

## DEPLOYMENT GUIDE

# ARUBA INSTANT ACCESS POINTS

### ABOUT THIS GUIDE

The Aruba Instant On Deployment Guide is designed to enable customers to achieve optimal results when using Aruba Instant On products. This document serves as a deployment guide and also provides product selection recommendations, network design considerations per desired use cases, and best practices for each deployment.

### INTENDED AUDIENCE AND SCOPE

This document is intended for small business owners and Aruba Partners, who are responsible for deploying and configuring Aruba Instant On devices. It is expected that readers have a basic understanding of WLAN concepts.

### RELATED DOCUMENTS

In addition to this document, readers are advised to check the following product documentation for step by step configuration details.

- [Aruba Instant On User Guide](#)

Acronyms	Description
<a href="#">WLAN</a>	Wireless Local Area Networks
<a href="#">MIMO</a>	Multi User Multiple-Input and Multiple-Output
<a href="#">TCP</a>	Transmission Control Protocol
<a href="#">UDP</a>	User Datagram Protocol
<a href="#">DHCP</a>	Dynamic Host Configuration Protocol
<a href="#">NAT</a>	Network Address Translation

## ARUBA INSTANT ON OVERVIEW

Aruba Instant On is a new family of access points (APs) designed to address the current and future needs of small businesses. The Instant On product family provides a reliable, high-speed and secure Wi-Fi experience built on Aruba's decades' long heritage in enterprise networking. They also come with a built-in FW and router capabilities in-case the network administrator wants have the access points at the edge of their network. Instant On APs come with gateway, DHCP and NAT capabilities. Disaster recovery and quick failure resolution can be provided using the gateway swap feature that helps admins replace a gateway that is down with a single click with an new AP or an AP in the existing network.

This purpose-built access point portfolio also supports Smart-Mesh technology to satisfy the ever-growing coverage needs of small businesses.

## PRODUCT PORTFOLIO

This product family includes indoor and outdoor access points to support multiple deployment scenarios. Refer to the following table for details.

Name	Access Point Type	Deployment Recommendations
AP11	Indoor, 2x2:2 MU-MIMO	Boutiques, cafes
AP11D	Desktop, Hospitality, 2x2:2 MU-MIMO	SOHO, in-room for small hotels
AP12	Indoor, 3x3:3 (5GHz), 2X2:2 (2.4GHz) MU-MIMO	Medical offices, larger cafes, smaller offices, connected homes, gaming use
AP15	Indoor, 4x4:4 (5GHz), 2X2:2 (2.4GHz) MU-MIMO	Larger offices, tech start-ups
AP17	Outdoor, 2x2:2 MU-MIMO	Open-air restaurants and cafes, poolside, receiving docks

## DESIGNING AN INSTANT ON NETWORK

### Site design

Instant On is a simple, easy to deploy turnkey WLAN solution consisting of one or more Instant On APs. A single venue can include up to 25 APs. The Instant On portfolio offers a number of ever expanding list of features including Smart Mesh, DHCP, NAT support, client blocking, and several more.

The first access point can be configured with an IP address using either DHCP or static IP using PPPoE.

#### Using DHCP:

Connect the access point to power and connect the ethernet cable. It will automatically obtain an IP address from DHCP and connect to the internet.

#### Using PPPoE:

- If you need to connect to the ISP's server and get authenticated, then follow these simple steps. After the AP boots, it will broadcast an SSID InstantOn-AB:CD:EF

- Connect to this SSID and use the web browser and enter the URL <https://connect.arubainstanton.com>. Enter the authentication credentials and you are done!

Please make sure the following ports (TCP 80, TCP 443, and UDP 123) are not blocked on the backend, so that the Instant On AP has connectivity to the Internet.

It is required that all Instant On APs that need to be part of the same network are connected to the same Layer-2 wired network. Instant On APs can act as a DHCP server for wireless clients only (i.e., it cannot hand out IP addresses to wired clients and other Instant On APs).

### RF control

Users have the ability to tweak the AP settings to control the RF environment. With this comes the ability to:

1. **Control network band of operation.** There are 3 options:
  - a. 2.4GHz and 5Ghz
  - b. 2.4 GHz only
  - c. 5GHz only
2. **Select channels**
3. **Select channel width**

### Features:

1. **Application visibility** – Instant On provides detailed visibility into the applications used in your network. It also show a quick summary consisting of the top 5 apps. Users also have the ability to turn off application visibility which may improve performance. In this case, they will be able to view the traffic usage per client.
2. **Client blocking** – Easily block and unblock clients from the network
3. **Bandwidth control** – Control the amount of BW each user can access
4. **Captive portal integration** – Use the advanced capabilities that our captive portal partners provide to improve loyalty and visibility of your clients.
5. **Enhanced troubleshooting** – The Bluetooth module in the AP gives you valuable troubleshooting tips on the mobile app.
6. **Installation wizard** – Follow the simple guided steps to setup your network according to your unique requirements in minutes!
7. **RADIUS proxy** – For authentication with an external RADIUS, simplify your configuration by using a proxy IP address.
8. **LED quiet mode** – Turn off the LEDs easily on the app to ensure the AP blends into its surroundings

### Site management

Instant On APs support two options for hassle-free remote network management at the tip of your fingers. You may manage your Aruba Instant On deployments either using a Mobile App that is supported on iOS and Android or via a cloud portal that is accessible via a web browser. Administrative rights can be delegated to another user so that two users can manage and administer the same Instant On site.

