

Franklin Academy High School



iPad Deployment Model

FRANKLIN ACADEMY HIGH SCHOOL
648 Flaherty Ave
Wake Forest, North Carolina 27587
Phone: (919) 453-5090
Fax: (919) 453-5099

Introduction

Over the past few years, we have recognized the benefits of using the Apple iPad as a fundamental learning tool at Franklin Academy High School. From a test group of 10 iPads in 2010, to our initial launch of 190 iPads in 2011, we now have 876 iPads in use by students and teachers.

This guide serves to explain the current iPad deployment system and procedures at Franklin Academy High School. It is not presented as a complete or superior way of managing a one-to-one iPad initiative. Our desire is that it will be a helpful tool for creating or improving your initiative, as we work to improve ours. This guide is intentionally a non-comprehensive look at one-to-one deployment, and should be combined with other resources for the best foundation.

Starting Questions

Policy & Procedure

How will we fund our initiative?

How will we protect our investment? (AppleCare+, Insurance, Protective cases)

What financial responsibility will students have for damaged iPads/accessories?

How will we define acceptable and unacceptable use?

Will students use iPads at home, or just at school?

Logistics

Where will we store iPads when they are not in use?

How many extra iPads do we need to have on hand as replacements?

Can our network infrastructure handle the bandwidth demand?

Who is responsible for iPad management and how will they be trained?

Which ownership model works best for us?

What are the projected maintenance costs?

How will we keep track of inventory?

Regardless of the scale of your initiative, it is important to take a systems-based approach from the beginning. Your IT staff may change, and a system dependent on a single person's knowledge isn't a system at all. Consider creating your own guide as a training reference to document your system.

Overview

- [Beginning of the Year Workflow Overview](#) 3
- [Updating Inventory Records](#) 4
 - [Adding Students](#) 4
- [Preparing the MDM](#) 5
 - [Creating Tags](#) 6
 - [Creating Profiles](#) 7
 - [Allocating Apps](#) 8
- [Preparing the iPad](#) 9
 - [Configuration](#) 10
 - [Enrollment](#) 11
 - [Assignment](#) 11
- [Maintenance](#) 12
 - [Distribution](#) 13
 - [Scheduling](#) 13
 - [Support](#) 14
 - [Installing Apps / Updates](#) 15
 - [Replacement](#) 16
 - [Collection](#) 17
- [Further Reading and Resources](#) 18

Note: This guide is organized in sequential order, although some topics (like Replacing iPads) require a return to previous steps, and some (like Allocating/Installing Apps) can happen at any point throughout the school year.

The following icons are used in this document to denote when a particular topic involves:



