Student Checkout Devices

Marriott Library Student Checkout Program IT Details

Hardware

Device Quantities & Specifications

Hardware

Device Quantities & Specifications

- Windows Laptops & Peripherals

Hardware

Device Quantities & Specifications

- Windows Laptops & Peripherals

Make	Model
Lenovo	ThinkPad T14s Gen 1
Lenovo	ThinkPad P52
Lenovo	ThinkPad P51
Lenovo	ThinkPad T480
Lenovo	ThinkPad T460
Lenovo	ThinkPad T450

744	TOTAL

Hardware

Device Quantities & Specifications

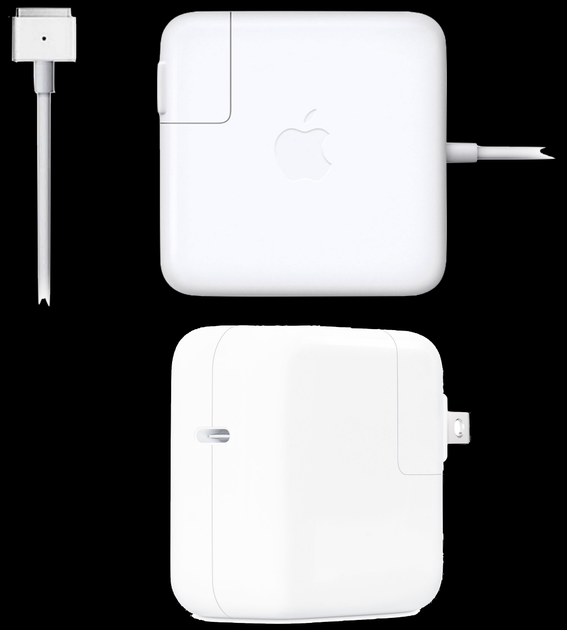
- Windows Laptops & Peripherals

Specifications
Lenovo ThinkPad T14s Gen 1 Storage: 512 GB SSD Memory: 16GB DDR4 3200MHz Onboard Processor: Intel Core i5 10210U Display: 14.0 FHD(1920x1080) IPS Anti-Glare

Hardware

Device Quantities & Specifications

- macOS Laptops & Peripherals



Hardware

Device Quantities & Specifications

- macOS Laptops & Peripherals

Make	Model
Apple	MacBook Pro (13-inch, M1, 2020)
Apple	13-inch MacBook Pro (2020, Two Thunderbolt 3 ports)
Apple	13-inch MacBook Pro (2019, Two Thunderbolt 3 ports)
Apple	13-inch Retina MacBook Pro (Mid 2017)
Apple	13-inch MacBook Pro (Early 2015)

630	TOTAL

Hardware

Device Quantities & Specifications

- macOS Laptops & Peripherals

Specifications
MacBook Pro (13-inch, M1, 2020) Storage: 256 GB SSD Memory: 8GB DDR4 3200MHz Onboard Processor: M1 8-core CPU Display: 13.3-inch (diagonal) LED-backlit display

Hardware

Device Quantities & Specifications

- iOS Devices & Peripherals

Hardware

Device Quantities & Specifications

- iOS Devices

Make	Model
Apple	iPad Pro (11-inch Wi-Fi) (2nd Generation)
Apple	iPad Pro 11-inch (1st generation)
Apple	iPad 6th Generation (Wi-Fi)

100	TOTAL

Hardware

Device Quantities & Specifications

- iOS Devices Specifications

Specifications
iPad Pro 11-inch (2nd generation) Storage: 128 GB Processor: A12Z Bionic chip with 64-bit architecture Display: 11-inch (diagonal) LED-backlit Ports: USB-C https://support.apple.com/kb/SP814?viewlocale=en_US&locale=en_US

Hardware

Device Quantities & Specifications

- iOS Peripherals

Quantity	Make	Model
10	Apple	Magic Keyboard for 11-inch iPad Pro (2nd generation)
70	Logitech	Slim Folio Pro Keyboard Case for iPad Pro 11-inch
6	Apple	Smart Keyboard Folio for 11-inch iPad Pro
80	Apple	Apple Pencil (2nd Generation)
6	Apple	Apple Pencil (1st Generation)

Hardware

Device Quantities & Specifications

- iOS Peripherals Specifications

Specifications
Magic Keyboard for 11-inch iPad Pro (2nd generation)
https://support.apple.com/kb/SP814?viewlocale=en_US&locale=en_US

Hardware

Device Quantities & Specifications

- iOS Peripherals Specifications

Specifications
Slim Folio Pro Keyboard Case for iPad Pro 11-inch https://www.logitech.com/en-us/products/ipad-keyboards/slim-folio-pro.html

Hardware

Device Quantities & Specifications

- Google Chrome Devices & Peripherals

Hardware

Device Quantities & Specifications

- Google Chrome Devices & Peripherals

Make	Model
Acer	Chromebook 14 CB3-431-C99D
Acer	Chromebook 13 C810-T9CA

12	TOTAL

Inventory

Inventory Process & Details

Inventory

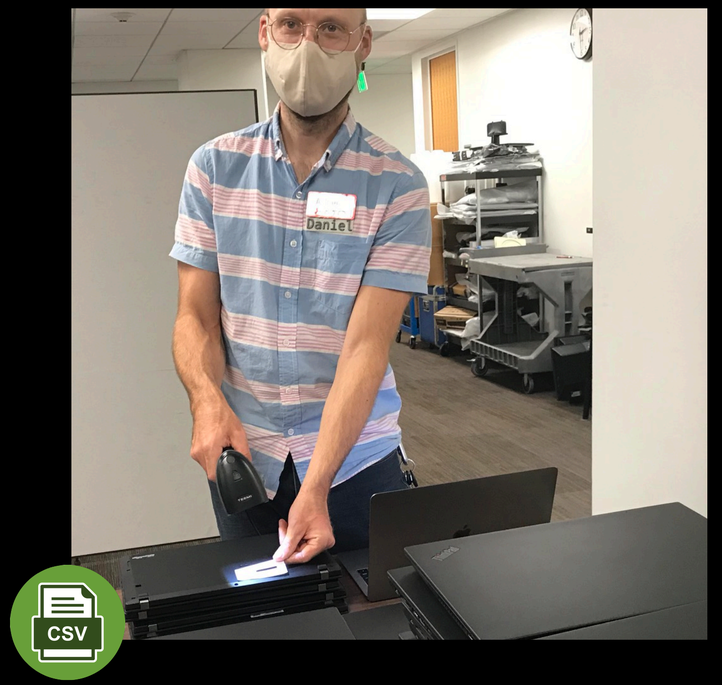
Inventory Process & Details

- Inventory Tags
  - Physically Attach Inventory Tags to each Device
    - Device Name
    - U of U Property
    - Library
    - CARES Act

Inventory

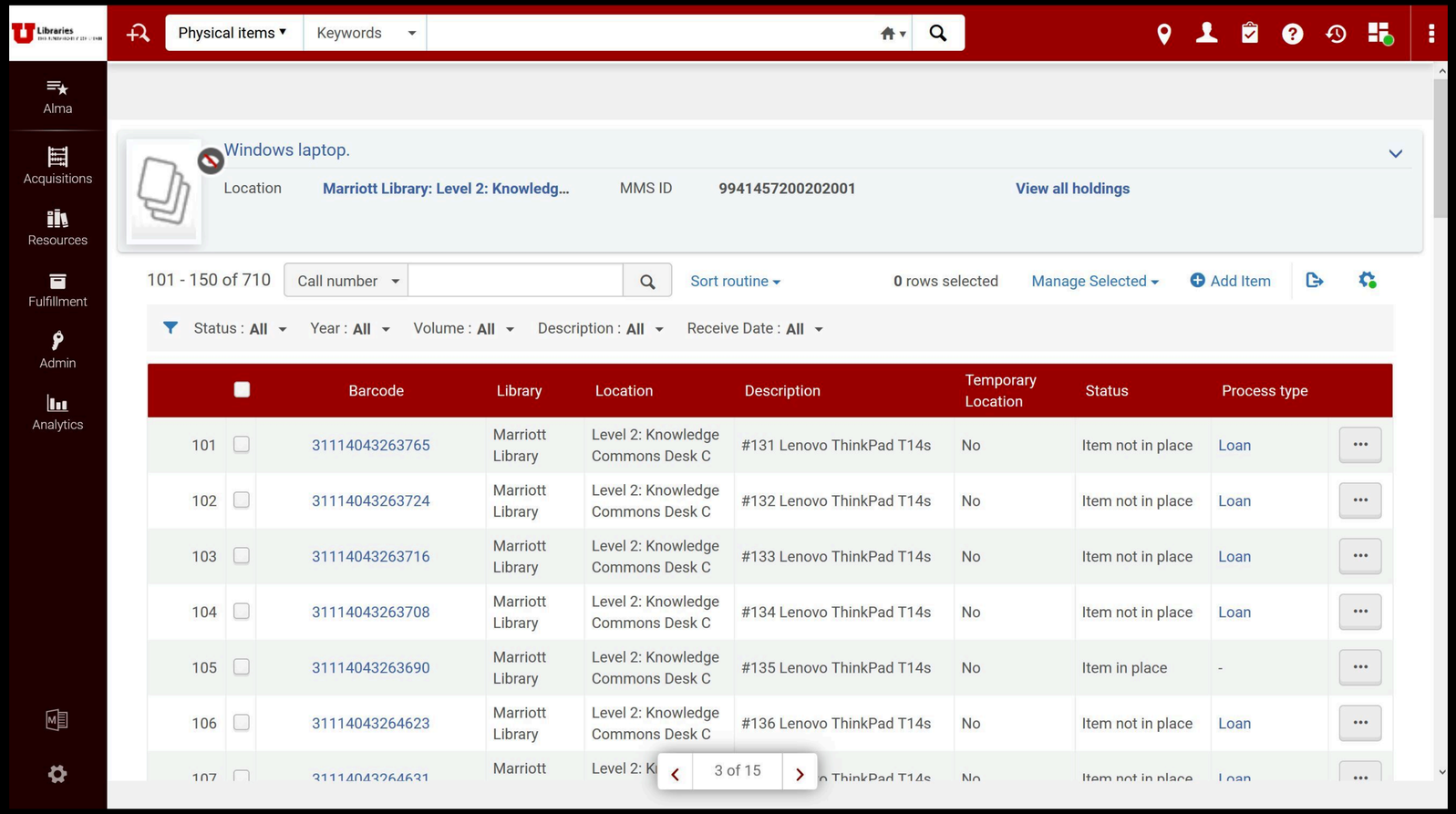
Inventory Process & Details

- Batch Input
  - Input & Scan Tags into Excel Spreadsheets
  - Added to “Alma” Library Services Platform
    - Used to implement library checkout of devices
    - Large Batches of Devices Added via CSV File
    - Smaller Batches Manually Added



Inventory

Inventory Process & Details



J. Willard Marriott Library
THE UNIVERSITY OF UTAH

Inventory

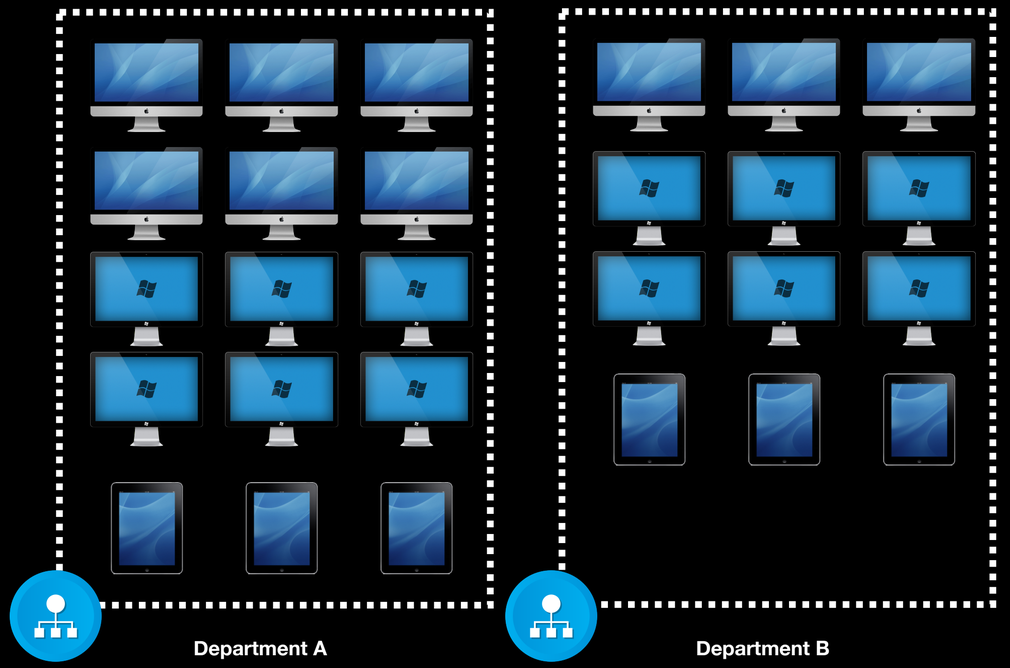
Inventory Process & Details

- Asset Management
  - Use Jamf Pro for Device Hardware Inventory
  - Implemented it Prior to Microsoft Endpoint Configuration Manager (aka SCCM)
  - Supports macOS, Windows, iOS, iPadOS Devices

Inventory

Inventory Process & Details

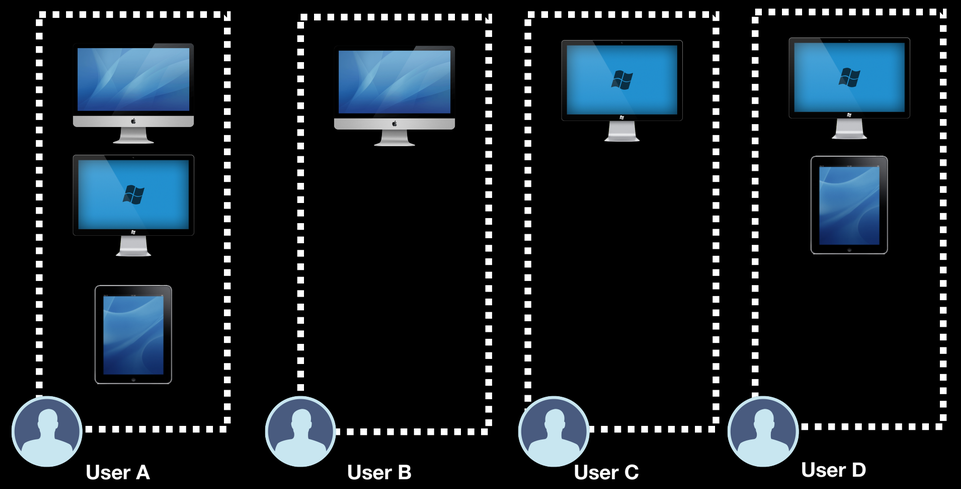
- Provides overview organizational client landscape
  - Number of Devices per Department/Group



Inventory

Inventory Process & Details

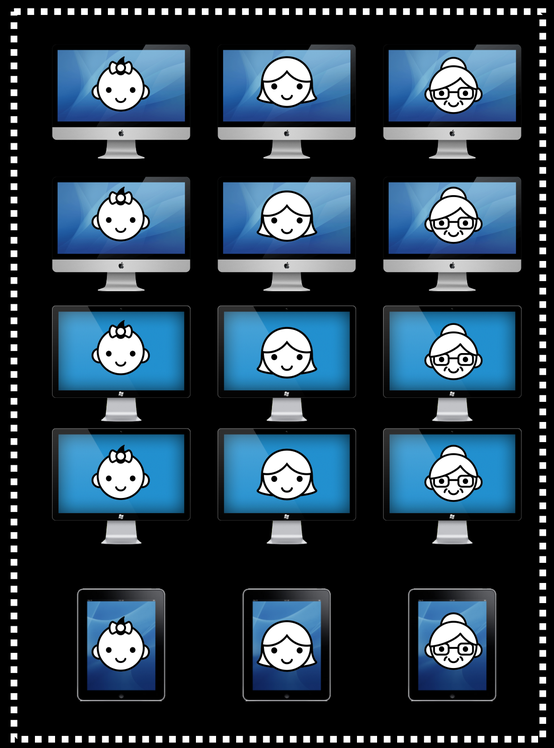
- Provides overview rganizational client landscape
  - Number of Devies per Department/Group
  - Number of Devices per User



Inventory

Inventory Process & Details

- Provides overview organizational client landscape
  - Number of Devies per Department/Group
  - Number of Devices per User
  - Estimate of Device Age
    Programmatically Calculated & Updated



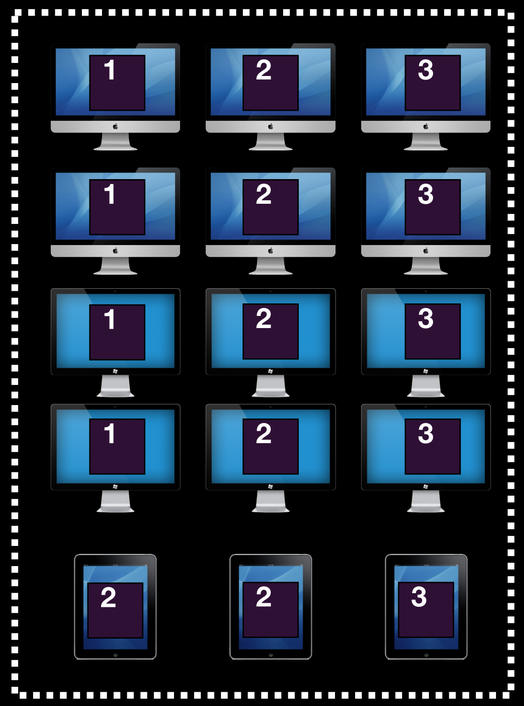
Age - New to Old

https://github.com/univ-of-utah-marriott-library-apple/scl_jamf_extension_attribute_collection#estimated-age

