

efi | PrintMe Mobile

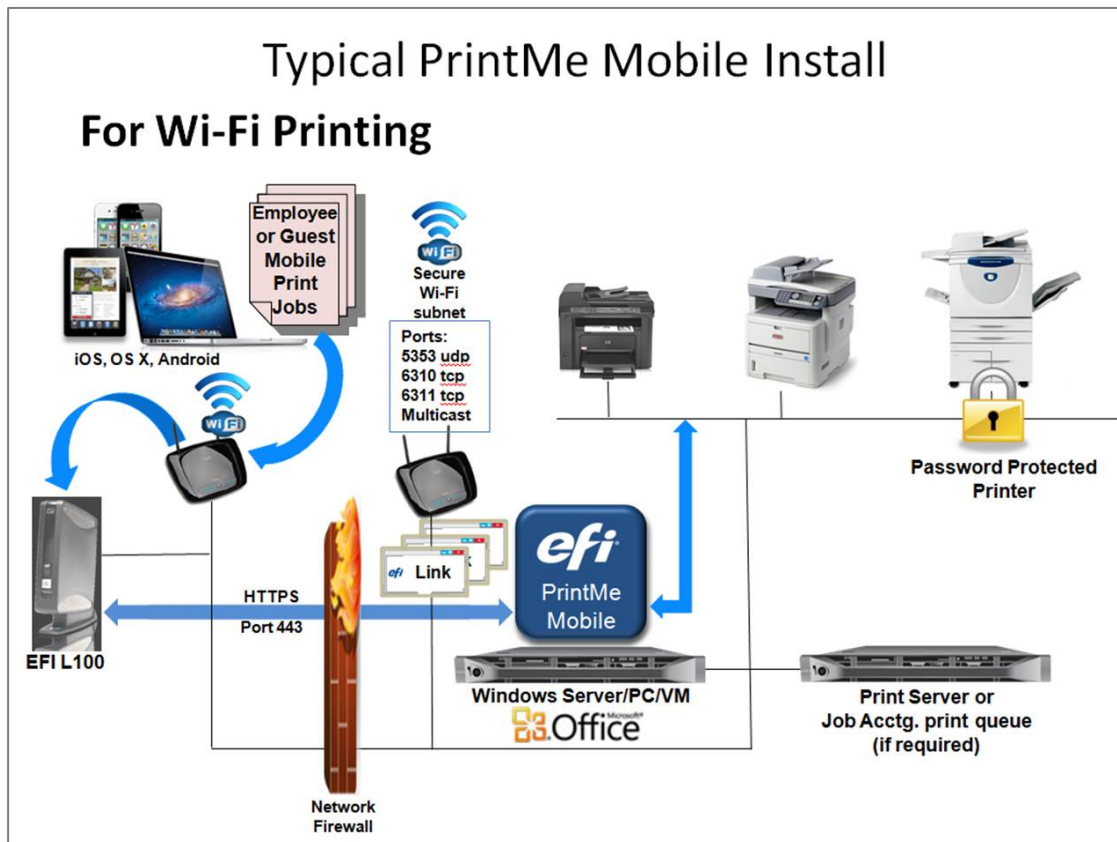
Technical Guide

Network Configuration for Wi-Fi Printing

PrintMe® Mobile provides easy access to network printers from mobile devices via Wi-Fi. PrintMe Mobile relies on the Bonjour protocol to enable users to discover printers. By default, Bonjour will only find printers on the same subnet as the mobile device. Using one of the following methods, your IT department can enable mobile printing from multiple Wi-Fi subnets to any printer on the network.

The three primary Wi-Fi configuration alternatives, in order of preference, are:

