote AP
- controller
- Switch

Part Number move-to-folder rules move APs to specific folders according to the device's part number. **Customer PO** and **Shipping Info** rules move APs that match a specified a string contained within customer PO or shipping data for that device.

Notification Rules

A **Shipment** notification rule sends an email notification when Activate receives information that devices are being shipped to your company. (Note, however, that Activate may not receive shipment information until up to a day after the equipment has actually left Aruba or your device reseller.) A shipment notification rule can only be assigned to the **default** folder, because that the folder to which all new devices are assigned.

Provisioning rules send email notifications when a device requests provisioning information from Activate, and **FW Check** rules notify users when the device requests a firmware upgrade from Activate. The **Move-to-folder** notification rule alerts users when devices are automatically or manually moved to another folder.

See also:

Creating a New Rule

Modifying an Existing Rule

Troubleshooting

Use the following steps to troubleshoot problems using Aruba Activate.

Connectivity Issues

Ensure that the Instant AP can access *device.arubanetworks.com:443* by verifying the following:

- Verify that the AP has a valid IP address by associating the AP with the SSID and viewing the IP address.
- Verify that the network does not have a proxy server. (An Instant AP does not support auto-detection of proxy servers.)
- Verify that the subnet does not contain another Instant AP
- Make sure the local DHCP or DNS servers are not providing provisioning data to the Instant AP.
- Verify that the AP is in factory default mode. You can reset an Instant AP back to factory default mode by pushing the factory reset button or clearing the configuration from the Instant AP’s WebUI.
- Check to make sure the Instant AP is running ArubaOS 3.0 or later. If the IAP is running an earlier version of ArubaOS, click **Check for New Firmware** in the the IAP’s WebUI. Upgrade to the recommended version, and the IAP should auto-connect to Activate for provisioning.

Activate Issues

The device must be included in the Activate inventory and properly associated with folder and rule.

- Make sure the device shows up in your device inventory. You can validate this by searching for the MAC or serial number in the **Devices** list.
- Make sure the AP resides in a folder with proper rule.
- Make sure there are no historical communication history records with an error status.

AMP Configuration Master Issues

Ensure the AP is retrieving the proper configuration by checking the following issues:

- Verify AMP has an IP address that is exposed to the Internet port 443.
- Verify AMP is not handing back an internal IP address to the device in the template. You can see the IP address that the Instant AP uses to communicate with AMP in the IAP's Web UI. You may need to change the template variable **ams-ip %manager_ip_address%** to hardcode the external IP address. The new setting would be in the format *ams-ip xxx.xxx.xxx.xxx*.
- Make sure AMP contains a group and folder that correlates to the organization name configured in the provisioning rule in Activate.
- Verify that template exists for the AMP group that correlates to the organization name configured in the provisioning rule in Activate.
- Check to make sure this device is not the first AP that has been added for this organization. If it is the first AP for this organization, it will show up in **APs/Devices>New** list in the AMP and will need to be manually added.
- Set the **Automatically Authorize Virtual Controller Mode** setting in the the **AMP Setup>General>Automatic Authorization** section to **Manage Read/Write**.
- Set the **Add New Thin APs Location** setting in the **Groups>Basic>Automatic Authorization** section to **Same Group/Folder as Discovering Device**.
- Set the **Audit Configuration on Devices** setting in the **Groups>Basic>Basic** section to **Yes**.

Browser Compatibility

Activate Application has been designed to work best with Google Chrome Browser version 40+. You may experience issues while using other Browsers.

Chapter 2
Device Setup and Provisioning

When an AP in factory default mode powers on and connects to the Internet, it will automatically check into Aruba Activate. Activate supplies provisioning data to the Instant AP, which will then communicate with its configuration master (controller or AirWave Management Platform). The AP's configuration master will push the configuration and any required firmware update to the AP.

If the requirements for these devices ever change and you need to reprovision an AP, move the AP to another folder within Activate then set the AP back to its factory-default setting by pushing the factory reset button. The AP will repeat the provisioning process, applying the provisioning rules in its new folder.

Devices are grouped into folders that can contain a set of provisioning and email notification rules. If you want to group your devices by unique provisioning requirements, you can create separate folders that each contain different provisioning rules. You can also group devices by location or device type by creating folders or subfolders for each device type or installation site.

For information on setting up Aruba Activate to provision your devices, refer to the following sections of this user guide:

- Create and Manage Folders: Define folders for your devices, then view and manage the list of folders.
- Define Rules: Create and edit provisioning, folder, or notification rules to supply provisioning information to Aruba devices, auto-assign devices to folders, and trigger notification events.
- Assign Devices to Folders : Filter and sort the **Devices** list to select the devices you want to move to a different folder. After the move, the devices will inherit the rules in the new folder. You can automatically move devices into a folder by configuring a move-to-folder rule based on shipping info, purchase order, device category, or part number.

Create and Manage Folders

Each folder can have one or more rules that assign provisioning information to Instant APs, and identify events that will trigger email notifications. When you move a device into a folder, the device will inherit the rules in the folder. A users' access to Aruba Activate depends upon the folder to which the user account is assigned. Users cannot assign devices to a folder to which they do not have access.

When the first user for your company accesses Aruba Activate, the system shows only one folder, the top-level *default* folder. If you want to use the Activate to provision your network devices with different configuration policies and notification rules, then you need to create additional folders. You must create at least one unique folder for each configuration master. A folder can have both an Instant AP provisioning rule and a IAP-to-remote AP provisioning rule, but cannot have more than one provisioning rule of each type. You may also find it useful to create groups of folders for different device types or branch office locations, then add subfolders with provisioning rules under those higher-level folders.

Creating a New Folder

To add a new folder to the **Folders** list:

1. Click the Setup icon (🛠) to display the **Setup** page.
2. Click the **New** link in the title bar of the **Folders** list. The **Create a New Folder** window appears.
3. Enter the following information for the folder:

- **Name**: Name of the new folder. The folder name must be 100 characters or less, and cannot include the characters **?**, **#** or **&**.
- **Parent**: The new folder's parent folder. The new folder will be created under the selected parent.
- **Notes**: (Optional) Use this field to add any additional notes about the folder.

4. Click **Done** to save the new folder.

Sort and Filter the Folders List

The **Folders** list displays the following information types for each folder.

Table 2: *Folders List*

Column	Description
Name	Name of the folder
Parent	Name of the parent folder. A top level folder will have the **Default** parent folder. Lower-level sub-folders will display their immediate parent folder in this column.
Devices	Number of devices in the selected folder. If a folder contains subfolders with their own devices, this column will still only show the devices assigned to that folder, not its subfolders.

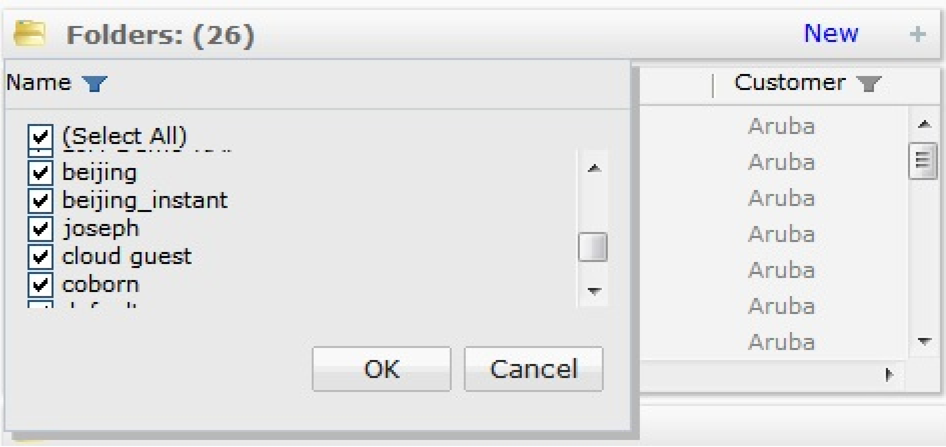
By default, the **Setup** page displays aggregate information for all folders. When you select an individual entry in the **Folders** list, the **Folder Detail** section at the bottom of the window displays information about the user that created the folder, the date it was created, and any folder notes. The **Rules** and **Users** tables on the **Setup** page automatically filter to display just those rules and users associated to the selected folder.

Aruba Activate allows you to sort and filter folder data to display just the information you need. By default, the **Folders** list displays the all folders, sorted by folder name. Click any of the **Folders** list column headings to sort the information in the list by that column criteria. You can also click the filter icon (▼) and select which entries to display. The filter mechanism for each heading depends upon the type of column, and number of unique entries in that column.

Filtering Small to Medium-Sized Folders Lists by Folder Name, Parent or Customer

To filter data in a Folders list with fewer than fifty unique entries:

1. Click the Setup icon (🛠) to display the **Setup** page.
2. Select the filter icon (▼) above a **Folder Name**, **Parent** or **Customer** column heading. The filter displays a checkbox for each entry type.
3. To select an individual entry, uncheck the **select all** option and select the entry you want to display.
4. Click **OK**. The filter icon by the column heading will turn blue to indicate that column has an active filter.



To remove a filter:

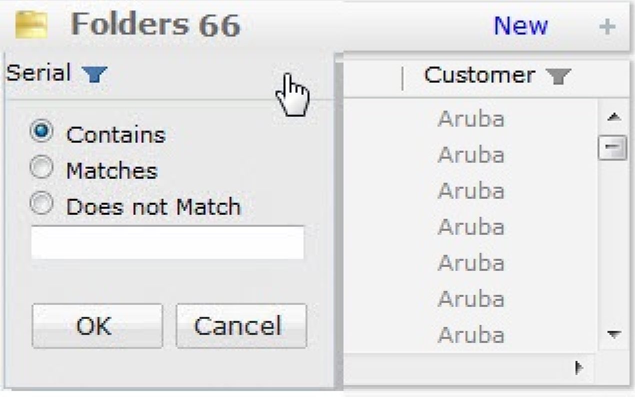
1. Select the filter icon (▼) above a column heading with an active filter.
2. Click the clear filter icon (✕) in the filter header to clear the current filter settings.

Filtering Large Folders Lists with 50+ Unique Entries by Folder Name, Parent or Customer

Columns with more than fifty unique entries allow you to search within that column for a specific text string.

To filter data in a column with more than fifty unique entries:

1. Click the Setup icon ( ) to display the **Setup** page.
2. Select the filter icon (▼) above a **Folder Name**, **Parent** or **Type** column heading.
3. Select one of the following search types:
   - **Contains**: Search for entries that contain the search string.
   - **Matches**: Search for entries that exactly match the search string
   - **Does not Match**: Search for entries that do not exactly match the text string
4. Enter the search string into the search field.
5. Click **OK**. The filter icon by the column heading will turn blue to indicate that column has an active filter.



To remove a filter:

1. Select the filter icon (▼) above a column heading with an active filter.
2. Click the clear filter icon (✕) in the header to clear the current filter settings.

Filtering Folders Lists by Devices, Users or Rules

To filter the **Folders** list by the numbers of associated devices, users or rules:

1. Click the Setup icon ( ) to display the **Setup** page.

2. Select the filter icon (▼) above a **Devices**, **Users** or **Rules** column heading.
3. Select **All** to view all entries, or select and click the drop-down list to search the list using one of the following options:
   - **>**: Display entries with a value greater than the search value.
   - **>=**: Display entries with a value greater than or equal to the search value.
   - **<**: Display entries with a value less than the search value.
   - **<=**:Display entries with a value less than or equal to the search value.
4. Enter a number into the search field.
5. Click **OK**. The filter icon by the column heading will turn blue to indicate that column has an active filter.

To remove an filter:

1. Select the filter icon (▼) above a column heading with an active filter.
2. Click the clear filter icon (✕) to clear the current filter settings.

Modifying an Existing Folder

Any folder created by a user can be deleted or modified. Note that you cannot edit or delete the **default** folder, or delete any folder that contains a subfolder, or has associated users, rules or devices.

To delete or modify the description and settings of an existing folder:

1. Click the Setup icon (🛠) to display the **Setup** page.
2. Select any folder entry from the **Folders** list.
3. Click the **Edit** button below the **Folder Detail** section at the bottom of the page.
4. Change the folder name, folder parent or note fields as desired, then click **Done** to save your settings.

Define Rules

Aruba Activate uses rules to supply provisioning information to Aruba devices, auto-assign devices to folders, and trigger notification events. A provisioning rule supplies provisioning information when a device in factory-default mode communicates with the cloud. When Activate receives information about a device's current operating mode, Activate responds with proper provisioning information based on the devices operating mode and folder rule definitions.

NOTE

Refer to the Rules Overview for detailed information about of the different provisioning, notification and move-to-folder rule types supported by Aruba Activate.

Creating a New Rule

To create a new provisioning rule

1. Click the Setup icon (🛠)display the **Setup** page.
2. Click the **New** link in the title bar of the Rules list. The **Create a New Rule** window appears at the bottom of the page. The individual configuration settings displayed in this window vary, depending upon the type of rule you configure.
   - Table 3 describes **Provisioning** rule settings.
   - Table 4 describes **Move to Folder** rule settings
   - Table 5 describes **Notification** rule settings.
3. Enter a value in each field for the selected rule type, then click **Done** to save your settings.

