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Jamf Pro Administrator's Guide

Version 10.23.0

jamf

Jamf has made all efforts to ensure that this guide is accurate.

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Preface

About This Guide

This guide contains overviews about Jamf Pro features and instructions for performing administrative tasks using Jamf Pro. It does not prescribe administrative workflows or strategies but is intended to be used as a reference.

Before using the instructions in this guide:

- If hosted on-premise, the Jamf Pro server must be installed.
- If hosted in Jamf Cloud, your cloud instance must be set up and accessible.

To learn about the other Jamf Pro-related documentation, see Additional Resources.

Additional Resources

Jamf Nation

https://www.jamf.com/jamf-nation/
The Jamf Nation website allows you to communicate with other Jamf Pro administrators via discussions, submit feature requests, and access several different types of resources related to Jamf Pro.

Knowledge Base

https://www.jamf.com/jamf-nation/articles
The Knowledge Base contains hundreds of articles that address frequently asked questions and common issues.

Product Documentation

To access the following product documentation for a specific Jamf Pro version, log in to Jamf Nation and go to:
https://www.jamf.com/jamf-nation/my/products

- *Jamf Pro Release Notes*
  The release notes include information on new features and enhancements, system requirements, functionality changes, and bug fixes.
- Jamf Pro installation and configuration guides
  These guides provide information on installing and configuring Jamf Pro on supported Mac, Linux, and Windows platforms. They also explain how to perform advanced configuration and troubleshooting tasks. The guides for Linux and Windows include instructions for performing a manual installation of Jamf Pro on those platforms.

In addition, you can search Jamf Nation to find best practice workflows, technical papers, and documentation for other Jamf Pro apps.

Other Resources

For access to other Jamf Pro-related resources, visit the following webpages:

- Resources on jamf.com
  The Resources area on the Jamf website gives you access to product documentation, best practice workflows, technical papers, and more.
- Jamf 100 Course
  The Jamf 100 Course offers a self-paced introduction to Jamf Pro and an enterprise-focused foundation of the macOS, iOS, and tvOS platforms.
- Jamf Online Training Catalog
  The Jamf Online Training catalog provides self-paced modules to help you learn Apple device management with Jamf Pro. This resource is available for free to all Jamf customers.
- Jamf Knowledge Base Videos
  The Jamf YouTube channel features Knowledge Base videos and troubleshooting tips on managing computers and mobile devices with Jamf Pro.
- Jamf Marketplace
  The Jamf Marketplace is a central location for you to find, learn about, and utilize valuable tools to integrate with and extend the Jamf platform.

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Overview of Technologies

Applications and Utilities

This section provides an overview of the applications and utilities that make up Jamf Pro.

Administrator Applications

The administrator applications, excluding the Jamf Pro web app, are installed with the Jamf Pro DMG.

Jamf Pro Web Application

The Jamf Pro web application is the administrative core of Jamf Pro. The Jamf Pro web app allows you to perform inventory, remote management, and configuration tasks on enrolled computers and mobile devices. All other administrator applications in Jamf Pro communicate with the Jamf Pro server.

Composer

The Composer application allows you to build and edit packages of software, applications, preference files, or documents. Building a package involves the following:

- **Creating a package source**—You can create a package source that contains the files you want to package or convert an existing package to a source to edit the package contents.
- **Building a package**—You can build a PKG or a DMG from a package source.

You can also do the following with Composer:

- Build a DMG of an operation system (OS).
- Monitor the installation of software packages.
- Add or edit localization files.
- Create package manifests and import or upload package manifests with Jamf Nation.

For more information, see the Composer User Guide.

Jamf Admin

The Jamf Admin application is a repository that allows you to add and manage the following items for computers:

- Packages
- Scripts
- Printers
- Categories
- Dock items

Jamf Admin also allows you to create configurations (images) using these items and replicate files to distribution points.

For more information about tasks you can perform with Jamf Admin, see the following:

- Managing Packages
- Managing Scripts
- Managing Printers
- Managing Dock Items
- Categories
- File Share Distribution Points

Jamf Imaging

The Jamf Imaging application allows you to image computers by deploying configurations to them.

For more information, see Imaging.

Disclaimer: Apple does not recommend or support monolithic system imaging as an installation method because of recent improvements in macOS security, hardware, management, and deployment. Apple encourages IT administrators to convert from device imaging to Automated Device Enrollment (formerly DEP) workflows. For more information on supported methods of installing macOS, see APFS and imaging in Apple's *macOS Deployment Reference*. For more information about enrolling and deploying computers using Automated Device Enrollment and a PreStage enrollment configured in Jamf Pro, see Computer PreStage Enrollments.

Jamf Remote

The Jamf Remote application allows you to immediately perform remote management tasks on computers, such as installing packages, running scripts, and binding to directory services. While policies in Jamf Pro can automate these tasks to run on a schedule, Jamf Remote allows you to perform them immediately over a Secure Shell (SSH) connection.

Note: Because of increased user data protections with macOS 10.14 or later, you cannot enable remote management remotely using the SSH protocol. To enable remote management on computers with macOS 10.14, the user must select the **Screen Sharing** checkbox in System Preferences.

Jamf Pro Server Tools

Jamf Pro Server Tools allows you to perform, schedule, and restore database backups, as well as manage settings for the database connection, Apache Tomcat, and MySQL. You can also use Jamf Pro Server Tools to convert the MySQL database storage engine from MyISAM to InnoDB.

Jamf Pro Server Tools is installed automatically when you run the Jamf Pro installer. In addition, you can download the latest version using other methods, including package managers.

Jamf Pro Server Tools is available as a command-line interface and a GUI. The following components are included:

- `jamf-pro`—The command-line interface for executing command-based tasks.
- `server-tools.jar`—The GUI to `jamf-pro`.

For more information, see the following Knowledge Base articles:

- Jamf Pro Server Tools Overview
- Using the Jamf Pro Server Tools Command-Line Interface

Recon

The Recon application allows you to enroll computers with Jamf Pro. When computers are enrolled, administrators can use Jamf Pro to collect computer inventory information and manage computers.

Client Applications

The client applications can be distributed to users using Jamf Pro.

Jamf Self Service for macOS

Jamf Self Service for macOS allows users to browse and install configuration profiles, Mac App Store apps, and books. Users can also run policies and third-party software updates via patch policies, as well as access webpages using bookmarks.

Jamf Pro allows you to manage every aspect of Self Service, including its installation, user authentication, and the items available to users. In addition, you can configure how Self Service is displayed to users by replacing the default Self Service application name, icon, and header image with custom branded elements to present users with a familiar look and feel.

You can make any configuration profile, policy, software update (via patch policy), Mac App Store app, or book available in Self Service and customize how it is displayed to users. This includes displaying an icon and description for the item, adding the item to the in relevant categories, and displaying item-specific notifications. You can also specify which computers display the item in Self Service and which users can access it.