Inventory

Inventory Process & Details

- Provides overview organizational client landscape
  - Number of Devies per Department/Group
  - Number of Devices per User
  - Estimate of Device Age
    Programmatically Calculated & Updated
  - Device Usage/Priority
    Primary, secondary, service, etc

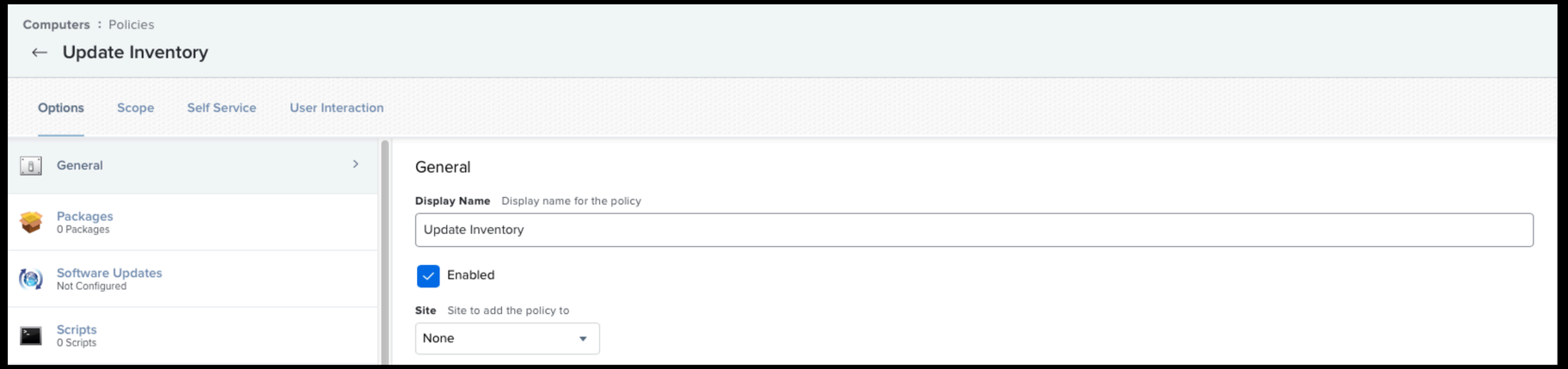


Usage & Priority

Inventory

Inventory Process & Details - Initial & Schedule Update

- Initial Inventory Records on “Jamf Pro” Server via Onboarding
    - During Onboarding Process Initial Inventory Built with Device Enrollment
    - Apple Devices use Jamf Pro’s Update Inventory Policy

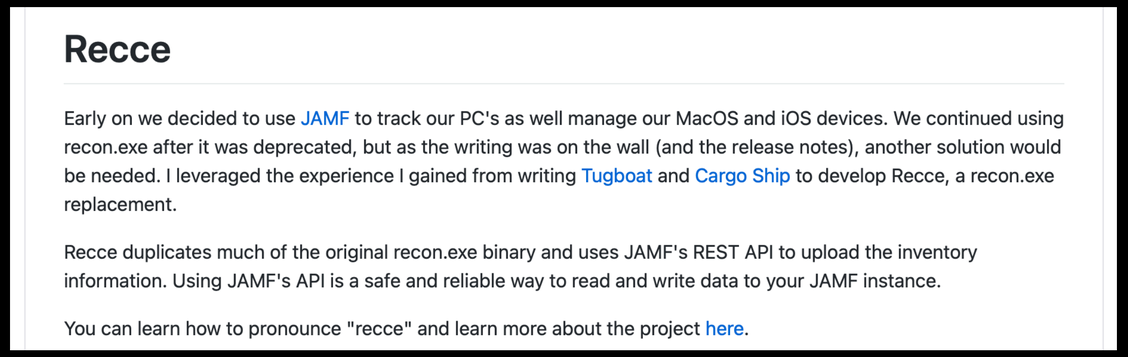


Inventory

Inventory Process & Details - Initial & Schedule Update

- Initial Inventory Records on “Jamf Pro” Server via Onboarding
  - On Windows Devices we Developed a Python Script called Recce
  - Its open source and available from our GitHub Repository here:

    https://github.com/univ-of-utah-marriott-library-apple/recce



Recce

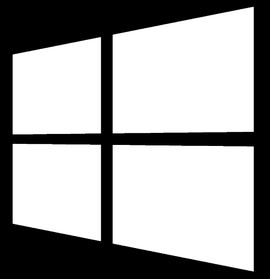
Early on we decided to use JAMF to track our PC's as well manage our MacOS and iOS devices. We continued using recon.exe after it was deprecated, but as the writing was on the wall (and the release notes), another solution would be needed. I leveraged the experience I gained from writing Tugboat and Cargo Ship to develop Recce, a recon.exe replacement.

Recce duplicates much of the original recon.exe binary and uses JAMF's REST API to upload the inventory information. Using JAMF's API is a safe and reliable way to read and write data to your JAMF instance.

You can learn how to pronounce "recce" and learn more about the project here.

Inventory

Inventory Process & Details



- Recce uses Jamf Classic API to Upload Inventory Information
  - Version 1.0 does not support:
    - Applications
    - Users
    - Fonts
  - Compiled Version can be used like any Other Binary
    - Part of a schedule job
    - Windows GUI as Launch-able Application

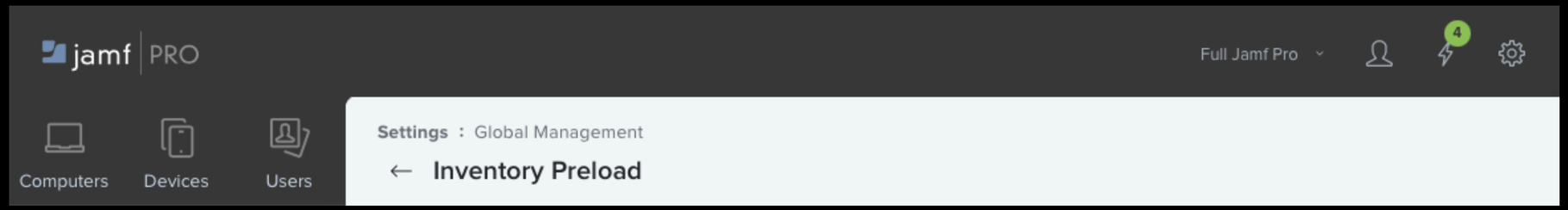
Windows 7

Windows10

Inventory

Inventory Process & Details

- Batch Update Records on “Jamf Pro” Server via CSV File
  - Apple Devices use Jamf Pro’s Inventory Preload Option



  - Need a Jamf Pro user account with privileges for Inventory Preload Records

Inventory

Inventory Process & Details

- Batch Update Records on “Jamf Pro” Server via CSV File
  - Windows Devices use our auto-tugboat python script
  - Interacts with Jamf Pro using Classic API & Updates Hardware Records

```
#!/usr/bin/python

# insert imports
import csv
import socket
import urllib2
import xml.etree.cElementTree as ET
import base64
import json
import subprocess
import pexpect
import MySQLdb
import re
import datetime
import time
import string

class Computer:
    def __init__(self, id):
        self.identifier = id
```

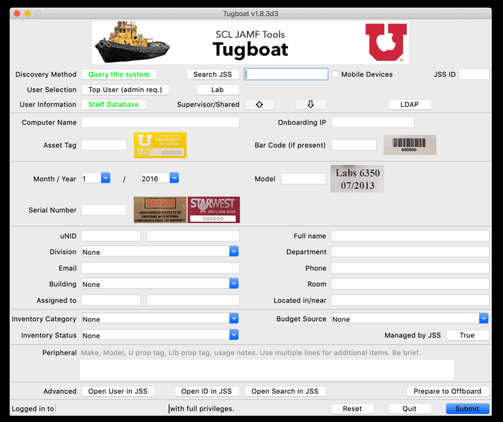
Inventory

Inventory Process & Details

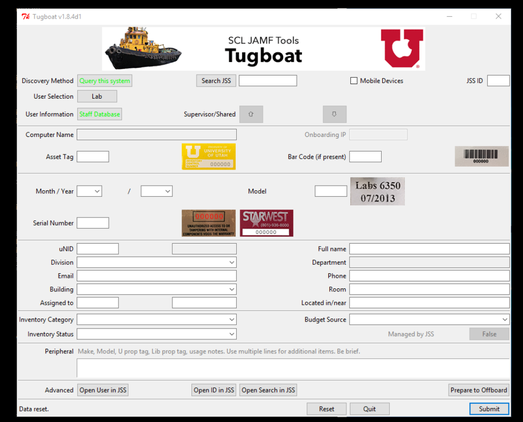
- Modify & Add Additional Data to Hardware Inventory
  - This is a cross-platform python application for inventory audits & updates
  - Uses tkinter to provide GUI front-end for python

Tugboat

Jamf Server Login



macOS Version



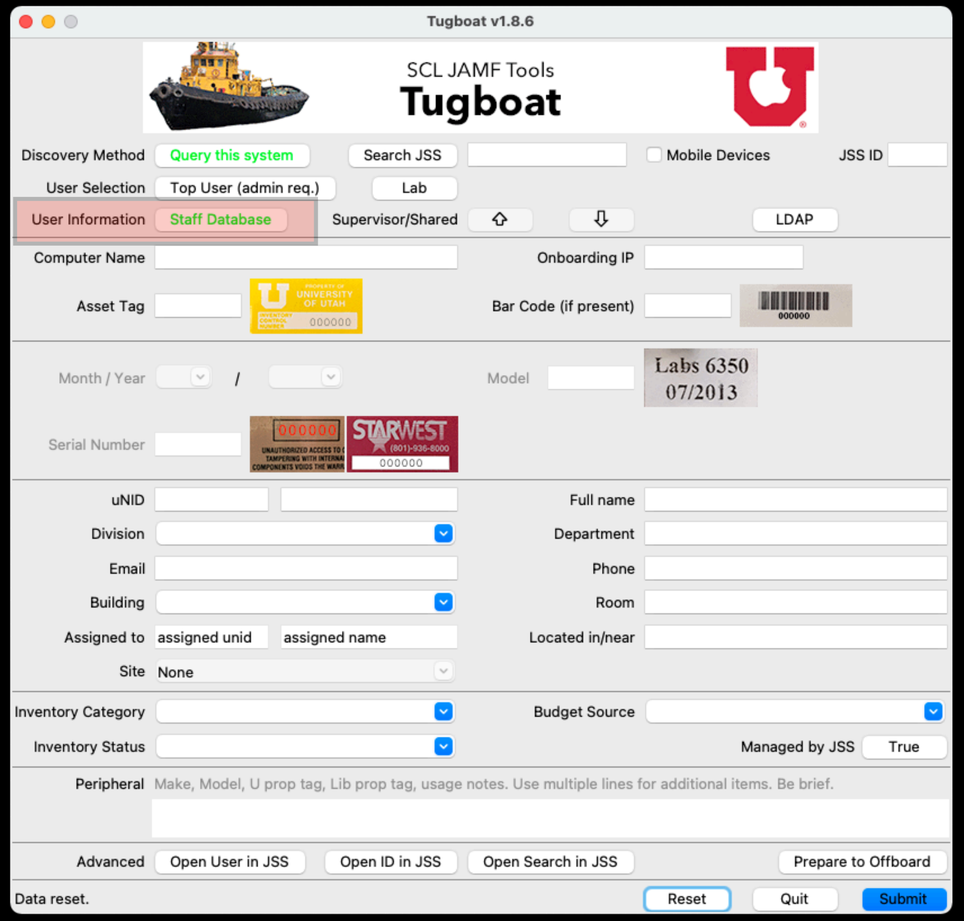
Windows Version

J. Willard Marriott Library
THE UNIVERSITY OF UTAH

Inventory

Inventory Process & Details

Lookup Staff Info
Using
Marriott Library
Internal Staff Database

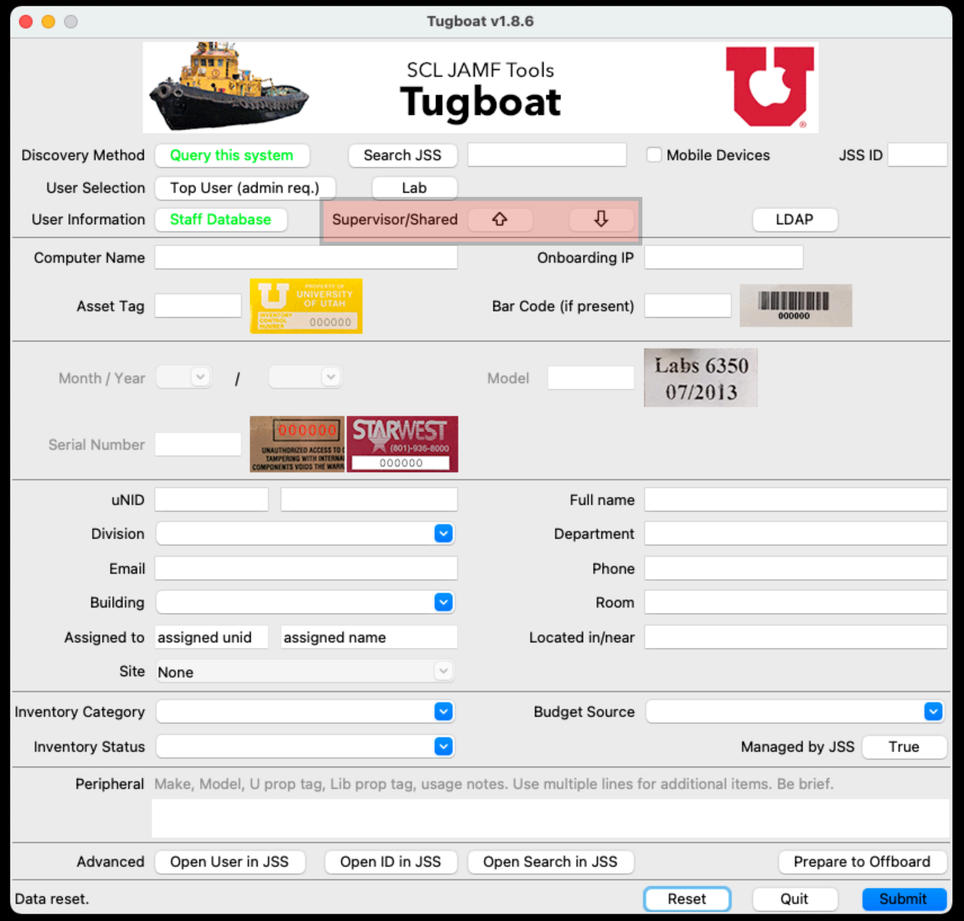


J. Willard Marriott Library
THE UNIVERSITY OF UTAH

Inventory

Inventory Process & Details

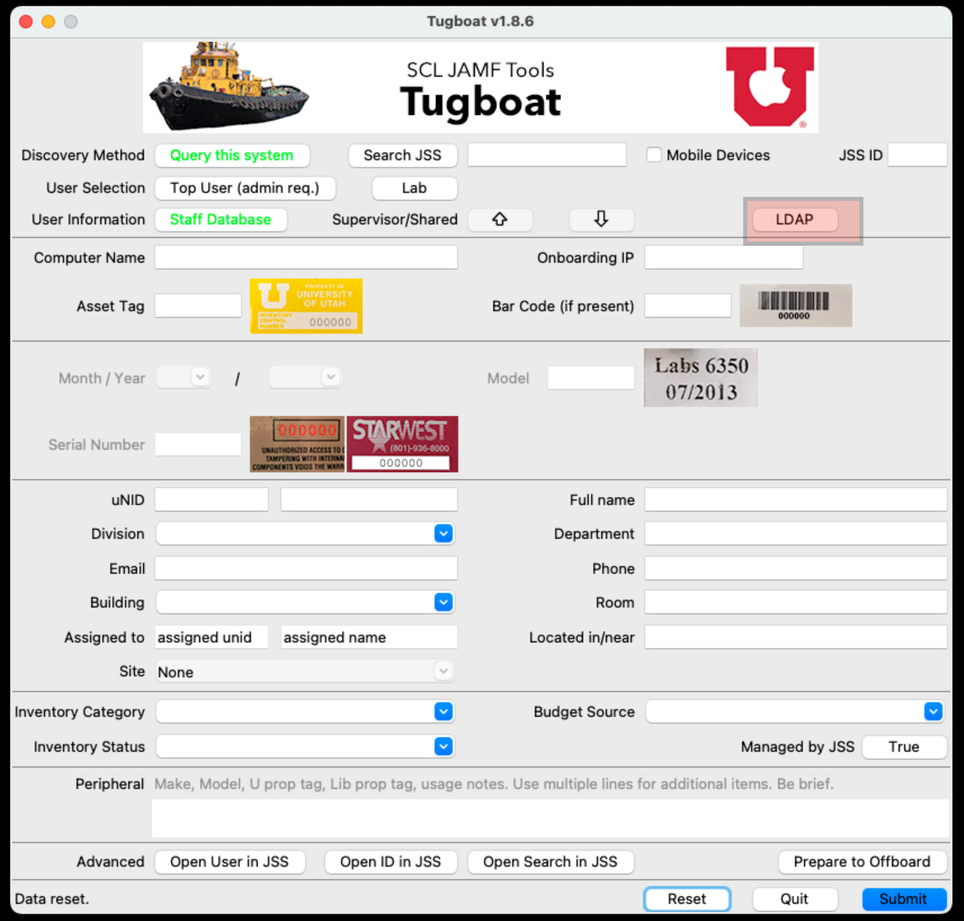
Navigate Up or Down Organizational Structure