Table 3: *Provisioning Rule Configuration Settings*

Rule Type	Provisioning Rule Settings
IAP to AirWave	Provision an Instant AP (IAP) to communicate with its configuration master AirWave (AMP) server. To create an IAP-to-AirWave rule, configure the following settings: ● **Parent Folder**: The rule applies to devices within this folder. ● **AMP IP**: The IP address of an AirWave server that will act as the device's configuration master. This field does not support DNS names. ● **Shared Secret**: The shared secret sent by Activate acts the trust mechanism between the Instant AP and AMP. ● **Organization**: AMP uses this organization information to segregate the AP into a configuration policy. ● **VPN Server**: The IP address of an Aruba controller used as a VPN server. The IAP uses this information to create a VPN tunnel to the controller. ● **Rule Name:** Activate suggests a name for the new rule, based upon the rule type and folder. You can use this suggested name, or create your own custom name for the rule.
IAP to RAP	Convert an Instant AP to a remote AP (RAP), and provision the remote AP to communicate with its configuration master controller. To create an IAP-to-RAP rule, configure the following settings: ● **Parent Folder**: The rule applies to devices within this folder. ● **AP group**: Name of the AP group to which the device will be associated. ● **Controller**: IP address of the controller that will manage the RAP. ● **Controller-MAC**: MAC address of the controller that will manage the RAP. ● **Rule Name:** Activate suggests a name for the new rule, based upon the rule type and folder. You can use this suggested name, or create your own custom name for the rule.
IAP to CAP	Convert an Instant AP to a campus AP, and provision the campus AP to communicate with its configuration master controller. To create an IAP-to-CAP rule, configure the following settings: ● **Parent Folder**: The rule applies to devices within this folder. ● **AP Group:** The AP group defines a group of configuration settings for a campus AP. Enter the name of the AP group to specify the group into which the device will be placed. ● **Controller:** IP address of the controller that will manage the campus AP. ● **Rule Name:** Activate suggests a name for the new rule, based upon the rule type and folder. You can use this suggested name, or create your own custom name for the rule.
Switch to AirWave	Provision an Aruba Mobility Access Switch (MAS) or an HPE ArubaOS Switch to communicate with its configuration master AirWave (AMP) server. To create a Switch-to-AirWave rule, you must configure the following settings: ● **Parent Folder**: The rule applies to devices within this folder. ● **AMP IP**: The IP address of an AirWave server that will act as the device's

Table 3: *Provisioning Rule Configuration Settings*

Rule Type	Provisioning Rule Settings
	configuration master. This field does not support DNS names. ● **Shared Secret**: The shared secret sent by Activate acts the trust mechanism between the Instant AP and AMP. ● **AMP Group:** The AMP group defines a group of configuration settings for an Aruba switch. Enter the name of the AMP group to specify the group into which the device will be placed. ● **AMP Folder:** An AMP folder defines permissions for devices placed within that folder. Enter the name of an AMP folder to specify the folder into which the device will be placed. ● **Controller:** If your deployment requires a site-to-site tunnel between the Mobility Access Switch or HPE ArubaOS Switch and AirWave, select the MAC address of the controller that will act as a VPN concentrator for the AirWave server side of the VPN tunnel. ● **Rule Name:** Activate suggests a name for the new rule, based upon the rule type and folder. You can use this suggested name, or create your own custom name for the rule.
Branch to Master Controller	Provision a branch controller to communicate with the master controller from which the branch will download its configuration. To create a branch-to-master-controller rule, configure the following settings: ● **Parent Folder**: The rule applies to devices within this folder. ● **Primary Controller**: MAC address of the primary master controller. Activate sends a branch controller whitelist with information about the controllers in this folder to the master controller with this MAC address. ● **Primary Ctrl IP**: IP address of the primary master controller. ● **Backup Controller**: (Optional) MAC address of a backup master controller, for deployments that require Layer-3 redundancy. ● **Backup Ctrl IP**: (Optional) Enter the IP address of the secondary (backup) master controller. ● **VPN Concent MAC**: MAC address of a VPN concentrator. This parameter is only required for network topologies where the branch controller creates a VPN tunnel to a VPN concentrator which lies outside the firewall containing the master controller. ● **VPN Concent IP**: IP address of a VPN concentrator, This parameter is only required for network topologies where the branch controller creates a VPN tunnel to a VPN concentrator which lies outside the firewall containing the master controller. ● **Country Code**: Select a country code to be assigned to the branch controllers in the specified folder. ● **Branch Config Group**: Enter the name of a branch config group to assign that group of branch configuration settings to the branch controllers in the specified folder. ● **Rule Name:** Activate suggests a name for the new rule, based upon the rule type and folder. You can use this suggested name, or create your own custom name for the rule

Table 3: *Provisioning Rule Configuration Settings*

Rule Type	Provisioning Rule Settings
Managed Device to Master Controller	Provision a Managed Device to communicate with the master controller from which the managed device can download its configuration. To create a Managed Device-to-Master-controller rule, configure the following settings: ● **Parent Folder**: The rule applies to devices within this folder. ● **Redundancy Level**: There are two available options—No redundancy and L2. ● **Config Node Path**: The configuration node path for the managed device. ● **Primary Master Controller**: MAC address of the primary master controller. ● **Master Controller IP**: IP address of the primary master controller. ● **Primary VPN Concentrator MAC**: MAC address of a VPN concentrator. This parameter is only required for network topologies where the managed device creates a VPN tunnel to a VPN concentrator which lies outside the firewall containing the master controller. ● **VPN Concentrator IP**: IP address of a VPN concentrator, This parameter is only required for network topologies where the managed device creates a VPN tunnel to a VPN concentrator which lies outside the firewall containing the master controller. ● **Secondary VPN Concentrator MAC**: MAC address of a secondary VPN concentrator. This parameter is only required for network topologies where the managed device creates a VPN tunnel to a secondary VPN concentrator which lies outside the firewall containing the master controller. ● **Country Code**: Select a country code to be assigned to the managed device in the specified folder. ● **Rule Name:** Activate suggests a name for the new rule, based upon the rule type and folder. You can use this suggested name, or create your own custom name for the rule.

Table 4: *Move to Folder Rule Configuration Setting*

Move to Folder Rule Setting	Description
Rule Type	Click the **Rule Type** drop-down list, and select **Move to Folder**.
Move to Folder	Select the destination folder into which the AP will be moved.
Move by	Click the **Move By** drop-down list and one of the following filtering criteria: ● **Device Category**: Filter by device type (AP, Instant AP, controller, or switch). ● **Part Number**: Move devices with a specific model number. ● **PO Number**: Move devices whose purchase order contains a specified string. ● **Billing Info**: Move devices whose billing data contains a specified string. ● **External IP address range**: Move devices within an specific IP address range.
Rule Name	Aruba Activate suggests a name for the new rule, based upon the rule type and folder. You can use this suggested name, or create your own custom name for the rule.

Table 5: *Notification Rule Configuration Settings*

Notification Rule Settings	Description
Rule Type	Click the **Rule Type** drop-down list, and select **Notification**.
Email on	Select the event type that will trigger the notification: ● **Shipment**: Notify when a device is shipped to your company by Aruba or a reseller ● **Provisioning**: Notify when a device requests provisioning information. ● **Firmware Update**: Notify when a device requests the latest firmware ● **Move to Folder**: Notify when a device has been moved to a new folder.
For Rule	*For Provisioning and Move to Folder rules only* Specify the name of the rule that triggers the email notification.
Parent Folder	*For Firmware Upgrade rules only* Specify folder of the devices whose firmware upgrade triggers the notification event.
Email To	Enter a comma-separated list of email addresses to be sent a notification message when the specified event is triggered.
Rule Name	Aruba Activate suggests a name for the new rule, based upon the rule type and folder. You can use this suggested name, or create your own custom name for the rule.

Sort and Filter the Rules List

The rules list displays the following information types for each folder.

Table 6: *Rules List Information*

Column	Description
Folder	Folder to which the rule is assigned
Name	Name of the rule
Type	The rule is one of the following rule types Notification Provisioning Firmware Upgrade Move to Folder

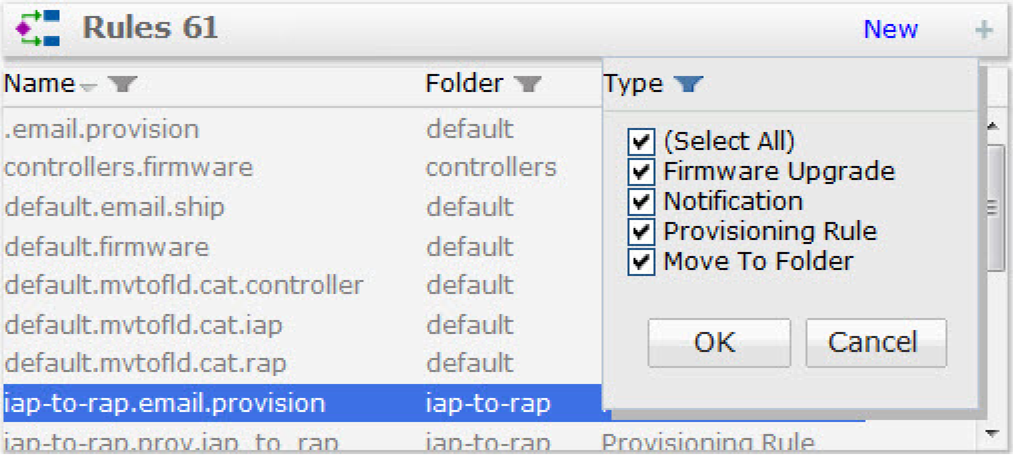
When you select an individual entry in the Rules list, the **Rule Detail** section at the bottom of the page also displays information about the user that created the rule, and the date it was created.

Aruba Activate allows you to sort and filter folder data in every column to display just the information you need. By default, the rules table displays the entire Rules list, sorted by rule name. Click any of the list's column headings to sort the information in the list by that column criteria. You can also click the filter icon (▼) and filter the list of entries to display. The filter mechanism for each heading depends upon the number of unique entries in that column.

Filtering Small to Medium-Sized Rules Lists

To filter data in Rules lists with fewer than fifty unique entries:

1. Click the Setup icon (🛠) to display the **Setup** page.
2. Select the filter icon (▼) above a Rules list column heading. The filter displays a checkbox for each entry type.
3. To select an individual rule, uncheck the **Select All** checkbox and then click the checkbox next to the rule you want to display.
4. Click **OK**. The filter icon by the column heading will turn blue to indicate that column has an active filter.



Name	Folder	Type
.email.provision	default	
controllers.firmware	controllers	
default.email.ship	default	
default.firmware	default	
default.mvtofld.cat.controller	default	
default.mvtofld.cat.iap	default	
default.mvtofld.cat.rap	default	
iap-to-rap.email.provision	iap-to-rap	
iap-to-rap.prov.iap_to_rap	iap-to-rap	Provisioning Rule

☑ (Select All)
☑ Firmware Upgrade
☑ Notification
☑ Provisioning Rule
☑ Move To Folder

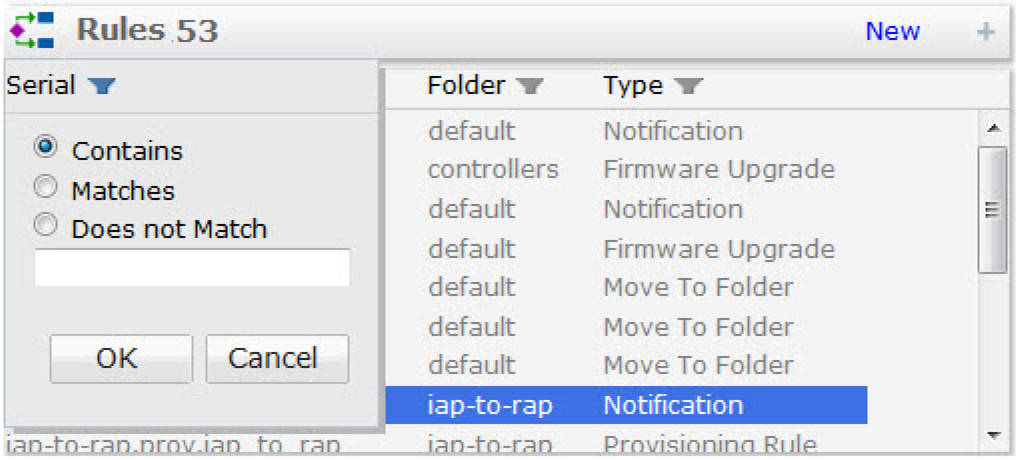
To remove a filter:

1. Select the filter icon (▼) above a column heading with an active filter.
2. Click the clear filter icon (✕) in the filter header to clear the current filter settings.

Filtering Large Rules Lists with 50+ unique entries

Rules list columns with more than fifty unique entries allow you to search within that column for a specific text string. To filter data in columns with more than fifty unique entries:

1. Click the Setup icon (🛠) to display the **Setup** page.
2. Select the filter icon (▼) above a Rules list column heading.
3. Select one of the following search types:
   - **Contains**: Search for entries that contain the search string.
   - **Matches**: Search for entries that exactly match the search string
   - **Does not Match**: Search for entries that do not exactly match the text string
4. Enter the search string into the search field.
5. Click **OK**. The filter icon by the column heading will turn blue to indicate that column has an active filter.



Serial	Folder	Type
	default	Notification
	controllers	Firmware Upgrade
	default	Notification
	default	Firmware Upgrade
	default	Move To Folder
	default	Move To Folder
	default	Move To Folder
	iap-to-rap	Notification
iap-to-rap.prov.iap_to_rap	iap-to-rap	Provisioning Rule

Modifying an Existing Rule

Any rule can be deleted or modified by a user with access to the folder in which the rule resides.

To delete or modify the description and settings of an existing folder:

1. Click the Setup icon ( ) to display the **Setup** page.
2. Select the rule you want to edit from the Rules list.
3. Click the **Edit** button below the **Rules Detail** section at the bottom of the page.
4. Change the rule name, email addresses or rule and folder settings as desired, or click **Delete** to delete the rule.
5. Click **Done** to save your settings.

Assign Devices to Folders

Each folder can contain one or more rules that supply provisioning information to Instant APs, auto-assign devices to folders, and trigger notification events. When a device moves into a folder, the device immediately inherits all the rules in the folder. A users' access privileges within Aruba Activate depends upon the folder to which the user account is assigned. Users cannot assign devices to a folder to which they do not have access.

NOTE

When you click the **Move to Folder** button, Activate re-assigns all devices currently appearing in the **Devices** list, so make sure to filter the table until it displays only those devices you want to move. If you do not filter the table to display a subset of devices, the folder assign process will move the entire device list into the selected folder.

To assign a device or group of devices to a folder:

1. Click the **Devices** icon ( ) at the top of the page to display the **Devices** page
2. Click the filter icon (▼) by any **Devices** list column heading and choose which entries to display. (For more information, see Sort and Filter Device Data.) You can repeat this step and filter the list by multiple criteria types until the list shows just those devices you want to move to a new folder.
3. Click the **Move to Folder** button at the top of the **Devices** page. A drop-down window with all folder names appears.
4. Select the destination folder for the devices.
5. A confirmation window appears, showing the total number of devices that will be moved.
6. Click **OK** to confirm the change, or click **Cancel** to cancel the move.

You can also assign an individual device to a new folder by selecting that device from the **Devices** list and manually changing its parent folder in the Device Details window.

Manually Add Devices

Instant APs running Instant versions 6.2.1.0-3.3.0.3 and later , Mobility Access Switches running ArubaOS 7.3 and later, or HPE ArubaOS Switch versions 16.02.0012 and later can be manually added to your Activate account using the device's cloud activation key and MAC address.