For more information, see Jamf Self Service for macOS.

Jamf Self Service for Mobile Devices

Jamf Self Service allows users to browse and install mobile device configuration profiles, apps, and books on managed mobile devices. Users can tap their way through Self Service using an intuitive interface.

Jamf Pro allows you to manage every aspect of Self Service, including its installation, authentication, and the items available to users.

There are two kinds of Self Service for mobile devices:

- **Jamf Self Service for iOS**—You can use Jamf Pro to group configuration profiles, apps, and books in categories, which makes those items easier to locate in Self Service. For more information, see Categories. If iBeacon monitoring is enabled in your environment, Self Service is the component that detects when a mobile device enters or exits an iBeacon region. In addition, you can send notifications to mobile devices with Self Service installed. (For more information, see Mass Actions for Mobile Devices.) Notifications are displayed to users in the following ways:
  - The Self Service app icon displays a badge with the number of notifications that have not been viewed by the user.
  - In Self Service, the **Notifications** browse button displays a badge with the number of notifications that have not been viewed by the user. Items are listed in the "Notifications" area of the app as they are added.
  - (Optional) Each notification can be configured to also display an alert and appear in Notification Center. This requires a proxy server token in Jamf Pro. For more information, see Jamf Push Proxy.

  The latest version of the Self Service app available in the App Store requires devices with iOS 11 or later, or iPadOS 13 or later. For more information on the Self Service levels of compatibility, see Jamf Self Service for iOS.
  Jamf Self Service for iOS is available for free from the App Store.
- **Self Service web clip**—In addition to configuration profiles, apps, and books, you can use the Self Service web clip to distribute updated MDM profiles to mobile devices for users to install.

For more information, see Jamf Self Service for Mobile Devices.

Jamf Setup

Jamf Setup is a mobile device app that enables end users to quickly setup and configure a mobile device. You can configure and customize Jamf Setup using Jamf Pro with Managed App Configuration. Users can then select a configuration without having to log in or contact IT.

Jamf Reset

Jamf Reset is a mobile device app that enables users to quickly reset a device to the original factory settings using Jamf Pro. This process simplifies the necessary steps to wipe a device and logs each time a device is wiped in Jamf Pro.

Utilities

The utilities are installed on enrolled computers and perform management tasks and background processes.

jamf agent

The jamf agent collects application usage data and restricts software on enrolled computers.

The jamf agent is installed and updated on enrolled computers automatically. It is installed in the following location:

```
/usr/local/jamf/bin/jamfAgent
```

Jamf Application Bundle

The Jamf application bundle contains the following management framework components:

- **JamfDaemon—**Background process that runs continuously and handles various administrative functions
- **JamfAAD (Azure Active Directory)—**Integrates Jamf Pro with Microsoft Azure to grant conditional access
- **JamfManagementService—**Executes external commands, such as policies

The Jamf application bundle is installed, updated, and run on enrolled computers automatically. It is stored in the following location on enrolled computers:

```
/Library/Application Support/JAMF/Jamf.app
```

jamf binary

The jamf binary is a command-line application that executes most Jamf Pro tasks. The app is is installed, updated, and run on enrolled computers automatically, and you can also use it to manually execute commands. It is stored in the following location on computers:

```
/usr/local/jamf/bin/jamf
```

To learn about commands you can execute with the jamf binary, execute the following command:

```
jamf -help
```

Jamf Helper

The Jamf Helper displays messages to users. It is stored in the following location on enrolled computers:

```
/Library/Application Support/JAMF/bin/
```

Jamf Management Action

The Jamf Management Action application displays policy User Interaction messages in the Notification Center. It is stored in the following location on enrolled computers:

```
/Library/Application Support/JAMF/bin/
```

Security

This section explains the primary security measures in Jamf Pro:

- Passwords
- Communication protocols
- Public key infrastructure
- Signed applications

Passwords

Jamf Pro allows you to store individual accounts for managed computers and reset the passwords if necessary.

Passwords stored in the database are encrypted using a standard 256-bit AES encryption algorithm.

Communication Protocols

Jamf Pro has security built into its design. Connections between the Jamf Pro server, the other Jamf Pro apps, and mobile devices take place over Secure Sockets Layer (SSL) using Transport Layer Security (TLS).

The Jamf Remote application and the network scanner in the Recon application connect to computers over Secure Shell (SSH), or Remote Login.

Secure Shell (SSH)

SSH is a network security protocol built into macOS. For more information, go to: http://openssh.com/

Transport Layer Security (TLS)

TLS is a security protocol for Internet communication. For more information, go to: http://tools.ietf.org/html/rfc5246

Public Key Infrastructure

A public key infrastructure (PKI) is the design by which digital certificates are obtained, managed, stored, and distributed to ensure a secure exchange of data over a public network.

Certificate Authority

A certificate authority (CA) is a trusted entity that signs and issues the certificates required for certificate-based authentication. It is the central component of the PKI.

In Jamf Pro, you can choose to use a built-in CA, integrate with a trusted third-party CA (DigiCert or Active Directory Certificate Services), or configure your own PKI if you have access to an external CA that supports the Simple Certificate Enrollment Protocol (SCEP). The certificate authorities can be used to issue certificates to both computers and mobile devices.

Note: An external CA can also be used to issue certificates to computers, but this is not enabled by default. For more information, contact your Jamf account representative.

For more information on certificate authorities in Jamf Pro, see PKI Certificates.

Simple Certificate Enrollment Protocol

Simple Certificate Enrollment Protocol (SCEP) obtains certificates from the CA and distributes them to managed mobile devices, providing a simplified way of handling large-scale certificate distribution. If you do not want computers or mobile device to communicate directly with a SCEP server, you can configure settings that enable Jamf Pro to proxy the communication between a SCEP server and the computers and mobile devices in your environment. This allows Jamf Pro to communicate directly with a SCEP server to obtain certificates and install them on the device. For more information, see the Enabling Jamf Pro as SCEP Proxy technical paper.

The CA hosted by Jamf Pro (the "built-in CA") supports SCEP. If you plan to use an external CA hosted by your organization or by a third-party vendor, this CA must support SCEP as well.

Certificates

Jamf Pro uses the following certificates to ensure security:

- **SSL Certificate**—Jamf Pro requires a valid SSL certificate to ensure that computers and mobile devices communicate with the Jamf Pro server and not an imposter server. The SSL certificate that you can create from the built-in CA secures communication using a 2048-bit RSA encryption.
- **Device Certificates**—Device certificates allow Jamf Pro to verify the identity of computers and mobile devices each time they communicate with the Jamf Pro server.
- **CA Certificate**—This certificate establishes trust between the CA and computers, and between the CA and mobile devices.
- **Signing Certificate**—This certificate is used to sign messages passed between the Jamf Pro server and Mac computers, and between the Jamf Pro server and mobile devices.
- **Push Certificate**—Jamf Pro requires a valid push certificate to communicate with Apple Push Notification service (APNs).
- **Anchor Certificate**—This certificate allows mobile devices and computers to trust the SSL certificate.

