

iPad Deployment Guide

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Deployment Considerations

- **Wi-Fi and Networking**

The network infrastructure must be set up to work correctly with Bonjour, Apple's standards-based, zero-configuration network protocol. Bonjour enables devices to find services on a network automatically. Aruba AirGroup must be enabled in the Mobility Controller (ArubaOS 6.1.5 and above) to fully support Apple Bonjour service, else the iDevice must be in the same Layer 2 subnet as the provider device (Printers, Apple TVs, Computer).

Wi-Fi frequencies

The MacBook notebooks and iPad devices both support 802.11n at 5GHz however, iPhone devices support 2.4GHz network. Support for both 2.4GHz and 5GHz networks should be enabled in the Mobility Controller.

Wi-Fi SSID

The use of hidden SSIDs should be avoided in all scenarios. It is harder for an iDevice to rejoin a hidden SSID than a broadcast SSID, and there's very little security benefit in hiding the SSID.

- **Apple ID**

Apple ID is the login used for just about everything Apple offers, including using iCloud, apps from the App Store, and the iBooks Store. Each Apple ID must be created using a unique email address and the same Apple ID can be used on 5 iDevices. iTunes Store accounts can be created without a credit card.

Apple ID management options:

Apple ID Option	Pros	Cons
Personal Apple ID	Low administrative overhead - users deploy all apps	Lack of app reuse across users; users retain apps
Single Apple ID per School	School retains apps for reuse	Administrative overhead
Multiple Apple IDs per School	School retains apps Facilitates distributed administration	Requires supervision to transfer apps to other Apple IDs

Configuration and Management

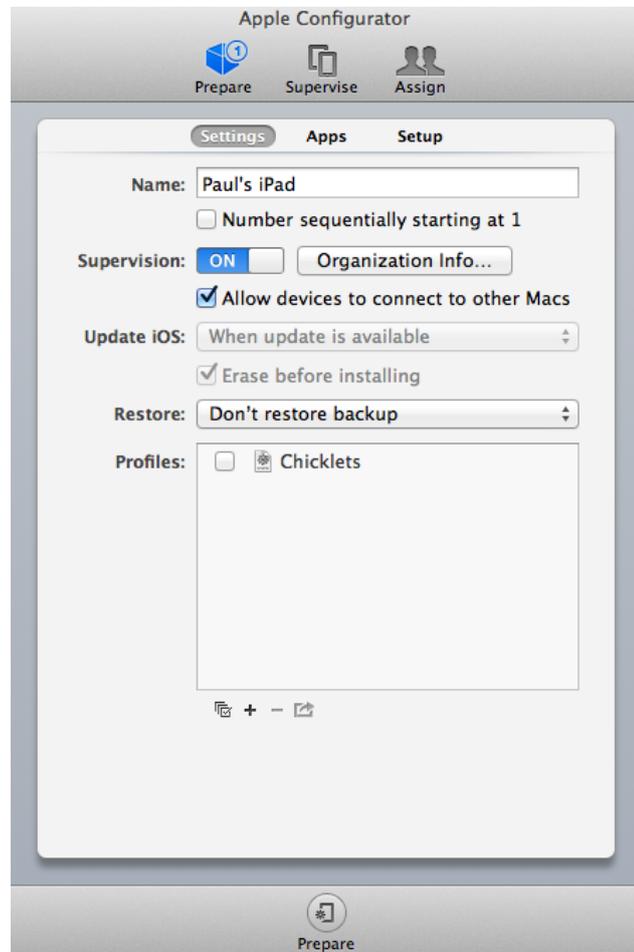
- Current Configuration and Management

	American Academy	Dubai British School	Greenfield Community	Jumeira Bacculaureate	Raha International	Uptown School
Supported Wi-Fi and Networking	Yes	Yes	No*	Yes	Partially*	Yes
Caching Server (OS X Mavericks)	No	No	Yes	No	No	Yes
Apple Configurator	No	No	No	No	No	Yes
Mobile Device Management	No	No	No	No	No	No
Paid Apps	iTunes cards	Temporary credit card	Carrefour pre-paid card	No	No	No
Apps Distribution	iTunes	iTunes	iTunes	No	iTunes	Apple Configurator
BYOD Allowed (User Groups)	Yes (Grade 4 to 12)	Yes (Grade 7 to 12)	Yes	Yes	Yes (Grade 3 to 12)	-
iPad Inventory	56	113	108	4	55	107

*Please refer to the "Schools - Infra Findings Consolidated.pdf"

- **Recommended Configuration and Management**
- **Apple Configurator**

Apple Configurator is a free Apple utility that configures and enables advanced settings options via a method known as Supervision. This utility requires devices be physically connected via USB to a Mac running OS X; up to 30 connected devices at a time are supported.