Inventory

Inventory Process & Details

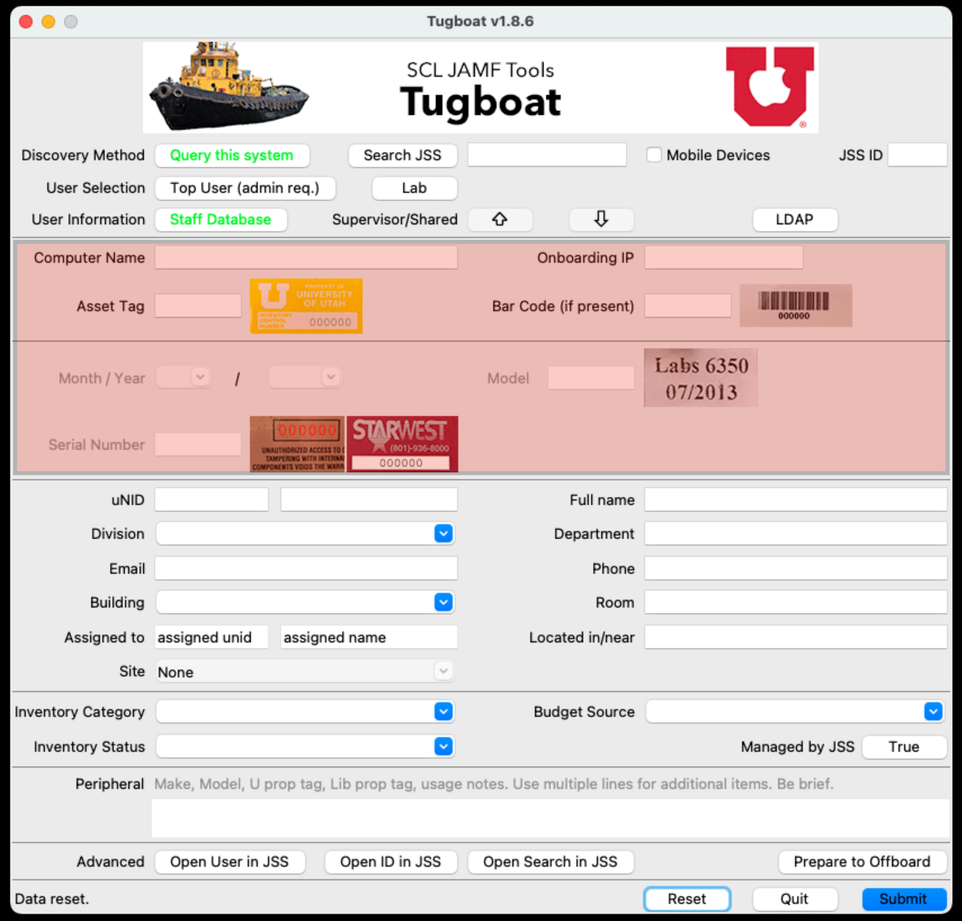
Lookup User Info
Using
Campus LDAP



Inventory

Inventory Process & Details

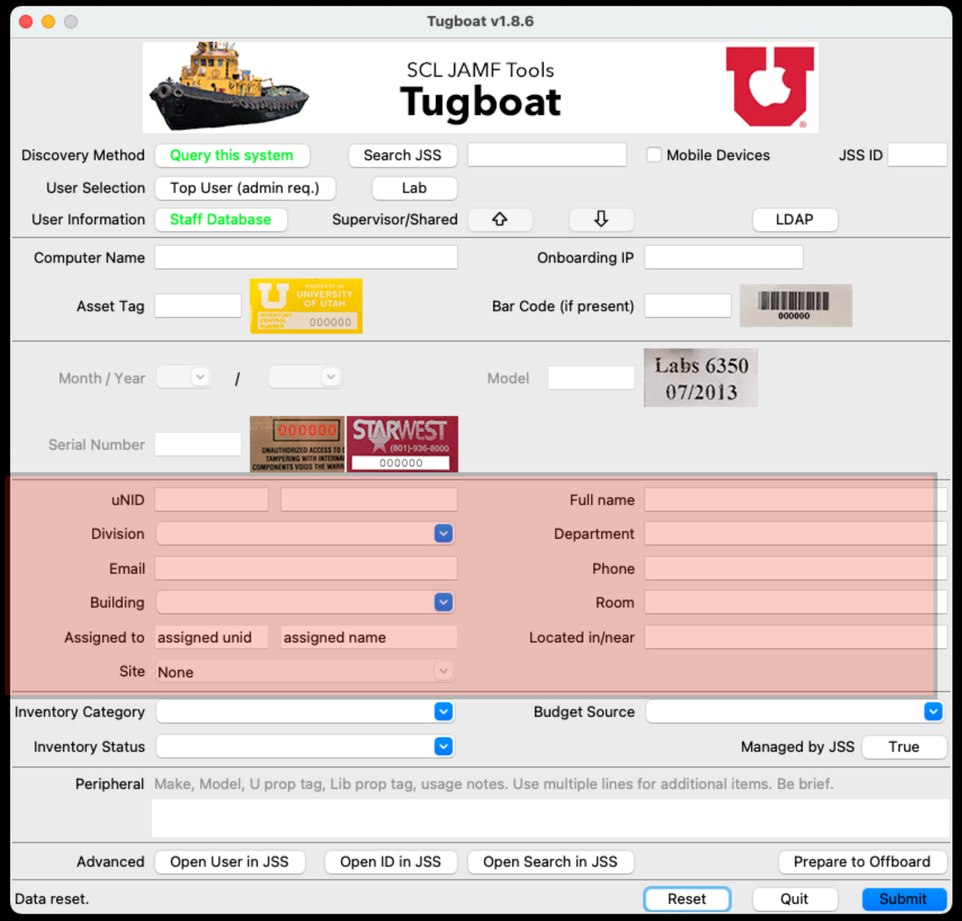
Device Name & Tag Info



Inventory

Inventory Process & Details

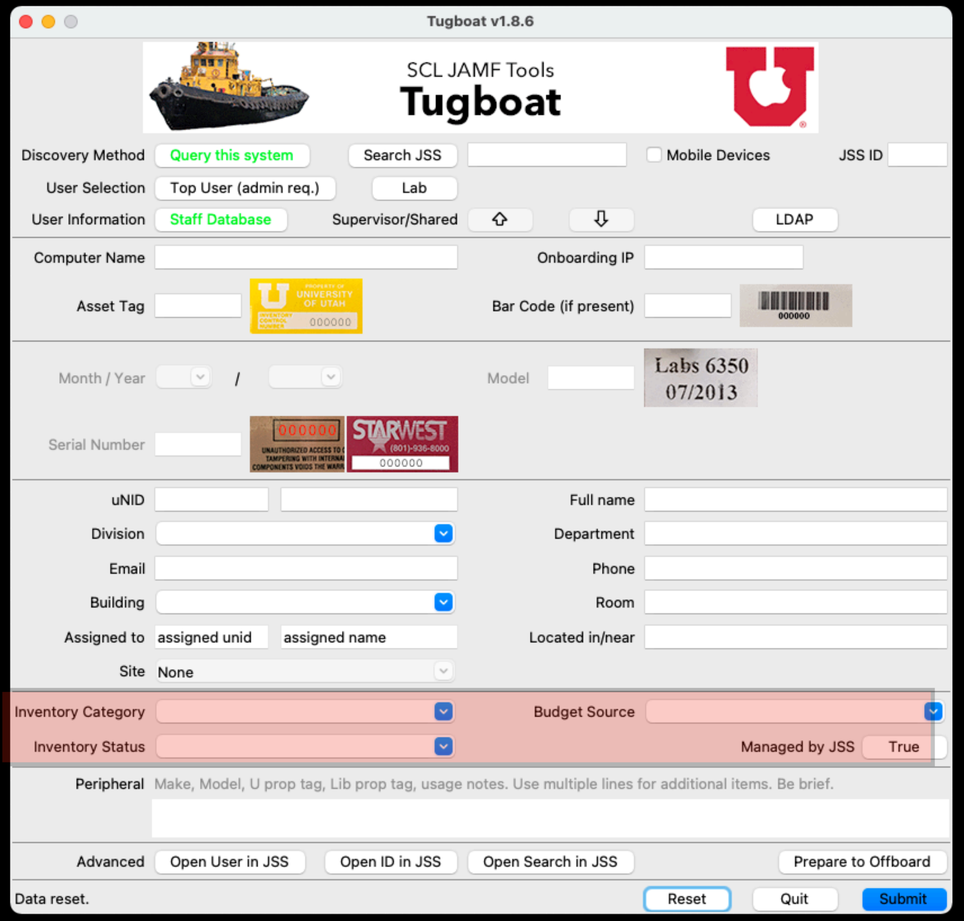
Device User Info



Inventory

Inventory Process & Details

Inventory Assignments



Inventory Category

- None
- Primary System
- Secondary System
- Service System
- Shared/Part-Time System
- Supplementary

Inventory Status

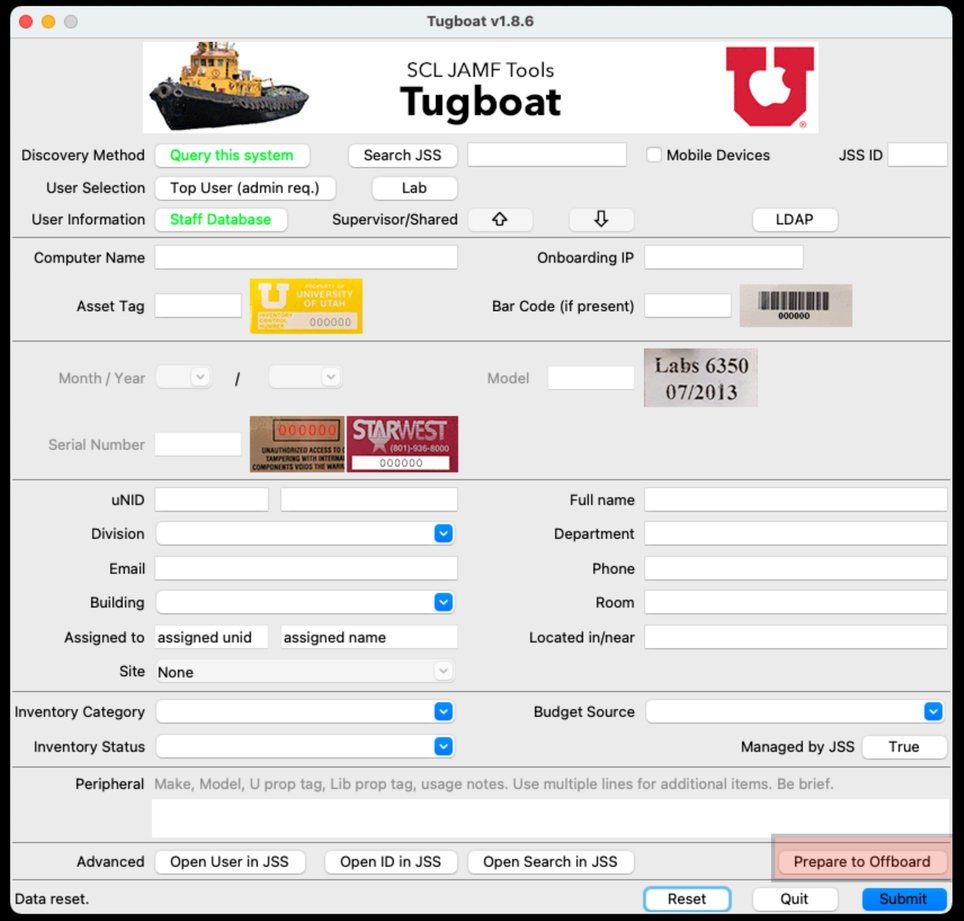
- None
- Acknowledged Offline
- Current
- Departmental Transfer
- Development
- Guinea Pig
- Missing
- Salvage
- Staged
- Storage

Inventory Budget Source

- None
- External (Grant, etc)
- Labs
- Local (Departmental, etc)
- Staff

Inventory

Inventory Process & Details



Offboard Device

Onboarding

Onboarding Process & Details

J. Willard Marriott Library
THE UNIVERSITY OF UTAH

Onboarding

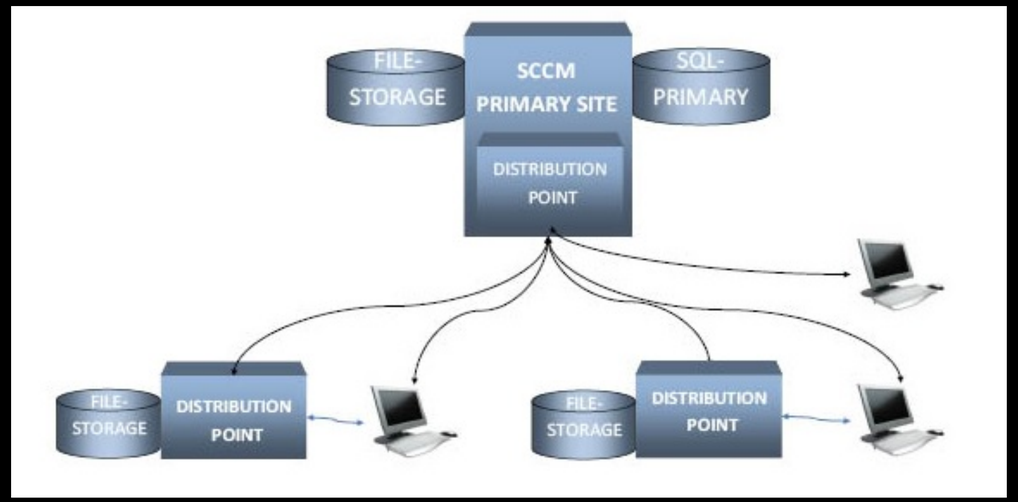
Onboarding Process & Details - Windows Laptops

J. Willard Marriott Library
THE UNIVERSITY OF UTAH

Onboarding

Onboarding Process & Details - Windows Laptops

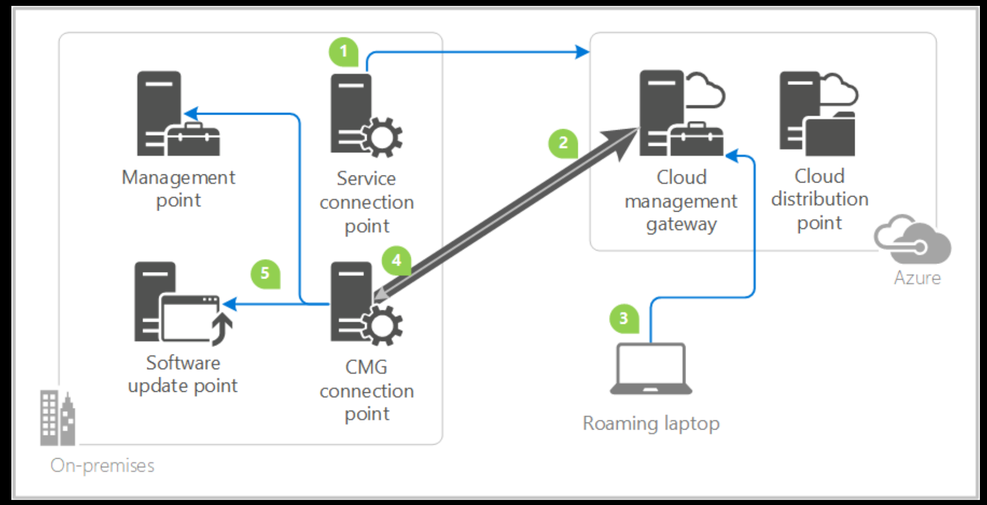
- Notable Components
  - Microsoft Endpoint Configuration Manager (formerly SCCM)
    - Primary Site Server, Management Point(s) and Distribution Point
    - Software Update Point Role - WSUS (backend)
    - OS Deployment Role - WDS (backend)
    - Other Components
      - Reporting, inventory, etc.