handling the iPad



Inventory

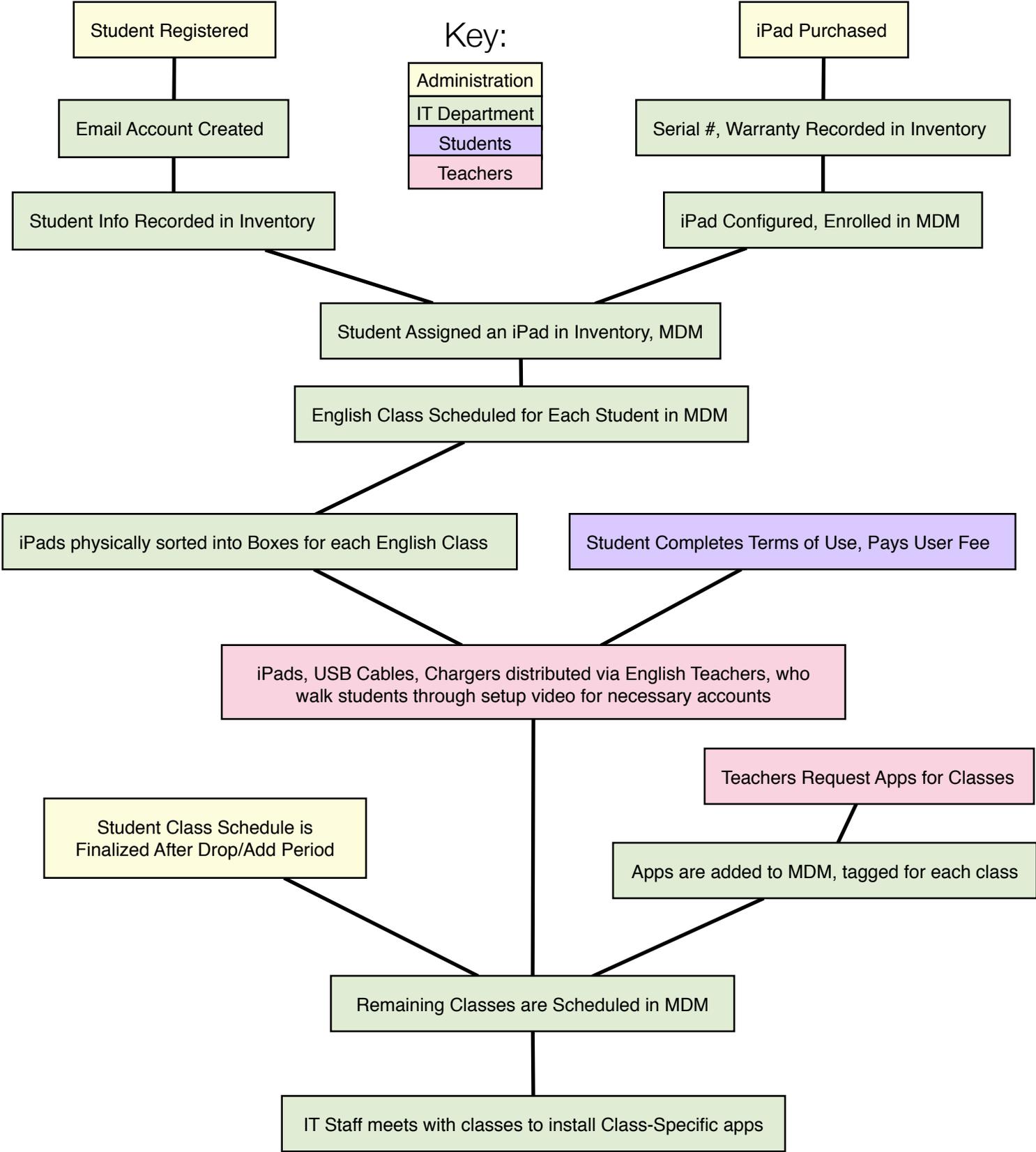


MDM



Configurator

Beginning of the Year Workflow Overview



Updating Inventory Records



An accurate and thorough inventory system is imperative for making your initiative scalable and systems-based. What information you choose to inventory is entirely up to you, but a good rule of thumb is to include characteristics that differentiate devices from each other. For example, at Franklin Academy High School, all our student iPads are iPad 2 16GB Wifi-only models, so these characteristics are assumed and not listed in inventory. The more characteristics you have, the more data you can pull from later to analyze and improve your system.

Most MDMs have some type of inventory aspect for enrolled devices, which may or may not satisfy your needs. While the MDM provides us very helpful information, we also created an *iPad Inventory* document in [Apple Numbers](#) to keep track of all devices, whether they are currently enrolled in the MDM or not. There are several database software offerings that would be a great home for an inventory. We chose a simple spreadsheet, which we may outgrow in the future.

Our *iPad Inventory* is available for download, and contains a further explanation of each sheet.

The Master List sheet includes one table tracking iPad-specific information, and another tracking Student-specific information.

iPad #	Serial # (SN)	AppleCare+ Damage Incidents Remaining	Warranty Expiration	Building
--------	---------------	---------------------------------------	---------------------	----------

In the “iPad Assignments” sheet, these two tables are cross referenced as we assign each iPad to a student each year. It also keeps track of unassigned iPads ready for use, and damaged iPads awaiting service.