NOTE

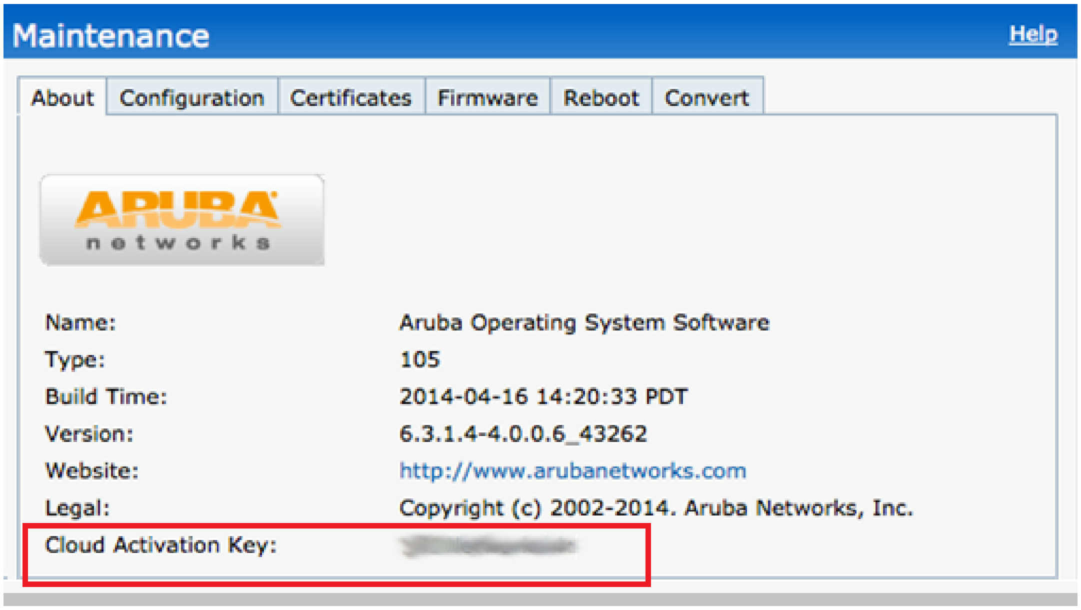
> The IAP, Mobility Access Switch, or the HPE ArubaOS Switch must establish an HTTPS connection to device.arubanetworks.com to learn the Cloud Activation Key. If the key does not appear on a device running a supported version of Instant or ArubaOS, check to ensure that the device can securely connect to device.arubanetworks.com.

Locate the Cloud Activation Key

The cloud activation key for an Instant device appears in the Instant WebUI. For a Mobility Access Switch or HPE ArubaOS Switch, the key is displayed in the Mobility Access Switch or the HPE ArubaOS Switch command-line interface, respectively.

To locate the cloud activation key for an Instant device:

1. Log in to the IAP WebUI interface.
2. Select the **Maintenance** link in the upper right corner of the window. The Maintenance pop-up window appears.
3. Select the **About** tab. The key appears at the bottom of the tab.



Name: Aruba Operating System Software
Type: 105
Build Time: 2014-04-16 14:20:33 PDT
Version: 6.3.1.4-4.0.0.6_43262
Website: http://www.arubanetworks.com
Legal: Copyright (c) 2002-2014. Aruba Networks, Inc.
Cloud Activation Key: [redacted]

To locate the cloud activation key for a Mobility Access Switch:

1. Log in to the Mobility Access Switch command-line interface.
2. Enter the enable mode, and then issue the **show version** command. The activation key appears at the bottom of the command output.

```
(Aruba_MAS_S1500) #show version
Aruba Operating System Software.
ArubaOS (MODEL: ArubaS1500-12P), Version 7.3.2.2
Website: http://www.arubanetworks.com
```

```
Copyright (c) 2002-2014, Aruba Networks, Inc.
Compiled on 2014-07-09 at 11:48:15 PDT (build 44718) by p4build
ROM: System Bootstrap, Version CPBoot 1.0.42.0 (build 39779)
Built: 2013-09-09 07:19:55
Built by: p4build@re_client_39779
Switch uptime is 12 minutes 58 seconds
Reboot Cause: User reboot.
Processor XLS 208 (revision A1) with 1023M bytes of memory.
959M bytes of System flash
Activation Key: HLJRK869
```

To locate the cloud activation key for an HPE ArubaOS Switch:

1. Log in to ArubaOS switch command- line interface (CLI).
2. Execute the **show activate provision** command. The cloud activation key is displayed at the end of the command output.

```
(Aruba-XXXF-Central)# show activate provision
Configuration and Status - Activate Provision Service
Activate Server Address    : device.arubanetworks.com
Activate Provision Service : Enabled
Activation Key             : VMQF7EYA
```

Add the Activation Key to Activate

1. Log in to your Activate account.
2. Click the **add devices** link in the upper right corner of the window. The **Manually Add Devices** popup window opens.
3. In the **Activation Key** field, enter the cloud activation key for the device.
4. In the **MAC address** field, enter the device MAC address.
5. Click **Done**.

Chapter 3
Managing Users

The Aruba Product Activation Service allows you to create multiple users and define what level of access each user has to the system. The initial user account for your company will be assigned to the **default** folder, giving that user full access to your company's inventory. The default level of access allows users to create and edit folders, manage other users accounts, define provisioning and notification rules, and assign devices to any folder. You can edit a user account to limit that user's access to just those devices within a specific subfolder, or give them read-only access at any level, allowing them to view data but not make any changes.

For information on viewing and sorting user data or managing user accounts, refer to the following sections of this user guide:

- View User Information: View and manage the list of users allowed to access the product activation service.
- Manage User Accounts: Create or edit users, and define the authorization levels to be assigned to each user account.

View User Information

The user list can display two different tables of user information, the default Standard View and the expanded Details View. You can toggle between the two different views by clicking the User list title bar.

User Information

The expanded Details View displays the following types of information for each user:

Table 7: *Details View*

Column Name	Information
Name	Name assigned to the user.
Folder	The parent folder (or highest-level access) for the user. Users with access to the top-level **default** folder can view device data and rules for all folders. Users with access to a lower-level folder will only be able to see information for that folder and any of its subfolders.
Customer	Your company name. This field is defined by Activate and cannot be changed.
Role	Role assigned to the users in your company. Users with full access have the *customer* role. Users with read-only access have the role *customer-ro*.
Activated	This field shows if the user has activated the account. If the Activated value is **true**, then the user has clicked the embedded email URL and configured a password. If the Activated value is false, the user has not configured a password.

The Standard View displays username, folder permissions and user role data only.

Click on any entry in the User list to display detailed account information in the window below, including the user that created the account, the date the account was created, and any account description or notes.

Sort and Filter User Data

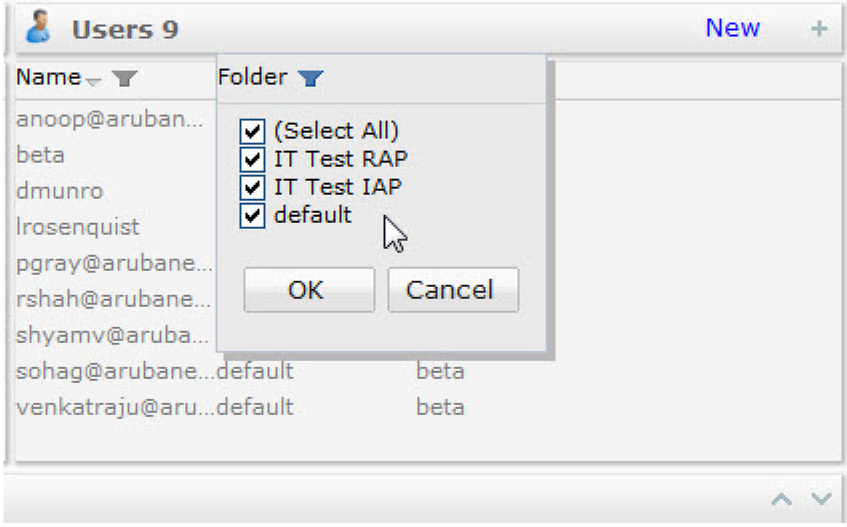
Aruba Activate allows you to sort and filter the Users list to display just the users you want to view. By default, the user table displays the entire user list, sorted by the Name column. To display just those users whose access is limited to a specific parent folder, click that folder name in the **Folders** list.

Click any of the user list column headings to sort the information in the table by that column criteria, in ascending order. You can also click the filter icon (▼) and choose which table entries to display. The filter mechanism for each heading depends upon the number of unique entries in that column.

Filtering Small to Medium-Sized User Lists

To filter data in a table with fewer than fifty unique entries:

1. Click the Setup icon (🛠) to display the **Setup** page.
2. Select the filter icon (▼) above a User list column heading. The filter displays a checkbox for each entry in that column.
3. To select an individual user, uncheck the **Select All** checkbox and then click the checkbox next to the user you want to display.
4. Click **OK**.



To remove a filter:

1. Select the filter icon (▼) above a column heading with an active filter.
2. Click the clear filter icon (✕) in the filter header to clear the current filter settings.

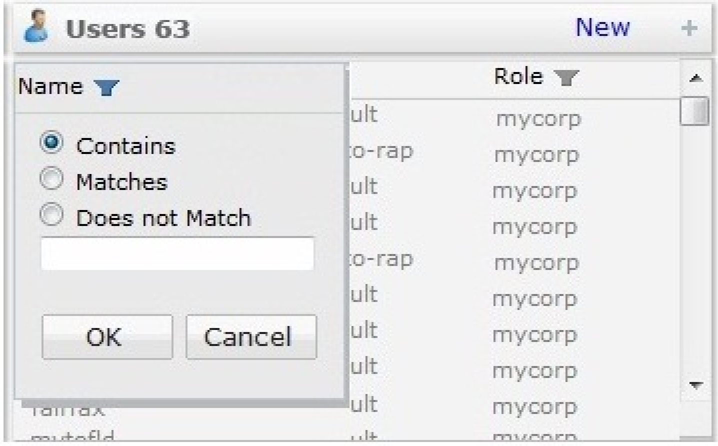
Filtering User Lists with 50+ Unique Entries

Table columns with more than fifty unique entries allow you to search within that column for a specific text string. To filter data in a table columns with more than fifty unique entries:

1. Click the Setup icon (🛠) to display the **Setup** page.
2. Select the filter icon (▼) above a user table column heading.
3. Select one of the following search types:
   - **Contains**: Search for entries that contain the search string.
   - **Matches**: Search for entries that exactly match the search string

- **Does not Match**: Search for entries that do not exactly match the text string

4. Enter the search string into the search field.
5. Click **OK**.



Manage User Accounts

Each user is assigned either a standard (read-write) account that allows the user to view and edit device, user, rule and folder settings, or a read-only account that lets a user view but not modify settings. A user with regular read-write access to Aruba Activate can create and edit other users at or below their parent folder level. For example, a user with the top-level (default) folder permissions can create other users with the same default folder access *or* define users with access limited to a specific subfolder. A user with read-write permissions for just a subfolder can only create users with access to that subfolder (or other lower-level folders below that subfolder.)

When users log into Aruba Activate with their unique user name and password, they can only view those devices and users associated with their folder access level, and can perform only those operations allowed by their standard or read-only account type.

Create a New User

To add a new user account:

1. Click the Setup icon ( ) display the **Setup** page.
2. Click the **New** link in the title bar of the User Table. The **Create a New User** window appears at the bottom of the page.
3. Enter the following information for the new user:
   - **Name**: Unique login name for the new account. Best practice is to use an email address as the user's login name.
   - **Email**: User's email address.
   - **Folder**: Select the parent folder for the user from the folder list. The **default** folder gives the user access to all company devices and folders. Select a subfolder to limit the user's access to a subset of folders and devices.
   - **Read Only**: (Optional) Select this checkbox to grant the user read-only access. The user will be able to view devices, rules, folders and users, but not make any changes.
   - **Notes**: (Optional) Use this field to add any additional information about the user account.

4. Click **Done**. Aruba Activate will send new users an email message prompting them activate their new account by logging to the service and creating an account password. Note that both user names and passwords are case-sensitive. Activate will send a confirmation email once the user account is activated.

Edit an Existing User

To edit, delete or temporarily disable an existing user account:

1. Click the Setup icon (🛠)display the **Setup** page.
2. Click any entry in the User list to edit that account. The **User Detail** window appears at the bottom of the page.
3. Click **Edit** below the **User Detail** window to display the **Edit User** dialog.
4. Edit the fields as desired.
5. Click **Done** to save your changes.

There is currently no method to delete or disable a user. You must change a user's password to deactivate that user's account.

Chapter 4
Managing Device Data

Click the Device( ) icon to display the Device list and monitor and manage all APs, controllers and switches purchased from Aruba. Activate allows you to sort and filter any list to display just the records you want to view. You can also use this filtering capability to generate a whitelist or inventory report of devices.

If no individual devices are selected in the Device list, the **Device** page displays a summary of devices, as well as pie charts showing the percentages of each Aruba device model and firmware type in your network inventory. Select a single device on this page to drill down and view information specific to that individual device.

For information on viewing and managing device data, refer to the following sections of this user guide:

- Monitor all Devices: View and sort a complete list of all Aruba devices on your network.
- Monitor Individual Devices: Display a detailed summary of an individual device, or edit device details and folder assignments.
- Create Whitelists: Generate whitelist CLI commands that you can copy and paste into your Aruba controller's command-line interface.
- Export Device Data: Generate an inventory report in CSV format for export to an external database.

Monitor all Devices

The **Devices** list displays information about the devices in your network inventory. If your inventory includes less than 1000 devices, the **Devices** list displays information for all devices on a single page. If your inventory includes more than 1000 devices, the **Devices** list is divided into multiple pages of up to 1000 devices each. Use the scroll bar on the right side of the **Devices** list to scroll through the list of devices on each page, or click the down arrow ( ) in the **Device Summary** titlebar (located directly below the **Devices** list) to expand the **Devices** list to fill the entire window.

If your **Devices** list appears on multiple pages, click the page forward (▶) or page back (◀) icons in the list titlebar display additional pages. To disable automatic pagination and view all 1000+ devices on a single page, click the **Devices per page** link on the **Devices** titlebar, and select the **All** option.

NOTE

Disabling pagination for large network inventories may greatly increase the load time for the **Devices** list.

Table 8 describes the information displayed for each Aruba device in your network inventory. By default, the **Device** page displays the full device list sorted on the **Last Modified** column, a summary of your inventory, and the **Devices by Part Number** and **Devices by Firmware** graphs.