Onboarding

Onboarding Process & Details - Windows Laptops

- Notable Components
  - Cloud Management Gateway
    - To address, security concerns with making on premise SCCM Available Off-Campus
    - Token Based Authentication
    - Setup a Cloud Management Gateway in Azure
    - Worked with UIT, to setup and support the service



Onboarding

Onboarding Process & Details - Windows Workflow

Windows Laptop

Onboarding

Onboarding Process & Details - Windows Workflow

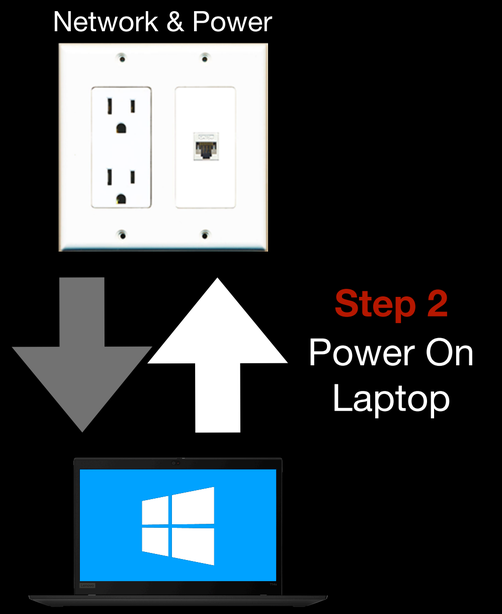
Network & Power

Step 1

Connect Ethernet
& Power

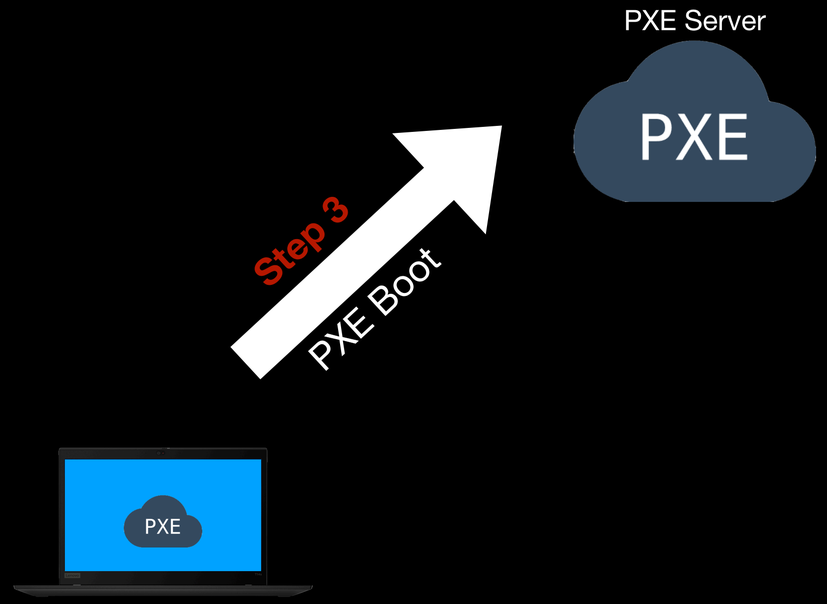
Onboarding

Onboarding Process & Details - Windows Workflow



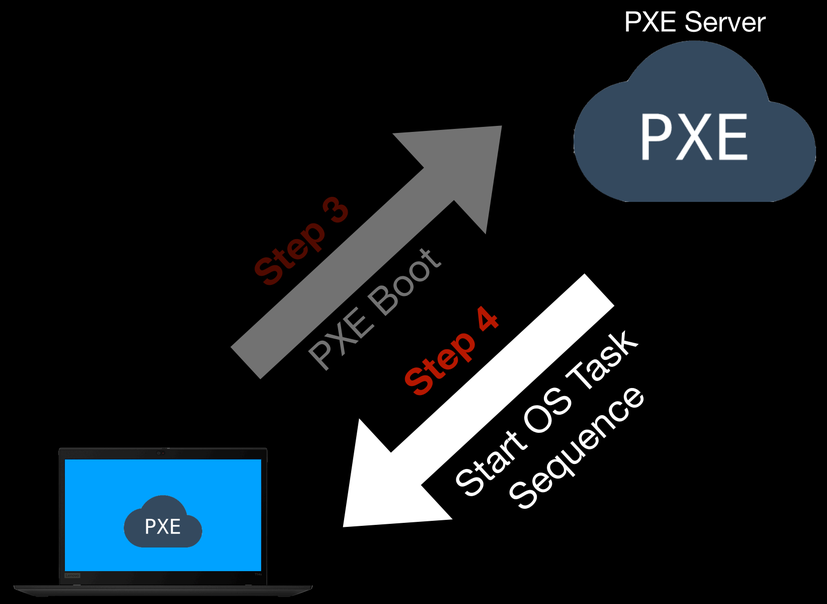
Onboarding

Onboarding Process & Details - Windows Workflow



Onboarding

Onboarding Process & Details - Windows Workflow



Onboarding

Onboarding Process & Details - Windows Workflow

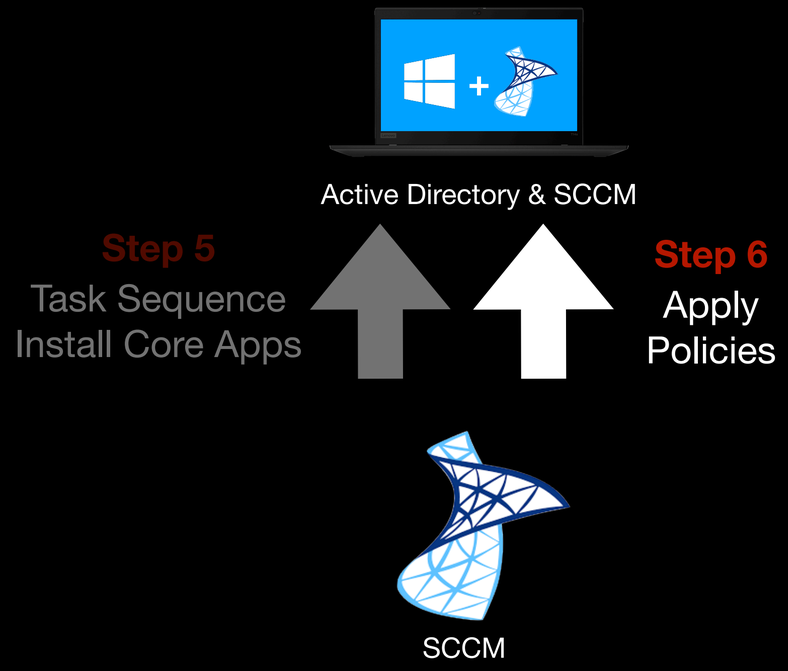
Step 5

Task Sequence
Install Core Apps

SCCM

Onboarding

Onboarding Process & Details - Windows Workflow



Onboarding

Onboarding Process & Details - Windows Workflow

Cloud Management Gateway

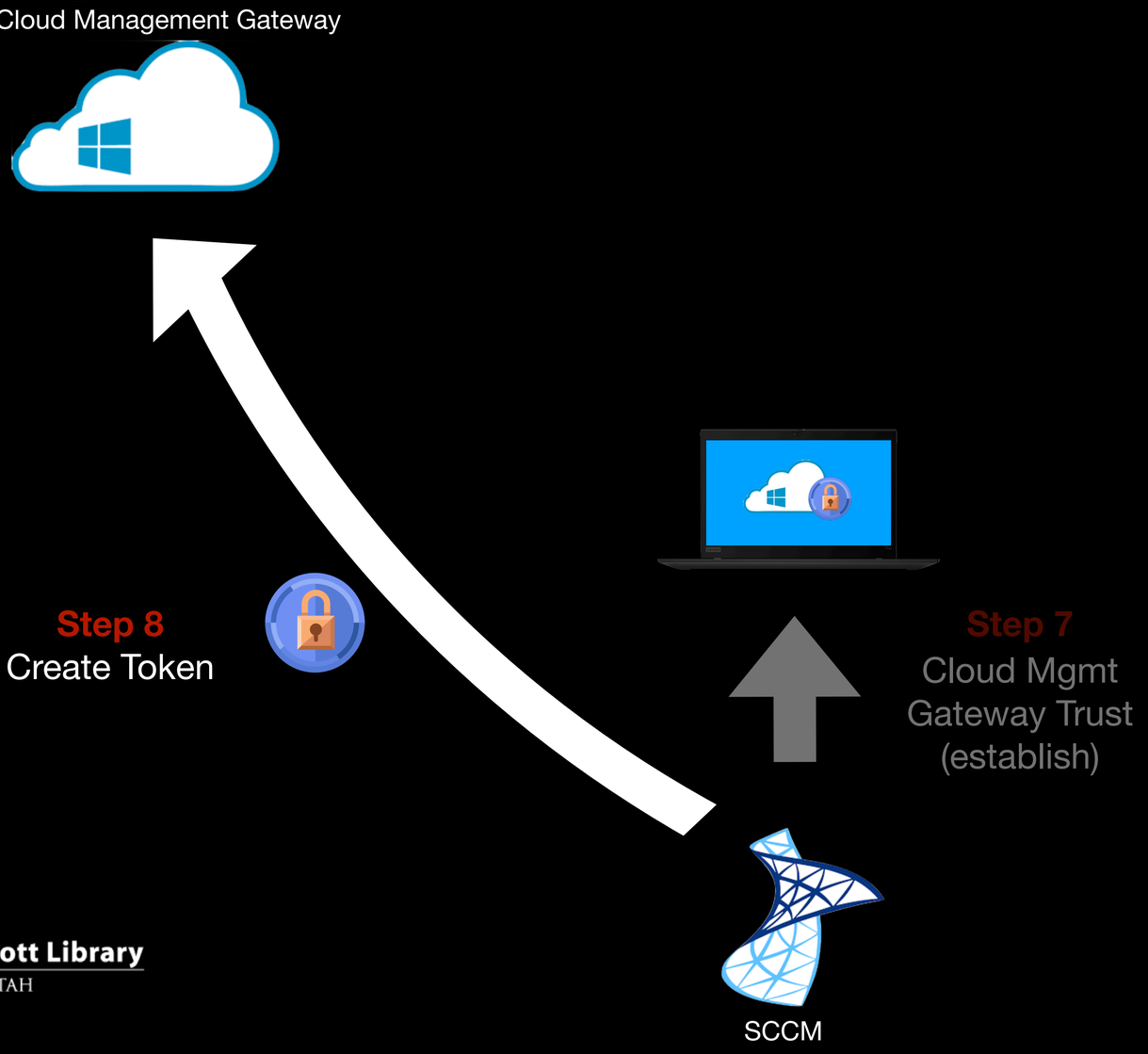
Step 7

Cloud Mgmt
Gateway Trust
(establish)

SCCM

Onboarding

Onboarding Process & Details - Windows Workflow



Onboarding

Onboarding Process & Details - Windows Workflow

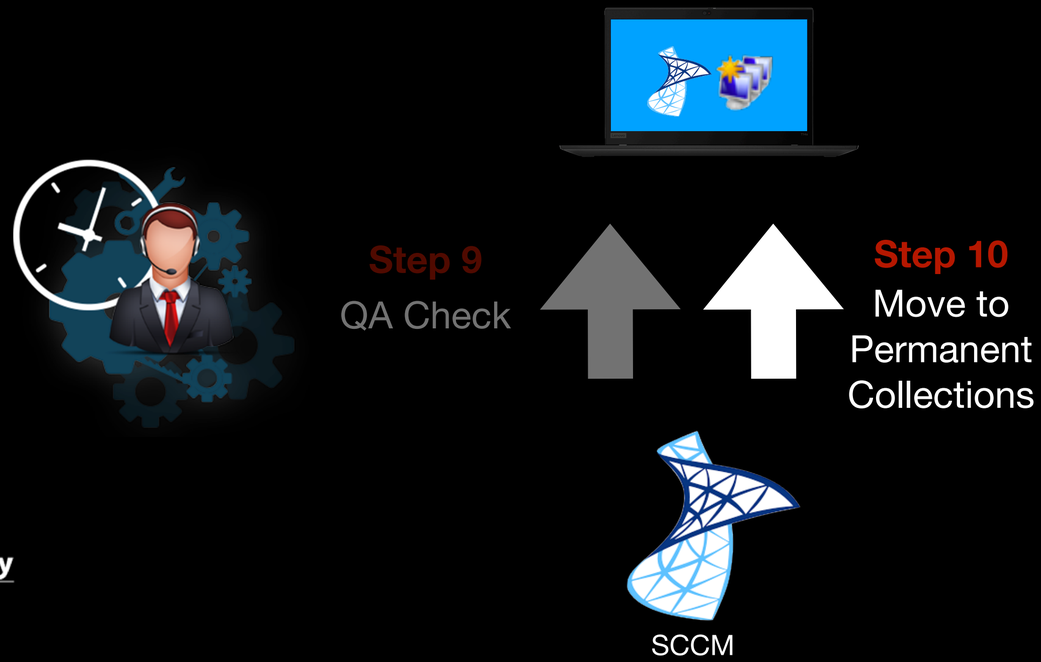
Step 9

QA Check

SCCM

Onboarding

Onboarding Process & Details - Windows Workflow



Onboarding

Onboarding Process & Details - Windows Workflow

AnyConnect at Login Window

Step 11

Final Checks

SCCM

J. Willard Marriott Library
THE UNIVERSITY OF UTAH

Onboarding

Onboarding Process & Details - Windows Workflow

Onboarding Completed

Onboarding

Onboarding Process & Details - macOS Laptops

Onboarding

Onboarding Process & Details - macOS Laptops

- Notable Components
  - Apple School Manager
    - Web Portal to Deploy Apple Devices, Apps & Books
    - Enroll Devices in your mobile device management (MDM)
    - Assign Devices to a MDM server for Automated Device Enrollment
    - Contact the Office of Software Licensing to create an account on ASM

Onboarding

Onboarding Process & Details - macOS Laptops

- Notable Components
  - Apple Notification Service (APNs)
    - Push notifications are small packages of data with instructions for a device
    - APNs is required for secure delivery of configuration profiles
    - You must permit outbid connection to Apple
    - Apple does not make inboard connections.

Onboarding

Onboarding Process & Details - macOS Laptops

- Notable Components
  - APNs Hosts & Ports

Function	Server Address : Port
Sending Notifications	**gateway**.push.apple.com : **2195**
Receiving Feedback	**feedback**.push.apple.com : **2196**
Initialization (Devices)	**init-p01st**.push.apple.com : **80**
Notifications (Devices)	##-**courier**.push.apple.com : **5223†**
New http/2 API	**api**.push.apple.com : **443**

† 443 is used as a fallback over Wi-Fi only. The protocol is HTTPS.

https://stream.lib.utah.edu/index.php?c=details&id=13303

Onboarding

Onboarding Process & Details - macOS Laptops

- Notable Components
  - Jamf Pro
    - A best of breed, Apple client management solution
    - Includes server (on premise or cloud) and client software
    - Manages & configures macOS, iOS, iPadOS & tvOS
    - Leverages Apple's native MDM Framework
    - Includes a Jamf Agent to execute system level tasks and installation