“Out of Service” records replacement information for iPads that have been exchanged.

iPad #	Old SN	New SN	Issue	Cost	Replacement Date	Receipt No.	Last User	\$ Owed	\$ Paid
--------	--------	--------	-------	------	------------------	-------------	-----------	---------	---------

The “Genius Bar 2x4” sheet is formatted for Avery Label Template 5163, and automatically creates a 2x4” sticker based on the Awaiting Service table. Stickers are applied to each device taken in to the Apple Store Genius Bar for replacement.

Adding Students



When a new freshman grade roster is accessible, those students are added to the Students table of the “Master List” sheet in our Inventory. Their email address is creating using last name, first initial and then appending a number should that address already be taken. In our model, students cannot be assigned an iPad until they are added in the Master List.

Preparing the MDM

Depending on the scale of the iPad initiative, it may be helpful to leverage a [Mobile Device Management](#) system (MDM). These systems allow iPads to be managed remotely, without having to physically collect and sync devices to a computer to install apps or profiles.

Currently, Franklin Academy uses a Mobile Device Management (MDM) system called Meraki Systems Manager. Meraki was recently purchased by Cisco, and makes Cloud-managed networking products. The purpose of the Meraki Systems Manager is to introduce you to the Meraki management style and get you to invest in their other products.

Meraki Systems Manager applies profile settings and installs apps to iPads based on which “tags” they have in common. It is also possible to apply a setting or app for all clients in the network. Clients are not organized into groups, but rather are displayed in one long list. We can filter which items appear by searching for a tag, and Add or Remove tags by selecting any number of devices.

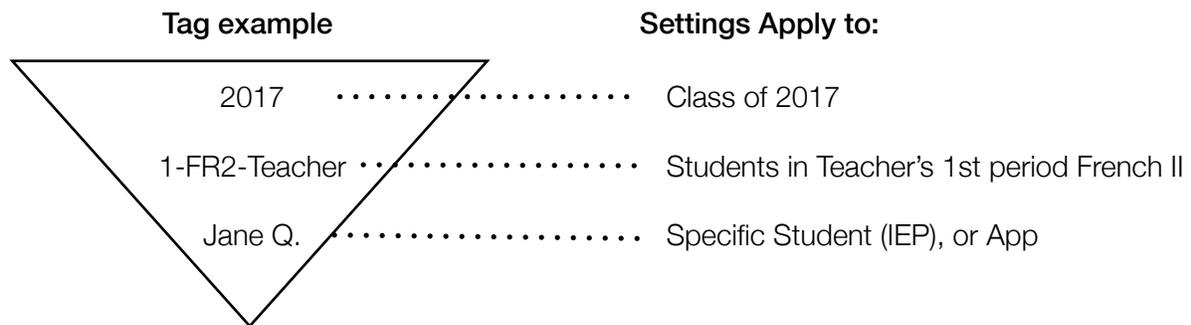
How an MDM approaches management varies with each brand, and if you feel use of an MDM is right for you, we encourage you to demo and explore as many offerings as possible to find out which system style will best suit your initiative. For instance, organizations deploying iPads on a larger scale may find the list/tag-based system of Meraki too cumbersome, and would like to organize things into a hierarchical system of groups. Understandably so.

This guide describes our use of the Meraki Systems Manager, and while the broad concepts apply to other MDM solutions, the specific features may not be included, or will differ in other products.

Creating Tags

The foundation of the Meraki Systems Manager approach to managing devices is through adding and removing Tags, which are associated with some characteristics. If you're familiar with Google's Gmail, you may understand the "Labels" approach instead of traditional mailbox organization. This is essentially how Tags work.

Once a new Tag is added to an item (Supervision profile, client, app), it is made available for use on any other item. Our Tag schema is provided below.



A typical student has several long-term tags (Tags that remain for the duration of the school year) associated with their client entry. For example:

1-PE-Smith 2-Chorus-Franklin 3-Alg1H-Jones 4-ESciH-Parker
5-Eng1H-Williams 6-WHist-Martin 2017

Tags are created in the "Classes & Apps" sheet of the *iPad Inventory* document for each class. Even classes with no apps requested are tagged to make it easier to add apps later if the teacher so chooses. As an added benefit, if we need to meet a student to assist with tech needs, we can simply look at the MDM to see which class he or she is in at that time.