Apple Configurator supports three simple workflows:

Prepare. Update devices to the latest version of iOS, install Configuration Profiles and apps, and enroll them with Mobile Device Management (MDM) server.

Supervise. Another option is to supervise a set of iOS devices that remain in your direct control and can be configured on an ongoing basis. Apply a configuration to each device, then reapply it automatically after each use just by reconnecting the device to Apple Configurator. Supervision is ideal for deploying devices for dedicated tasks, sharing devices among students in a classroom or a lab.

Assign. Assign supervised devices to specific users. Check out a device to a specific user and restore that user's backup (including all of their data) to the device. When the device is checked back in, backup the user's data for later use—even on a different device.



Settings

Apple Configurator makes it easy to configure many devices with the same settings. Simply configure one device with the settings and preferences that you want on all the devices, then back up using Apple Configurator. Apple Configurator simultaneously restores the backup to the other devices as well—up to 30 USB-connected devices at the same time.

Apple Configurator can create and install Configuration Profiles for the following settings:

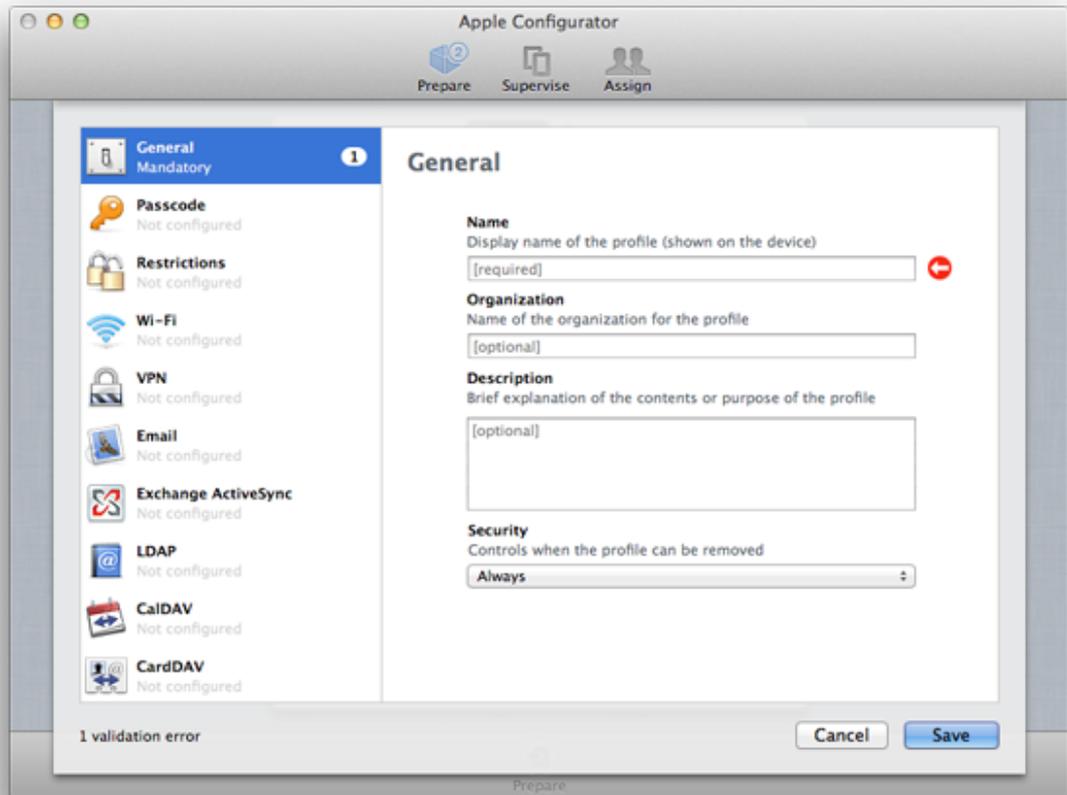
- Exchange ActiveSync accounts
- VPN and Wi-Fi settings
- Passcode length, complexity, and local wipe settings
- Mobile Device Management (MDM) enrollment settings
- Device restrictions
- Certificates
- Web clips