Onboarding

Onboarding Process & Details - macOS Laptops

- Notable Components
  - Jamf Pro

Onboarding

Onboarding Process & Details - macOS Laptop Workflow

macOS Laptop

Onboarding

Onboarding Process & Details - macOS Laptop Workflow

Network & Power

Step 1

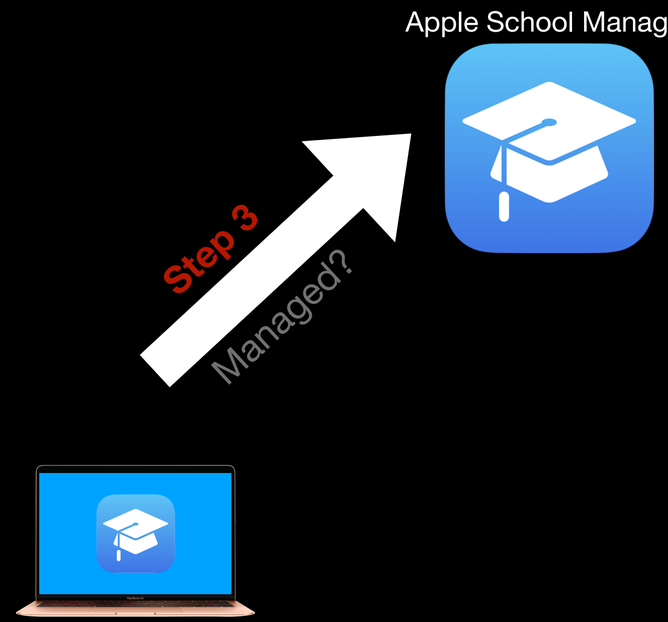
Connect Ethernet
& Power

Onboarding

Onboarding Process & Details - macOS Laptop Workflow

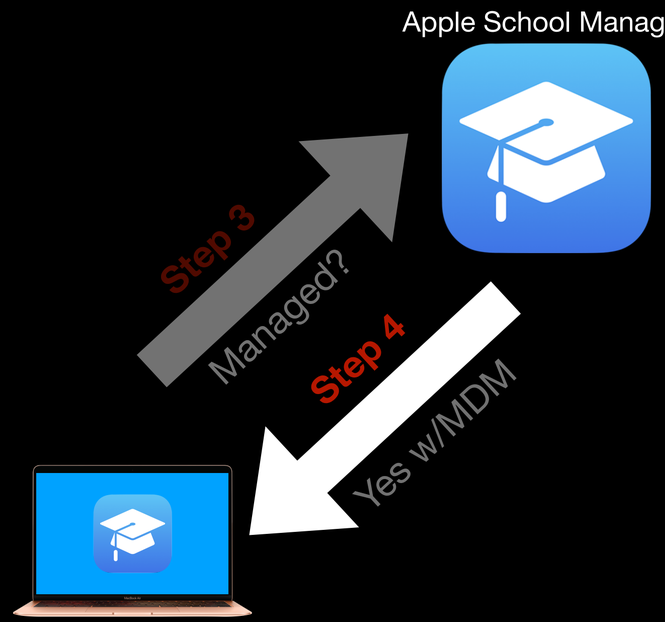
Onboarding

Onboarding Process & Details - macOS Laptop Workflow



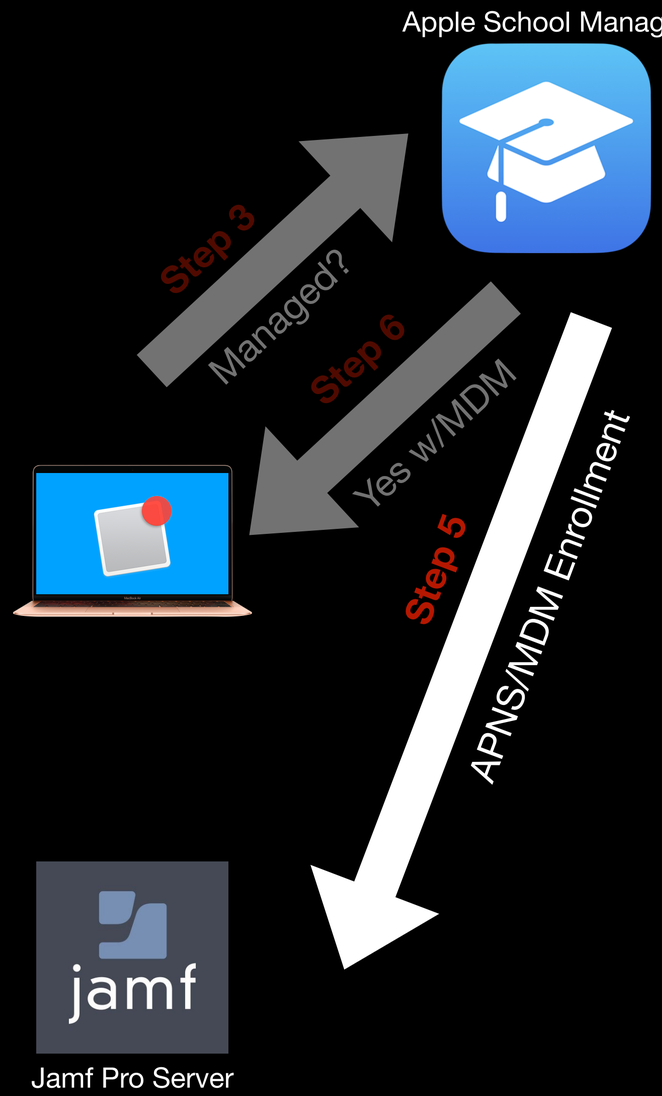
Onboarding

Onboarding Process & Details - macOS Laptop Workflow



Onboarding

Onboarding Process & Details - macOS Laptop Workflow



Onboarding

Onboarding Process & Details - macOS Laptop Workflow

Step 6

Automated Device Enrollment

jamf

Jamf Pro Server

J. Willard Marriott Library
THE UNIVERSITY OF UTAH

Onboarding

Onboarding Process & Details - macOS Laptop Workflow

UConnect

Step 6
Automated Device Enrollment

Step 7
Prestage, Profiles & WiFi

jamf

Jamf Pro Server

J. Willard Marriott Library
THE UNIVERSITY OF UTAH

Onboarding

Onboarding Process & Details - macOS Laptop Workflow

Step 8
Launch
DEPNotify

jamf

Jamf Pro Server

J. Willard Marriott Library
THE UNIVERSITY OF UTAH

Onboarding

Onboarding Process & Details - macOS Laptop Workflow

Step 9
Run Policies

Step 8
Launch
DEPNotify

jamf

Jamf Pro Server

J. Willard Marriott Library
THE UNIVERSITY OF UTAH

Onboarding

Onboarding Process & Details - macOS Laptop Workflow

Step 10
Automatic
Restart

Step 9
Run Policies

Step 8
Launch
DEPNotify

Jamf Pro Server

J. Willard Marriott Library
THE UNIVERSITY OF UTAH

Onboarding

Onboarding Process & Details - macOS Laptop Workflow

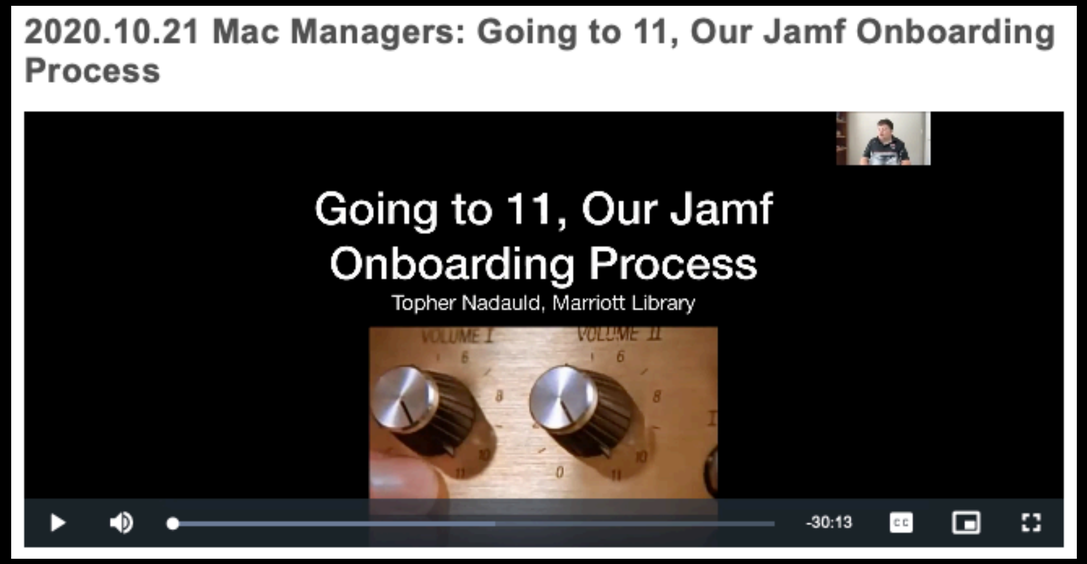
Onboarding Completed

J. Willard Marriott Library
THE UNIVERSITY OF UTAH

Onboarding

Onboarding Process & Details - In Depth Presentation

- In-depth macOS Laptop Onboarding Presentation & Documentation
  - Going to 11, Our Jamf Onboarding Process – By Topher Nadauld, Marriott Library



https://stream.lib.utah.edu/index.php?c=details&id=13384

Onboarding

Onboarding Process & Details - iPads

J. Willard Marriott Library
THE UNIVERSITY OF UTAH

Onboarding

Onboarding Process & Details - iPads

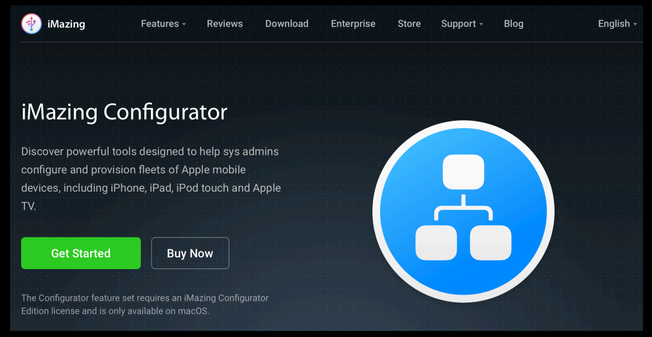
- Originally, we developed a python script called “AEiOS”
  - To implement “true” zero touch device management (attach cable)
  - Designed for our student checkout iPads with busy support staff
  - Integrates Apple Configurator, Apple School Manager (DEP, VPP & MDM)

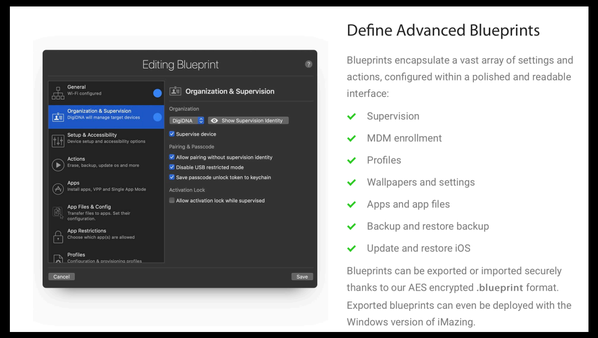
https://github.com/univ-of-utah-marriott-library-apple/aeios

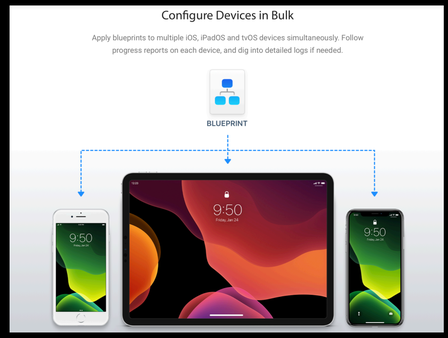
Onboarding

Onboarding Process & Details - iPads

- iPad Onboarding
  - Since it was Prone to Errors from Apple Configurator
  - Original Developer Left Group & Not Enough Bandwidth to Debug Issues
  - Migrated to a commercial solution named iMazing Configurator





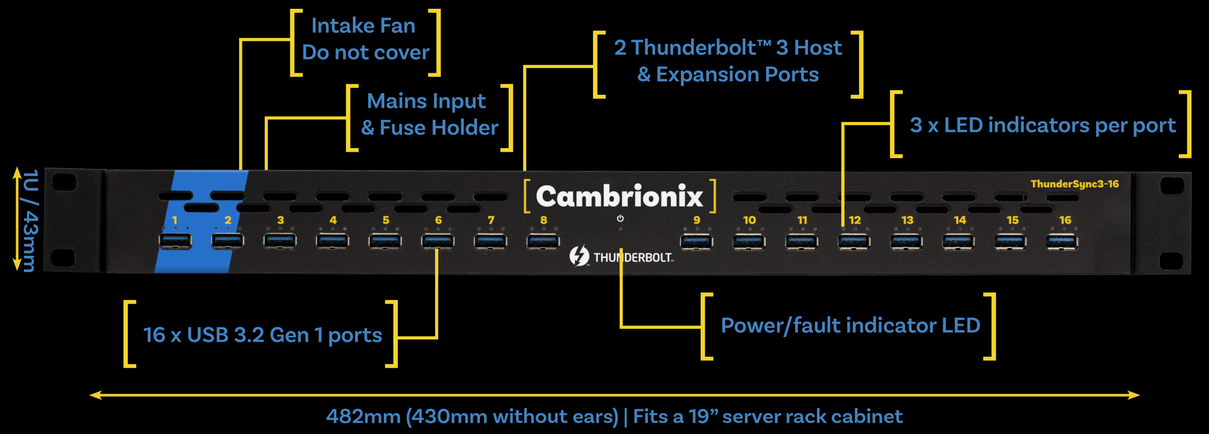


J. Willard Marriott Library
THE UNIVERSITY OF UTAH

Onboarding

Onboarding Process & Details - iPad Hardware

- iPads
- Mac mini or iMac
- Cambrionix - ThunderSync3-16
  High performance USB Hub
  Supports Charging Downstream Port (CDP)



Onboarding

Onboarding Process & Details - iPad Hardware Example

Onboarding

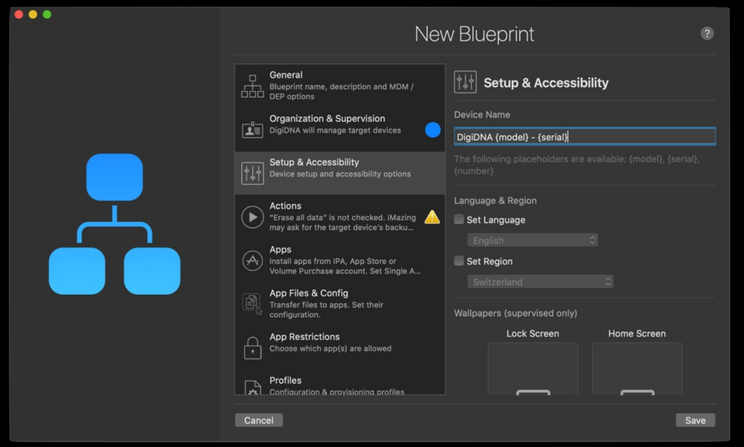
Onboarding Process & Details - macOS Laptops

- Notable Components
  - As with macOS…
    - Apple School Manager
    - Apple Push Notification server (APNs)
    - Jamf Pro
  - But, additional component with iOS & iPadOS…
    - iMazing Configurator

Onboarding

Onboarding Process & Details - iPads

- iMazing Configurator
  - Product from DigiDNA a Swiss Company
  - Blueprints that allow automation & configuration
    - Target devices via supervision
    - Installing configuration profiles to pre-configure Wi-Fi access
    - Refurbish workflows includes options like erase all data and settings and update the OS



https://www.youtube.com/watch?v=6PpF2Zrgbal&t=52s

Onboarding

Onboarding Process & Details - iPad Workflow Example

iOS iPad

Onboarding

Onboarding Process & Details - iPad Workflow Example

iMazing Configurator

Onboarding

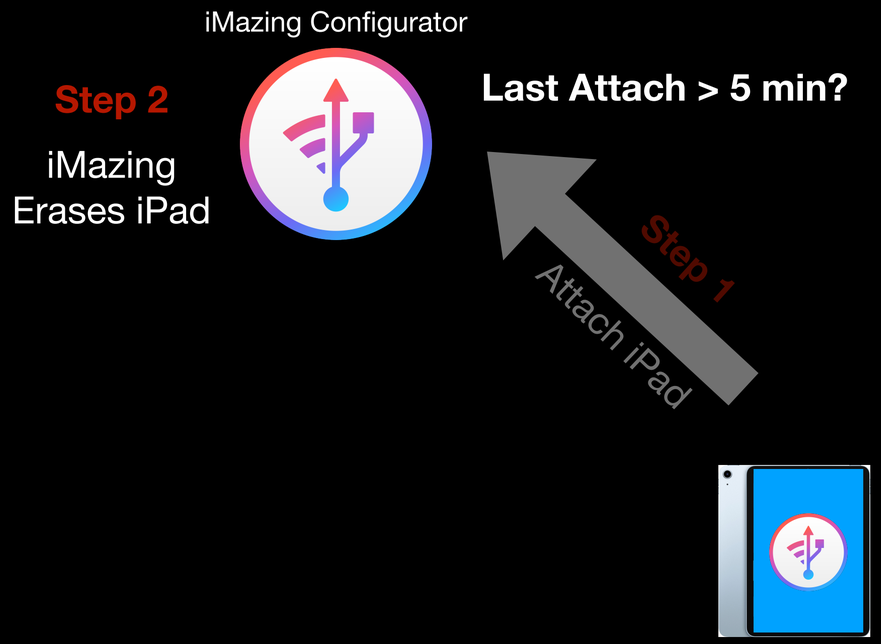
Onboarding Process & Details - iPad Workflow Example

iMazing Configurator

Last Attach > 5 min?