In some cases, a student's Individualized Education Program (IEP) may require a unique app or setting. When it does, we use the student's name as a tag.

Short term tags are applied and removed quickly. For instance, we allow the use of the iPad camera for taking photos and video relating to class, and also to allow students to scan QR codes added to information posters around campus. In the event that a student loses this privilege, we add the **NoCamera** tag to their iPad to shut it off.

Tag	Description
NoCamera	Disables use of the Camera. May be short-term or long-term.
NoApps	Blocks the AppStore, and is removed temporarily to enable pushing apps / downloading updates
TestingMode	Enables guided access for Safari only. Used for EOC testing.

Creating Profiles

Settings and restrictions of iPads are managed through the creation of custom profiles. This can be done through Apple Configurator, or an MDM. To allow us the most flexibility, a standard set of restrictions is applied at during Configuration, and the rest rely on tags in the MDM.

Profiles Currently Used

Profile	Description
Student Restrictions	Requires passcode. Removes: Passbook, GameCenter, YouTube, iTunes Stores, iMessage. Includes Handbook/Dress Code Web Clips, and WiFi configuration settings
Management Profile	From MDM, allows iPad to receive other profiles Over The Air
NoApps	Identical to Student, but blocks Installing/Removing apps
2017	Contains Web Clips for Freshman Class
2016	Contains Web Clips for Sophomore Class
2015	Contains Web Clips for Junior Class
2014	Contains Web Clips for Senior Class (SAT and college prep links)
TestingMode	Identical to Student, but enables guided access for Safari only.

For example, a senior's iPad will have: Student Restrictions, Management Profile, 2014, and WiFi profiles installed all the time. To push apps, NoApps will be temporarily removed. For final exams, TestingMode will be temporarily added during the times of their exams.:

NOTE: To avoid connectivity problems, WiFi settings should only be included in a single profile that will never be removed OTA.

Allocating Apps



After the initial iPad Configuration stage (page 9), any future app installations are pushed through the MDM. These are apps that teachers have requested for specific classes using an online form. This list of these class-specific apps is maintained in the *iPad Inventory* document, in the “Classes & Apps” sheet.

		French III	French I	2-FR1-Gilbert	French II	
7	▼ Gilbert, Franca					
8	Gilbert, Franca					
9	Gilbert, Franca	7 Jours	7 Jours		7 Jours	
0	Gilbert, Franca	Puppet Pals HD Directc	Puppet Pals HD Director's Cut	Puppet Pals HD	Puppet Pals HD	Puppet Pals HD Director's Cut
1	Gilbert, Franca	AudioMemos	AudioMemos	AudioMemos	AudioMemos	AudioMemos
2	Gilbert, Franca	iBibliotheque	iBibliotheque	iBibliotheque	iBibliotheque	iBibliotheque
3	Gilbert, Franca	Videolicious	Videolicious	Videolicious	Videolicious	Videolicious
4	Gilbert, Franca	Showbie	Showbie	Showbie	Showbie	Showbie
5	Gilbert, Franca	RFI		RFI	RFI	
6	Gilbert, Franca	DeGaulle/Libre		DeGaulle/Libre	RTL	
7	Gilbert, Franca	Memorial HD		Memorial HD		
8	Gilbert, Franca	RTL		RTL		

RTL Net

Vendor: RTL Net

Description: Info, Sport et Divertissement en sons, photos et vidos ! Partout, to

View in the iTunes web catalog

Scope: Install on devices containing at least ONE of the following tags

1-FR3-Gilbert x 4-FR3-Gilbert x

5-FR4-Gilbert x

Redemption codes: None | Add

Remove with MDM: No

Prevent backup: No

Status: Clients in scope: 33 ▶ Re-push to all

Missing app: 0 ▶ Re-push to missing

Apps are added in Meraki at the Mobile>Apps page by clicking the “Add new... iOS app” link. The scope of class-specific apps is limited to only the tags listed. In this example, only iPads tagged with **1-FR3-Gilbert**, **4-FR3-Gilbert**, and **4-FR3-Gilbert** will receive a prompt to download “RTL” provided installing apps is enabled. If installing apps is restricted, the app may need to be “Re-pushed” to iPads missing the app.