Configuration Profiles created using third party solutions Mobile Device Management (MDM) can be easily imported into Apple Configurator.

- **Configuration profiles**

A configuration profile is an XML file that allows to distribute configuration information to an iOS device. Configuration profiles automate the configuration of settings, accounts, restrictions, and credentials.

Configuration profiles can be installed on devices through Apple Configurator. If you need to configure a large number of devices or just prefer a low-touch over-the-air deployment model, configuration profiles can be delivered through Mobile Device Management (MDM).

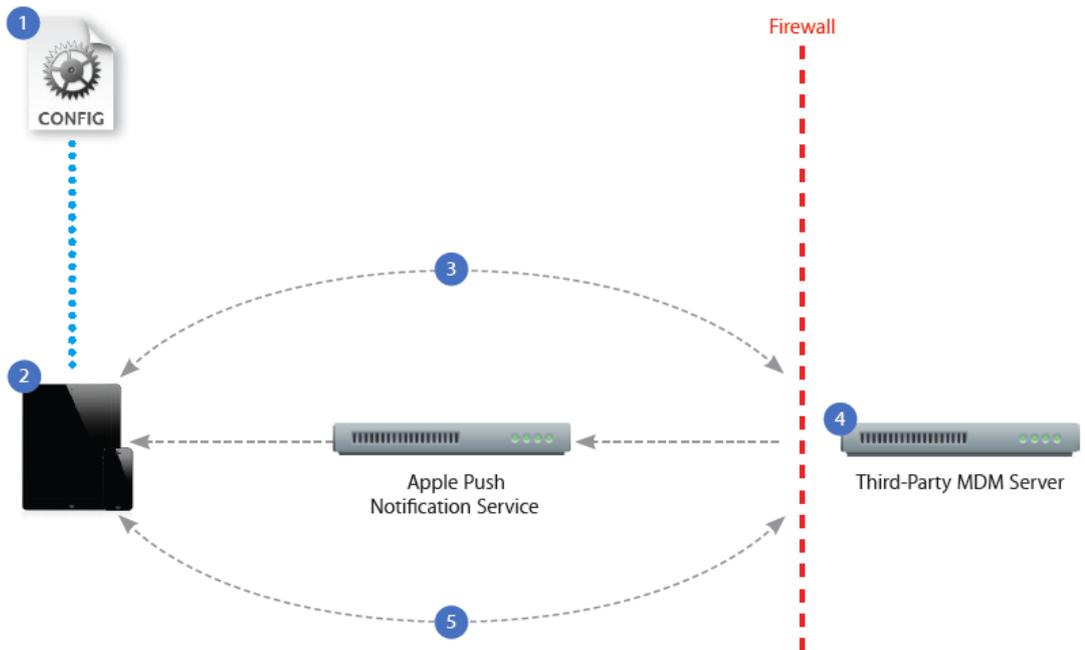


- **Supervised devices**

For additional configuration options and restrictions, choose to supervise iOS devices owned by the school. It also provides additional restrictions such as turning off iMessage or Game Center, web content filtering, and the ability to silently install apps. By default, all iOS devices are non-supervised. You can combine supervision with remote management via Mobile Device Management (MDM) to manage additional settings and restrictions. To enable supervision of devices, use Apple Configurator. You can only supervise devices owned by school.