Table 8: *Devices List*

Column Name	Information
Serial	The device's nine-digit serial number
MAC Address	MAC address of the device's Eth0 interface
Status	Indicates if the device has shipped to the customer site, or if it has already been received at the site and provisioned.
Part	Device's part number or SKU number
Part Description	Short description for the device With HPE part naming convention, it is difficult to know the device name from the information diaplayed in the Part column. The Part Description column eases the effort of understanding the device name.
Folder	Folder to which this device is assigned. The folder determines which provisioning and notification rules are applied to the device.
Firmware	The last known ArubaOS version on the device. If the device has checked into Aruba Activate, it will show the ArubaOS version reported at that time. If the device has not checked in, this column will show the ArubaOS version loaded on the device by the manufacturing facility.
Mode	Shows the mode of the device the last time it checked into Activate. ● **IAP-VC**: Device operates as an Instant Virtual Controller ● **IAP-SUB**: Device operates as a subordinate Aruba Instant Access Point ● **Other**: This mode category is reserved for future use
First Seen	Date and time that the device first checked into Activate.
Last Modified	Last date and time that the device checked into Activate. Instant APs verify that they are running the latest version of firmware by performing a firmware version check every seven days.
IP Address	Source IP of the device from the last time it checked into Activate. This is usually the company’s external IP exposed to the Internet. The actual (internal) IP address of the device will be hidden by NAT.
Controller	The eth0 MAC address of the device’s controller. For Instant APs, this column will show the MAC address of the AP that is functioning as the virtual controller. For Instant APs acting as an Instant Virtual Controller, the controller MAC will be that AP's own MAC address.
AP/Device Name	User-friendly name assigned to this device. If you use Activate to generate whitelist CLI commands, the name is included in these commands. You can use Activate as a master inventory and use Activate-generated whitelist commands to synchronize your AP device inventory (name, full name, and description) to your controllers.
Ship Date	Date that the device order shipped from Aruba or a reseller.

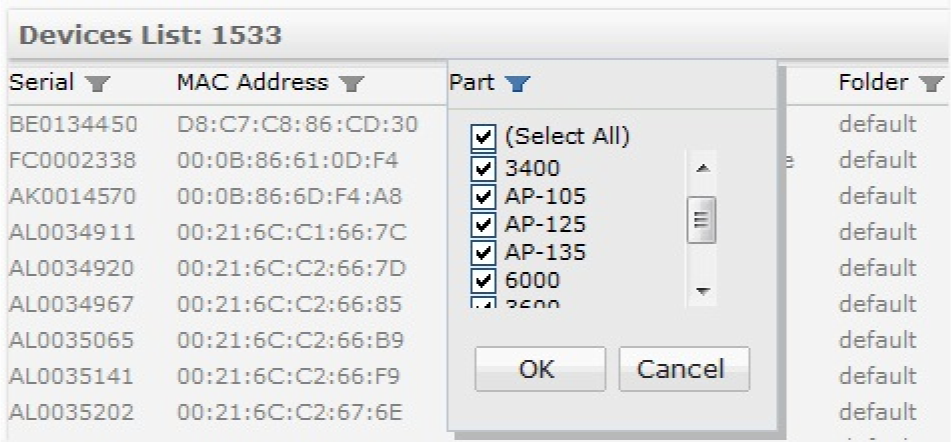
Sort and Filter Device Data

Click any of the **Devices** list column headings to all sort the information in the table by that column criteria, in ascending order. You can also click the filter icon (▼) and choose which table entries to display. The filter mechanism for each heading depends upon the type of column, and the number of unique entries in that column.

Filtering a Small to Medium-Sized Device List

To filter data in a **Devices** list with fewer than fifty unique entries:

1. Click the **Devices** icon ( ) to display the **Devices** page.
2. Select the filter icon (▼) above a **Devices** list column heading. The filter displays a checkbox for each entry type.
3. To select an individual device, uncheck the **Select All** checkbox and then click the checkbox next to the entry you want to display.
4. Click **OK**. The filter icon by the column heading will turn blue to indicate that column has an active filter.



Devices List: 1533

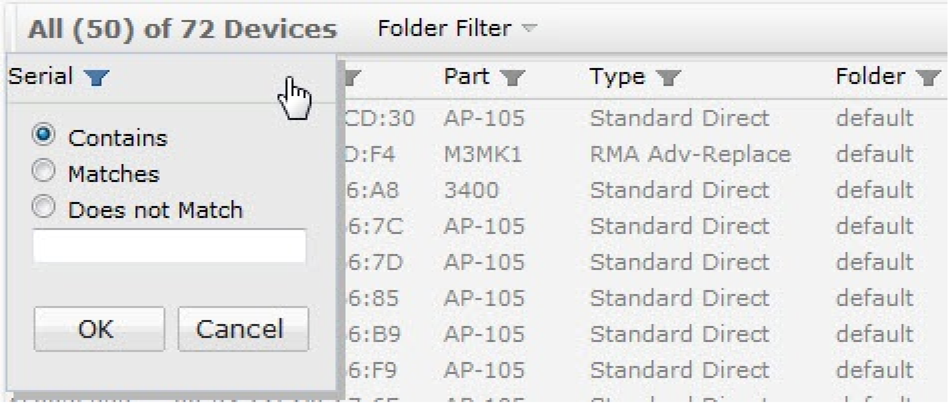
Serial ▼	MAC Address ▼	Part ▼	Folder ▼
BE0134450	D8:C7:C8:86:CD:30		default
FC0002338	00:0B:86:61:0D:F4		default
AK0014570	00:0B:86:6D:F4:A8		default
AL0034911	00:21:6C:C1:66:7C		default
AL0034920	00:21:6C:C2:66:7D		default
AL0034967	00:21:6C:C2:66:85		default
AL0035065	00:21:6C:C2:66:B9		default
AL0035141	00:21:6C:C2:66:F9		default
AL0035202	00:21:6C:C2:67:6E		default

☑ (Select All)
☑ 3400
☑ AP-105
☑ AP-125
☑ AP-135
☑ 6000
☑ 3600

Filtering a Large Devices List with 50+ unique entries

Devices List columns with more than fifty unique entries allow you to search within that column for a specific text string. To filter data in a column with more than fifty unique entries:

1. Select the filter icon (▼) above a **Devices** list column heading. A search box appears below the heading title.
2. Select one of the following search types, then enter the search string into the search field.
   - **Contains**: Search for entries that contain the search string.
   - **Matches**: Search for entries that exactly match the search string.
   - **Does not Match**: Search for entries that do not exactly match the text string.
3. To filter the list by **Ship Date** or **Last Seen** dates, enter a date in *MM/DD/YYYY* format, then select one of the following options.
   - **>**: Search for entries after the selected date.
   - **>=**: Search for entries on or after the selected date.
   - **<**: Search for entries before the selected date.
   - **<=**:Search for entries on or before the selected date.
4. Click **OK**.



	Part	Type	Folder
CD:30	AP-105	Standard Direct	default
D:F4	M3MK1	RMA Adv-Replace	default
6:A8	3400	Standard Direct	default
6:7C	AP-105	Standard Direct	default
6:7D	AP-105	Standard Direct	default
6:85	AP-105	Standard Direct	default
6:B9	AP-105	Standard Direct	default
6:F9	AP-105	Standard Direct	default

Device Summary Information

When no devices are selected in the **Devices** list, the device summary information at the bottom of the page displays a summary of device and order types, and the **Devices by Part Number** and **Devices by Firmware** graphs.

Device Details

This section shows the total number of devices in the **Device** list, as well as the numbers of each of the following device types:

- AP: Campus AP or access points not functioning as Instant APs
- Controller
- IAP: Instant APs
- RAP: Remote APs
- MAS: Aruba Mobility Access Switches
- HPE ArubaOS Switches

You can expand or hide this section at any time by clicking the **Device Details** heading.

Order Detail

This section shows summarized device totals in the following categories:

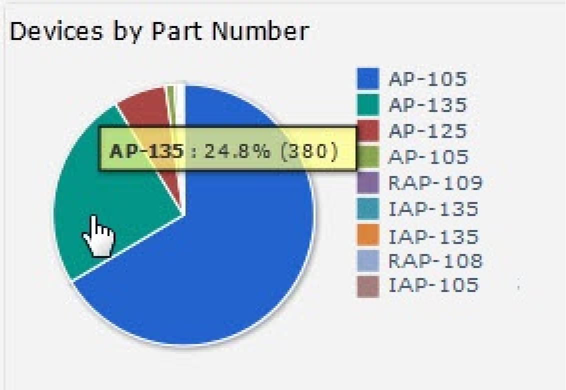
- **Standard Direct**: New devices with permanent (non-evaluation) licenses shipped directly to you from Aruba .
- **Standard Indirect** : New devices with permanent (non-evaluation) licenses shipped to you through an Aruba reseller.
- **Evaluation**: The device was ordered as part of a equipment evaluation.
- **Internal**: This type of order is similar to an evaluation order, but the inventory is owned by a salesperson (either from Aruba or reseller) and not by the customer.

You can expand or hide this section at any time by clicking the **Order Detail** heading.

Device Charts

The *Devices by Part Number* pie chart allows you to see, at a glance, the percentage each device part number in your device inventory. The *Devices by Firmware* chart displays the percentage of devices in your inventory running various versions of ArubaOS.

These pie charts can display up to ten different categories of data. If the chart needs to represent more than ten different category types, the chart will display the top nine categories as separate sections, and group all others into a tenth "other" category. Hover your mouse over any section of a pie chart to display a tooltip that shows the percentage and number of devices represented by that section of the chart.



Monitor Individual Devices

To view detailed information for a single Aruba device in your inventory, click the **Devices** icon () at the top of the page to display the *Devices* page, then select a entry in the Device List.

Individual Device Details

The *Device Details* window at the bottom of the *Device* page displays physical characteristics, status and order information for the selected device, as well as a detailed history showing the device's latest provisioning and firmware check.

Device Details

The *Device Details* window at the bottom of the page shows the following information for the selected device.

Table 9: *Device Details*

Column	Description
Serial Number	The device's nine-digit serial number
MAC Eth0	The MAC address of the device's Eth0 interface.
Controller	If the device is associated to a controller, this column in the Device Details window displays the IP address of the controller. (The Device List displays the controller's MAC address.)
Provisioning Image	Software version of device's factory-installed boot image. This is not updated even when a device communicates with Activate.
Status	Current device status ● **Shipped**: Device has been shipped to a customer, but not yet provisioned. ● **Provisioned**: Device has shipped and been provisioned at least once by Activate.
First Seen	Date and time the device was first seen by Aruba Activate.

Table 9: *Device Details*

Column	Description
Folder	Folder to which the device was assigned. The folder determines which provisioning and notification rules are applied to the device.
Name	(Optional) User-friendly name assigned to this device. If you use Activate to generate whitelist CLI commands, the name is included in these commands. The name must be 50 characters or less, and cannot include a space or the characters **?**, **#** or **&**.
Full Name	(Optional) The full name you assigned to the device. If you use Activate to generate whitelist CLI commands, the name is included in these commands. The full name be 120 characters or less, and cannot include a space or the characters **?**, **#** or **&**.
Description	(Optional) The description you assigned to the device. If you use Activate to generate whitelist CLI commands, the name is included in these commands. The full name be 120 characters or less, and cannot include a space or the characters **?**, **#** or **&**. The device description must be 50 characters or less, and cannot include a space or the characters **?**, **#** or **&**.

Click the **Device Detail** heading to expand or collapse this section for the selected device.

Order Detail

Click the **Order Detail** heading to expand or collapse the *Order Detail* window. This window is hidden by default, and Order Detail information cannot be edited.

Order details for each device include the following values.

- **Purchase Order**: This field shows the purchase order number for the device order in which the device was purchased.
- **Ship Date**: Date that the device was shipped from Aruba or an Aruba reseller.
- **Direct Order** (Fulfilled by Aruba)
  - Sold To: Your company name or company name alias.
  - Ship To: Your company name or company name alias.
  - End User: Your company name or company name alias.
- **Indirect Order** (Fulfilled by an Aruba reseller)
  - Bill to: Your reseller
  - End User: Your company name or company name alias.

Device History

The **Device History** window at the bottom of the Devices page shows a history of all communication between Activate and a selected device for as long as your company has owned that device. The list is sorted on the date column in descending order. This window supports a collapsed and expanded mode. Clicking the **Device History** title bar expands the window to the left so it takes the full width of the browser window.

The device history window displays the following information:

Table 10: *Device History*

Column Name	Information
Date	The date and time that the device communicated with Activate.
Type	Type of communication with Activate: ● firmware-check: The device requested the latest firmware. Instant APs perform firmware checks every seven days. ● provision-update: The device requested provisioning information.
Source IP	Source IP address of the device when it checked into Activate. This is typically the company's external IP exposed to the Internet. The real (internal) IP of the device will be hidden by NAT.
Current Version	The device's current version of ArubaOS, as reported by the device when it checked in.
Mode	Shows the mode of the device the last time it checked into Activate. ● **IAP-VC**: Device operates as an Instant Virtual Controller ● **IAP-SUB**: Device operates as a subordinate Aruba Instant Access Point. ● **RAP:** Device operates as a remote AP ● **Other**: This mode category is reserved for future use.
Status	Status of the communication exchange between the device and Activate. Activate uses the following status codes: ● **success**: the communication exchange between the AP and Activate was successful ● **fail-prov-no-rule**: there is no provisioning rule defined for the device mode and folder
Description	This column contains the data that Activate sent to the AP during the communication exchange. The description column is hidden by default. To display description information click the **Device History** header to expand this list. Clicking the header a second time collapses the list back to its original size.
AP Info	Contains the data the AP sent to the Activate during the communication exchange, including the device's serial number, Eth0 MAC address and part number. An IAP virtual controller will send data for all subordinate APs (e.g., AL0146305, 00:01:02:03:04:05, AP-105, AL014777701:02:06:07:08:11, AP-135). The AP Info column is hidden by default. To display the AP Info column, click the **Device History** header to expand this list. Clicking the header a second time collapses the list back to its original size.

Create Whitelists

If you convert an Instant AP to a Remote AP, you must also ensure that the remote AP's MAC address is input into the controller's *remote AP whitelist*, which is the controller's internal database of valid remote APs. If the device's MAC address is not in the controller's remote AP whitelist, the AP will not be able to successfully authenticate with the controller and retrieve configuration policy.

Aruba Activate allows you to easily update your controller's remote AP whitelist by generating a script of CLI commands that you can paste directly into the controller's command-line interface. If your devices are running ArubaOS 6.1.4 or later and you are maintaining a whitelist on an external RADIUS server, you can use Activate to create a remote AP whitelist in comma-separated value (CSV) format.

The commands to create or update the controller's internal remote AP whitelist can vary, depending upon the controller's software version. When you generate a list of remote AP whitelist commands, you must specify whether the controller is running an older ArubaOS version (6.1.3 or earlier), or ArubaOS 6.1.4 or later. Whitelists in CSV format contain only the MAC addresses of each remote AP. To create a more detailed inventory report that includes additional device information, see Export Device Data.

When Aruba Activate generates a whitelist, it includes an entry for each AP, (Campus AP, Instant AP or remote AP) that appears in the Devices list. To generate a whitelist for a subset of device types, you first must filter the Devices list to display only the target devices for your whitelist.