For convenience, AP software updates are automatically performed to ensure you always have the latest and greatest software with the ever expanding set of features and functionality. An administrator can schedule the default time that updates are performed to ensure consistency of updates.

The Instant On Mobile App offers multi-lingual support for a variety of regional languages, such as Simplified Chinese, Japanese, French, German, Italian, Spanish and Portuguese to ensure global usability. When the mobile app is opened, it detects the locale of the phone and sets the language accordingly. This configuration is saved and used every time the app launches. If the phone's locale changes the next time the app starts, it will set this new language as the default and save it. Mobile app trouble-shooting push notifications use the same local language.

Please make sure the onboarding device (laptop or mobile phone with Instant On app) is in-sync with the local time zone as Instant On APs will be configured per the time zone of the onboarding device.

It is important to note that the web portal, as well as the mobile app, support feature parity between both options.

### **Wi-Fi security recommendations**

Aruba Instant On supports employee as well as guest networks that include multiple security options. For instance, the latest wireless authentication security standard called WPA3 (aka Wi-Fi Protected Access 3) and the latest version of WPA2 are supported. For the employee network, more robust security options are available via an External Radius server. For the guest network, there is also an ability to have open guest network which requires no steps/authentication procedures to be followed to connect to the network. This simplifies user experience but is not recommended.

Guest users should be isolated from employee and business devices for security protection by creating a dedicated network for guest usage. You can choose WPA2-PSK (pre-shared key) for security as an option. A customizable internal captive portal for guest access is provided to make sure that the guest users agree to use Wi-Fi per your specified terms and conditions. You can also choose to turn on advanced features like Time-of-Day based network scheduling to restrict Wi-Fi availability outside of business hours. You also have the ability to hide the guest SSID although that is not part of the best practice recommendation.

Instant On APs can assign a dedicated VLAN each to one or more employee networks so that each employee network and its resources can be isolated from other employee networks. Instant On APs also offer a client blocking option to protect the network from malicious users.

### **AP placement recommendations**

Where you place APs plays a crucial role in RF coverage. Here are placement recommendations for Instant On APs.

1. AP coverage: As a rule of thumb, APs can cover up to 2,500 square feet. Each Instant On site supports maximum of 25 APs.
2. Cable types: Always use Cat5 (e) or Cat6 Ethernet cables to connect APs to the switch and Internet gateway.
3. Mounting APs: Mount the APs below the ceiling with the wires running above. APs that are mounted below the ceiling perform better because their signals are not affected by any surrounding ducting, power cables, and other construction elements. For the AP11D, mount the AP directly to the wall using a single-gang wall-box, or use the supplied desk mount.
4. AP location: identify the areas where Wi-Fi coverage is required, then place the APs accordingly. For example, place the APs inside of offices or hotel rooms rather than in hallways. This provides more

- efficient coverage with minimal interference. Also, avoid placing APs in the closet or behind solid metal objects. For more guidance, refer to the installation guide available in the Instant On online community.
5. Automatic channel selection: Instant On APs are dual-band access points (i.e., supports 2.4 GHz as well as 5 GHz frequencies). Selection of the optimal channels and transmission power is critical for optimal Wi-Fi performance and experience. Instant On APs support automatic selection of the best channels, transmission power and channel width to ensure that each AP offers the optimum experience to the users at any given point in time. When choosing an operating channel, the Instant On AP factors in how busy the surrounding wireless medium is, as well as if there is any Wi-Fi interference generated by other W-Fi and non-Wi-Fi sources like microwaves, in order to select the least crowded channel. Given that the interference and noise levels in wireless medium can change frequently, APs regularly scan the air to optimize the channel selection and power. If the operating channel becomes too busy due to surrounding Wi-Fi or non-Wi-Fi interference, then Instant On APs will change the channel automatically without any user intervention.
  6. Outdoor APs: When using an outdoor AP, you should place it where coverage is desired. If the outdoor AP is connected using mesh from a wired Instant On AP, the outdoor AP should be placed in the line of sight of the wired AP, if possible. The maximum distance between the wired Instant On AP and mesh outdoor AP should not be more than 100 meters. For the better client connectivity AP17 has a range of 50 meters considering there are no apparent obstacles such as thick concrete walls. Outdoor APs should be installed within 3 meters minimum, 15 meters maximum height from the ground.