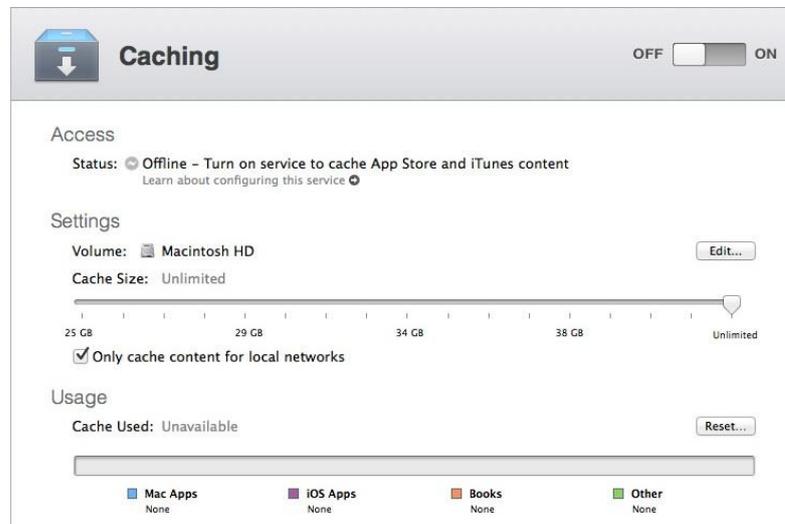
- **Mobile Device Management (MDM)**

MDM is a third party solution that can securely enroll devices, configure and update settings, monitor compliance with policies, and remotely wipe or lock managed devices. iOS MDM gives a simple way to enable user access to network services while ensuring devices are properly configured—regardless of who owns them. MDM deployment should be considered (Casper Suite, AirWatch or MobileIron) to create and enforce policies that extend across the network to devices and applications. This gives control over mobility services and a simpler way to manage “BYOD”.



- **Caching Server**

Caching Server saves previously requested content on the local network, like software updates, documents, apps, and books. OS X Mavericks server can be purchased from the Mac App Store for just \$19.99 and can run on any MacBook notebook.



- **Apps Distribution**

Guide to selecting a suitable deployment model

	Personal Ownership (BYOD)	School Ownership	Layered Ownership
Owner of Apps	Student Apps redeemed with personal iTunes ID	School Apps redeemed with ID associated with the school	Both student and school Use school iTunes ID for purchased apps; personal ID after initial setup
Device Personalization	Yes	No	Yes
Usage Model	Single User	Multiple Users	Extended Single User – Future Reassignment
Initial Setup	Mobile Device Management	Apple Configurator*, Mobile Device Management	Apple Configurator*, Mobile Device Management
Maintenance	Mobile Device Management	Apple Configurator	Mobile Device Management
Reporting	Mobile Device Management	Mobile Device Management	Mobile Device Management

*Use Apple Configurator to initially supervise devices and deploy school owned apps.

- **Personal Ownership (BYOD)**

The personal ownership model allows students to use devices and apps in a manner typical of a consumer experience. In this deployment model, only the student's personal iTunes account is used for configuration and app installation. This means all redeemed apps are retained by the student. Apps purchased by the school but redeemed with the student's personal iTunes account cannot be reclaimed by the school.

- **School Ownership**

In this model, the installation of configuration profiles, new apps, and any app updates are done by connecting each iOS device (via USB) to the computer running Apple Configurator that was originally used to stage the device. Integrating Mobile Device Management with Apple Configurator, you can automatically enroll devices via management profiles.

A mobile cart is commonly used in this deployment model. A Mac running OS X, connected to the school's network and running Apple Configurator, is needed. Additionally, it must have iTunes installed, using the school's iTunes account.

- **Layered Ownership**

The layered ownership model allow students to personalize a device while still allowing a school to retain ownership of paid apps. This model uses a slight variation on the school ownership model's setup and configuration, as discussed above.

To install new, school-owned apps (or updates to them) with this model, you will need to reconnect the iOS devices to the same Apple Configurator computer used for initial setup. Personal apps, however, can be downloaded by the user; free apps can be delivered via Mobile Device Management iOS app store integration.

- **Apps Distribution Recommendations**

Paid Apps can be deployed through VPP codes which has to be purchased thru Volume Licensing Program. However, Apple volume license program is not currently available in UAE.

For free apps deployments with restricted access, Apple configurator would be your choice. If you need to deploy paid apps along with free apps, create an image of master iPad and restore to other iPads (backup/restore) image to each iPad. Prepaid Coupons can be used to purchase paid apps and deploy them to other iPads.