Before you generate a whitelist, you must create provisioning rules that identify the controller AP group to which the remote APs will be associated. The whitelist CLI commands include the AP group of each device, as well as any device names, full names, and descriptions configured in Activate. Whitelists generated by Activate provide both *add* and *delete* commands for each device, so the commands can update the name, full name, and description if needed. If you only want add commands, then filter these out before you input the commands into the controller's command-line interface . If the remote AP is currently connected to the controller and you input both delete and add commands, the delete command will temporarily bring down the remote AP, potentially causing a disruption of service for clients associated with that remote AP.

To Generate and Upload a Controller Whitelist:

1. Click the **Devices** icon at the top of the page to display the *Devices* page.
2. Click **Whitelist CLI**.
3. Select either **Older AOS Format** (for ArubaOS 6.1.3 and earlier) or **6.1.4 Format** for controllers running ArubaOS 6.1.4 or later. Note that it may take up to a minute to generate the file containing the commands.
4. A prompt asks you if you want to open the generated file or save it on your computer. Specify whether you want to open or save the file, then click **OK**.
5. Open the generated file, and copy the commands after the header.
6. Access the controller's command-line interface.
7. Enter config mode.
8. Paste the copied commands into the controller's command-line interface.
9. Press **Enter** on your keyboard to enter the commands.
10. Issue the **write mem** command to save your settings before exiting the CLI terminal session.

Best practices are to issue the command **write mem** to save your settings before closing the controller command line interface.

To Generate an External Database Whitelist:

1. Click the **Devices** icon ( ) at the top of the page to display the *Devices* page.
2. Click the **More** drop-down list.
3. Select **Whitelist CSV**.A prompt asks you if you want to open the generated file or save it on your computer.
4. Specify whether you want to open or save the file, then click **OK**.

Export Device Data

Aruba Activate can generate and export the contents of the **Devices** list into a report in comma-separated value (CSV) format, for direct import into Microsoft Excel.

When Aruba Activate generates an inventory report, it includes an entry for each device that appears in the **Devices** List. To generate an inventory report for a subset of devices, you must first filter the **Device** list to show just the entries you want to include in the report.

To generate and export a device data report:

1. Click the **Devices** icon ( ) at the top of the page to display the **Devices** page.
2. Click the **More** drop-down list.
3. Select **Inventory CSV**.A prompt asks you if you want to open the generated file or save it on your computer.
4. Specify whether you want to open or save the file, then click **OK**.

Chapter 5
Aruba Activate APIs

The Activate APIs are designed to meet the needs of users who want to configure their folders and rules in the Cloud just once, and then have their internal provisioning system integrate with Activate without further user interaction. All Activate APIs are JSON-encoded, and user session-based authentication.

The following procedure describes an example use case using Activate APIs.

1. The customer configures provisioning rules and folders in Activate.
2. An internal Aruba application performs the following tasks:
   a. Queries Activate each day for new inventory that has shipped to the customer.
   b. Adds inventory into a configuration management database (CMDB).
   c. Determines how to provision the new devices from a query or internal CMDB.
   d. Uses APIs to add new inventory to its proper Activate folder.
3. Inventory is shipped directly to the customer location, without any preconfiguration.
4. The end user receives a device and connects it to the Internet.
5. The device connects to Activate and receives proper provisioning information.
6. The device leverages provisioning information to connect to its configuration master (AMP/controller) and receive the appropriate security policy.
7. An Internal application queries Activate each day for status updates on provisioned devices and updates CMDB.

All APIs are JSON encoded and use session-based authentication. For detailed information on individual APIs, refer to the following sections of this user guide:

- Inventory Update , Inventory Own and Inventory Query APIs: Allow a customer to retrieve new inventory and update inventory in Activate without interacting with the WebUI.
- File Query API: Provides a list of files posted to Activate from a controller, Instant AP, AirWave, Mobility Access Switch or ClearPass Policy Manager.
- Folder Update and Folder Query APIs: Provide a list of folders, and the folder ID required to move a device into a new or different folder. This API also provides the ability to create and rename folders.
- Rule Update and Rule Query APIs: Provide a list of rules, and gives users the ability to create and update rules
- Customer Query APIs: Provide a customer ID for submitted devices or purchase orders, so a service provider or reseller can retrieve folders, devices, or rules by the Activate customer ID. Users with a single customer account do not need to use this API.
- Whitelist Query API: Provides whitelist commands used to update your controller's whitelist.
- Firmware Query API: Provides a list of firmware files and URL locations on the Activate servers.
- Order Online Create API: Allows Aruba employees to update or create an order line in Activate without accessing the WebUI.

The following code examples can also be downloaded from this site:

- Samples of Curl code to query all inventory, query a single MAC or update inventory
- Sample Client Javascript code
- Sample Request Javascript code

Inventory API-Update Example

This API enables a customer to update inventory in Activate without accessing the WebUI. There are no URL parameter filters for this API.

Most customers do not need to specify their customer IDs, as each user's username and password will identify them in the Aruba Activate system. However, service providers or customers using Aruba cloud management will need to specify a customer ID by passing that customer ID in a header element called **Ipc**.

Example Body of Post and Return JSON Encoding

The URL for an inventory update is activate.arubanetworks.com/api/ext/inventory.json?action=update.

Sample Header Post to Return Devices Related to Customer (Including optional Ipc header)

```
HTTP/1.1
Date: Fri, 30 Nov 2012 16:11:12 GMT
Content-Length: 0
Content-Type: text/plain; charset=UTF-8
Ipc:/9e9dd1e1-57f2-4b47-9ed0-c8e2dccb6c88
Connection: Keep-Alive
```

An example of this header element would be Ipc: 9e9dd1e1-57f2-4b47-9ed0-c8e2dccb6c88.

Sample Body of Post JSON Encoding

The following example moves devices into a new folder:

```
json={
   "devices" : [
   {
      "mac" : "00:01:02:03:04:05",
      "deviceName" : "steve-AP-105",
      "deviceFullName" : "Steve's AP-105",
      "deviceDescription" : "New Long Description"},
   {
      "mac" : "00:01:02:03:04:06",
      "folderId" : "a301e0a5-a532-11e1-9eaf-a4badbe0a001" }
{
      "mac" : "00:01:02:03:04:04",
      "folderName": "Southwest APs" }
   ]
}
```

Sample Body of Response HTML

```
{
   "info" : {
      "api" : "inventory",
      "version" : "1.4"
   },
   "message" : {
      "text" : "2 devices updated",
      "code" : "0"
   },
   "errors" : [
      {
         "key" : "00:01:02:03:04:05",
         "errMessage" : "DevNotFound"
      }
   ]
}
```

Inventory API-Own Example

The Inventory API allows internal Aruba Central users to move inventory from one customer to another.

Example Body of Post and Return JSON Encoding

The URL for an inventory query is: www.activate.arubanetworks.com/api/ext/inventory.json?action=own

You will need to specify a customer ID by passing that customer ID in a header element called **Ipc.**

Sample Header Post to Return Devices Related to Customer

```
HTTP/1.1
Date: Fri, 30 Nov 2012 16:11:12 GMT
Content-Length: 0
Content-Type: text/plain; charset=UTF-8
Ipc:/9e9dd1e1-57f2-4b47-9ed0-c8e2dccb6c88
Connection: Keep-Alive
```

An example of this header element would be Ipc: 9e9dd1e1-57f2-4b47-9ed0-c8e2dccb6c88.

Sample Body of Post JSON Encoding using custPO

```
json={
    "devices" : [
      {
         "mac" : "00:01:02:03:04:07",
         "serialNumber" : "BE2430001",
         "custPo” : "ABC12",
         "shipDate": "07-14-2012"},
      {
         "mac" : "00:01:02:03:04:07",
         "serialNumber" : “BE2430001",
         "custPo" : "ABC12",
         "shipDate": "07-14-2012”}
     ]
}
```

Sample Body of Post JSON Encoding using Activation Keys

```
json={
    "keys" : [
      {
         "activationKey" : "ABCD1234",
         "mac" : "BE2430001"},
      {
         "activationKey" : "UVWX9876",
         "serialNumber" : “BE2430001"}
      ]
}
```

Sample Body of Response HTML using CustPO

```
{
   "info" : {
      "api" : "inventory",
      "version" : "1.4"
   },
      "message" : {
      "text" : "1 device owned",
      "code" : "0"
   },
   "errors" : [
      {
         "key" : "00:01:02:03:04:05",
         "errMessage" : "NoMatchSerToMac"
     },
     {
         "key" : "00:01:02:03:04:06",
         "errMessage" : "CustPoNoNotFound"
      }
    ]
}
```

Sample Body of Response HTML related to Permission Issues

```
{
   "info": {
      "api":"inventory",
      "version":"1.4"
   }, "message":{
      "text":"no devices updated.",
      "code":-1
   }, "errors":[{
      "key":"permission",
      "errMessage":"permission denied."
   }]
}
```

File API-Query Example

This API provides a list of files posted to Activate. These files can originate from a controller, IAP, AMP, Mobility Access Switch, HPE ArubaOS Switch, or CPPM. You can filter based on URL parameters.

Table 11: *URL filters that can be passed to the Inventory API on a post*

HTML Body FIlters	Nature of Parameter	Definition	Sample
Blank body	—	Returns all devices with all data	
createDate	Optional parameter	Returns all files added from this date forward. This is the actual date the file was added to Activate.	createDate=01-01-2012

Table 12: *URL filters that can be passed to the Inventory API on a post*

HTML Body Filters	Nature of Parameter	Definition	Sample
Blank body	—	Returns all devices with all data	
Devices	Optional parameter	Return only the files for the devices specified by their primary key, the MAC of eth0	"devices" : ["00:01:02:03:04:05", "00:01:02:03:04:06"]
Serial Numbers	Optional parameter	Return only the files for the devices specified by their serial number.	"serialNumbers" : [“AL0000001", "AL0000002"]

HTML Body Filters	Nature of Parameter	Definition	Sample
Customers	Optional parameter	Return only the files for the customers specified.	"customerIds" : [“A323lDDEE433CABBAA398833", "A323lDDEE433CABBAA398833"]
SourceIP	Optional parameter		"sourceIpAddress" : [“10.1.1.1", "10.1.2.1"]

Example Body of Post and Return JSON Encoding

The URL for a firmware query is phonehomelogs.arubanetworks.com/api/ext/file.json?action=query.

Sample Body of Post JSON Encoding to Return Specific MAC Addresses

```
json={
      "devices" : [
         "00:01:02:03:04:05",
        "00:01:02:03:04:06"
      ]
}
```

Sample URL to return all firmware files added to Activate from 01-01-2012

```
phonehomelogs.arubanetworks.com/api/ext/file.json?action=query&createDate=01-01-2012
```

Sample Body of Response JSON Encoding with no Folders Requested

```
{
   "info" : {
      "api" : "file",
      "version" : "1.4" },
   "message" : {
      "text" : "Request successfully processed",
      "code" : "0" },
   "files" : [
      {
           "fileName" : "01-02-2013-11-02-54_CTR_CRASH_01:02:03:04:05:06.tar.gz",
           "fileSize" : 4091164,
           "checksum" : "AADE593772A3DE847DFD77ECAE2E1095A06C4EE1",
           "fileType” : "crash",
           "createDate" : "02-01-2013",
           "createTimestamp" : 1385063003000,
           "email" : "username@example.com",
           "bugId" : "339-f444",
           "caseNumber" : "AE43-BBED",
           "version" : "5.0.3.0-1.0.0.1",
           "build" : "28245",
           "oem" : "aruba",
           "mac" : "00:01:02:03:04:06",
           "serialNumber" : “BE2430001",
           "partNumber" : “7224-US",
           "fileUrl" : "internal.activate.activate.com/file/dir/123",
           "sourceIpAddress" : "10.1.1.1",
           "customerId" : "344ef0a5-a532-11e1-9eaf-a4badbe0f264",
           "customerName" : "Intel Inc."
      },
           "fileName" : "11-22-2013-01-15-33_CTR_RUN_02:04:AA:BB:CC:06.tar.gz",
           "fileSize" : 3032233,
           "checksum" : "BCAA69327AB3CAB47DFD77ECAE2E1095A06C4EE1",
           "fileType” : "running",
           "createDate" : "11-22-2013",
           "createTimestamp" : 1385063003000,
           "email" : "paul@arubanetworks.com",
          "bugId" : "339-f444",
          "caseNumber" : "AE43-BBED",
          "version" : "6.3.0.0-1.0.0.1",
          "build" : "45141",
          "oem" : "aruba",
          "mac" : "02:04:AA:BB:CC:06",
          "serialNumber" : “CM0943802",
          "partNumber" : “6500-US",
          "fileUrl" : "internal.activate.activate.com/file/dir/123",
          "sourceIpAddress" : "10.1.1.1",
          "customerId" : "6534ab0c4-b141-11a1-9ab1-cc1a2be0f264",
          "customerName" : "Starbucks Inc."
     ]
}
```

Inventory API-Query Example

The Inventory API provides users with ability to query for or update inventory.

Most customers do not need to specify their customer IDs, as each user’s username and password will identify them in the Aruba Activate system. However, service providers or customers using Aruba cloud management will need to specify a customer ID by passing that customer ID in a header element called Ipc. An example of this header element would be Ipc: 9e9dd1e1-57f2-4b47-9ed0-c8e2dccb6c88.

Table 13: *URL filters that can be passed to the Inventory API on a post*

URL Filters	Nature of Parameter	Definition	Sample
query	Mandatory parameter	Returns all devices	`action=query`
Blank	—	Returns all devices with all data	
addDate	Optional parameter	Returns all devices added to your inventory from this date forward. This is not the ship date, but the actual date a device is added to Activate. For example, The device could have shipped on 01/01/2012, but was added to Activate on 01/02/2012.	`addDate=01/01/2012`
shipDate	Optional parameter	Returns all devices that were shipped on this date. Note this is different than addDate.	`shipDate=01/01/2012`
deviceFilter	Optional parameter	Determines what device content that will be returned. If parameter is not present or blank, it returns all device content including basicData, orderData, additionalData.	
limit offset	Optional parameters	These parameters setthe pagination. Both parameters must be provided for pagination to take effect. ● limit—accepts an integer value greater than or equal to 1. ● offset—accepts an integer value greater than or equal to 0.	`limit=10&offset=2`

Table 14: *HTML body filters that can be passed to the Inventory API on a post*

HTML Body Filters	Nature of Parameter	Definition	Sample
query	Mandatory parameter	Returns all devices	action=query
Empty body	—	Returns all devices with all data	

Devices	Optional parameter	Return only the devices specified. Device must be specified as the MAC of eth0	`"devices" : [`
			`"00:01:02:03:04:05",`
			`"00:01:02:03:04:06"`
			`]`

Folders	Optional parameter	Return only rules within folders specified. Folders must be specified as the id of the folder.	`"folders" : [`
			`"b40ef0a5-a532-11e1-9eaf-a4badbe0f786",`
			`"ccef00bf-133a-22fa-9111-a333aaa0f786"`
			`]`

Device Names	Optional parameter	Return only the device(s) that match the input string exactly. The query is case sensitive, so “ap-1” does not match “AP-1”.	`"deviceNames" : [`
			`“ap-1",`
			`"ap-2"`
			`]`

Serial Numbers	Optional parameter	Return only the devices specified – that match the serial number elements supplied. The query is case sensitive, so “al0000001” does not match “AL0000001”.	`"serialNumbers" : [`
			`“AL0000001",`
			`"AL0000002" ,`
			`]`

Example Body of Post and Return JSON Encoding

The URL for an inventory query is:

www.activate.arubanetworks.com/api/ext/inventory.json?action=query.