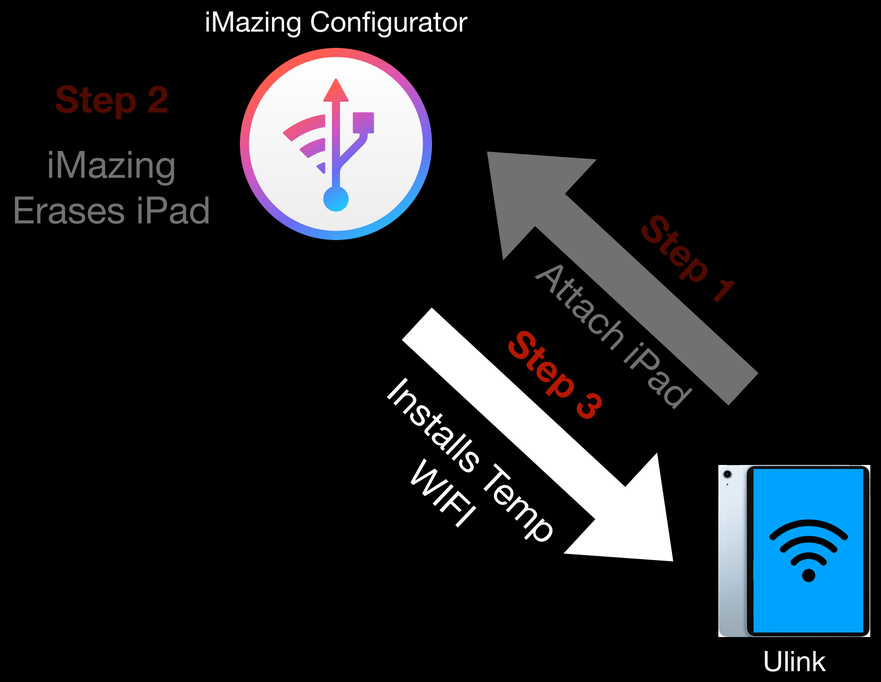
Onboarding

Onboarding Process & Details - iPad Workflow Example



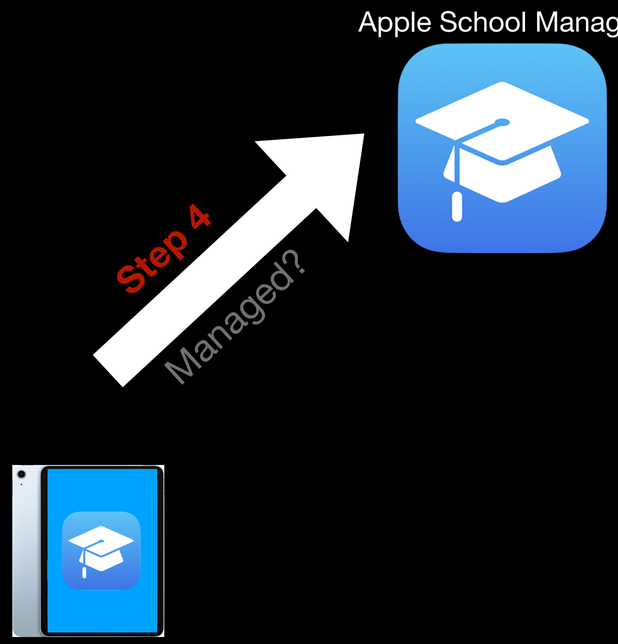
Onboarding

Onboarding Process & Details - iPad Workflow Example



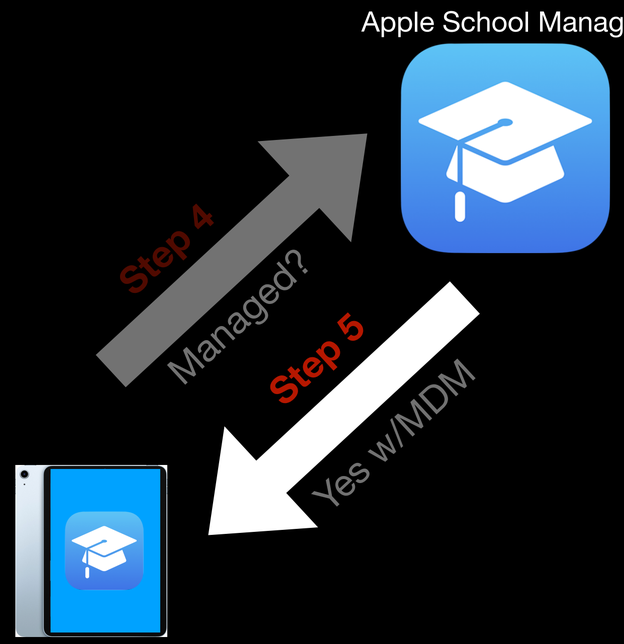
Onboarding

Onboarding Process & Details - iPad Workflow Example



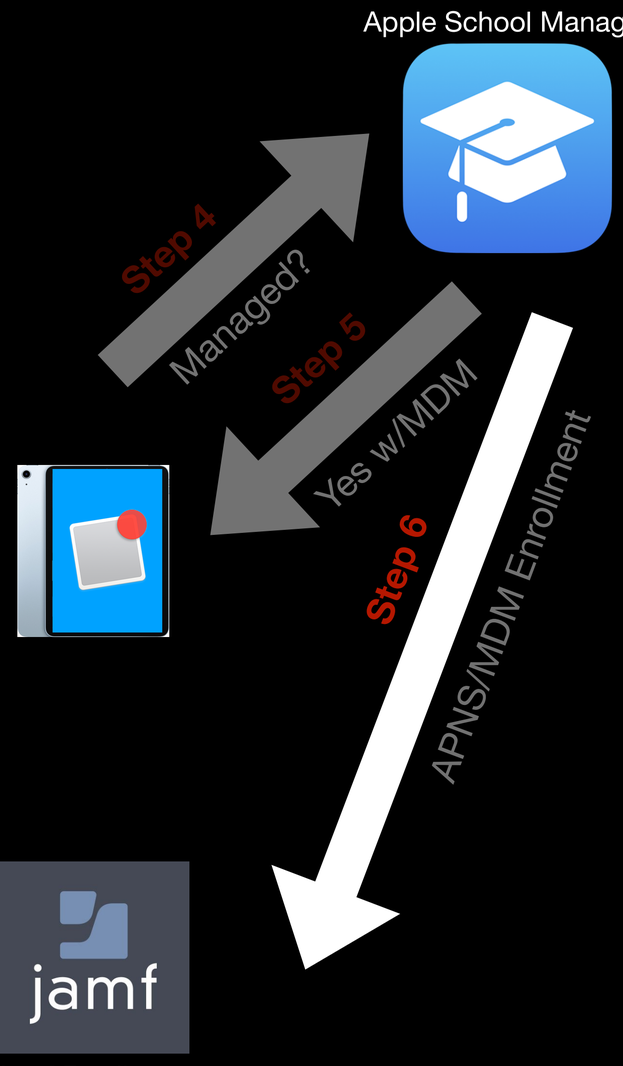
Onboarding

Onboarding Process & Details - iPad Workflow Example



Onboarding

Onboarding Process & Details - iPad Workflow Example

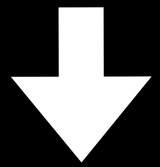


Onboarding

Onboarding Process & Details - iPad Workflow Example

Step 7

Automated Device Enrollment

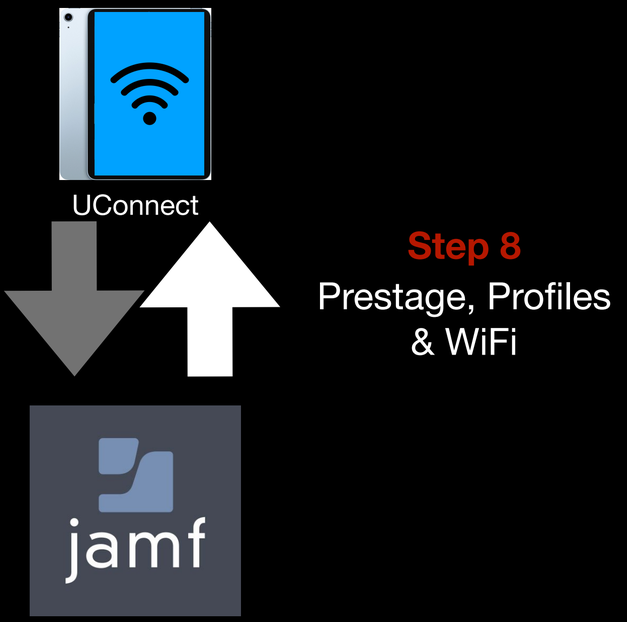


Jamf Pro Server

J. Willard Marriott Library
THE UNIVERSITY OF UTAH

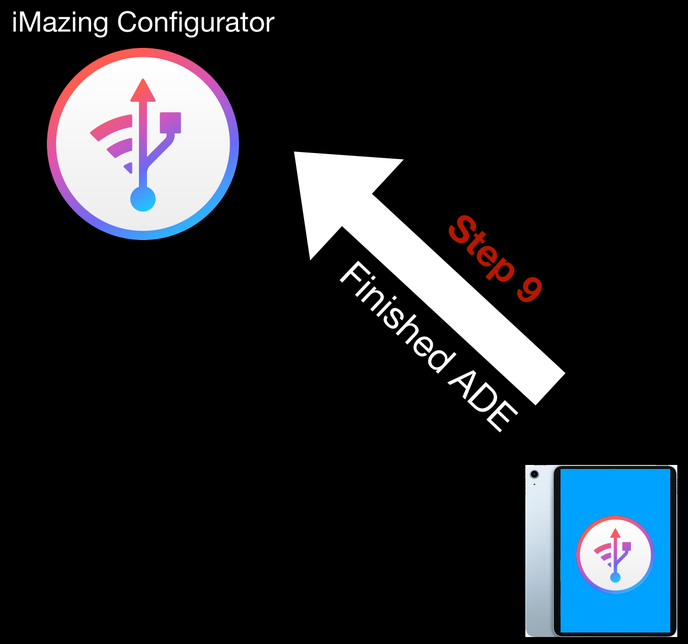
Onboarding

Onboarding Process & Details - iPad Workflow Example



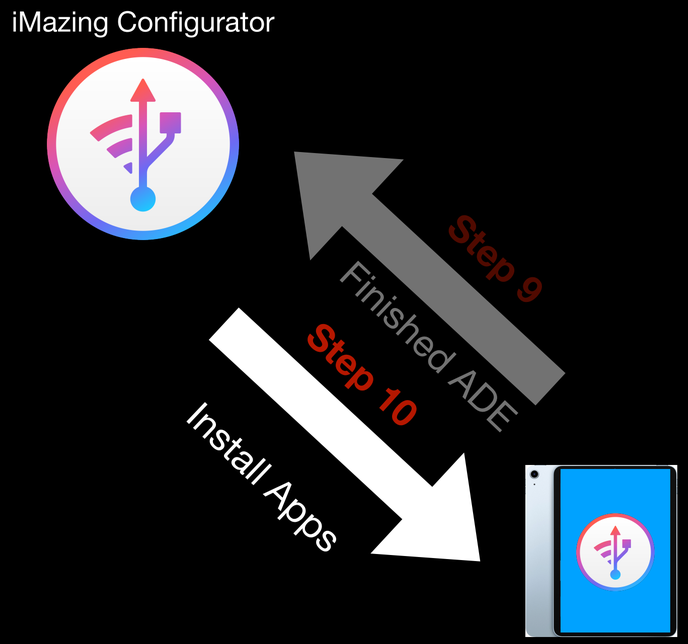
Onboarding

Onboarding Process & Details - iPad Workflow Example



Onboarding

Onboarding Process & Details - iPad Workflow Example



Onboarding

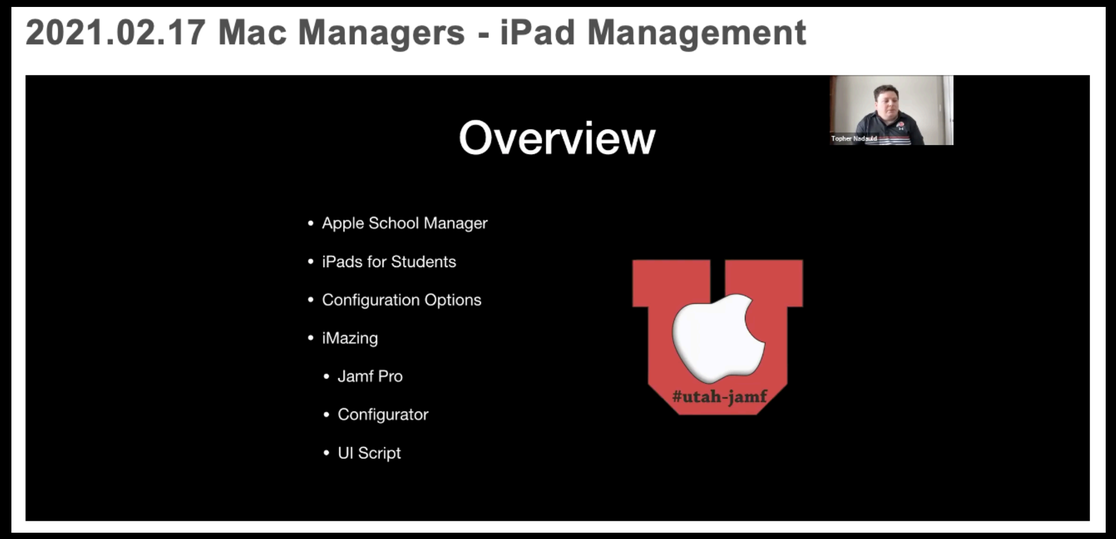
Onboarding Process & Details - iPad Workflow Example

Onboarding Completed

Onboarding

Onboarding Process & Details - In Depth Presentation

- In-depth iPad Onboarding Presentation & Documentation
  - iPad Management – By Topher Nadauld, University of Utah, Marriott Library



https://stream.lib.utah.edu/index.php?c=details&id=13417

Challenges

Friction & Pain Points

Challenges

Friction & Pain Points - Software Requests & Support

Challenges

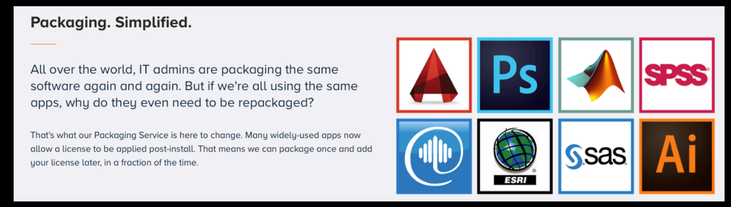
Friction & Pain Points - Software Requests & Support

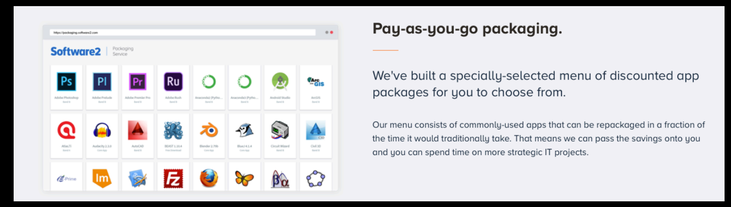
- With CARE Act Funds checkout laptops & extending checkout period
  - Caused large amount requests for wide range of software
  - Many requests were for classes, dept, group or student academic needs
- From wide range of open source, commercial, group or individual licensed
  - Support of student individual licenses or class licenses
  - Software and components update frequently & not always obvious its needed

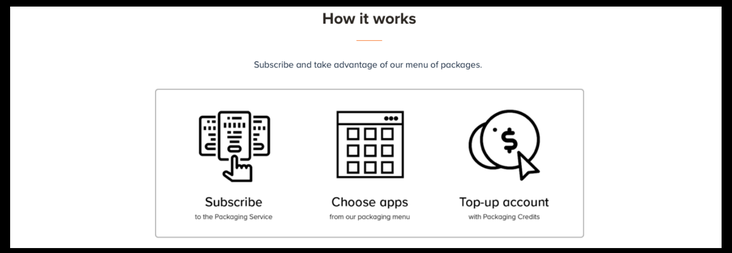
Challenges

Friction & Pain Points - Software Requests & Support

- Windows Laptops
  - Software2 AppsAnywhere Packaging Service
    - To aid in when IT Staff very busy with projects and requests
    - AppSet packaging difficult or requires more in-depth time to setup and troubleshoot.





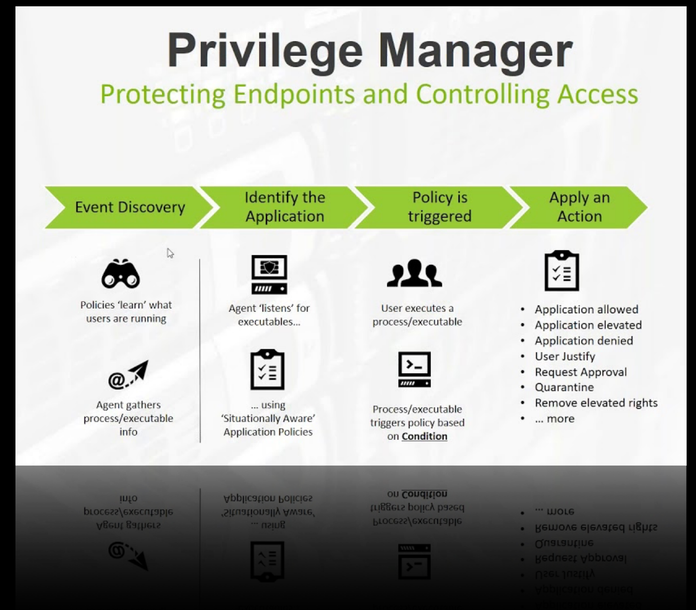


https://www.software2.com/packaging-service

Challenges

Friction & Pain Points - Software Requests & Support

- Windows Laptops
  - Thycotic Privileged Account Manager (PAM)
    - To aid in addressing some of the software pain points with software installation & updates
      - Including VR and AR headsets, 3D printers that frequently update from daily to weekly
      - Provides features to allow whitelisted applications to automatically update
      - Or depending on need user can manually update or install whitelisted applications or components
      - Purchase approved by UIT & ISO, but still in progress…



Challenges

Friction & Pain Points - Software Requests & Support

- macOS Laptops
  - Developed scripts to automate repackaging installers when necessary
  - Developed python script & library to automate Jamf Patch
    - python-jamf - a library to access the Jamf Pro Classic API

      https://github.com/univ-of-utah-marriott-library-apple/python-jamf

    - jctl - automates patch uploads, updates & releases

      https://github.com/univ-of-utah-marriott-library-apple/jctl
    - AutoPKG - Open source framework for automating packaging & software distribution on macOS

      https://github.com/autopkg/autopkg

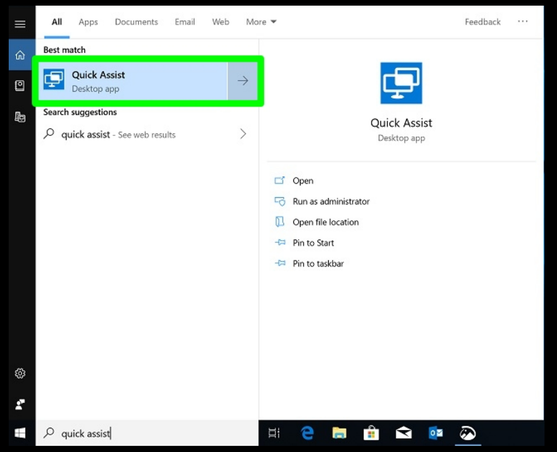
Challenges

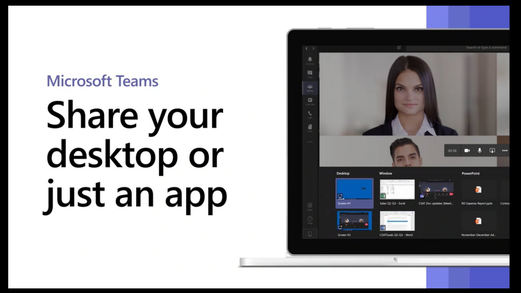
Friction & Pain Points - Remote User Support

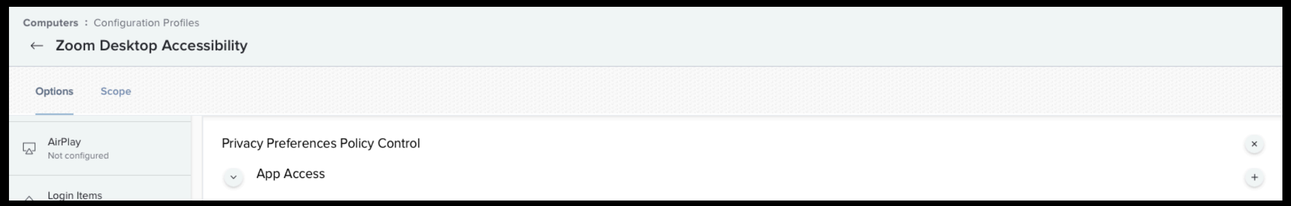
Challenges

Friction & Pain Points - Remote User Support

- Used multiple options for remote user support
  - On Windows Laptops, used built in “Quick Assist”
    - Or used Zoom & Microsoft Teams
  - On Mac Laptops, have used Zoom & Jamf Remote
    - For Zoom created configuration profile to provide remote control support on a temporary basis via scoping.