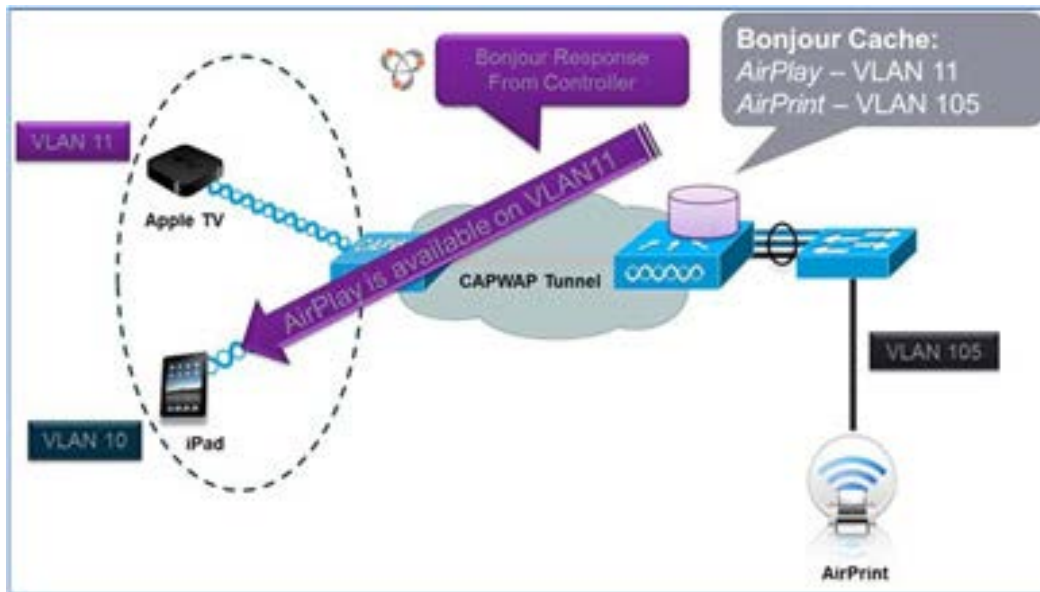
1. Utilize the Bonjour Gateway, mDNS proxy, or other feature of your Wi-Fi controller to enable AirPrint printing on the network (see details below).
2. Install the free PrintMe Link software utility on each Wi-Fi subnet.
3. Dual host the PrintMe Mobile server via a physical or virtual NIC to enable it to be on both wired and wireless subnets (typically only used in small office environments).



Network Wi-Fi Controller/Switch

Use the built-in features of your network Wi-Fi controller to enable Wi-Fi printing across multiple subnets by enabling Bonjour. The Bonjour protocol operates on service announcements and service queries, which allow devices to ask and advertise specific applications such as Printing Services.

Each query or advertisement is sent to the Bonjour multicast address for delivery to all clients on the subnet. The Apple Bonjour protocol relies on Multicast DNS (mDNS) operating at UDP port 5353 and sent to reserved group addresses.



Source: Cisco Systems, Bonjour Deployment Guide

Here are tech notes from selected Wi-Fi manufacturers that outline how to configure your wireless controller to work with PrintMe Mobile:

- Cisco: http://www.cisco.com/c/en/us/td/docs/wireless/technology/bonjour/Bonjour74/Bonjour_Deployment.html
- Aerohive: http://www.aerohive.com/330000/docs/help/english/5.1r2/ref/ConfigurationGuide-BonjourGateway_330086-01.pdf
- Aruba: http://www.arubanetworks.com/pdf/technology/TB_AirGroupWLANServices.pdf
- Dell SonicWall: <https://support.software.dell.com/kb/sw9060>
- Meru: <http://www.merunetworks.com/collateral/white-papers/wp-apple-bonjour-support-architecture-overview.pdf>
- Ruckus: <http://a030f85c1e25003d7609-b98377aee968aad08453374eb1df3398.r40.cf2.rackcdn.com/feature-sheets/fs-smartway.pdf>