Signed Applications

The following applications are signed by Jamf:

- Composer
- Jamf Admin
- jamf binary
- Jamf Helper
- Jamf Imaging
- Jamf Remote
- Jamf Self Service
- Recon

Related Information

For related information, see the following Knowledge Base article:

Network Ports Used by Jamf Pro
Learn about the network ports used by Jamf Pro.

Jamf Pro System Requirements

For system requirements information, see "Jamf Pro System Requirements" in the Jamf Pro Release Notes for your version of Jamf Pro.

Computer Management Capabilities

Jamf Pro can be used to enroll and manage Mac computers. The management capabilities available for computers vary depending on the macOS version.

This section includes information for OS versions that meet the minimum system requirements for managed computers in Jamf Pro. For information on these requirements, see "Jamf Pro System Requirements" in the *Jamf Pro Release Notes*.

Note: This section provides an overview of computer management capabilities by OS version and does not account for additional feature-specific requirements. For information on feature-specific requirements, see the documentation for that feature.

Management Capabilities for Computers

The following table provides an overview of the management capabilities available with Jamf Pro for computers by macOS version:

macOS Version	10.12	10.13	10.14	10.15
Enrollment				
Via user-initiated enrollment	✓	✓	✓	✓
Via QuickAdd package created using Recon	✓	✓	✓	✓
Via the network scanner	✓	✓	✓	✓
Via remote enrollment using Recon	✓	✓	✓	✓
Via local enrollment using Recon	✓	✓	✓	✓
Via Automated Device Enrollment using a PreStage enrollment	✓	✓	✓	✓
Via imaging using Jamf Imaging	✓	✓		
Inventory				
Submit inventory to Jamf Pro	✓	✓	✓	✓
Extension attributes	✓	✓	✓	✓
Simple searches	✓	✓	✓	✓
Advanced searches	✓	✓	✓	✓
Computer reports	✓	✓	✓	✓

macOS Version	10.12	10.13	10.14	10.15
Mass actions	✓	✓	✓	✓
Computer Groups				
Static groups	✓	✓	✓	✓
Smart groups	✓	✓	✓	✓
Self Service				
Install Self Service	✓	✓	✓	✓
Display badges for available software updates on the Dock icon	✓	✓	✓	✓
Software Distribution				
Managed distribution for computers	✓	✓	✓	✓
Managed distribution for users	✓	✓	✓	✓
Mac App Store apps	✓	✓	✓	✓
Install packages	✓	✓	✓	✓
Remote Control				
Screen sharing	✓	✓	✓	✓
Configuration				
macOS configuration profiles	✓	✓	✓	✓
Run scripts	✓	✓	✓	✓
Administer printers	✓	✓	✓	✓
Administer Dock items	✓	✓	✓	✓
Administer local accounts	✓	✓	✓	✓
Administer the management account	✓	✓	✓	✓
Bind to directory services	✓	✓	✓	✓
Deploy disk encryption configuration	✓	✓	✓	✓
Issue a new FileVault 2 recovery key	✓		✓	✓
Administer open Firmware or EFI passwords	✓	✓	✓	✓

macOS Version	10.12	10.13	10.14	10.15
Perform an authenticated restart on FileVault 2-enabled computers	✓		✓	✓
Remote Commands for Computers				
Lock computer	✓	✓	✓	✓
Remove MDM profile	✓	✓	✓	✓
Renew MDM profile	✓	✓	✓	✓
Wipe computer	✓	✓	✓	✓
Send blank push	✓	✓	✓	✓
Download/Download and Install Updates[1]	✓	✓	✓	✓
Unlock User[1]		✓	✓	✓
Remove User [1]		✓	✓	✓
Enable/Disable Bluetooth		✓	✓	✓
Enable/Disable Remote Desktop			✓	✓
Set Activation Lock[1]				✓
Usage Management				
View Application Usage logs	✓	✓	✓	✓
View Computer Usage logs	✓	✓	✓	✓
Restrict software	✓	✓	✓	✓
Book Distribution				
Managed distribution for users	✓	✓	✓	✓
Install ePub file	✓	✓	✓	✓
Install iBooks file	✓	✓	✓	✓
Install PDF	✓	✓	✓	✓

Notes:
1. Requires enrollment via a PreStage enrollment.

Components Installed on Managed Computers

Jamf Components Installed on Computers

The following components are installed on all computers.

Jamf Apps and Binaries

- `/usr/local/jamf/bin/jamf`—The binary used to execute most tasks for Jamf Pro.
- `/usr/local/jamf/bin/jamfagent`—Agent launched per user account to work in conjunction with the LaunchDaemons and LaunchAgents to report on specific user data.
- `/usr/local/bin/jamf`–Symbolic Link to the jamf binary so it can be found in the default search paths.
- `/usr/local/bin/jamfagent`—Symbolic Link to the jamf agent binary so it can be found in the default search paths.
- `/Library/Application Support/JAMF/Jamf.app`—App bundle that groups together components of the management framework.
- `/Library/Application Support/JAMF/JAMF.app/Contents/MacOS/JamfAAD.app`—App bundle used for integration with Azure Active Directory (AD).
- `/Library/Application Support/JAMF/JAMF.app/Contents/MacOS/JamfAgent.app`—App bundle containing the jamf launch agent used for application usage monitoring and restricted software.
- `/Library/Application Support/JAMF/JAMF.app/Contents/MacOS/JamfDaemon.app`—App bundle containing the jamf launch daemon.
- `/usr/local/jamf/bin/jamfAAD`—Symbolic Link to /Library/Application Support/JAMF/Jamf.app/Contents/MacOS/JamfAAD.app/Contents/MacOS/JamfAAD.

LaunchDaemon/LaunchAgent

- `/Library/LaunchDaemons/com.jamfsoftware.task.1.plist`—Used for recurring check-in to the Jamf Pro server.
- `/Library/LaunchDaemons/com.jamfsoftware.startupItem.plist`—Used to call the StartupScript.sh management framework check-in script.
- `/Library/LaunchDaemons/com.jamfsoftware.jamf.daemon.plist`—Used for Application Usage, Network State Changes, iBeacons, FileVault information sent to the Jamf Pro server, Restricted Software, notifications, and Self Service actions.
- `/Library/LaunchAgents/com.jamfsoftware.jamf.agent.plist`—Used in conjunction with the com.jamfsoftware.daemon.plist for tasks such as Application Usage, Restricted Software, and Self Service actions.