NOTE: The steps up to this point do not require any iPads, and could easily be accomplished before iPads arrive. One or two iPads is all it takes to test the system before moving to a larger scale.

Preparing the iPad

New iPads are unboxed and inventoried immediately. Each is assigned a number by adding new iPad information into the “Master List” sheet. To make number assignments permanent, each iPad is engraved with the number on the back below the serial number before it is placed in a protective cover. In the rare circumstance where an iPad will not power on and we have no way of knowing to whom it is assigned, we can check the number on the back.

Note that engraving the aluminum enclosure of the iPad does not void the warranty, unless the iPad was physically damaged in the process of engraving.

Our policy is to Prepare every iPad again at the beginning of each school year. We do this to keep tabs on the physical condition and software status of our entire inventory. While more work for us, an ounce of prevention is worth a pound of cure, as we can ensure that each device stays in top form and up to date. A preparation checklist is attached to each that will serve as a visual indicator of where the iPad is in the preparation process. Collection is explained further at the end of this guide.

Once in initial inventory, the Preparation process includes the following steps:

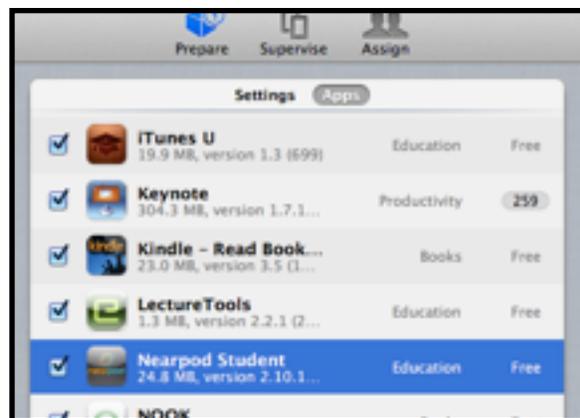
- Configuration - Where the iPad is initiated into service.
- Enrollment - Adding the iPad into the MDM for further management
- Assignment - Updating Inventory and MDM to link an iPad to a student.
- Scheduling - Linking a student’s class schedule with necessary apps via MDM tags.

Configuration



Each prepared iPad is initiated into service through Apple Configurator. A Mac is dedicated to running iTunes/Configurator. Sync trays are used to allow 30 iPads to be synced at a time. This guide assumes knowledge of the [Apple Configurator Guide](#) and only addresses our use of Configurator at Franklin Academy. Except in the case of a software restore, Configurator is used twice a year on each device: once at initial supervision, and once again at return. Configurator is used to provide the following:

- Name
- General Supervision Profile
- Student Restrictions Profile
- MDM Management Profile
- Software Update
- Standard apps used by all students
- Backup of app organization/Safari Bookmarks
- Custom Lock Screen displaying iPad #



Enrollment



To allow us to manage iPads remotely, each iPad is enrolled in the Meraki Systems Manager MDM. This is done through the installation of the configuration profile, but can also be done by visiting a website (m.meraki.com) and typing in an account-specific code to enroll the device.

After the profile is installed, the iPad shows up in our Systems Manager Dashboard.

Client details | [Edit details](#)

Name: 515
 Model: iPad 2
 Serial:
 Warranty: [Apple](#)
 Notes: Student Name
 Tags:
 Charge: 89%
 Commands: [▶ Check-in now](#)
[▶ Refresh details](#)

At this point, the iPad is considered **Configured**, **Enrolled** and **Unassigned**. An extra 5-10 iPads are kept in this state to allow a quick replacement for iPads that are damaged (See Replacement on p.16). The standard restrictions exist on this device, but the **NoApps** tag will be added before giving it to a student.