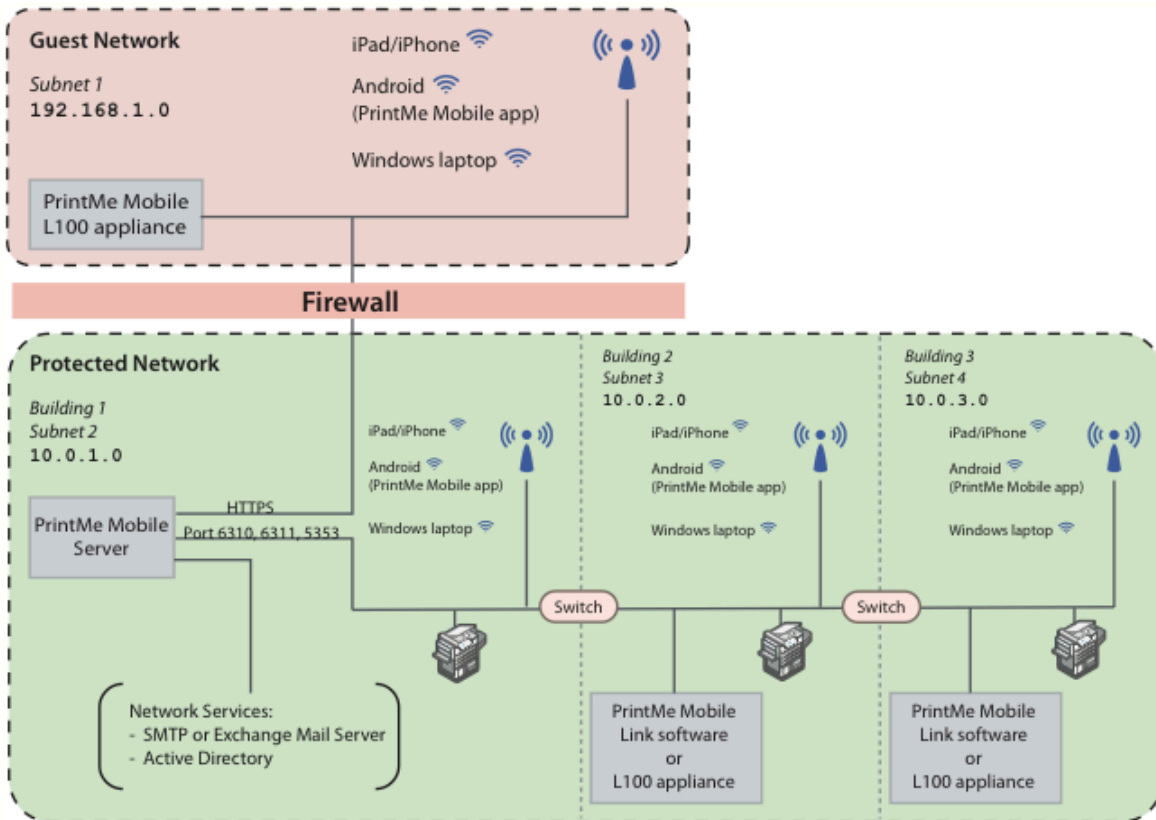
EFI PrintMe Mobile Link Software Utility

- PrintMe Mobile Link is a free Windows software application that can be downloaded from the [EFI website](#). Once installed and configured Link acts as a relay station or beacon to connect mobile devices to PrintMe Mobile printers outside the immediate Wi-Fi subnet.