### **Smart Mesh design**

The Aruba APs support Mesh Wi-Fi to provide the ability to extend the network to hard-to-wire areas. Instant On APs offer simple to configure "Smart Mesh" that you can set up in minutes. After the first Instant On AP (wired AP) has been added to the site, you can configure additional APs to connect over the air, if desired.

Although a single Instant On AP may support up to 8 Mesh APs, we recommend no more than 2 or 3 mesh APs connected to a single AP for enhanced performance. Instant On APs automatically determine the best node to connect to based on signal quality and performance. For optimal performance, we recommend 1-hop mesh deployments.

For Mesh AP placement, we recommend a minimum of 16 feet (5 meters) and a maximum of 60 feet (18.25 meters) from the parent AP (the one that is wired to the switch or modem). Distance between the APs also depends on obstacles, such as thick walls, metal structures or glass. Mesh APs use the 5GHz band for backhaul connection while serving the clients on both radio bands, i.e., 2.4 GHz, 5 GHz.

Another way to extend Wi-Fi coverage is by adding more Instant On APs to the same L2 switch using a network cable. As mentioned earlier, a single Instant On site may contain up to 25 access points (including those in a mesh). When available, wiring up the AP is recommended for better performance.

### **Partner-managed Instant On services**

Instant On also offers remote multi-site management via the mobile app and cloud to support partner-managed IT services. IT partners can securely manage multiple customer sites (i.e., different customer networks) using a single instance of the Instant On Mobile App, without jeopardizing customer info, for convenient network administration. The Instant On app also supports real-time alerts regarding network health via email in order to initiate user intervention, if needed. This helps to eliminate dependence on on-site staffing for the end customer.

## USE CASES

Let's look at a few representative use cases for deployment of Instant On APs. We will discuss how to design and deploy Wi-Fi for each of these use-cases. We will also review the features that may be relevant to enable for each of the scenarios.

Although Instant On APs may be deployed for a number of different use-cases, we expect that your needs may align with one or more of the use-cases discussed below.

### USE CASE #1: SMALL COFFEE SHOP

- **Customer Requirements**
  - ✓ Hassle-free, reliable Wi-Fi experience for end-users.
  - ✓ Simple to deploy and easy to manage Wi-Fi solution.
  - ✓ Secured Wi-Fi access.
  
- **Hardware Guidelines**
  - ✓ 2 - Instant On APs
  - ✓ Type of AP: AP11 Indoor (2x2:2 MU-MIMO), AP17 Outdoor (2x2:2 MU-MIMO)
  
- **Configuration Guidelines**
  - ✓ Step 1: Connect the Instant On AP to the modem or internet gateway.
    - ISP to provide the management IP address for all Instant On APs. If ISP only offers a single IP address, then an external gateway or router is required to hand out IP address for the mesh AP.
    - If connecting directly to the modem, choose router mode for the Instant On AP. It also has a built in FW for security.
    - The first Instant On AP will act as a DHCP, NAT server for wireless clients.
  - ✓ Step 2: Site Creation
    - The first wireless network will always be an employee network. For this deployment, select WPA2 personal as a security option.
    - IP and VLAN assignment: Select Instant On (NAT) option for an employee as well as guest network so that clients will receive IP addresses provided by Instant On AP.

**IP and VLAN assignment**

External (bridged)  
 Clients will receive an IP address provided by a DHCP service on your local network