The following example is a sample URL to return basic data only for all devices added to Activate from 01/01/2012: www.activate.arubanetworks.com/api/ext/inventory.json?action=query&addDate=01-01-2012&deviceFilter=basicData

The following example is a sample URL to return data with pagination parameters set for limit and offset:

www.activate.arubanetworks.com/api/ext/inventory.json?action=query&limit=10&offset=2

Sample Header Post to Return Devices Related to Customer

```
HTTP/1.1
```

```
Date: Fri, 30 Nov 2012 16:11:12 GMT
Content-Length: 0
Content-Type: text/plain; charset=UTF-8
            Ipc:/9e9dd1e1-57f2-4b47-9ed0-c8e2dccb6c88
Connection: Keep-Alive
```

Sample Body of Post JSON Encoding to Return Specific MAC Addresses

```
json={
  "devices" : [
    "00:01:02:03:04:05",
    "00:01:02:03:04:06"
  ]
}
```

Sample Body of Post JSON Encoding to Return only Device in Specific Folders

```
json={
  "folders" : [
    "b40ef0a5-a532-11e1-9eaf-a4badbe0f786",
    "ccef00bf-133a-22fa-9111-a333aaa0f786"
  ]
}
```

Sample request URLs with Response JSON Encoding that includes the total count of devices

The inventory data for a customer who has 75,555 devices can be fetched with two chain requests, as shown in the following example:

Request 1

www.activate.arubanetworks.com/api/ext/inventory.json?action=query&limit=50000&offset=0

Response JSON for Request 1

{

"info": {

"api": "inventory",

"version": "1.4"

},

"message": {

"text": "50000 devices returned",

"code": 0

},

"totalCount": 75555,

"devices": [

{

...data for first 50000 devices...

}

]

}

Request 2

www.activate.arubanetworks.com/api/ext/inventory.json?action=query&limit=50000&offset=50000

Response JSON for Request 2

{

"info": {

"api": "inventory",

```
"version": "1.4"
},
"message": {
"text": "25555 devices returned",
"code": 0
},
"totalCount": 75555,
"devices": [
{
 ...data for next 25555 devices...
}
]
}
```

Sample Body of Response JSON Encoding

NOTE: If the body is empty, the API will respond with all devices. You can supply only one of the HTML body filters mentioned earlier, and you cannot combine multiple filters within the body. You can, however, combine URL and HTML body filters.

```
{
  "info" : {
    "api" : "inventory",
    "version" : "1.4" },
  "message" : {
    "text" : "2 devices returned",
    "code" : "0" },
  "errors" : [
    {
      "key" : "00:01:02:03:04:05",
      "errMessage" : "InvalidFormat" }
],
   "totalCount": 220
"devices" : [
{
   "mac" : "00:01:02:03:04:05" :
   "basicData" : {
      "mac" : "00:01:02:03:04:05",
      "customerId" : "344ef0a5-a532-11e1-9eaf-a4badbe0f264"
      "serialNumber" : "BE0000011",
      "partNumber" : "IAP-105",
      "folderId" : "b40ef0a5-a532-11e1-9eaf-a4badbe0f786",
      "firstSeen" : "01-15-2011",
      "lasttSeen" : "02-15-2011",
      "status" : "shipped", },
   "orderData" : {
      "shipDate" : "01-01-2012",
      "custPo" : "zzz0101001",
      "shipData1" : "Intel",
      "shipData2" : "Intel",
      "shipData3" : "Intel",
      "orderType" : "STD", },
   "additionalData" : {
      "deviceName" : "paul-AP-105",
      "deviceFullName" : "Paul's AP-105",
      "deviceDescription" : "Long Description",
      "apGroupName" : "north-ap",
      "folder" : "North_APs",
      "folderId" : "b40ef0a5-a532-11e1-9eaf-a4badbe0f786",
      "firstSeen" : "01-15-2011",
      "lasttSeen" : "02-15-2011",
      "lastAosVersion" : "6.0.1.0.1"
      "lastBootVersion" : "6.0.1.0.1"
      "sourceIpAddress" : "10.1.1.1" }
   },
{
 "mac" :"00:01:02:03:04:06" :
   "basicData" : {
      "serialNumber" : "BE0000012",
      "customerId" : "344ef0a5-a532-11e1-9eaf-a4badbe0f264"
      "partNumber" : "IAP-105", },
      "orderData" : {
      "shipDate" : "02-01-2012",
      "custPo" : "xxx0101001",
      "shipData1" : "Intel",
      "shipData2" : "Intel",
      "shipData3" : "Intel",
      "orderType" : "STD", },
    "additionalData" : {
      "deviceName" : "john-AP-105",
      "deviceFullName" : "John's AP-105",
      "deviceDescription" : "Long Description",
      "apGroupName" : "north-ap",
      "folderName" : "North_APs",
      "folderId" : "b40ef0a5-a532-11e1-9eaf-a4badbe0f786",
      "firstSeen" : "02-15-2011",
      "lasttSeen" : "03-15-2011",
      "lastAosVersion" : "6.0.1.0.1"
      "lastBootVersion" : "6.0.1.0.1"
      "sourceIpAddress" : "10.1.1.1" }
    }
  ]
}
```

Folder API-Update Example

This API allows you to update or create a folder in Activate without accessing the WebUI.

Most customers do not need to specify their customer IDs, as each user’s username and password will identify them in the Aruba Activate system.However, service providers or customers using Aruba cloud management will need to specify a customer ID by passing that customer ID in a header element called Ipc.

Table 15: *HTML body filters that can be passed to the Inventory API on a post*

HTML Body FIlters	Nature of Parameter	Definition	Sample
update	Mandatory parameter	Returns all devices	`action=update`
Blank body	—	Returns all devices with all data	

Folders	Optional parameter	Returns all devices that were shipped on this date. Note this is different than addDate.	`"folders" : [`
			`"b40ef0a5-a532-11e1-9eaf-a4badbe0f786",`
			`"ccef00bf-133a-22fa-9111-a333aaa0f786"`
			`]`

Example Body of Post and Return JSON Encoding

The URL for a folder update is: activate.arubanetworks.com/api/ext/folder.json?action=update.

Sample Header Post to Return Devices Related to Customer

```
HTTP/1.1
Date: Fri, 30 Nov 2012 16:11:12 GMT
Content-Length: 0
Content-Type: text/plain; charset=UTF-8
              Ipc:/9e9dd1e1-57f2-4b47-9ed0-c8e2dccb6c88
Connection: Keep-Alive
```

An example of this header element would be Ipc: 9e9dd1e1-57f2-4b47-9ed0-c8e2dccb6c88.

Sample Body of Post JSON Encoding

```
json={
   "folders" : [
     {
        "folderName" : "Change Name of Folder"},
     {
        "parentId" : "22af3144-2abc-22e1-9eaf-cc32adbe0f733",
        "folderName" : "New Folder Name"},
     {
        "folderId" : "43be9844-eafd-22e1-9eaf-cc32adbe0f7ee",
        "parentId" : "fea32554-12ea-22e1-9eaf-cc32adbe0f21a"}
     ]
}
```

Sample body of Response HTML

```
{
   "info" : {
      "api" : "folder",
      "version" : "1.4"},
   "message" : {
      "text" : "3 folders updated or created",
      "code" : "0"},
   "folders" : [
      {
         "folderId" : "abced180-2562-22e1-9eaf-cc32adbe0f786",
         "folderName" : "New Folder Name" },


      {
         "folderId" : "123da0c4-a532-11e1-9eaf-a4badbe0f786",
         "folderName" : "Another New Folder" }
      ]
   }
   "errors" : [
      {
         "key" : "b40ef0a5-a532-11e1-9eaf-cc32adbe0f786",
         "errMessage" : "Folder ID Not Found"},
      {
         "key" : "New Folder + b40ef0a5-a532-11e1-9eaf-a4badbe0f786",
         "errMessage" : "Parent folder not found: …9eaf-a4badbe0f786"},
      {
         "key" : " b40ef0a5-a532-11e1-9eaf-a4badbe0f786",
         "errMessage" : "Duplicate child folder (New Folder): for parent" }
      ]
  }
```

Folder API-Query Example

This API provides a list of folders. The URL for a folder query is activate.arubanetworks.com/api/ext/folder.json?action=query.

Most customers do not need to specify their customer IDs, as each user's username and password will identify them in the Aruba Activate system. However, service providers or customers using Aruba cloud management will need to specify a customer ID by passing that customer ID in a header element called Ipc. An example of this header element would be Ipc: 9e9dd1e1-57f2-4b47-9ed0-c8e2dccb6c88.

Sample Header Post to Return Devices Related to Customer

```
HTTP/1.1
Date: Fri, 30 Nov 2012 16:11:12 GMT
Content-Length: 0
Content-Type: text/plain; charset=UTF-8
Ipc:/9e9dd1e1-57f2-4b47-9ed0-c8e2dccb6c88
Connection: Keep-Alive
```

Table 16: *HTML body filters that can be passed to the Inventory API on a post*

HTML Body Filters	Definition	Sample
Blank body	Returns all devices with all data	
Folders	Return only devices within folders specified. Folders must be specified as the id of the folder.	"folders" : ["b40ef0a5-a532-11e1-9eaf-a4badbe0f786", "ccef00bf-133a-22fa-9111-a333aaa0f786"]

Sample Body of Post JSON encoding to return only specific folders

```
json={
   "folders" : [
      "b40ef0a5-a532-11e1-9eaf-a4badbe0f786",
      "ccef00bf-133a-22fa-9111-a333aaa0f786"
   ]
}
```

Sample body of Response JSON Encoding

```
  {
"info": {
        "api": "folder",
        "version": "1.4"
        },
        "message": {
                "text": "Request successfully processed",
                "code": "0"
        },
        "folders": [{
                "folderId": "b40ef0a5-a532-11e1-9eaf-a4badbe0f786",
                "folderName": "South",
                "folders": [{
                        "folderId": "e48c31a5-a532-44am-4cb2-a4badbe0f134",
                        "folderName": "Southwest APs"
                }, {
                        "folderId": "a3fc71a5-a532-44am-4cb2-a4badbe0f555",
                        "folderName": "Southeast APs"
                }],
                "folderId": "14356a0a5-a532-11e1-9eaf-a4badbe0f786",
                "folderName": "North",
                "folders": [{
                        "folderId": "e48ff1a5-a532-44am-4cb2-a4badbe0f134",
                        "folderName": "Northwest APs"
                }, {
                        "folderId": "443f1fa-a532-44am-4cb2-a4badbe0f5432",
                        "folderName": "Northeast APs"
                }]
        }]
}
```

Rule API-Update Example

This API enables a customer to update/create a rule in Activate without requiring interaction with the WebUI. There are no URL parameter filters for this API.

For customers the API does not require scoping on a customer ID, because your user/pass login will scope you to your customer. However, service providers or customers using Aruba cloud management will need to specify a customer ID by passing that customer ID in a header element called Ipc. An example of this header element would be Ipc: 9e9dd1e1-57f2-4b47-9ed0-c8e2dccb6c88.

NOTE

There are no optional URL parameter filters for this API.

Example Body of Post and Return JSON Encoding

The URL for a rule update is activate.arubanetworks.com/api/ext/rule.json?action=update.

Sample JSON Request body to create an IAP to RAP rule

```
json={
       "rules": [{
                  "ruleName": "kaiser.provision.rule",
                  "parentFolderId": "17c090a6-4ccb-4e3a-beaa-00e4a54c61fe",
                  "ruleType": "provision",
                  "provisionType": "iap_to_rap",
                  "controller": "1.1.1.1",
                  "apGroup": "1231234",
                  "controllerMac": ""
         }]
}
```

Sample body of Response HTML

```
{
   "info" : {
      "api" : "rule",
      "version" : "1.4"},
   "message" : {
      "text" : "2 rules updated or created",
      "code" : "0"},
   "rules" : [
      {
         "ruleId" : "abced180-2562-22e1-9eaf-cc32adbe0f786",
         "ruleName" : "west.provision.rule" }
         ]
      },
   "errors" : [
     {
         "key" : "b40ef0a5-a532-11e1-9eaf-cc32adbe0f786",
         "errMessage" : "Rule ID Not Found"},
     {
         "key" : "New Rule + b40ef0a5-a532-11e1-9eaf-a4badbe0f786",
         "errMessage" : "Parent folder not found: …9eaf-a4badbe0f786"},
     {
         "key" : " b40ef0a5-a532-11e1-9eaf-a4badbe0f786",
         "errMessage" : "Duplicate rule name" }
   ]
}
```

Rule API-Query Example

This API provides a list of rules in your folder hierarchy. You can limit the scope of the query to a particular folder or folders by including the required folder(s) in the body. The URL for a rule query is activate.arubanetworks.com/api/ext/rule.json?action=query.

Most customers do not need to specify their customer IDs, as each user's username and password will identify them in the Aruba Activate system. However, service providers or customers using Aruba cloud management will need to specify a customer ID by passing that customer ID in a header element called Ipc. An example of this header element would be Ipc: 9e9dd1e1-57f2-4b47-9ed0-c8e2dccb6c88.

Sample Header Post to Return Devices Related to Customer

```
HTTP/1.1
Date: Fri, 30 Nov 2012 16:11:12 GMT
Content-Length:
Content-Type: text/plain; charset=UTF-8
Ipc:/9e9dd1e1-57f2-4b47-9ed0-c8e2dccb6c88
Connection: Keep-Alive
```

Table 17: *HTML body filters that can be passed to the Rule API on a post*

HTML Body FIlters	Definition	Sample
Empty body	Returns all devices with all data	

Folders	Return only rules within folders specified. Folders must be specified as the id of the folder.	`"folders" : [`
		`"b40ef0a5-a532-11e1-9eaf-a4badbe0f786",`
		`"ccef00bf-133a-22fa-9111-a333aaa0f786"`
		`]`

Rules	Return only rules specified. Rules must be specified as the id of the rule.	`"rules" : [`
		`"b40ef0a5-a532-11e1-9eaf-a4badbe0f786",`
		`"ccef00bf-133a-22fa-9111-a333aaa0f786"`
		`]`

Note: There are no URL parameter filters for this API.