- `/Library/LaunchDaemons/com.jamf.management.daemon.plist`—Launchd file used to start the JamfDaemon.app process.
- `/Library/LaunchAgents/com.jamf.management.agent.plist`—Launchd file used to start the JamfAgent.app process.
- `/Library/LaunchAgents/com.jamf.management.jamfAAD.agent.plist`—Launchd file only present when macOS Intune Integration is enabled on the server; used to start the JamfAAD.app process.
- `/Library/Preferences/com.jamf.management.jamfAAD.plist`—Stores a user's Azure AD preferences.
- `/Library/LaunchAgents/com.jamf.management.jamfAAD.clean.agent.plist`—Used to delete an Azure AD ID token from the user's login keychain and a user's Azure AD preferences for users that are not currently logged in to the computer.

Property Lists

- `/Library/Preferences/com.jamfsoftware.jamf.plist`—Defines the Jamf Pro server URL, Management Framework Change ID and security settings such as SSL verification, clock skew, and package validation.
- `/var/root/Library/Preferences/com.apple.loginwindow.plist`—Used to store the defined login/logout hooks for the system.

Jamf Application Support Directory

- `/Library/Application Support/JAMF/.blacklist.xml`—Contains list of Restricted Software for clients using a 10.13.0 or earlier version of the Jamf Pro binary.
- `/Library/Application Support/JAMF/.jmf_settings.json`—Contains a list of Restricted Software for clients using a 10.14.0 or later version of the Jamf Pro binary.
- `/Library/Application Support/JAMF/.userdelay.plist`—Contains policies that have been deferred.
- `/Library/Application Support/JAMF/bin/jamfHelper.app`—Application used to display messages to an end user.
- `/Library/Application Support/JAMF/bin/Management Action.app`—Application used to display messages to an end user in the macOS Notification Center.
- `/Library/Application Support/JAMF/Composer/`—Contains working directory for Composer to save package sources.
- `/Library/Application Support/JAMF/Config/`—Contains Jamf Pro server defined iBeacons.
- `/Library/Application Support/JAMF/Downloads/`—Temporary storage for downloaded packages.
- `/Library/Application Support/JAMF/JAMF.keychain`—Enables certificate based authentication with the Jamf Pro server.

- `/Library/Application Support/JAMF/ManagementFrameworkScripts /StartupScript.sh`—Script that is called by the com.jamfsoftware.startupItem.plist to enable a check-in to the Jamf Pro server at startup.
- `/Library/Application Support/JAMF/ManagementFrameworkScripts /loginhook.sh`—Script that is called by the com.apple.loginwindow.plist to enable a check-in to the Jamf Pro server at login.
- `/Library/Application Support/JAMF/ManagementFrameworkScripts /logouthook.sh`—Script that is called by the com.apple.loginwindow.plist to enable a check-in to the Jamf Pro server at logout.
- `/Library/Application Support/JAMF/Offline/`—Contains the contents of the policies marked to be Available Offline.
- `/Library/Application Support/JAMF/Receipts/`—Contains receipts for all packages installed by Jamf Pro.
- `/Library/Application Support/JAMF/run/`—Temporary Storage for FileVault key prior to submission.
- `/Library/Application Support/JAMF/Self Service/`—Contains Self Service plugins.
- `/Library/Application Support/JAMF/tmp/`—Contains temporary storage for logs and other files.
- `/Library/Application Support/JAMF/Usage/`—Contains the application usage data to be sent to the Jamf Pro server.
- `/Library/Application Support/JAMF/Waiting Room/`—Contains temporary storage for Cached Packages.

Jamf Client Log

- `/var/log/jamf.log`—Contains a record of what the jamf binary does.

Removing Jamf Components from Computers

This removes all Jamf-related components from computers that have been managed by Jamf Pro and all package sources created with Composer.

Removing Jamf Components from Computers Enrolled Using a PreStage Enrollment

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.

4. Click the computer you want to send the remote command to.

   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.

5. Click the **Management** tab, and then click **Remove MDM Profile**.
6. Open Terminal on the computer you want to remove the components from.
7. Execute the following command:
   ```
   /usr/local/bin/jamf removeFramework
   ```

   All Jamf-related components are removed from the computer.

Removing Jamf Components from Computers Without an MDM Profile

1. Open Terminal on the computer you want to remove the components from.
2. Execute the following command:
   ```
   /usr/local/bin/jamf removeFramework
   ```

   All Jamf-related components are removed from the computer.

Mobile Device Management Capabilities

Jamf Pro can be used to enroll and manage the following devices:

- iOS devices
- iPadOS devices
- tvOS devices
- Personally owned iOS devices

The management capabilities available for a particular device vary depending on the device ownership type, device type, and OS version.

This section includes information for OS versions that meet the minimum system requirements for managed mobile devices in Jamf Pro. For information on these requirements, see "Jamf Pro System Requirements" in the *Jamf Pro Release Notes*.

Note: This section provides an overview of mobile device management capabilities by OS version and does not account for additional feature-specific requirements. For information on feature-specific requirements, see the documentation for that feature.

Management Capabilities for Mobile Devices

The following table provides an overview of the management capabilities available with Jamf Pro for iPad, iPhone, and iPod touch devices by iOS version:

iOS Version	10	11	12	13[1]	Personally Owned iOS Device Support
Enrollment					
Via user-initiated enrollment	✓	✓	✓	✓	✓
Via an enrollment profile and Apple Configurator					
Via an enrollment profile and Apple Configurator 2	✓	✓	✓	✓	
Via Automated Device Enrollment using a PreStage enrollment	✓	✓	✓	✓	
Via Automated Device Enrollment using a PreStage enrollment and Apple Configurator 2	✓	✓	✓	✓	

iOS Version	10	11	12	13[1]	Personally Owned iOS Device Support
Via Apple Configurator 2 using an enrollment URL	✓	✓	✓	✓	
Inventory					
Submit inventory to Jamf Pro	✓	✓	✓	✓	✓ [2]
Extension attributes	✓	✓	✓	✓	
Simple searches	✓	✓	✓	✓	✓
Advanced searches	✓	✓	✓	✓	✓
Mobile device reports	✓	✓	✓	✓	✓
Mass actions	✓	✓	✓	✓	✓ [3]
Device Groups					
Static groups	✓	✓	✓	✓	✓ [4]
Smart groups	✓	✓	✓	✓	✓ 4
Configuration					
iOS configuration profiles	✓	✓	✓	✓	✓ [4] **Note:** You cannot apply profiles that require supervision to devices enrolled using User Enrollment. For more information on the payloads that can be configured for devices enrolled using User Enrollment, see User Enrollment payload list in Apple's *Mobile Device Management Settings*.
Personal Device Profiles					✓ [5]