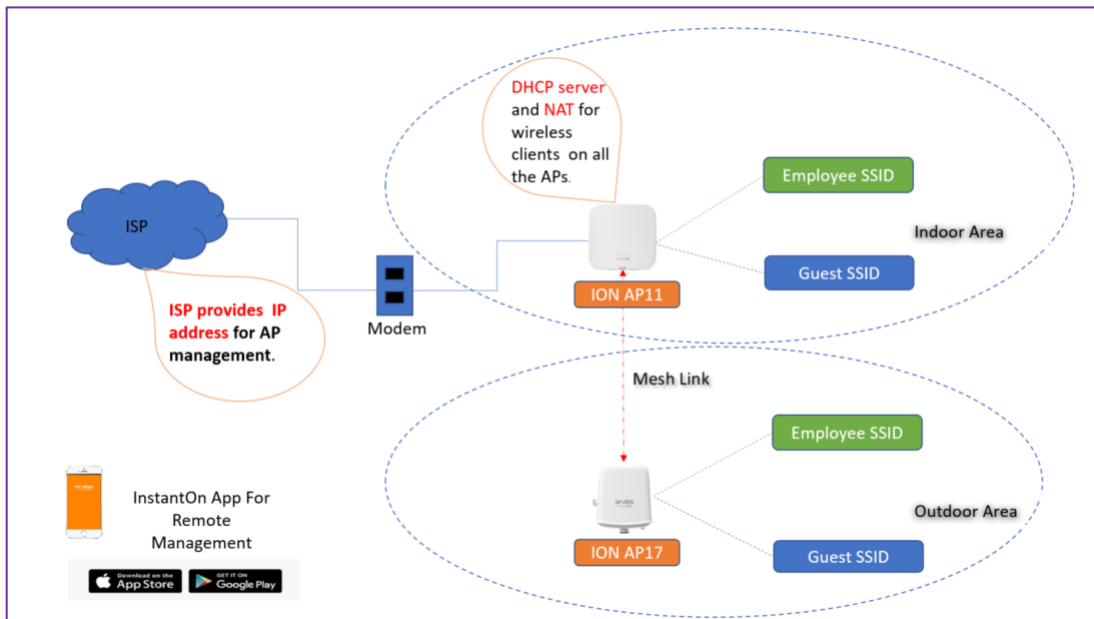
Instant On (NAT)  
 Clients will receive an IP address provided by your Instant On devices

Base IP address  
 172.19.0.0

Subnet mask  
 255.255.255.0 (256 clients) ▾

- ✓ Step 3: Extend the network using Smart Mesh
  - Add an outdoor AP (AP17) to extend the coverage to outdoor spaces such as a patio.
  - For mesh AP placement, please refer to the Mesh design section, AP placement guide.

○ **Topology**



○ **Recommended Feature Set**

Instant On Feature/Offerings	Benefits
<b>Router mode</b>	Can serve as the router and edge of the network. This should be used in topologies where Instant On AP is connected directly to the modem
<b>Enhanced Wi-Fi security</b>	Better security for wireless clients on employee network using WPA2, WPA3 security standards.
<b>Custom Captive Portal</b>	For easy guest access.
<b>Client Blocking</b>	To protect the network from any malicious or undesired user.
<b>Time of the Day SSID</b>	Restrict Wi-Fi access outside of business hours.

## USE CASE #2: DENTIST'S OFFICE

- **Customer Requirements**
  - ✓ Simple to deploy and easy to manage Wi-Fi solution.
  - ✓ Secured Wi-Fi access.
  - ✓ Scalable Wi-Fi solution.
  - ✓ Separation of traffic for employees and guests.
  - ✓ Connectivity for wired devices including printers and desk phones.
  - ✓ Ability to extend the network to hard-to-wire spaces.
  - ✓ User Density: 30-40 active users at a time.
- **Hardware Guidelines**
  - ✓ Dental Clinic with 6 rooms: Total 4 Instant On APs.
  - ✓ Type of APs: 3 AP12 (3x3 11ac Wave2), 1 AP11D (2x2 11ac Wave2 Desk/Wall).
- **Configuration Guidelines**
  - ✓ Step 1: Connect Instant On AP to the modem or internet gateway.
    - ISP to provide the management IP addresses for all Instant On APs and wired clients. If ISP only offers a single IP address, then an external router or gateway is required to hand out the IP address for mesh APs and wired clients such as printers and desk phones.
    - Instant On AP will act as DHCP and NAT server for wireless clients.
    - In case Instant On AP sits at the edge of the network, turn on router mode. It also has a built-in FW for security
  - ✓ Step 2: Site Creation
    - The first wireless network will always be an employee network. For this deployment, select WPA2 personal as a security option.



- IP and VLAN assignment: Select Instant On (NAT) option for an employee as well as guest networks so that clients will receive an IP address provided by Instant On devices.

### IP and VLAN assignment

External (bridged)  
Clients will receive an IP address provided by a DHCP service on your local network