Sample Body of Post JSON Encoding to Return only Specific Folders

```
json={
   "folders" : [
      "b40ef0a5-a532-11e1-9eaf-a4badbe0f786",
      "ccef00bf-133a-22fa-9111-a333aaa0f786"
   ]
}
```

Sample body of Response JSON encoding to return specific rules

```
json={
   "rules" : [
      "b40ef0a5-a532-11e1-9eaf-a4badbe0f786",
      "ccef00bf-133a-22fa-9111-a333aaa0f786"
   ]
}
```

Sample Body of Response JSON Encoding with no Folders Requested

```
{
   "info" : {
      "api" : "rule",
      "version" : "1.4" },
   "message" : {
      "text" : "Request successfully processed",
      "code" : "0" },
   "rules" : [
      {
         "ruleId" : "b40ef0a5-a532-11e1-9eaf-a4badbe0f786",
         "ruleName" : "west.provision.rule",
         "parentFolderid" : "433aa43-b432-0001-84323abcddd",
         "ruleType" : "provision,
         "provisionType" : "iap_to_athena",
         "managementUrl" : "athena.arubanetworks.com"
      },
      {
         "ruleId" : "aa03f0a5-a532-11e1-9eaf-a4badbe0fa342",
         "ruleName" : "east.provision.rule",
         "parentFolderid" : "433aa43-b432-0001-84323abcddd",
         "ruleType" : "provision",
         "provisionType" : "iap_to_amp",
         "ampIp" : "10.1.1.1",
         "ampOrg" : "bww",
         "ampSharedsecret" : "bww"
```

```
  ]
}
```

Customer API-Query Example

Most customers do not need to specify their customer IDs, as each user's username and password will identify them in the Aruba Activate system. However, service providers or customers using Aruba cloud management will need to specify a customer ID by passing that customer ID in a header element called Ipc. An example of this header element would be Ipc: 9e9dd1e1-57f2-4b47-9ed0-c8e2dccb6c88.

Table 18: *HTML body filters that can be passed to the Customer API on a post*

HTML Body Filters	Nature of Parameter	Definition	Sample
query	Mandatory parameter	Returns all devices	`action=query`
Empty body	—	Returns all devices with all data.	

Purchase Order		Returns the customers related to these purchase order and ship date pairs.	`"custPos" : [`
			`{`
			`"custPo" : "47320938",`
			`"shipDate" : "05-14-2012" }`
			`]`

Example Body of Post and Return JSON Encoding

The URL for an inventory query is:
[POST] activate.arubanetworks.com/api/ext/customer.json?action=query

Sample Body of Post JSON Encoding for Returning Devices Related to Customer PO and Ship Date

```
json={
   custPos" : [
    {
      "custPo" : "47320938",
      "shipDate" : "05-14-2012"},
   {
      "custPo" : "xx-3201-44z3",
      "shipDate" : "07-14-2012"},
   ]
}
```

Sample body of Response JSON Encoding for Customer PO & Ship Date Requests

```
{
   "info" : {
      "api" : "rule",
      "version" : "1.3"},
   "message" : {
      "text" : "Request successfully processed",
      "code" : "0"},
   "customers" : [
      {
         "cusomterId" : "b40ef0a5-a532-11e1-9eaf-a4badbe0f786",
         "customerName" : "Intel Inc."
         "custPo" : "47320938",
         "shipDate" : "05-14-2012"},

        {
         "cusomterId" : "a33aaaaa-a444-11e1-9eaf-a4badbe0f786",
         "customerName" : "Microsoft Inc."
         "custPo" : "xx-3201-44z3",
         "shipDate" : "07-14-2012"}
]
```

Whitelist Query API

This API provides the whitelist CLI commands that allow the controller to identify the remote APs allowed to connect to the controller using Control Plane Security. These whitelist commands are used in a script which can access the controller using SSH.

The URL for the whitelist query is www.activate.arubanetworks.com/api/ext/inventory.json?action=whitelist.

Table 19: *Whitelist Query Parameters*

URL Parameter Format	Definition	Sample
Blank	Returns only the add commands (addOnly) in original format	

Format	Determines CLI format of the whitelist returned
	- original – provides command formatted for ArubaOS 6.1.3 and earlier. This is the default value.
	- new – provides commands formatted for ArubaOS 6.1.4 and later
		`format=original`
		`format=new`

addOnly	Determines which whitelist commands are returned
	- false – returns both (add and delete) commands
	- true – return only (add) commands. This is the default.
		`addOnly=false`
		`addOnly=true`

The following example is a sample URL requesting both “add” and “delete” whitelist commands:

www.activate.arubanetworks.com/api/ext/inventory.json?action=whitelist&format=original&addOnly=false

To view examples, click any of the headings below.

Sample Body of Post JSON Encoding

```
{
   "devices" : [
      "00:01:02:03:04:05",
      "00:01:02:03:04:06" ]
}
```

Sample Body of Post JSON Encoding by Folder

```
{
    "folders" : [
       "b40ef0a5-a532-11e1-9eaf-a4badbe0f786",
       "ccef00bf-133a-22fa-9111-a333aaa0f786"
    ]
}
```

Note: You can't mix folders and devices in the same body. If the body is empty, the API will respond with all devices that are applicable for a whitelist.

Sample Body of Response with ***non****-JSON Encoding*

```
local-userdb-ap del mac-address 00:01:02:03:04:05 <CRLF>
local-userdb-ap add mac-address 00:01:02:03:04:05 ap-group "rap" ap name "steve-AP-105" full-
name "Steve's AP-105" description "New Long Description" <CRLF>
local-duserdb-ap del mac-address 00:01:02:03:04:06 <CRLF>
local-userdb-ap add mac-address 00:01:02:03:04:06 ap-group "rap" ap name "david-AP-105" full-
name "David's AP-105" description "New Long Description" <CRLF>
<EOF>
```

Firmware API-Query Example

This API provides a list of firmware versions. You can filter on URL parameters, but there are no body parameter filters for this API. The URL for a firmware query is activate.arubanetworks.com/api/ext/firmware.json?action=query

Table 20: *URL Filters Passed to the Firmware API on a Post*

URL Filters	Definition	Sample
Blank	Returns all devices with all data	
Format	Returns all firmware files added from this date forward. This is not the release date of the firmware, but the actual date the firmware file was added to Activate.	`createDate=01-01-2012`
Build	Returns all firmware files equal to build. This will return Aruba and all OEM derivative files.	`build=28245`
Version	Returns all firmware files equal to version. This will return Aruba and all OEM derivatives files.	`Version=5.0.3.0-1.0.0.1`

Below is a sample URL that returns all firmware files added to Activate on 11-01-2016.

activate.arubanetworks.com/api/ext/firmware.json?action=query&createDate=11-01-2016

Sample Body of Response JSON Encoding with no Folders Requested

```
{
  "info": {
   "api": "firmware",
   "version": "1.3"
   },
   "firmwareFiles": [{
   "firmwareId": "77634c55-1400-4e74-97b1-f832b350fbab",
   "fileName": "WB_16_02_0014.swi",
   "fileSize": 15055657,
   "version": "WB.16.02.0014",
   "build": "783",
   "platformId": "9d835ce3-c531-11e5-ac8f-22000aa8017b",
   "platform": "ArubaOSSwitch",
   "platformMode": "SWITCH",
   "oem": "aruba",
   "checksum": "4E989A39C8B4518B9C8DF1B7AE888063",
   "track": "release",
   "dependent": false,
   "compliant": true,
   "cBuild": false,
   "createDate": "11-08-2016",
   "createUser": "firmware-update",
   "imageUrl": "http://d2vxf1j0rhr3p0.cloudfront.net/fwfiles/WB_16_02_0014.swi"
   },
   {
   "firmwareId": "0fc0c697-d315-4b5d-b7dd-3fdd789895b0",
   "fileName": "YC_16_02_0014.swi",
   "fileSize": 19443082,
   "version": "YC.16.02.0014",
   "build": "910",
   "platformId": "9d835ce3-c531-11e5-ac8f-22000aa8017b",
   "platform": "ArubaOSSwitch",
   "platformMode": "SWITCH",
   "oem": "aruba",
   "checksum": "24A228F56A5F16A87238A1BA992FD038",
   "track": "release",
   "dependent": false,
   "compliant": true,
   "cBuild": false,
   "createDate": "11-08-2016",
   "createUser": "firmware-update",
   "imageUrl": "http://d2vxf1j0rhr3p0.cloudfront.net/fwfiles/YC_16_02_0014.swi"
   } ],
   "message": {
   "text": "2 firmware returned",
   "code": 0
   }
}
```

Inventory API-Own Example

This API enables Aruba Central to update/create an order-line in Activate without requiring interaction with the WebUI. The URL for a folder update is: activate.arubanetworks.com/api/ext/orderline.json?action=create

```
Sample Header Post to Return Devices Related to Customer
HTTP/1.1
Date: Fri, 30 Nov 2012 16:11:12 GMT
Content-Length: 0
Content-Type: text/plain; charset=UTF-8
            Ipc:/9e9dd1e1-57f2-4b47-9ed0-c8e2dccb6c88
Connection: Keep-Alive
```

Sample Body of Post JSON Encoding

```
json={
   "soNo" : "0005211144",
   "partNumber" : "EVA-CNP-IAP-1",
   "partDescription" : "Athena Evaluation SKU",
   "serialNumber" : "CN0001772",
   "soldTo" : "ARU_EV_US",
   "soldToName" : "ARUBA EVAL CUSTOMER",
   "soldToEmail" : "",
   "shipTo" : "ARU_EV_US",
   "shipToName" : "ARUBA EVAL CUSTOMER",
   "shipToEmail" : "",
   "endUser" : "0300000438",
   "endUserName" : "Wandering WiFi",
   "endUserEmail" : "john.payne@gmail.com",
   "reseller" : "",
   "resellerName" : "",
   "soldDate" : "10-30-2013",
   "custPo" : "E.Wetterauer 10/15/2013 ABC",
   "orderType" : "ZATE",
   "shipDate" : "10-30-2013",
   "isValidated" : "false"
}
```

Sample Body of Response HTML with Failures

```
json={
    "keys" : [
      {
         "activationKey" : "ABCD1234",
         "mac" : "BE2430001"},
      {
         "activationKey" : "UVWX9876",
         "serialNumber" : “BE2430001"}
      ]
}
```

Sample Body of Response HTML using CustPO

```
{
   "info" : {
      "api" : "orderline",
      "version" : "1.4"},
   "message" : {
      "text" : "Order line created",
      "code" : "-1"},
   "errors" : [
      {
         "key" : "partNumber",
         "errMessage" : "Invalid Part Number"},
      {
         "key" : "shipDate",
         "errMessage" : "Invalid Date"},
      {
         "key" : "custPO",
         "errMessage" : "Null PO" }
   ]
}
```

Sample Curl Code

Sample code to query all inventory

The first line performs the authentication and creates a cookie, and the second line provides the query. Substitute your own credentials for the username and password in the example below.

```
curl -d 'credential_0=username&credential_1=password' -c Activate-cookie.txt
https://activate.arubanetworks.com/LOGIN
curl -b Activate-cookie.txt
https://activate.arubanetworks.com/api/ext/inventory.json?action=query
```

Sample code to query a single MAC address

The first line performs the authentication and creates a cookie, and the second line provides the query. Substitute your own credentials for the username and password in the example below.

```
curl -d 'credential_0=username&credential_1=password' -c Activate-cookie.txt
https://activate.arubanetworks.com/LOGIN

curl -d 'json={ "devices" : [ "6C:F3:7F:C3:54:42" ] }' -b Activate-cookie.txt
https://activate.arubanetworks.com/api/ext/inventory.json?action=query
```

Sample code to update inventory

The first line performs the authentication and creates a cookie, and the second line provides the update. Substitute your own credentials for the username and password in the example below.

```
curl -d 'credential_0=username&credential_1= password' -c Activate-cookie.txt
https://activate.arubanetworks.com/LOGIN


curl -d 'json={ "devices" : [ { "mac" : "6C:F3:7F:C3:54:42", "deviceName" : "steve-AP-105" } ]
}' -b Activate-cookie.txt
https://activate.arubanetworks.com/api/ext/inventory.json?action=update
```

Client.java Sample

```
public class Client {
  public static void main(String args[]) throws Exception {
    Request request = null;
    String username = null;
    String password = null;
    if (args.length < 2) {
      System.out.println("usage: username password {apas host}");
      System.exit(1);
    } else if (args.length == 2) {
      username = args[0];
      password = args[1];
      request = new Request();
    } else if (args.length > 2) {
      username = args[0];
      password = args[1];
      request = new Request(args[2], false);
    }
    int status = request.login(username, password);
    if (status != 200)
      System.out.println("login failed code[" + status + "]");
    else {
      request.sendRequest("/api/ext/folder.json?action=query", null);
      System.out.println(request.getResponseBody());
      String post = "json={\"folders\":[\"72ffcf7c-6242-415a-84a4-f64606af3c9c\"]}";
      request.sendRequest("/api/ext/inventory.json?action=query", post);
      System.out.println(request.getResponseBody());
    }
    request.close();
  }
}
```