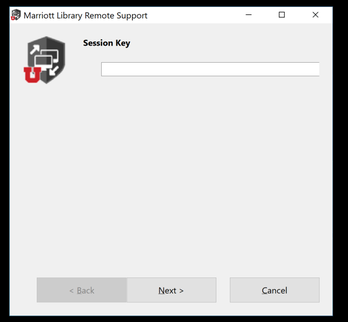


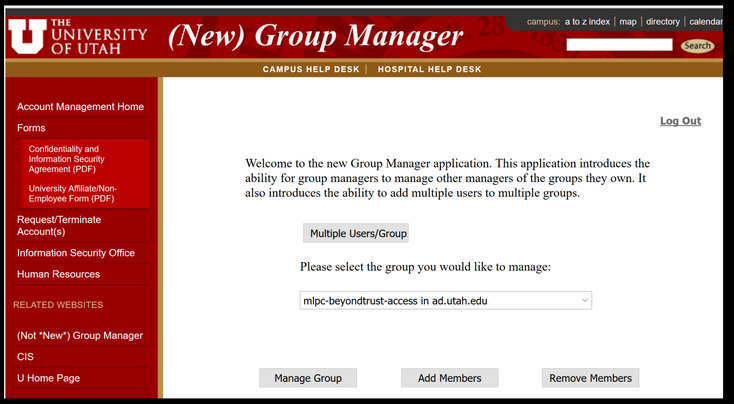


Challenges

Friction & Pain Points - Remote User Support

- BeyondTrust Remote Support
  - Provides Uniform Experience & Branding
    Across supported platforms macOS & Windows
  - Secured Elevation
    Use “Run as administrator” to run commands or login with admin account
  - Role/Function-Based Access Controls
    For different groups like help desk, admins, or managers
  - Auditable & Transparent Actions
    User Must Approve Actions by remote support
  - Supports Central Automation of Group Management
    Access based on AD and managed through SailPoint (TOTP)

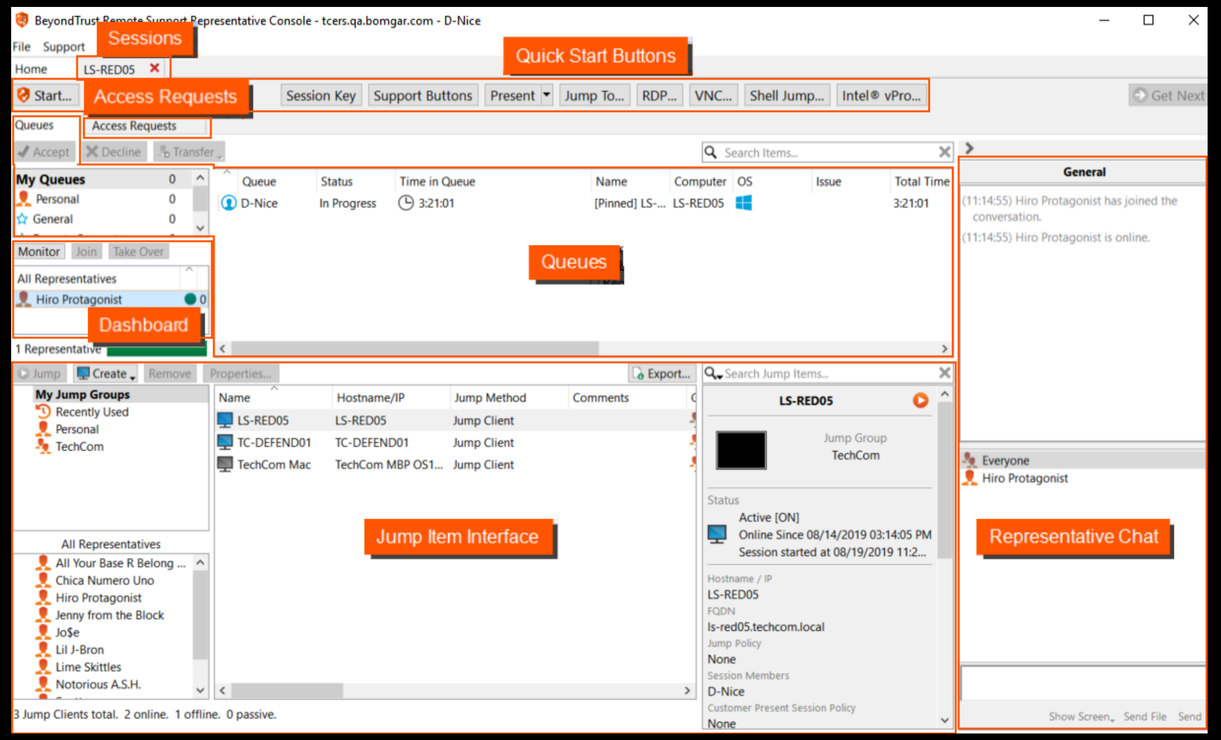




Challenges

Friction & Pain Points - Remote User Support

- BeyondTrust Remote Support



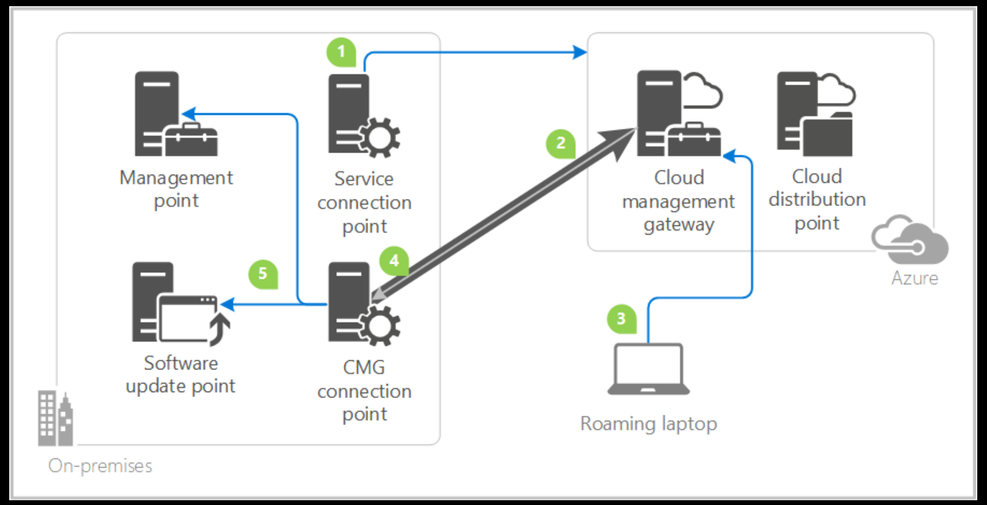
Challenges

Friction & Pain Points - Off-Site Device Management

Challenges

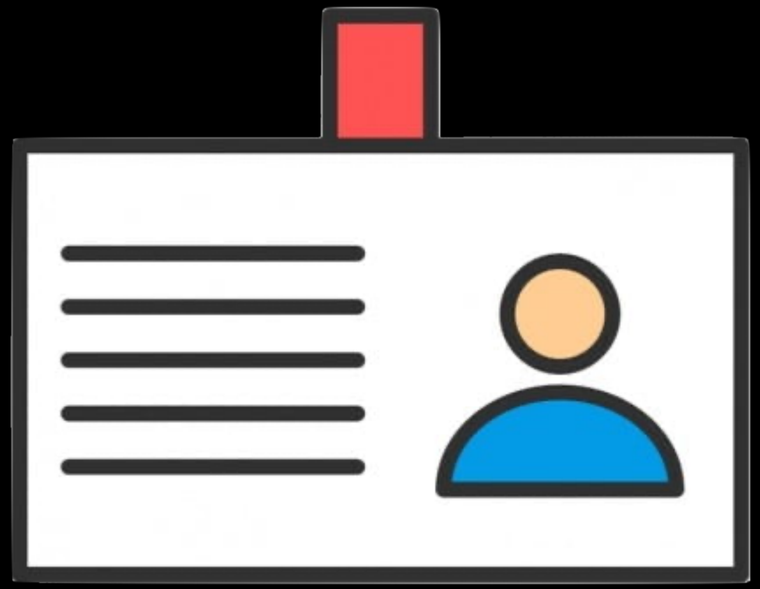
Friction & Pain Points - Off-Site Device Management

- Windows Laptops
  - To address, security concerns with making SCCM Available Off-Campus
  - Setup a Cloud Management Gateway in Azure
  - Worked with UIT, to setup and support the service
  - Poor & unreliable home networks.
  - Forced some students to come to campus



Challenges

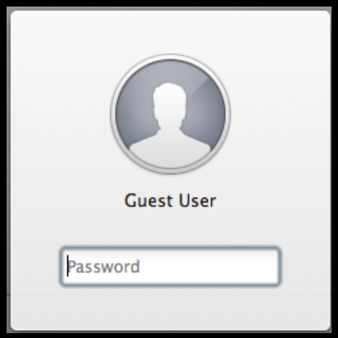
Friction & Pain Points - Identify Provisioning

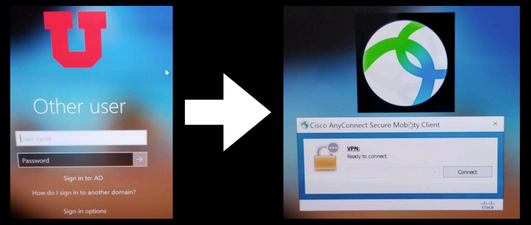


Challenges

Friction & Pain Points - Identify Provisioning

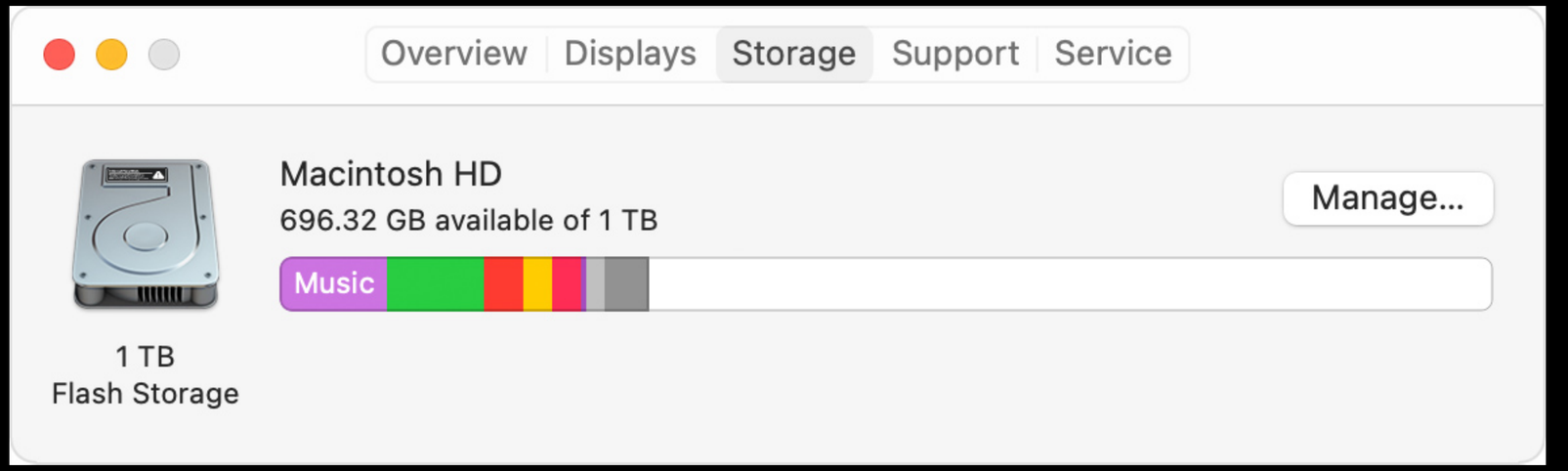
- Guest Accounts
  - During COVID-19 pandemic, the library was closed to public
    - We working with the Union, to make checkout laptops available
    - Or would ship directly to student home
  - But, needed to stage laptops with cached guest account
- Azure AD
  - If UIT approved & supported Azure AD for identity provisioning
  - We could allow new logins with uNID off-campus w/o VPN
  - On Windows, we have implemented VPN at login window





Challenges

Friction & Pain Points - Storage Space



Challenges

Friction & Pain Points - Storage Space

- Mac Devices
  - Due amount software & large size of some applications
  - Ran into storage issues on Mac laptops with 256 GB Storage
  - As workaround, created different software distribution policy
    - Smaller drives only get subset of available software
    - User can install additional software using Jamf Pro Self Service application.
    - Which causes support, constency & cleanup challenges with some devices

Challenges

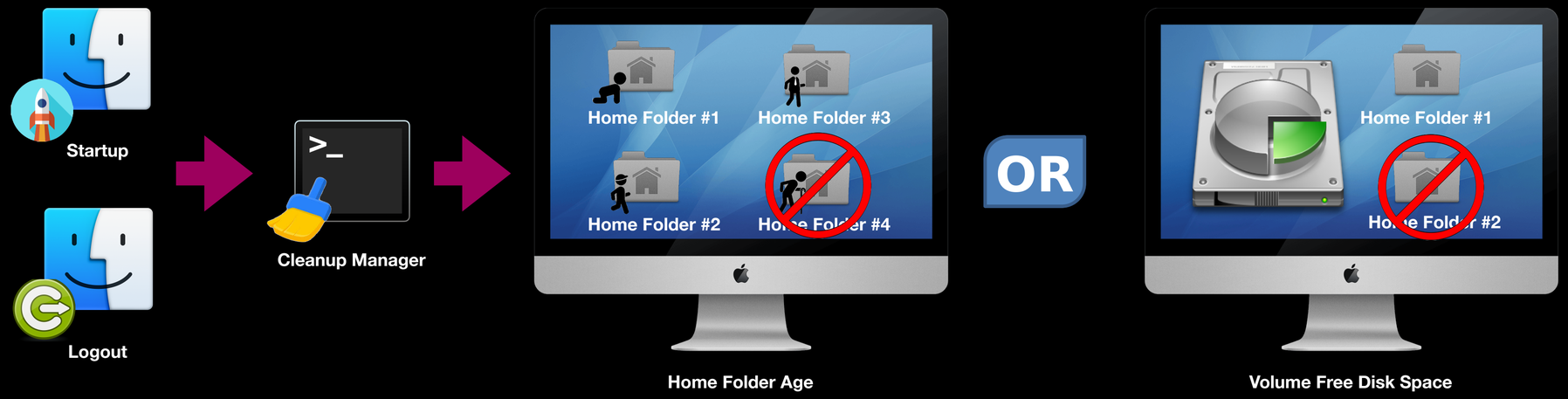
Friction & Pain Points - Storage Space

- Mac Devices
  - Software Cleanup Options
    - Remove Application Bundle via Script
    - Package Uninstaller via Script Referencing Package Receipt
    - Developer Uninstaller
    - Custom Uninstaller or Script