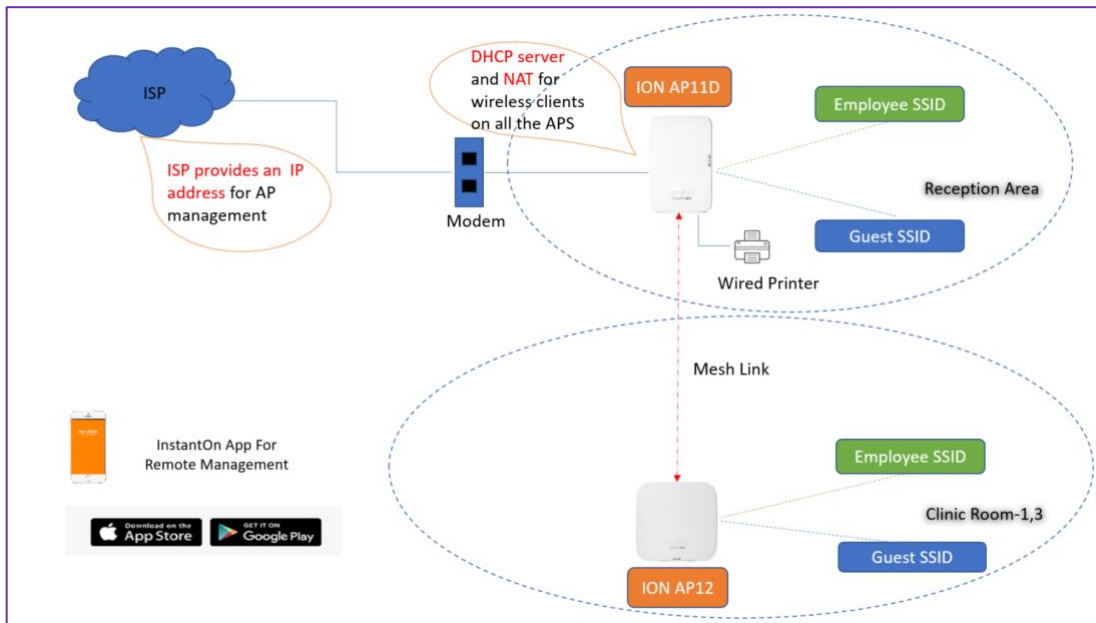
Instant On (NAT)  
Clients will receive an IP address provided by your Instant On devices

Base IP address  
172.19.0.0

Subnet mask  
255.255.255.0 (256 clients)

- ✓ Step 3: Extend the network using one-touch Mesh
  - Add an indoor AP (AP12) to extend the coverage to clinic rooms.
  - For mesh AP placement guidelines, please refer to the Mesh design section, AP placement guide.

- Topology



- Recommended Feature Set

Instant On Feature/Offerings	Benefits
Enhanced Wi-Fi security	Better security for wireless clients using WPA2, WPA3 security standards.
Captive portal	For easy guest access.
Smart Mesh	Easy to extend the Wi-Fi coverage.
Per-user rate limiting	To limit the bandwidth consumption for the guest network.
Time of the Day SSID	Restricted Wi-Fi access outside of business hours.
RADIUS Proxy	Simplify authentication for multiple APs

## USE CASE #3: MOTEL OR BED AND BREAKFAST

- **Customer Requirements**
  - ✓ Simple to deploy and easy to manage Wi-Fi solution.
  - ✓ Secured Wi-Fi access.
  - ✓ The network able to withstand business growth.
  - ✓ Separate WLANs for employees and guests.
  - ✓ Separate VLANs for employee networks.
  - ✓ Connectivity for wired devices, printers, phones.
  - ✓ Ability to extend the network to hard-to-wire spaces.
  - ✓ Outdoor connectivity.
  - ✓ Isolation of clients connected to the guest network to prevent direct inter-client communication.
- **Hardware Guidelines**
  - ✓ Up-to ten rooms: Total 15 Instant On APs (13 Indoor, 2 Outdoor).
  - ✓ Type of APs: 13 units of AP11D (2x2 11ac Wave2 Desk/Wall Access Point), 2 units of AP17 (2x2 11ac Wave2 outdoor access point).
- **Configuration Guidelines**
  - ✓ **Step 1: Connect Instant On AP to the switch.**
    - Assuming ISP only offers a single IP address, an external gateway or router is required to hand out the IP addresses for wired APs, mesh APs and wired clients such as printers, desk phones.
    - Instant On APs will act as a DHCP and NAT server for wireless clients.
  - ✓ **Step 2: Site Creation**
    - The first wireless network will always be an employee network. For this deployment, select Authentication server (RADIUS) for first employee network, add server IP, and shared secret for the same. Select WPA2 personal for the second employee network.

The screenshot shows the 'Identification' configuration page in the Aruba Instant On web interface. The page is divided into several sections:

- Active:** A toggle switch is turned on, indicating the network is available for users to connect. The network name is 'InstantOn-2-Employee-NAT'.
- Security:** The 'Authentication server (RADIUS)' option is selected. Below it, 'WPA2 Enterprise' is chosen, with a note that users need to authenticate with the RADIUS server below. There is a link 'Use a network password (PSK) instead?' and a 'WPA2 + WPA3 Enterprise' option with a toggle switch.
- Primary RADIUS Server:** This section contains several fields:
  - 'Server IP address': A red error message 'A valid IP address is required' is displayed.
  - 'Shared secret': A red error message 'A shared secret is required' is displayed.
  - 'Server timeout': Set to '5'.
  - 'Retry count': Set to '3'.
  - 'Authentication Port': Set to '1812'.
  - 'NAS IP address': An empty field.
  - 'NAS Identifier': An empty field.
- Send RADIUS Accounting:** A toggle switch is turned off.