iOS Version	10	11	12	13[1]	Personally Owned iOS Device Support
Remote Commands[6]					
Update inventory	✓	✓	✓	✓	✓
Lock device	✓	✓	✓	✓	✓
Clear passcode	✓	✓	✓	✓	
Update passcode lock grace period	✓	✓	✓	✓	
Clear Screen Time Passcode (This command was previously called "Clear Restrictions".)	✓	✓	✓	✓	
Wipe device	✓	✓	✓	✓	
Set Storage Quota Size				✓	
Unmanage device	✓	✓	✓	✓	
Wipe institutional data					✓
Send blank push	✓	✓	✓	✓	✓
Set wallpaper	✓	✓	✓	✓	
Enable/disable voice or data roaming	✓	✓	✓	✓	
Update iOS version via mass action	✓	✓	✓	✓	
Log out user (Shared iPad only)	✓	✓	✓	✓	
Enable/disable Lost Mode	✓	✓	✓	✓	
Update location	✓	✓	✓	✓	
Enable/disable diagnostic and usage reporting (Shared iPad only)	✓	✓	✓	✓	
Enable/disable app analytics (Shared iPad only)	✓	✓	✓	✓	
Shut down device (Shared iPad only)	✓	✓	✓	✓	
Restart device	✓	✓	✓	✓	
Enable/disable Bluetooth		✓	✓	✓	
Set Activation Lock	✓	✓	✓	✓	

iOS Version	10	11	12	13[1]	Personally Owned iOS Device Support
Enable/disable Personal Hotspot	✓	✓	✓	✓	
Manage Jamf Parent	✓	✓	✓	✓	✓
Refresh Cellular Plans				✓	
Renew MDM Profile	✓	✓	✓	✓	✓
Jamf Self Service for iOS					
Jamf Self Service app	✓	✓	✓	✓	✓[7]
iBeacon region monitoring	✓	✓	✓	✓	
Self Service web clip	✓	✓	✓	✓	
App Distribution					
Managed apps	✓	✓	✓	✓	✓
Managed distribution for mobile devices	✓	✓	✓	✓	
Managed distribution for users	✓	✓	✓	✓	✓
In-house apps	✓	✓	✓	✓	✓[8]
App Store apps	✓	✓	✓	✓	✓[8]
Book Distribution					
Managed books	✓	✓	✓	✓	
Managed distribution	✓	✓	✓	✓	
Install ePub file	✓	✓	✓	✓	
Install iBooks file (iPad only)	✓	✓	✓	✓	
Install PDF	✓	✓	✓	✓	

Notes:
1. Also applies to iPadOS 13.
2. A limited subset of inventory information is collected for personal devices. For more information, see Viewing and Editing Inventory Information for a Mobile Device.
3. Lock Device and Update Inventory are the only remote commands that can be sent via mass action to personally owned devices.
4. Only applies to devices enrolled using User Enrollment.

5. Personally owned devices enrolled using User Enrollment do not use Personal Device Profiles.
6. This table does not account for additional requirements like supervision or enrollment using a PreStage enrollment. For information on specific device requirements for each command, see Remote Commands for Mobile Devices.
7. Devices with iOS 13 or later, or iPadOS 13 or later that were enrolled using User Enrollment; manual installation method only
8. Only managed apps can be distributed to personal devices. App Store apps must be assigned to users (user-based assignment) before distributing them to devices enrolled using User Enrollment. For more information, see User-Based Volume Assignments.

Management Capabilities for tvOS Devices

The following table provides an overview of the management capabilities available with Jamf Pro for institutionally owned Apple TV devices by tvOS version:

tvOS Version	11	12	13
Enrollment			
Via an enrollment profile and Apple Configurator			
Via an enrollment profile and Apple Configurator 2	✓	✓	✓
Via Automated Device Enrollment using a PreStage enrollment	✓	✓	✓
Via Automated Device Enrollment using a PreStage enrollment and Apple Configurator 2	✓	✓	✓
Inventory			
Submit inventory to Jamf Pro	✓	✓	✓
Device Groups			
Static groups	✓	✓	✓
Smart groups	✓	✓	✓
Configuration			
Mobile device configuration profiles	✓	✓	✓
Remote Commands			
Update inventory	✓	✓	✓
Unmanage device	✓	✓	✓
Wipe device	✓	✓	✓
Send blank push	✓	✓	✓

tvOS Version	11	12	13
Restart device	✓	✓	✓
App Distribution			
In-house apps	✓	✓	✓
App Store apps		✓	✓

Related Information

For related information, see the following sections in Apple's *Mobile Device Management Settings*:

- User Enrollment payload list
  Find out which payload settings can be applied to devices enrolled using User Enrollment.
- User Enrollment restrictions
  Find out which restrictions can be applied to devices enrolled using User Enrollment.

Components Installed on Mobile Devices

The following components are installed on mobile devices during enrollment:

- **MDM Profile—**This profile includes a SCEP enrollment request and an MDM enrollment request.
- **Trust Profile—**This profile contains the CA certificate. The CA certificate establishes trust between the certificate authority (CA) and mobile devices. If you enrolled mobile devices using a PreStage enrollment, or using Apple Configurator and an enrollment URL, the Trust Profile is not a separate profile and it is contained within the MDM Profile.
- **Device certificate—**This certificate verifies the identity of managed mobile devices each time they communicate with Jamf Pro.
- **Jamf Self Service for iOS—**Jamf Self Service for iOS allows you to distribute iOS configuration profiles, apps, and books to mobile devices for users to install. Users tap the app to browse and then install items using an interface similar to the App Store.

> **Note:** If you have upgraded from Jamf Pro 9.3x or earlier, the Self Service web clip is installed on all managed mobile devices except Apple TV devices by default. You can prevent Jamf Self Service for iOS from being installed on mobile devices if necessary. (For more information, see Jamf Self Service for iOS.)

> **Note:** Jamf Self Service for iOS is not installed on Apple TV devices or personally owned devices.

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Before You Begin

Setting Up Jamf Pro

The first time you connect to the Jamf Pro server, the Jamf Pro Setup Assistant guides you through the following setup tasks:

- Accept the license agreement.
- Enter your activation code.
- Create your first Jamf Pro user account.
- Enter your Jamf Pro URL.
  The Jamf Pro URL is the URL that client applications, computers, and mobile devices will connect to when communicating with the Jamf Pro server.

After you complete the Jamf Pro Setup Assistant, you can click the setup tips that are displayed onscreen to start configuring commonly used settings.