Request.java Sample

```
import java.io.InputStream;
import java.io.DataInputStream;
import java.io.DataOutputStream;
import java.io.IOException;
import java.net.Socket;
import java.net.UnknownHostException;
import java.security.cert.X509Certificate;
import java.util.Map;
import java.util.HashMap;
import javax.net.ssl.SSLContext;
import javax.net.ssl.SSLSession;
import javax.net.ssl.SSLSocketFactory;
import javax.net.ssl.HttpsURLConnection;
import javax.net.ssl.TrustManager;
import javax.net.ssl.X509TrustManager;
import javax.net.ssl.HostnameVerifier;
public class Request {
  private boolean log = false;
  private Socket client;
  private DataOutputStream out;
  private InputStream in;
  private String lf = "\r\n";
  private String cl = "Content-Length:";
  private Map<String,String> headers;
  private Map<String,String> addHeaders = new HashMap<String,String>();
  private String response;
  private String session;
  static HostnameVerifier hv = new HostnameVerifier() {
    public boolean verify(String urlHostName, SSLSession session) {
      System.out.println("Warning: URL Host: " + urlHostName + " vs. " + session.getPeerHost
());
      return true;
    }
  };
  /**
   * Aruba Activate request constructor
   **/
  public Request() {
    this ("activate.arubanetworks.com", false);
  }
  /**
   * Aruba Activate request constructor
   * @param server The Activate server activate.arubanetworks.com
   * @param log System.out logging of HTTP responses
   **/
  public Request(String server, boolean log) {
    this.log = log;
    try {
      HttpsURLConnection.setDefaultHostnameVerifier(hv);
      // Create a trust manager that does not validate certificate chains
      TrustManager[] trustAllCerts = new TrustManager[] { new X509TrustManager() {
        @Override
        public void checkClientTrusted( final X509Certificate[] chain, final String authType )
{
        }
        @Override
        public void checkServerTrusted( final X509Certificate[] chain, final String authType )
{
        }
        @Override
        public X509Certificate[] getAcceptedIssuers() {
          return null;
        }
      }};
      // Install the all-trusting trust manager
      SSLContext sslContext = SSLContext.getInstance( "SSL" );
      sslContext.init( null, trustAllCerts, new     java.security.SecureRandom() );
      // Create an ssl socket factory with our all-trusting manager
      SSLSocketFactory sslSocketFactory = sslContext.getSocketFactory();
      client = sslSocketFactory.createSocket(server, 443);
      // get th in/out streams
      out = new DataOutputStream(client.getOutputStream());
      in = client.getInputStream();
    } catch (Exception e) {
      e.printStackTrace(System.out);
    }
  }
  /**
   * Login to Aruba Activate server.
   * @return HTTP status code
   **/
  public int login(String username, String password) {
    String post =
      "credential_0=" + username + "&" +
      "credential_1=" + password;
    sendRequest("/LOGIN", post);
    session = getSessionId();
    return getHttpStatusCode();
  }
  /**
   * Add an http header to the request
   * @param name The header name
   * @param value The header value
   **/
  public void addHttpHeader(String name, String value) {
    addHeaders.put(name, value);
  }
  /**
   * Send HTTP request to the Aruba Activate server.
   * @param api The API to post to: for example /api/ext/inventory.json?action=query
   * @param post Any post values to send: for example json={"folders":["72ffcf7c-6242-415a-
84a4-f64606af3c9c"]}
   **/
  public void sendRequest(String api, String post) {
    response = null;
    try{
      String http =
        (post != null ? "POST " : "GET ")  + api + " HTTPS/1.1" + lf +
        "Content-Length: " + (post != null ? String.valueOf(post.length()) : "0") + lf +
        "Content-Type: " + (post != null ? "application/x-www-form-urlencoded;" :
"text/plain;") + " charset=utf-8" + lf +
        "Connection: Keep-Alive" + lf;
      if (session != null) http +=
        "Cookie: session=" + String.valueOf(session) + lf;
      for (String name : addHeaders.keySet())
        http += name + ": " + addHeaders.get(name) + lf;
      System.out.println(http);
      out.writeBytes(http + lf);
      if (post != null) out.writeBytes(post);
      response = getResponse();
      headers = new HashMap<String,String>();
      String[] lines = response.split("\r\n");
      for (String line : lines)
        if (line.indexOf(":") > -1)
          headers.put(line.substring(0, line.indexOf(":")), line.substring(line.indexOf(":")
+1).trim());
        else if (line.startsWith("HTTP") && line.indexOf(" ") > -1)
          headers.put("HTTP", line.split(" ")[1]);
    } catch (UnknownHostException e) {
      System.err.println("Don't know about host");
      e.printStackTrace(System.out);
      System.exit(1);
    } catch (IOException e) {
      System.err.println("Couldn't get I/O for the connection");
      e.printStackTrace(System.out);
      System.exit(1);
    } catch (Exception e) {
      e.printStackTrace(System.out);
      System.exit(1);
    }
  }
  private String getSessionId() {
    session = null;
    for (String header : headers.keySet()) {
      if (header.equalsIgnoreCase("Set-Cookie")) {
        String[] elements = headers.get(header).split(";");
        for (String element : elements) {
          if (element.startsWith("session")) {
            return element.split("=")[1];
          }
        }
      }
    }
    return null;
  }
  private int getHttpStatusCode() {
    for (String header : headers.keySet()) {
      if (header.startsWith("HTTP")) {
        String value = headers.get(header);
        try {return Integer.parseInt(value);} catch(NumberFormatException nfe) {return -1;}
      }
    }
    return -1;
  }
  private String getResponse() throws Exception {
    byte[] bytes;
    int count = 0;
    int total = 0;
    int contentLength = -1;
    int contentCount = 0;
    int contentStart = -1;
    String buffer = new String();
    while(total > -1) {
      bytes = new byte[64];
      total = in.read(bytes);
      if(total > 0) {
        int offset = (count > 0 ? ((bytes.length * count) -1) : 0);
        buffer += new String(bytes, 0, total);
      }
      if (contentLength < 0 && buffer.indexOf(cl) > -1) {
        int start = buffer.indexOf(cl) + 16;
        int end = buffer.indexOf("\r\n", start);
        if (end > 0) {
          contentLength = Integer.parseInt(buffer.substring(start, end));
          if (log) System.out.print("\nSpecified " + cl + " " + contentLength + "\n");
        }
      }
      // measure the content
      contentStart = buffer.indexOf(lf + "\r\n");
      if (contentStart > -1) {
        contentStart += lf.length() + 2;
        contentCount = buffer.length() - (contentStart);
        if (contentCount >= contentLength) break;  // got it all
      }
      count++;
    }
    if (log) {
      System.out.println("-- response start --");
      System.out.print(buffer);
      System.out.println("-- response end --");
      if (buffer.length() == 0)
        System.out.println("Actual " + cl + " 0");
      else
        System.out.print("Actual " + cl + " " + buffer.substring(contentStart, contentStart +
contentCount).length() + "\n");
    }
    return buffer;
  }
  /**
   * Provides the HTTP response body.
   * @return The HTTP response body.
   **/
  public String getResponseBody() {
    if (response != null && response.indexOf("\r\n\r\n") > -1)
      return response.split("\\r\\n\\r\\n")[1];
    else return "";
  }
  /**
   * Close the request
   **/
  public void close() throws java.io.IOException {
    // TODO:  Perform an HTTP GET with a Connection: close header
    in.close();
  }
}
  /**
   * Login to APAS server.
   * @return HTTP status code
   **/
  public int login(String username, String password) {
    String post =
      "credential_0=" + username + "&" +
      "credential_1=" + password;
    sendRequest("/LOGIN", post);
    session = getSessionId();
    return getHttpStatusCode();
  }
  /**
   * Send HTTP request to the APAS server.
   * @param api The API to post to: for example /api/ext/inventory.json?action=query
   * @param post Any post values to send: for example json={"folders":["72ffcf7c-6242-415a-
84a4-f64606af3c9c"]}
   **/
  public void sendRequest(String api, String post) {
    response = null;
    try{
      String http =
        (post != null ? "POST " : "GET ")  + api + " HTTPS/1.1" + lf +
        "Content-Length: " + (post != null ? String.valueOf(post.length()) : "0") + lf +
        "Content-Type: " + (post != null ? "application/x-www-form-urlencoded;" :
"text/plain;") + " charset=utf-8" + lf +
        "Connection: Keep-Alive" + lf;
        if (session != null) http +=
        "Cookie: session=" + String.valueOf(session) + lf;
      out.writeBytes(http + lf);
      if (post != null) out.writeBytes(post);
      response = getResponse();
      headers = new HashMap<String,String>();
      String[] lines = response.split("\r\n");
      for (String line : lines)
        if (line.indexOf(":") > -1)
          headers.put(line.substring(0, line.indexOf(":")), line.substring(line.indexOf(":")
+1).trim());
        else if (line.startsWith("HTTP") && line.indexOf(" ") > -1)
          headers.put("HTTP", line.split(" ")[1]);
    } catch (UnknownHostException e) {
      System.err.println("Don't know about host");
      e.printStackTrace(System.out);
      System.exit(1);
    } catch (IOException e) {
      System.err.println("Couldn't get I/O for the connection");
      e.printStackTrace(System.out);
      System.exit(1);
    } catch (Exception e) {
      e.printStackTrace(System.out);
      System.exit(1);
    }
  }
  private String getSessionId() {
    session = null;
    for (String header : headers.keySet()) {
      if (header.equalsIgnoreCase("Set-Cookie")) {
        String[] elements = headers.get(header).split(";");
        for (String element : elements) {
          if (element.startsWith("session")) {
            return element.split("=")[1];
          }
        }
      }
    }
    return null;
  }
  private int getHttpStatusCode() {
    for (String header : headers.keySet()) {
      if (header.startsWith("HTTP")) {
        String value = headers.get(header);
        try {return Integer.parseInt(value);} catch(NumberFormatException nfe) {return -1;}
      }
    }
    return -1;
  }
  private String getResponse() throws Exception {
    byte[] bytes;
    int count = 0;
    int total = 0;
    int contentLength = -1;
    int contentCount = 0;
    int contentStart = -1;
    String buffer = new String();
    while(total > -1) {
      bytes = new byte[64];
      total = in.read(bytes);
      if(total > 0) {
        int offset = (count > 0 ? ((bytes.length * count) -1) : 0);
        buffer += new String(bytes, 0, total);
      }
      if (contentLength < 0 && buffer.indexOf(cl) > -1) {
        int start = buffer.indexOf(cl) + 16;
        int end = buffer.indexOf("\r\n", start);
        if (end > 0) {
          contentLength = Integer.parseInt(buffer.substring(start, end));
          if (log) System.out.print("\nSpecified " + cl + " " + contentLength + "\n");
        }
      }
      // measure the content
      contentStart = buffer.indexOf(lf + "\r\n");
      if (contentStart > -1) {
        contentStart += lf.length() + 2;
        contentCount = buffer.length() - (contentStart);
        if (contentCount >= contentLength) break;  // got it all
      }
      count++;
    }
    if (log) {
      System.out.println("-- response start --");
      System.out.print(buffer);
      System.out.println("-- response end --");
      if (buffer.length() == 0)
        System.out.println("Actual " + cl + " 0");
      else
        System.out.print("Actual " + cl + " " + buffer.substring(contentStart, contentStart +
contentCount).length() + "\n");
    }
    return buffer;
  }
  /**
   * Provides the HTTP response body.
   * @return The HTTP response body.
   **/
  public String getResponseBody() {
    if (response != null && response.indexOf("\r\n\r\n") > -1)
      return response.split("\\r\\n\\r\\n")[1];
    else return "";
  }
  /**
   * Close the request
   **/
  public void close() throws java.io.IOException {
    // TODO:  Perform an HTTP GET with a Connection: close header
    in.close();
  }
}
```

What's New in Activate

The following tables describe known issues and recent improvements and modifications in Aruba Activate.

Known Issues

The following table describes known issues in the current release of Activate.

Table 21: *Known Issues Identified—March 2016*

Change	Description
Activate has a new HTTPS server certificate	Aruba will replace the expiring Activate certificate with a new certificate on Thursday, March 24, 2016 at midnight PST. This new certificate requires crypto algorithms that are not supported by Instant APs (IAPs) running Instant 3.4.0.x and earlier, or by Mobility Access Switches (MAS) running ArubaOS 7.3.x and ArubaOS 7.4.x. Since Aruba Central depends on Activate to function, Aruba Central may no longer support IAPs running impacted versions of Instant software. IAPs managed by AirWave using a Pre-Shared Key (PSK) are not be affected. The Mobility Access Switch will continue to operate normally, but will no longer be able to communicate to a configuration management or provisioning server using SSL. This includes the loss of ability to establish an HTTPS session to Aruba Activate, Aruba Central, or AirWave using certificate-based authentication. A Mobility Access Switch manged by AirWave via a Pre-Shared Key (PSK) is not affected. **Aruba recommends upgrading Instant APs and Mobility Access Switches to the recommended software versions before Thursday, March 24, 2016 11:59 PM Pacific Daylight Time (GMT-7).** For details on this issue, including impacted software versions and upgrade instructions, refer to the Aruba Activate support advisory.

Improvements and Modifications

Table 22: *Changes—November 2016*

Change	Description
UI change: Inclusion of Part Description column in the **Device** page	A new **Part Description** column is added in the Devices table. This is because HPE parts naming convention does not allow us to understand the device name from the Part column. To ease the effort of knowing the device name, the Part Description column is included to display the device name. For example, JL015A has *HP 365 Cloud Managed Dual Radio 802.11ac (WW) Access Point* as its part description.
Changes to the **IAP to Central** provisioning rule	To restrict the rule creation for Instant APs to take place only through Central, the option for the **IAP to Central** provisioning rule is made unavailable in the Activate UI.

Table 23: *Changes—September 2016*

Change	Description
New query parameters in pagination support for the External Inventory API	The following URL query parameters are introduced for the Inventory Query API: 1. limit – optional parameter; takes an integer value that is greater than or equal to 1. 2. offset – optional parameter; takes an integer value greater than or equal to 0. Both the parameters—limit and offset—must be specified for pagination specifications to take effect. The following key is added in the JSON response: totalCount – returns the total count of inventory present for the customer irrespective of the pagination specifications. See the Inventory API-Query Example section for information about applying the specifications for pagination.

Locating the cloud activation key for ArubaOS switches	1. Access the command- line interface (CLI) of the ArubaOS switch.
	2. Execute the **show activate provision** command. The cloud activation key is displayed at the end of the command output.
	`(Central)# show activate provision`
	`Configuration and Status - Activate Provision Service`
	`Activate Server Address     : device.arubanetworks.com`
	`Activate Provision Service : Enabled`
	`Activation Key              : VMQF7EYA`

Table 24: *Changes—July 2016*

Change	Description
UI change: MAS-to-AMP Rule renamed to Switch-to-AMP.	The MAS-to-AMP rule has been renamed, and appears as a Switch-to-AMP rule in the Activate UI. Although the rule name has changed, it continues to allow you to provision an Aruba Mobility Access Switch (MAS) to communicate with its configuration master AirWave (AMP) server.

Table 25: *Changes—May 2016*

Change	Description
Device History	The View **Device History** will now show Device communication history with Activate only for past two months limited to 1000 records.

Table 26: *Changes—October 2015*

Change	Description
UI change: Pagination added to the **Devices** list.	For users with more than 1000 devices, the **Devices** list is now automatically divided into pages of 1000 devices each, dramatically improving the load time for large device inventories. Click the page forward (▶) or page back (◀) icons in the **Devices** list titlebar to display other pages in the Device list. To disable the pagination feature and view all 1000+ devices on a single page, click the **Devices per page** link on the **Devices** list titlebar, and select the **All** option.
UI change: Column removed from the **Devices** list	The **PO** number column is removed from the devices table. To view purchase order (PO) data for a specific device, select the device in the **Devices** list, then expand the **Order Detail** section.
UI change: Columns removed from the **Folder** list	The **Rule count** and **User count** fields are removed from the **Folder** list on the **Setup** page. To view the number of rules or users associated to a folder, select a folder in the **Folders** list. The **Rules** and **Users** tables on that page will be automatically filtered to display data for just that folder.