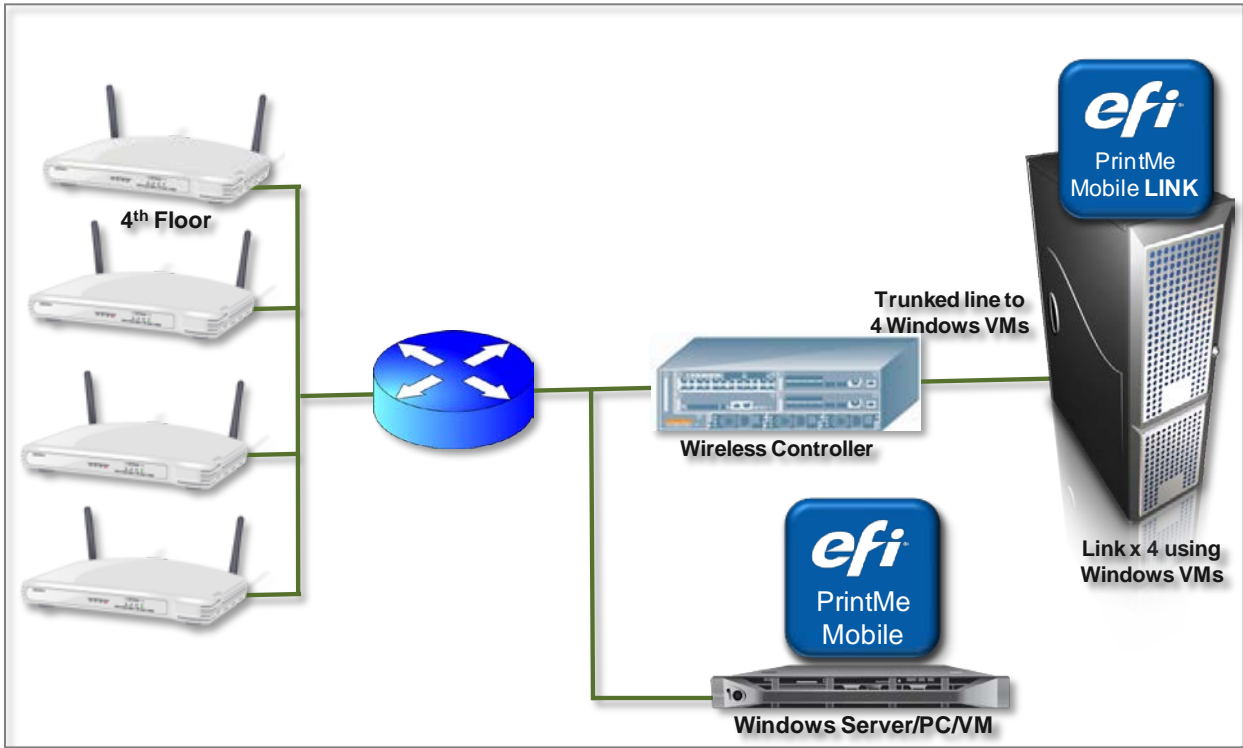
- Key features of PrintMe Mobile Link
 - Responds to mobile device broadcast requests with a list of available printers
 - Can be configured by the Administrator to display only printers local to that subnet
 - Keeps the number of printers presented to the user to a reasonable number for a handheld device
 - Does not require dedicated server – runs as a background service on any PC/VM
 - All print jobs are sent across the network to the PrintMe Mobile server for processing using IPP (Internet Printing Protocol).
 - Link’s function ends after responding to the user’s “Find a Printer” request with a list of available PrintMe Mobile printers
 - Allows PrintMe Mobile to be installed on any computer on the enterprise network
 - Connection to a wireless subnet is not required
 - Provides Direct to Print printer connections for mobile devices logged on to multiple Wi-Fi subnets within the enterprise
 - PrintMe Mobile Link must run on at least one computer or VM on each wireless subnet to connect mobile users to a central PrintMe Mobile server
 - All licensing, print drivers and management is done from the PrintMe Mobile Admin dashboard page
 - The L100 gateway appliance may be connected to an internal Wi-Fi subnet and perform the same function as the Link software, but it is not required for printing from internal or protected Wi-Fi subnets

Network Configuration examples using PrintMe Mobile Link

- Requires EFI PMM Link app (or L100) connected to each subnet, either locally on single PC or centrally using a host PC with multiple VMs, each configured to a single subnet/VLAN over a trunked connection



- An alternative view shows one copy of EFI Link is running in a Windows VM for each Wi-Fi subnet/VLAN. The VM is a virtual member of the Wi-Fi subnet based on the assigned IP address.



PrintMe Mobile L100 Appliance

The PrintMe Mobile L100 is a Linux-based appliance preloaded with software that enables Wi-Fi printing across subnets. Like PrintMe Mobile Link, the L100 appliance broadcasts the list of printers from PrintMe Mobile to other wireless subnets. The PrintMe Mobile L100 appliance allows mobile devices to print from another wireless subnet.