You may also want to make changes to the following preconfigured settings to ensure they meet the needs of your organization. These settings are important because over time, they can significantly affect the size of your database and your levels of network traffic:

- **"Update Inventory" policy**—Determines how often computers submit inventory to Jamf Pro.
  For more information, see Computer Inventory Collection.
- **Recurring check-in frequency**—Determines the interval at which computers check in with Jamf Pro for available policies.
  For more information, see Recurring Check-in Frequency.
- **Mobile device inventory collection frequency**—Determines how often mobile devices submit inventory to Jamf Pro.
  For more information, see Mobile Device Inventory Collection Settings.

Related Information

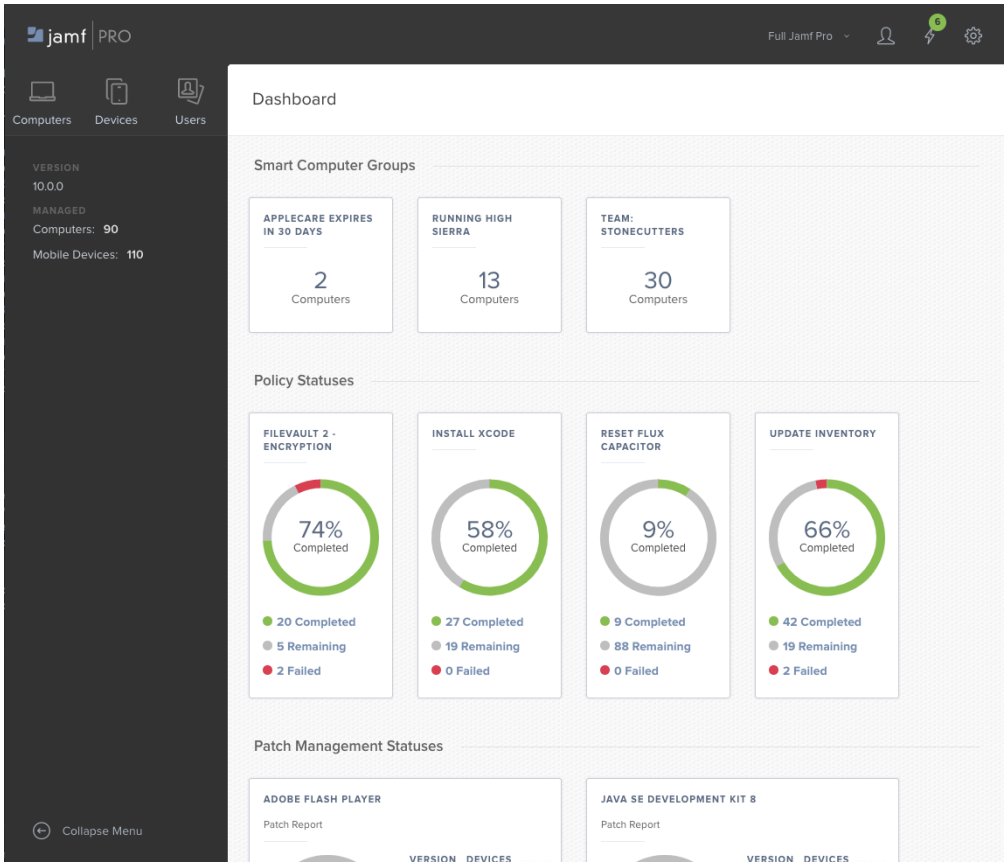
For related information, see the following Knowledge Base article:

Network Ports Used by Jamf Pro
Learn about the network ports that you may need to configure when setting up Jamf Pro.

The Jamf Pro Dashboard

The Jamf Pro Dashboard allows you to monitor the status of commonly viewed items in Jamf Pro, such as smart groups, policies, configuration profiles, patch reports and licensed software—all in one central location.

You can access the Dashboard by clicking the **Jamf Pro** icon in the top-left corner of the page.



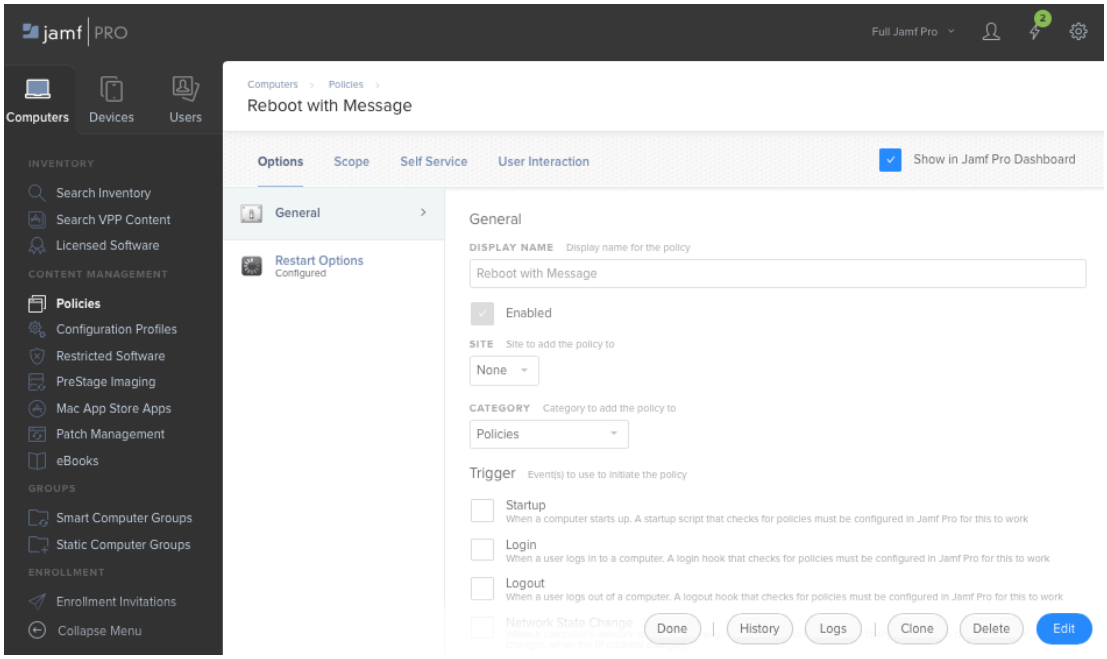
Note: Until you add one or more items to the Jamf Pro Dashboard, it displays setup tips that you can use to configure commonly used settings.

Adding Items to the Jamf Pro Dashboard

You can add the following types of items to the Jamf Pro Dashboard:

- Smart computer groups
- Smart device groups
- Policies
- macOS configuration profiles
- iOS configuration profiles
- Patch reports
- Licensed software
- PKI certificate authorities

To add an item to the Jamf Pro Dashboard, select the **Show in Jamf Pro Dashboard** checkbox in the upper-right corner of the pane when viewing the item in Jamf Pro.



Jamf Pro Objects

Jamf Pro objects provide the foundation for performing administrative and management tasks using Jamf Pro. Examples of Jamf Pro objects include policies, configuration profiles, and network segments.