- IP and VLAN assignment: Select Instant On (NAT) option for guest network so that clients will receive an IP address provided by the Instant On AP.

### IP and VLAN assignment

External (bridged)  
Clients will receive an IP address provided by a DHCP service on your local network

Instant On (NAT)  
Clients will receive an IP address provided by your Instant On devices

Base IP address  
172.19.0.0

Subnet mask  
255.255.255.0 (256 clients) 

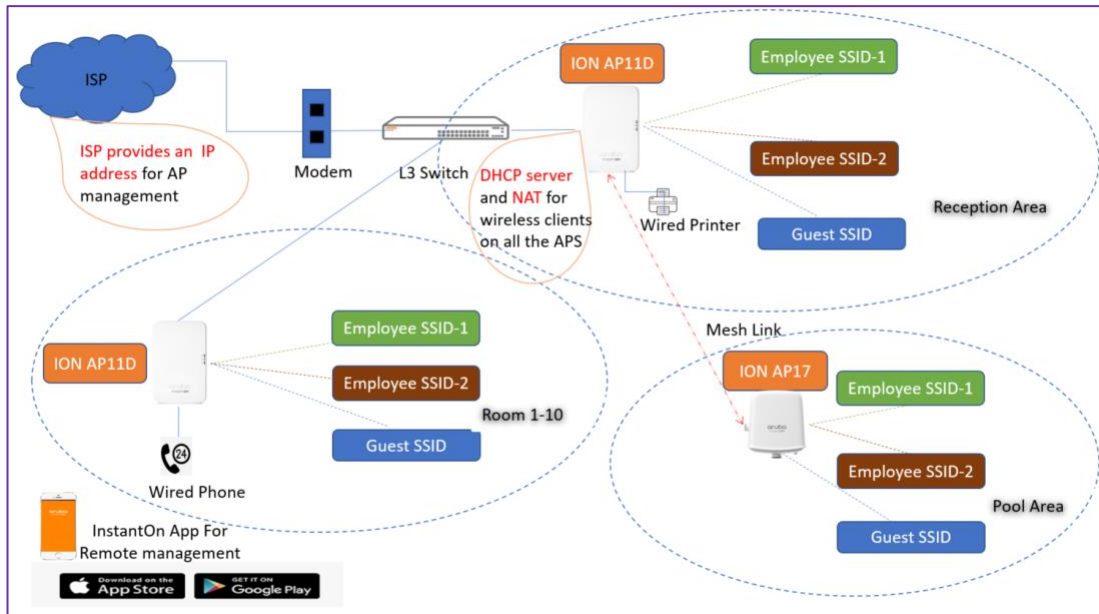
✓ **Step 3: Guest Network Creation**

- Since the first network has been created, now we can create a guest network.
- Client isolation is enabled by default for guest network. That means clients connected to the guest network are isolated from reaching other clients directly over the WLAN. Note that any network resources for e.g., printers connected to guest network are not reachable directly by the guests.

✓ **Step 4: Extend the network**

- Connect an indoor AP (AP11D) to the same switch where the first Instant On AP is connected in order to provide Wi-Fi coverage in the guest rooms.
- Add an outdoor AP (AP17) as a mesh to extend the Wi-Fi coverage to the pool area or parking lot.
- For mesh AP placement guidelines, please refer to the Mesh design section.

o Topology

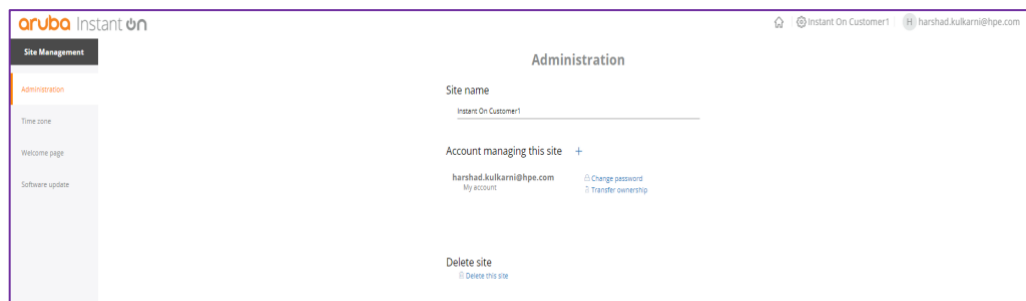


o Recommended Feature Set

Instant On Feature/Offerings	Benefits
WPA2-Enterprise enabled employee WLANs	Enhanced Wi-Fi security for employee network.
WPA2-PSK enabled Guest WLANs	For secured guest access
Separate VLANs for Employee, Guest	Enhanced security using VLAN separation
Smart Mesh	Easy to extend the Wi-Fi coverage
Per-user rate limiting	To limit BW consumption for the guest network.
Client Blocking	To protect the network from a malicious user.
RADIUS Proxy	Simplify authentication for multiple APs

## USE CASE #4: PARTNER MANAGED WIFI SERVICE

- **Customer Requirements**
  - ✓ Simple to deploy and easy to manage Wi-Fi solution.
  - ✓ Single point of management for multi-site administration.
  - ✓ Multi-lingual support.
  - ✓ Real-time alerts.
  - ✓ Reliable support to troubleshoot technical issues
  - ✓ IT services offloading.
  