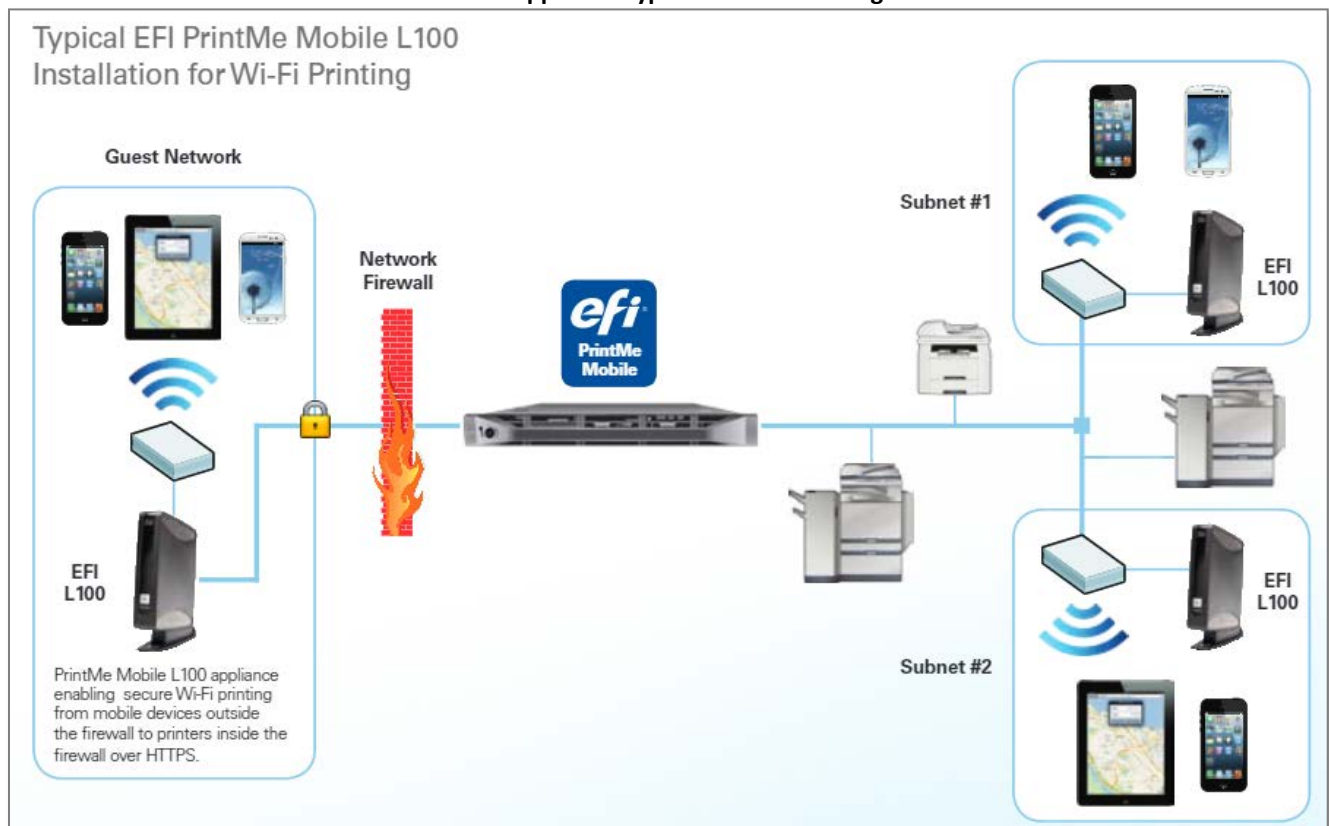
- Deploying inside the firewall

Like PrintMe Mobile Link, PrintMe Mobile L100 can be deployed in each subnet. The appliance form factor means that the administrator only needs to plug in the Ethernet cable and power cord for deployment. The administrator then connects to the L100 web console to obtain the IP address with their iOS mobile device or separate monitor. The administrator will use the L100 IP address to identify the L100 through the PrintMe Mobile server administration console.

- Deploying outside the firewall

One value of the PrintMe Mobile L100 is to extend printer access outside of the enterprise network firewall. The L100 appliance operates as a secure agent by publishing a list of administrator-selected printers on the corporate network to devices outside the corporate firewall. This enables secure Wi-Fi printing from mobile devices outside the firewall to printers inside the corporate network. The installation is the same as the example in the preceding section, "Inside the Firewall."

PrintMe Mobile L100 appliance typical installation diagram



Guest printing via Wi-Fi from outside the firewall or from an untrusted Wi-Fi subnet requires the use of the L100 appliance.

- Using iOS AirPrint or the EFI Android app, when the user searches for printers via a Bonjour printer discovery broadcast, the L100 provides a list of printers behind the firewall that have been selected by the PrintMe Mobile administrator to be sent to the L100.
- When the user selects a printer, the L100 furnishes its IP address as the destination. The mobile device routes the encrypted print job via IPP to the L100, which in turn forwards the job to the PrintMe Mobile server inside the firewall using the SSL encrypted WebSocket connection.
- Any printers designated for guest printing must disable the “user authentication required” feature in the PrintMe Mobile administrative dashboard.

Employee BYOD printing:

- All printers configured in the L100 application for Wi-Fi printing from iOS, Mac OS and Android devices should be setup for “user authentication required” in the PrintMe Mobile admin dashboard. This ensures that all print jobs sent to the PrintMe Mobile server from outside the firewall will first require the employee to enter their Active Directory login credentials in order to print.
- The user’s credentials and the print job are sent from the mobile device to the L100 over port 6311, which is set for HTTPS only (nothing sent in the clear).

Nothing herein should be construed as a warranty in addition to the express warranty statement provided with EFI products and services.

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