For detailed information about a specific Jamf Pro object, including instructions for navigating to the Jamf Pro object, see the appropriate section in this guide. Common actions that can be taken on Jamf Pro objects are cloning, editing, deleting, and viewing history.

Note: Available actions are dependent on the particular Jamf Pro object. (For example, a package cannot be cloned, so the Clone button is not displayed for the Packages object.) In addition, an action will not be available if the required privileges have not been granted for that Jamf Pro object.

Cloning a Jamf Pro Object

1. Log in to Jamf Pro.
2. Navigate to the Jamf Pro object you want to clone.
3. Click **Clone** and make changes as needed.
4. Click **Save**.

Editing a Jamf Pro Object

1. Log in to Jamf Pro.
2. Navigate to the Jamf Pro object you want to edit.
3. Click **Edit** and make changes as needed.
4. Click **Save**.

Deleting a Jamf Pro Object

1. Log in to Jamf Pro.
2. Navigate to the Jamf Pro object you want to delete.
3. Click **Delete** .
4. Click **Delete** again to confirm.

Viewing the History of a Jamf Pro Object

Jamf Pro allows you to view the history of each Jamf Pro object. The information you can view includes:

- The date/time the Jamf Pro object was created or edited
- The username of the administrator who made the change
- Notes associated with the changes
- Details about a change

> **Note**: This information is displayed for any Jamf Pro object changes made using 9.31 or later.

1. Log in to Jamf Pro.
2. Navigate to the Jamf Pro object you want to view the history of.
3. Click **History** .
4. (Optional) Click **Add Note** to add a note to the history record.
5. (Optional) Click **Details** to view details about a change.

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Jamf Pro System Settings

Jamf Pro User Accounts and Groups

Jamf Pro is a multi-user application. Jamf Pro user accounts and groups allow you to grant different privileges and levels of access to each user.

When configuring a Jamf Pro user account or group, you can grant access to the full Jamf Pro or to a specific site. You can grant privileges by choosing one of the following privilege sets:

- **Administrator—**Grants all privileges.
- **Auditor—**Grants all read privileges.
- **Enrollment Only—**Grants all privileges required to enroll computers and mobile devices.
- **Custom—**Requires you to grant privileges manually. For a Custom user account or group to have access to a particular function, privileges may need to be granted for multiple objects. For example, to create a mobile device configuration profile, the user needs privileges for both "Mobile Devices" and "Mobile Device Configuration Profiles".

If there are multiple users that should have the same access level and privileges, you can create a group with the desired access level and privileges and add accounts to it. Members of a group inherit the access level and privileges from the group. Adding an account to multiple groups allows you to grant a user access to multiple sites.

There are two ways to create Jamf Pro user accounts and groups: you can create standard accounts or groups, or you can add them from an LDAP directory service.

Important: It is recommended that you have at least one account that is not from an LDAP directory service in case the connection between the Jamf Pro server and the LDAP server is interrupted.

The Jamf Pro User Accounts and Groups settings also allow you to do the following:

- Configure account preferences for each Jamf Pro user account.
- Configure the password settings in the Password Policy for all standard Jamf Pro user accounts.
- Unlock a Jamf Pro user account that is locked.

Requirements

To add accounts or groups from an LDAP directory service, you need an LDAP server set up in Jamf Pro. For more information, see Integrating with LDAP Directory Services.

Creating a Jamf Pro User Group

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **System Settings**.
4. Click **Jamf Pro User Accounts & Groups**  .
5. Click **New**  .
6. Do one of the following:
   - To create a standard Jamf Pro user group, select **Create Standard Group** and click **Next**.
   - To add a Jamf Pro user group from an LDAP directory service, select **Add LDAP Group** and click **Next**. Then follow the onscreen instructions to search for and add the group.
7. Use the Group pane to configure basic settings for the group.
8. If you chose "Custom" from the **Privilege Set** pop-up menu, click the **Privileges** tab and select the checkbox for each privilege that you want to grant the group.
9. Click **Save**  .

Creating a Jamf Pro User Account

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **System Settings**.
4. Click **Jamf Pro User Accounts & Groups**  .
5. Click **New**  .
6. Do one of the following:
   - To create a standard Jamf Pro user account, select **Create Standard Account** and click **Next**.
   - To add a Jamf Pro user account from an LDAP directory service, select **Add LDAP Account** and click **Next**. Then follow the onscreen instructions to search for and add the account.
7. On the Account pane, enter information about the account as needed.

8. Choose an access level from the **Access Level** pop-up menu:
   - To grant full access to Jamf Pro, choose “Full Access”.
   - To grant access to a site, choose “Site Access”.

     Note: The “Site Access” option is only displayed if there are sites in Jamf Pro.For more information on adding sites to Jamf Pro, see Sites.

   - To add the account to a standard group, choose “Group Access”.

     Note: The “Group Access” option is only displayed if there are standard groups in Jamf Pro. For more information on creating groups, see Creating a Jamf Pro User Group.

9. Do one of the following:
   - If you granted the account full access or site access, choose a privilege set from the **Privilege Set** pop-up menu. Then, if you chose “Custom”, click the **Privileges** tab and select the checkbox for each privilege that you want to grant the account.
   - If you added the account to a group, click the **Group Membership** tab and select the group or groups you want to add the account to.
10. Click **Save**.

Configuring Account Preferences

You can configure Language & Region and Search preferences for each Jamf Pro user account. Language & Region preferences allow you to configure settings such as date format and time zone. Search preferences allow you to configure settings for computer, mobile device, and user searches.

1. Log in to Jamf Pro.
2. At the top of the page, click the account settings icon and then click **Account Preferences**.
3. Click the **Language & Region** tab and use the pop-up menus to configure language and region preferences.
4. Click the **Search Preferences** tab and use the pop-up menus to configure search preferences.

   Note: The default search preference is “Exact Match”. For most items, the option can be changed to either “Starts with” or “Contains”.

5. Click **Save**.

Configuring the Password Policy

The Password Policy in Jamf Pro allows you to configure the password settings. The Password Policy applies to all standard Jamf Pro user accounts. You can configure the following password settings:

- Number of login attempts allowed before a Jamf Pro user is locked out of the account
- Password length and age
- Password reuse limitations
- Password complexity
- Settings to allow a user to unlock their own account

Note: The settings configured in the Password Policy do not apply to Jamf Pro user accounts added from an LDAP directory service.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **System Settings**.
4. Click **Jamf Pro User Accounts & Groups** .
5. Click **Password Policy**.
6. Click **Edit** .
7. Use the settings on the pane to specify the password settings.
8. Click **Save** .

The settings are applied immediately.