- **Hardware Guidelines**
  - ✓ Instant On access point portfolio comprises of indoor, desk/wall mounted and outdoor APs suitable for variety of deployments.
  - ✓ Type of APs and recommended deployments are as follows
    - AP11 (2x2 Indoor MU-MIMO AP, Max Supported Data Rate 1167 Mbps), Max active devices 50 per AP. Ideal for small coffee shops, retail shops and SOHOs.
    - AP12 (3x3 Indoor AP MU-MIMO AP, Max Supported Data Rate 1600 Mbps), max active devices 75 per AP. Ideal for Medical offices, Dental Clinics, Boutiques.
    - AP15 (4x4 Indoor MU-MIMO AP, Max Supported Data Rate 2033 Mbps), Max active devices 100 per AP. Ideal for tech start-ups, large offices.
    - AP11D (2x2 Indoor Desktop/Wall AP, MIMO, Max supported Data Rate 1167 Mbps with ethernet switch), Max active devices 50 per AP. Ideal for bed and breakfast hotels.
    - AP17 (2x2 Outdoor MU- MIMO AP, Max Supported Data Rate 1167 Mbps). Ideal for Outdoor Cafes, Poolside open restaurants, Patios.
  
- **Configuration Guidelines**
  - ✓ Step 1: Site Creation for Customer 1
    - For partner managed services we recommend cloud portal to be used (<https://portal.arubainstanton.com>) as management option because of availability of real estate.
    - According to the customer`s need and the use case select the type of Instant On AP. Please note that each site represents different customer. Once all the networks (employee, guest) has been configured for Customer-1, you can delegate administrative rights to another user i.e. (Admin 2 – For Site 1). Please navigate to Site Management and hit the (+ sign) for Account managing this site



**Assign Account**

Grant administrative access to another account for Instant On Customer1. Administrators will be notified via email with further instructions.

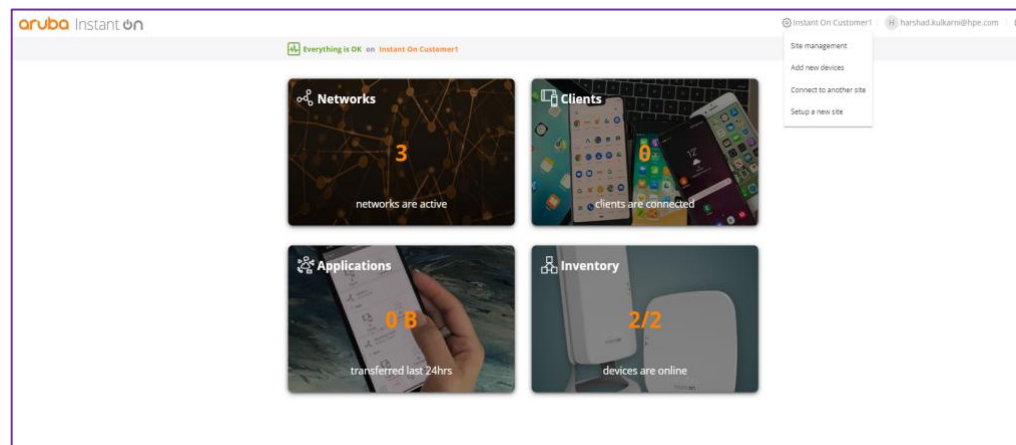
Email

0/100

Cancel

Assign account

- ✓ Step 2: Site Creation for Customer 2
  - To create Instant On network for Customer-2, navigate to “Set up a new site” option from the home screen



- Complete the “Set up a new site” wizard as per the Customer-2’s requirement. You can delegate administrative rights for this site to same user (admin2) or a different user. Please remember only 2 administrators can manage the Instant On site.
- Now we have 2 Customer sites that can be managed through a single management plane.