Operation

- **iPad AirPlay Screen Mirroring**

There are a number of ways to mirror iPad's screen, here are the options recommended;

Apple TV Apple TV is Apple's official solution for mirroring the iPad's screen. The device is a small black box, which connects to the HDMI port of the TV or projector.

The Apple TV can be connected by either Ethernet cable or WiFi to the network via which the unit communicates with the iPad.

Reflector and AirServer Reflector and AirServer are software that turn any Mac or PC into an AirPlay receiver — no additional hardware required. On the iPad screen-mirroring is done in exactly the same way as with the Apple TV, however, instead of sending the iPad's display to a dedicated device the display is overlaid on the computer's monitor.

Both applications allow for multiple iPads to be displayed simultaneously on screen at once, a feature that Apple TV is missing. If you're just displaying a single iPad a full screen option is also available.

Reflector costs \$9.99 per install, \$39.99 for 5 installs, AirServer educational licensing is \$3.99 per install when you purchase 20 or more licenses, and a standard single license is \$14.99.

For general use, such as demonstrating apps, displaying images, and Internet browsing Air Server and Reflector work exceptionally well, but for playing HD video Apple TV is highly considered. However, AirServer and Reflector's ability to stream display images from multiple iPads at once is extremely compelling in a classroom situation.

- **Apple Configurator and Mobile Device Management (MDM)**

While Mobile Device Management solutions (MDM) and Apple Configurator have some overlapping features both systems also have their own unique benefits. In some cases only one solution is required, in others both Apple Configurator and MDM can be used to complement each other.

Schools with pooled iOS devices are one area where using both is advantageous.

Apple Configurator is best used:

- To maintain similar applications and settings across multiple iPads
- Install updates to iOS or bulk install applications without manual configuration
- To manage iPads which require a consistent set of applications and settings across each device

Apple Configurator is not appropriate for:

Usage with non-school owned devices for BYOD management as supervised devices are erased as part of the supervision process. An MDM solution would be more suitable for this use.

The primary advantage of Apple Configurator over MDM solutions is that the security settings are unable to be removed by the end user. Apple's MDM API requires that security profiles pushed out by this method are removable and as a result are not able to be password protected.

Supervising iOS devices with Apple Configurator also permits MDM solutions to control a number of additional iOS features, such as global HTTP proxy, and some additional application restrictions.

Apple Configurator associates all supervised iOS devices to a specific Mac computer, and they can only be configured in the future through this Mac when connected by a USB cable. Up to 30 iPads can be connected and configured at one time.

- **Printing with iPads**

There are three primary ways to facilitate printing from iOS devices. However, option 3 is by far the most successful when working within a Windows or Mac environment with a significant number of printers already in use.

Option 1: Purchase an AirPrint Supported Printer

Option 2: iOS apps that allow direct connection to printers

Option 3: Broadcast Windows or Mac shared printers with application

A number of applications are available which allow to use Bonjour to broadcast your Windows or Mac shared printers to iOS devices. The iPad is then able to print using iOS's built in printing features without any additional configuration.

The three applications tested are: Fingerprint [Windows/Mac], Printopia [Mac only], Papercut [Windows only and requires full logging system at cost] and all work well.

- **Transferring Student Work From an iPad**

Third-Party Cloud Storage Apps allow the user to login to a personal account and upload files to a cloud based storage system. This type of system works well for 1:1 devices using a centrally managed system. — e.g. Google Drive, Dropbox, Skydrive, Box.net, Sugar Sync

iCloud, Apple's iCloud is a fairly comprehensive way to sync documents and settings between an iPad and another device. This only works, however, if the device is your personal iPad. Synchronizing using iCloud isn't effective for multiple users on the same device.

Third-Party Apps Which Allows File Transfers — e.g. Showbie. There are a number of iPad apps which allow transfer of files between student iPads and teachers. Showbie is one application which works well for assignment based tasks, but isn't designed for long term storage of work or bulk uploading a significant number of files.

There is no perfect solution for transferring work from a multi-user iPad. None of those listed above meet all of the criteria of safely, reliably, and intuitively allow students to make sure their documents are secure.

References

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