Assignment



Once we have received our student roster for the year, we begin assigning each student a particular iPad. This is done in our *iPad Inventory* documents and in Meraki Systems Manager.

Student Last	Student First	c/o	email	iPad #	SN	APP+	Expires	DI
Name	Student	2014	nameS1	1	SERNUM00MDLI	2	1/1/25	0
Name	Student	2014	nameS2	2	SERNUM00MDLI	2	1/1/25	0
Name	Student	2014	nameS3	3	SERNUM00MDLI	2	1/1/25	0
Name	Student	2014	nameS4	4	SERNUM00MDLI	2	1/1/25	0
Name	Student	2014	nameS5	5	SERNUM00MDLI	2	1/1/25	1
Name	Student	2014	nameS6	6	SERNUM00MDLI	2	1/1/10	4
Name	Student	2014	nameS7	7	SERNUM00MDLI	2	3/11/13	0
Name	Student	2014	nameS8	8	SERNUM00MDLI	1	1/1/25	0
Name	Student	2014	nameS9	9	SERNUM00MDLI	0	1/1/25	0

For efficiency, we make a duplicate of the previous year's iPad Inventory and delete the students who have graduated, and add in new students in their place. Most students receive the same iPad between grades. Formulas in the spreadsheet automatically populate Serial Number, damage incidents remaining, and warranty expiration based on the iPad number entered.

In the MDM, we add the student's name in "Last, First" order in the Notes field. Meraki does have a "Users" field, but we found it easier to type the name for now.

Maintenance



The previous sections have described how to get your initiative started. Ideally, each of these steps have been completed before the first day of school. Now that we have systems for inventory and management, and our iPads have been Configured, Enrolled, and Assigned, we can turn to describing how to keep things running.

- Distribution - How we get the students the iPads
- Scheduling - How class-specific apps are linked to each student
- Support - How we provide technical instruction and assistance to students
- Installing Apps - How we perform updates, or install new apps after distribution
- Replacement - How we deal with damaged iPads that need to be replaced through Apple
- Collection - How we get all the iPads back and ready to go out again the next year

Distribution



Before the school year begins, parents and students are directed to several documents outlining expectations for participating in the iPad initiative. These documents are also irremovable bookmarks on the iPad.

- Acceptable Use of Franklin Academy Electronic Resources (For all computers/internet)
- iPad Terms of Use and Agreement for Students and Parents
- Student Handbook

Students and parents complete the form and payment online, or meet with IT staff and administration at Open House to discuss terms from these documents, sign the agreements, and pay a \$25 usage fee in person. IT staff track which students completed the documents by checking them off in the Master List of Students in the Inventory.

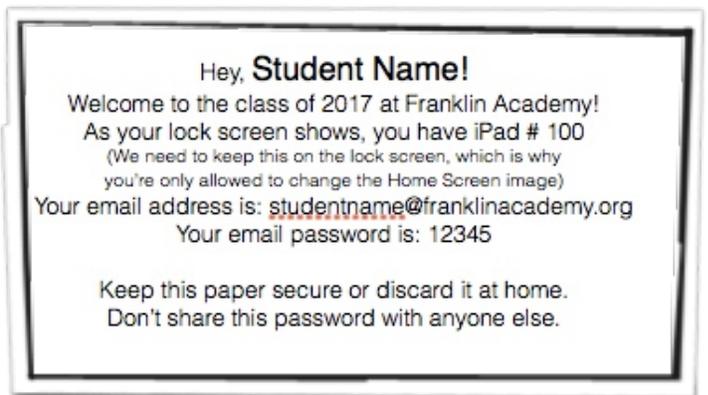
Before the first day of school, a preliminary roster for English classes is used to sort iPads alphabetically in crates for each English class. On the first day of school, crates of iPads are delivered to the classroom along with a list of which students have completed the necessary forms and payment and may receive an iPad, charger, and USB cable.