Challenges

Friction & Pain Points - Storage Space

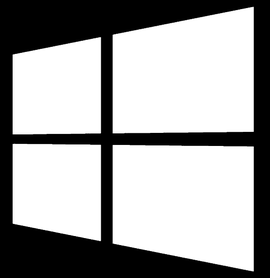
- Mac Devices
  - “Cleanup Manager” is open source solution for user home folder cleanup



https://github.com/univ-of-utah-marriott-library-apple/cleanup_manager

Challenges

Friction & Pain Points - Storage Space

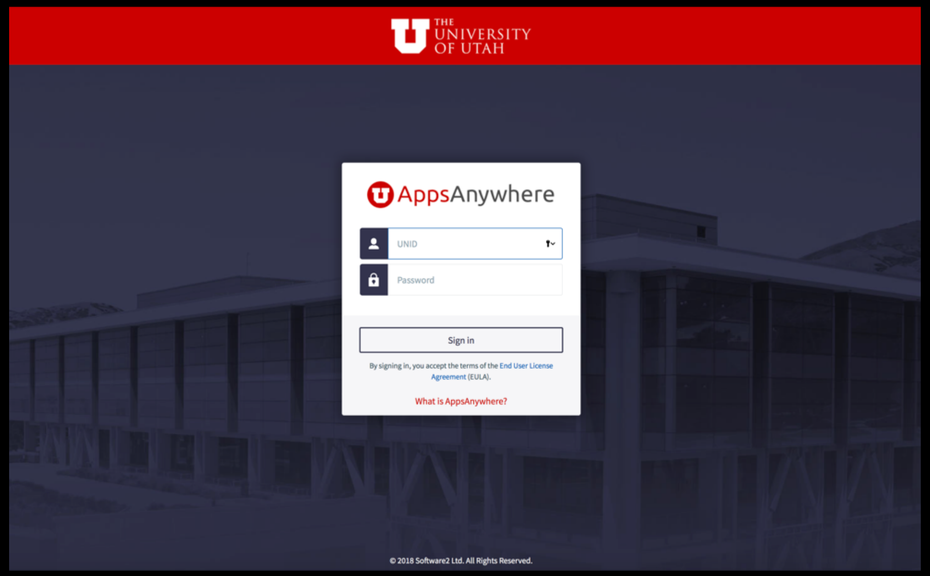


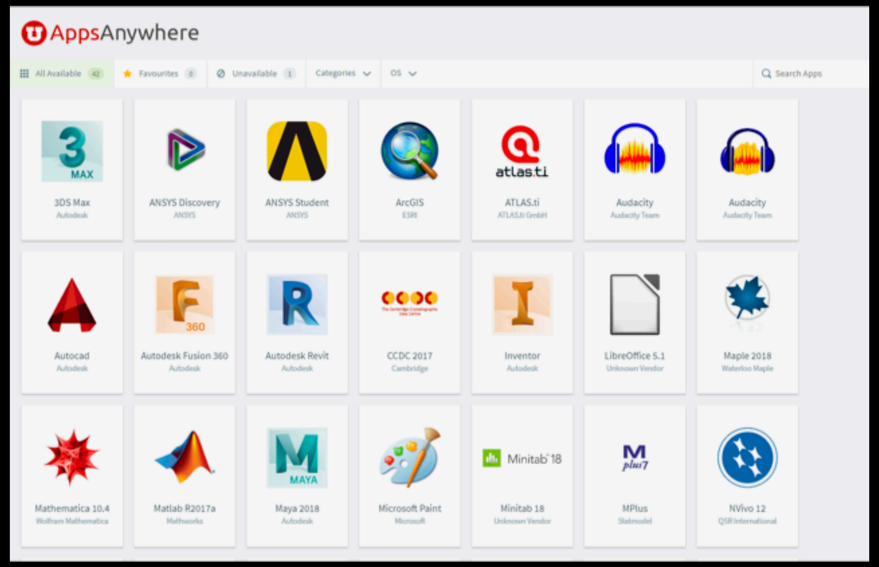
- Windows Devices
  - Storage is less critical because of software distribution solution
  - Very few applications stored locally on device
  - Most applications made available through Software2 AppsAnywhere
    - It uses a technology called CloudPaging to efficiently deliver virtualized applications
    - This applications on temporarily stored on Windows systems
    - Cleanup using Powershell Script for User Profiles & Temporary Files via Scheduled Task

Challenges

Friction & Pain Points - Storage Space

- Windows Devices





https://newsletter.lib.utah.edu/appsanywhere-marriott-library/

Challenges

Friction & Pain Points - Device Damage

Challenges

Friction & Pain Points - Device Damage

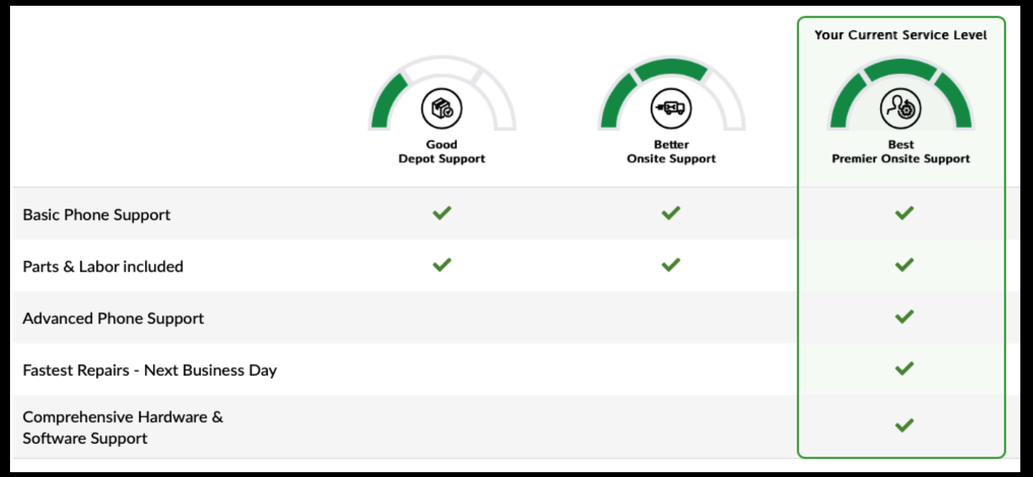
- Library Fine Policy
  - Place hold on student record
  - Referral to Dean of Students

> Fines over $50.00 will result in a suspension of borrowing privileges.
> Unpaid library fines and/or fees will result in holds placed on a patron's University record.
> The failure to timely pay library fines and/or fees may also result in referral to the Dean of Students, University Administration, University Police, or a collection agency. In such circumstances, the patron will be responsible for all fines and/or fees incurred as well as all costs to collect the unpaid fines and/or fees, including attorney's fees.

- When laptop is damaged by student
  - Repair Cost
    Get a repair estimate that student will be fined
  - Replacement Cost
    Of if laptop age > 2 years old and repair is "close" to replacement cost

Friction & Pain Points - Device Damage

- Windows Laptops
  - Includes Premier Onsite Support
    - 3 Years Accidental Damage Protection
    - 1 Year Battery Warranty
    - Warranty Adds ≈ $70 Laptop Cost

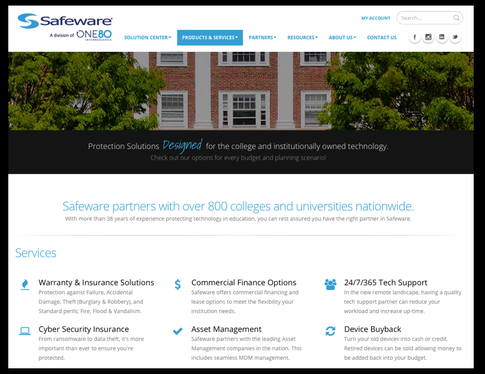


	Good Depot Support	Better Onsite Support	Your Current Service Level Best Premier Onsite Support
Basic Phone Support	✓	✓	✓
Parts & Labor included	✓	✓	✓
Advanced Phone Support			✓
Fastest Repairs - Next Business Day			✓
Comprehensive Hardware & Software Support			✓

Challenges

Friction & Pain Points - Device Damage

- macOS Laptops
  - Due to high price of warranty coverage for user damage.
  - We do NOT purchase addition warranty coverage
  - We purchase a hard shell case for additional protection



https://www.itslaut.com/collections/macbook-series/products/huex-for-macbook-pro-13-2020-model?variant=32623120154721

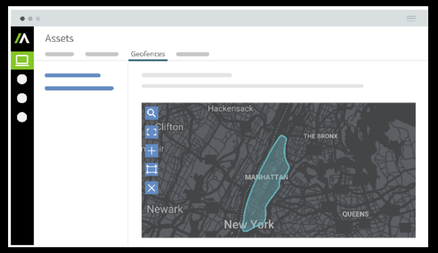
Challenges

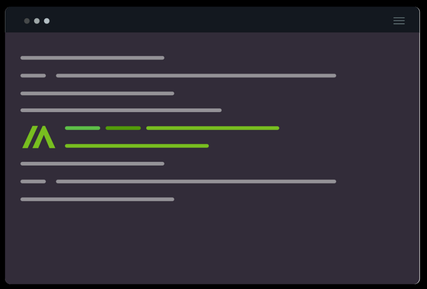
Friction & Pain Points - Theft

Challenges

Friction & Pain Points - Theft

- Windows Laptops
  - Absolute Platform
    - Lock or Wipe
      Freeze at-risk-devices or delete data from system
    - Geofencing
      Automatically trigger these actions whenever a device leaves a safe area
    - Persistence Privileged Position in the Firmware
      If anything is missing it reinstalls, even if hard drive is replace



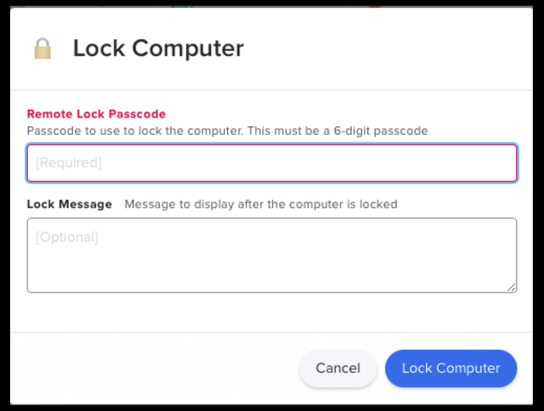


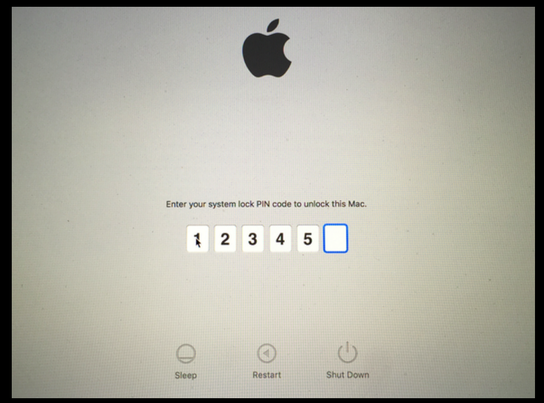
https://www.absolute.com/platform

Challenges

Friction & Pain Points - Theft

- Mac Laptops
  - Jamf Pro has MDM functionality to Wipe & Lock Devices
  - Enabling Automatic Device Enrollment





Challenges

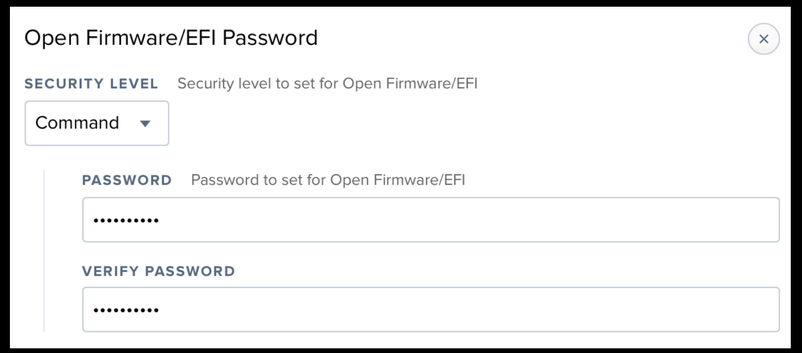
Friction & Pain Points - Theft

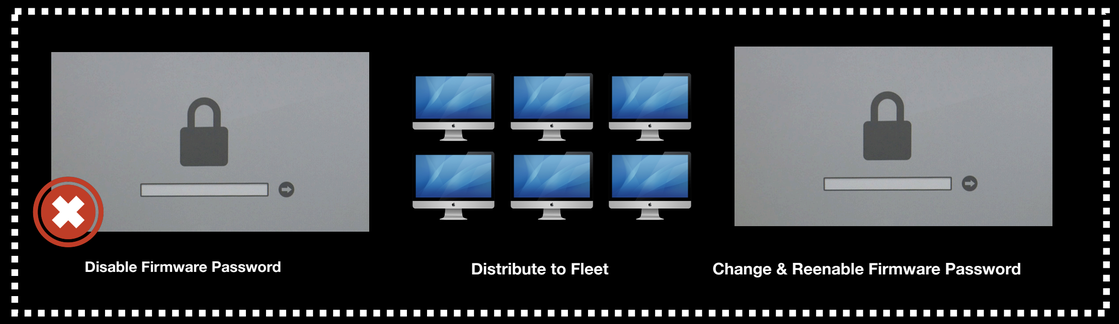
- Mac Laptops
  - Enable & Change Firmware Password
    - Prevents starting from another internal or external storage device

Challenges

Friction & Pain Points - Theft

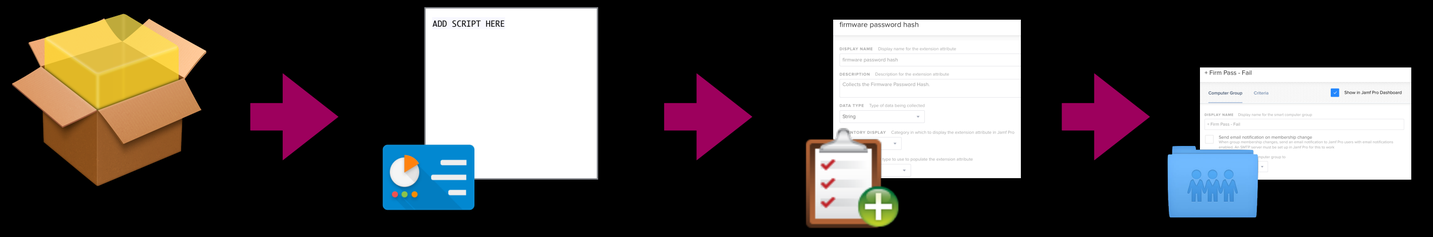
- Mac Laptops
  - Enable & Change Firmware Password
    - With Jamf Pro the build-in default is “set it and forget it”
      - It allows you to set password and activate it, but laborious to change





Challenges
Friction & Pain Points - Theft

- Mac Laptops
    - Created a python tool, Firmware Password Manager
    - Adds more functionality allowing setting and updating firmware password
        - Integrating with Jamf Pro, using control script, extension attribute, smart group & policy



Distribute Firmware Password Manager

Edit Control Script Template

Create Extension Attribute
Current Password Hash

Create Smart Group
Macs w/o New Password

https://github.com/univ-of-utah-marriott-library-apple/firmware_password_manager

Challenges

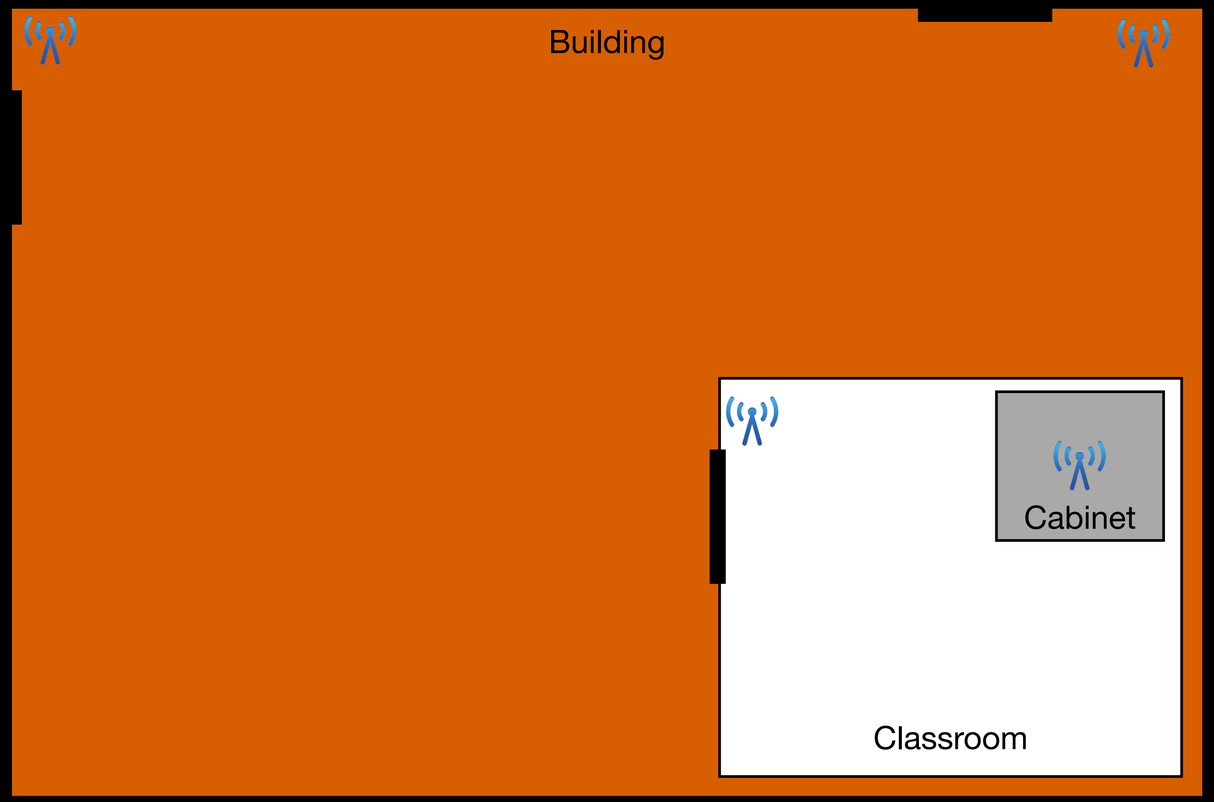
Friction & Pain Points - Theft

- Classroom Laptop Checkout
  - Three classroom checkout rooms
  - Includes a secure cabinet for laptops
    - Requires ID Card to access cabinet
    - Door auto-locks after X timeframe
  - Campus C*Cure is managed by Building Access Department

https://facilities.utah.edu/requests/key-requestc-cure/

Challenges
Friction & Pain Points - Theft

- Classroom Laptop Checkout
    - Commodity RFID Project
        - Working with Electrical Engineering on project
        - Open source solution that provides geofencing & triggers
        - Inventory triggers & monitoring in cabinet
        - Triggers & monitoring for classroom & building door proximity
        - Integrates cheap commodity RFID antennas



Student Checkout Devices

Question or Comments

J. Willard Marriott Library
THE UNIVERSITY OF UTAH