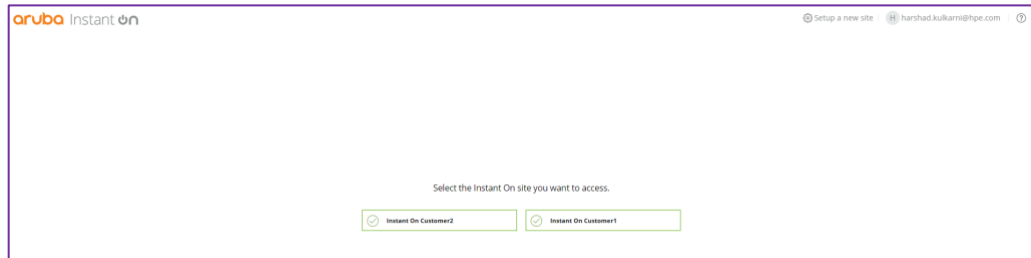
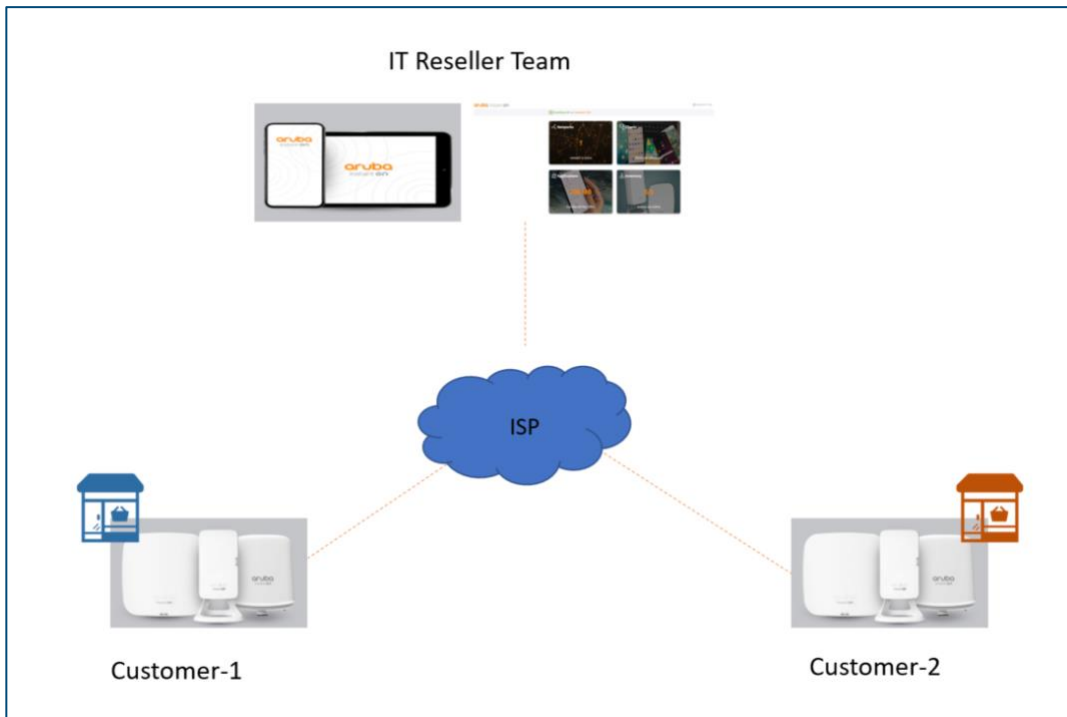


Image: Selection of desired site.

- **Topology**



- **Recommended Feature Set**

Instant On Feature/Offerings	Benefits
<b>Cloud base Web Portal</b>	Ease of management, remote network management, with 7+ language support
<b>Delegated Administration</b>	Multi-site management, across verticals Reseller + Customer logins per site.
<b>24/7 Aruba partner Support</b>	Partners can deliver 24/7/365 deployment, monitoring and problem resolution.
<b>Mobile App Push Notifications</b>	To monitor network health and initiate user action if needed.
<b>RADIUS Proxy</b>	Simplify authentication for multiple APs



## SUMMARY

Aruba Instant On access points are designed with small businesses in mind. It is a simple, secure, and reliable solution that small businesses deserve. Instant On APs come with one year of hardware warranty. Instant On APs offer 24x7 phone support for 90 days, 24x7 chat support for 1 year, and an active online community to take care of any product questions or concerns. Click [here](#) to learn more about Aruba Instant On access points.

To keep you worry free, Aruba offers optional Foundation Care support services for Aruba Instant On. Adding Foundation Care support is simple and extends the warranty and support to a period of 3 years. Add Foundation Care with new Instant On purchases within 90 days of original purchase to obtain these benefits.

- ✓ Three years of Next Business Day advanced replacement of defective network equipment and parts – so your network can stay up and functioning as expected.
- ✓ 24x7 telephone support access to our Aruba experts – delivered by the Aruba Technical Assistance Center (TAC).
- ✓ Three years of software support along with advice from our Aruba experts on any questions or concerns.
- ✓ Three years of chat support provided through our Aruba Instant On community.

Speak to your Aruba authorized business partner today about adding Foundation Care support services for Aruba Instant On Access Points.