The iPad includes a slip of paper providing students their email account and password. Students set a custom passcode, and are then walked through a setup video explaining how to set up necessary accounts, including:

Email and Global Contacts Directory

iCloud (and using iCloud for documents in Keynote, Pages, Numbers, and GoodReader)

Dropbox, Evernote, and Edmodo.



Scheduling



Once the drop/add period is over and student classes are finalized, we apply tags to each iPad to match the student's class schedule for the year.

[1-Class-Teacher](#) [2-Class-Teacher](#) [3-Class-Teacher](#) [4-Class-Teacher](#)

Since these tags are associated with apps, once the AppStore is allowed, a request will be sent for each app needed.

Installing Apps / Updates



Once student iPads are scheduled with all classes, there will be a list of apps pending installation until the App Store is allowed again. IT Staff sets a schedule to meet with classes to push apps, prioritizing those classes for which the greatest number of apps has been requested.

1. Filter the list of Clients in MDM to only show those in the class being visited, and select entries for all students present that day.
2. Remove the **NoApps** tag to selected devices in Meraki Client Overview, allowing the AppStore app to appear.
3. Click “Sync Apps” under the command menu to re-push pending apps to the Client.
4. Students Accept the request to install apps, and are allowed to install pending updates to existing apps.
5. Once all apps have begun to download, the **NoApps** tag is reapplied.

Students are given clear instructions regarding how the app installation and updates will take place and what the current installation password is. Because apps for all classes are pending, students will be requested to install apps for other classes as well. This means not every class who has requested apps will need to be visited individually, since chances are most students already got the apps in another class.

Since the standard set of apps is initially installed using Configurator, its app list will need to be periodically updated to make sure iPads configured throughout the year remain up-to-date. This is done by clicking the “Check for updates” button in the Apps section of the iTunes library on the machine used for Configurator.

After downloading the new versions, The Apps tab under Configurator’s “Prepare” menu will let you add new versions by clicking the + in the bottom left, and selecting the .ipa file just downloaded. Configurator will prompt with a message asking for confirmation replacing the old app version number with a new one.

Support



Contrary to our natural assumption that the next generation is born tech-savvy, not all students feel comfortable with technology. Some students and teachers alike prefer a pencil-and-paper approach to learning, and are afraid their lack of technical knowledge will prevent them from being successful. To help staff and students get the most out of the technology in the classroom, IT Administrators provide both Technical Learning and Technical support.

Technical Learning

Teachers - Every teacher at Franklin Academy High School is issued an iPad and Macbook. Workshops are set up for teachers to drop in and learn about particular apps, workflows, websites, and tools that will help them in the classroom. Helpful resources are constantly being publicized through email, and staff meetings contain some type of quick, helpful technology tip.

Students - Our weekly class schedule includes a study hall period on Thursday afternoons. During this “Flex” time, students can get a pass to visit IT Staff and ask questions. Students in Technology Club are asked to provide help for other students with the logistics of using apps for school. By facilitating technical learning, we provide students opportunities to use the technology to it’s full potential, and remove the ability for students to use technical ignorance as an excuse.

Technical Support

Teachers are given a basic training in troubleshooting to prevent technical issues from disrupting class, or causing a student to miss instructional time. If a teacher can, for example, reset the iPad network settings to resolve a connectivity issue in a few seconds, instructional time for the student is maximized. If a teacher cannot resolve the issue through quick fixes in the class, she or the student will open a Support Ticket. IT Administrators use osTicket to track teacher and student requests across the five buildings and three campuses that make up Franklin Academy grades K-12. osTicket is free and open source, but requires knowledge of php and MySQL to install and maintain.

Replacement



Regardless of the scale of the iPad initiative, you will have to replace one at some point. While there are enterprise-level support solutions offered, our preference has been to make trips to the local Apple Genius Bar. All that is required is an online reservation be made in advance for each device, and quick, in-person support means that damaged or malfunctioning iPads can be replaced same-day.

Our *Guide for Genius Bar Trips* is helpful for making the most of your trip to a local Apple Store Genius Bar.

Replacing a damaged iPad usually follows this process:

- The student assigned iPad #30 reports a damage incident.
- An IT Admin tags Unassigned iPad #88 to match student's schedule in the MDM, and installs class-specific apps.
- The IT Admin meets with the student, assists in verifying information is synced to iCloud, then takes possession of damaged iPad #30 and issues #88. The Student signs into email and iCloud on #88. A *Student iPad Damage Incident* form is filled out and sent home with student notifying parents of damage and associated fees. iPads with broken glass are placed in a manila envelope to prevent injury.
- iPad Inventory is updated to add #30 to the Out of Service sheet and the Awaiting Service list, along with relevant info regarding the nature of the issue. #88 is removed from Unassigned list, and replaces #30 in the Student Assignments table entry for that student. Number of Damage incidents for that student is increased by 1 in the Master List.
- #30 is connected to Configurator and unsupervised to return all paid app codes to the database. For software issues, #30 can be tested in original factory settings to see if the issue persists. If it does not, it will be reconfigured and added to the Unassigned list.
- For hardware issues, the entry for #30 in the MDM is deleted, since that iPad will not be returning to service.
- Labels are printed for devices in the Awaiting Service list and applied to the manila envelopes.
- iPad is replaced at Apple Store Genius Bar.
- *iPad Inventory* is further updated, removing #30 from the Awaiting Service table and updating the Out Of Service table with transaction information (receipt number, cost, etc).
- A New entry is added to the Master List for the replacement iPad. The damage one is marked with an x and checked as Out of Service. The spreadsheet automatically moves OOS labeled iPads to the bottom of the list.

iPad #	Serial No.	APP+	Expires	OOS
x030	DAMAGED SN	2	4/7/15	<input checked="" type="checkbox"/>
030	REPLACEMENT SN	1	4/7/15	<input type="checkbox"/>

Collection



Students are allowed to individually have their iPad collected

On the final days of exams (for 5th-7th periods) Crates are placed in each classroom along with a roster to collect iPads. Each crate contains a ziplock bag with each student's name on it to collect the charger and USB cable. Students sign their name on the roster to acknowledge they have turned in their iPad and charger and are aware fees will be assessed for any damaged equipment.

Collection is recorded in Inventory.

Each iPad is reconnected to Configurator, Unsupervised, and then Supervised again, beginning the Configuration process from page 9. This returns paid app codes back into the VPP list, erases all content and settings, and reinstalls updated versions of iOS and the standard set of apps.

Meanwhile, the MDM entry for the iPad is updated to remove student name (in the notes field) and all tags. The MDM will not be able to provide updated reports for that iPad until it goes through Enrollment again.

At this point, the iPad is ready to start over with Configuration, Enrollment, Assignment, and Scheduling. Once all iPads have been recollected, the *iPad Inventory* document is saved with the school year in the title as an archive, and a new copy is created for the next year.

Further Reading & Resources

[Find your local Genius Bar](#)

[Apple Education Resources](#)

[Meraki Systems Manager](#)

[Technical Requirements for NCTest v3 \(Online standardized testing in North Carolina\)](#)

A few of our Starting Answers

Policy & Procedure

How will we protect our investment? (*AppleCare+, protective cases*)

How many extra iPads do we need to have on hand as replacements? (*5-10*)

What financial responsibility will students have for damaged iPads?

Initial \$25 usage fee. \$50 fee for first damage incident, +\$50 for each

How will we define acceptable and unacceptable use?

See franklinacademy.org/forms for Terms of Use agreements

Logistics

Where will we store iPads when they are not in use? *Paper sorter in IT Office*

Should we use Configurator at all, alone, or in conjunction with an MDM?

In Conjunction with an MDM

Which Configurator deployment scenario works best for us, Prepared, Supervised, or Assigned? *Supervised*

How will we budget for paid apps? *Teachers consider this in curriculum budget*

How will we keep track of inventory?

iPad Inventory document shared via Dropbox among IT staff

If you found this guide helpful, please let us know! email chaneym@franklinacademy.org with info on how we helped start or improve your initiative.