Unlocking a Jamf Pro User Account

A Jamf Pro user could be locked out of their account if they exceed the specified number of allowed login attempts. If the Password Policy is configured to allow the user to unlock their account, the user can reset their password to unlock their account. In this case, an email is immediately sent to the email address associated with the account in Jamf Pro allowing the user to unlock their account by resetting their password. For an email to be sent, an SMTP server must be set up in Jamf Pro. For more information, see Integrating with an SMTP Server.

In addition, a Jamf Pro user account that is locked can be manually unlocked from Jamf Pro by another Jamf Pro user with the Administrator privilege set.

The access status of the account is displayed as “Disabled” in Jamf Pro until the account is unlocked.

1. Log in to Jamf Pro.

2. In the top-right corner of the page, click **Settings**  .
3. Click **System Settings**.
4. Click **Jamf Pro User Accounts & Groups**  .
   A list of Jamf Pro user accounts and groups is displayed.
5. Click the Jamf Pro user account that has an access status of "Disabled", which means the account is locked.
6. Click **Edit**  .
7. Choose "Enabled" from the **Access Status** pop-up menu to unlock the account.
8. Click **Save**  .

The Jamf Pro user account is unlocked immediately.

Related Information

For related information, see the following section in this guide:

Sites
Learn about sites and how to add them to Jamf Pro.

Integrating with LDAP Directory Services

Integrating with an LDAP directory service allows you to do the following:

- Look up and populate user information from the directory service for inventory purposes.
- Add Jamf Pro user accounts or groups from the directory service.
- Require users to log in to Self Service or the enrollment portal using their LDAP directory accounts.
- Require users to log in during mobile device setup using their LDAP directory accounts.
- Base the scope of remote management tasks on users or groups from the directory service.

> **Note:** Jamf Pro may experience performance issues if too many LDAP groups are included in the scope of an object. If you need to use multiple LDAP criteria within a scope, consider creating a smart group with those criteria, and then scope to that smart group instead.

To integrate with an LDAP directory service, you need to add the LDAP server to Jamf Pro. There are two ways to add LDAP servers to Jamf Pro: using the LDAP Server Assistant or manually.

The LDAP Server Assistant guides you through the process of entering information about the LDAP server and ensuring that LDAP attributes are mapped properly. It allows you to integrate with the following directory services:

- Apple's Open Directory
- Microsoft's Active Directory
- NetIQ eDirectory

Manually adding an LDAP server involves entering detailed information about the LDAP server and manually configuring attribute mappings. This allows you to integrate with additional directory services.
After you have configured an LDAP directory service in Jamf Pro, you can configure an LDAP Proxy. The LDAP Proxy creates a secure tunnel to allow traffic to pass between Jamf Pro and an LDAP directory service. For more information, see LDAP Proxy.

> **Note:** For information about how to configure Google's Secure LDAP Service in Jamf Pro, see Integrating with Cloud Identity Providers section in this guide.

Adding an LDAP Server Using the LDAP Server Assistant

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **System Settings**.
4. Click **LDAP Servers**  .

5. Click **New**  .
6. Follow the onscreen instructions to add the LDAP server.

Manually Adding an LDAP Server

Before manually adding an LDAP server, it is important that you are familiar with search bases, object classes, and attributes. If you are not familiar with these concepts, use the LDAP Server Assistant to ensure that attributes are mapped correctly.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **System Settings**.
4. Click **LDAP Servers**  .
5. Click **New**  .
6. Select **Configure Manually** and click **Next**.
7. Use the Connection pane to configure how Jamf Pro connects to the LDAP server.
8. Use the Mappings pane to specify object class and search base data, and map attributes.
9. Click **Save**  .

Testing LDAP Attribute Mappings

You can test the following LDAP attribute mappings:

- User mappings
- User group mappings
- User group membership mappings

If Jamf Pro returns the appropriate information, the attributes are mapped correctly.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **System Settings**.
4. Click **LDAP Servers**  .
5. Click the LDAP server you want to test.
6. Click **Test**  .
7. Click the appropriate tab and enter information in the fields provided.
8. Click **Test** again.

Related Information

For related information, see the following sections in this guide:

- Jamf Pro User Accounts and Groups
  Find out how to add Jamf Pro user accounts or groups from an LDAP directory service.
- Integrating with Cloud Identity Providers
  Find out how to integrate with a Cloud Identity Provider (e.g. Google Secure LDAP Service).
- Jamf Self Service for macOS User Login Settings
  Find out how to require users to log in to Jamf Self Service for macOS using their LDAP directory accounts.
- Jamf Self Service for iOS
  Find out how to require users to log in to Jamf Self Service for iOS using their LDAP directory accounts.
- Self Service Web Clip
  Find out how to require users to log in to the Self Service web clip using their LDAP directory accounts.
- User-Initiated Enrollment for Computers
  Find out how to require users to log in to the enrollment portal using their LDAP directory accounts before enrolling their computers.
- User-Initiated Enrollment for Mobile Devices
  Find out how to require users to log in to the enrollment portal using their LDAP directory accounts before enrolling their mobile devices.
- Mobile Device PreStage Enrollments
  Find out how to require users to log in during mobile device setup using their LDAP directory accounts before enrolling their mobile devices using a PreStage enrollment.
- Scope
  Learn how to configure scope based on users or groups from an LDAP directory service.

For related information, see the following Knowledge Base articles:

Configuring Jamf Pro to Use LDAP Over SSL When Authenticating with Active Directory
Find out how to configure Jamf Pro to perform authentication with Active Directory using LDAP over SSL (LDAPS).

LDAP Attribute Mappings Reference
Explains the manual configuration settings of an Active Directory LDAP server.

Integrating with Cloud Identity Providers

Integrating with Cloud Identity Providers, which is similar to integrating with an LDAP directory service, allows you to do the following:

- Look up and populate user information from the secure LDAP service for inventory purposes.
- Add Jamf Pro user accounts or groups from the secure LDAP service.
- Require users to log in to Self Service or the enrollment portal using their LDAP directory accounts.
- Require users to log in during mobile device setup using their LDAP directory accounts.
- Base the scope of remote management tasks on users or groups from the secure LDAP service.

To integrate Jamf Pro with a Cloud Identity Provider you need to provide detailed information about the identity provider and upload a keystore or certificate file.

Jamf Pro allows you to integrate with Google's secure LDAP service that is a part of G Suite Enterprise and Cloud Identity Premium. The service can be used with Jamf Pro for user authentication and group syncing.

Note: Users assigned to Cloud Identity Free or G Suite Basic/Business licenses are not allowed to authenticate in Jamf Pro. When such a user tries to authenticate, the **INSUFFICIENT_ACCESS_RIGHTS (50)** error code is displayed in Jamf Pro logs. For information on Secure LDAP service error codes, see the following documentation from Google: https://support.google.com/a/answer/9167101

Cloud Identity Free or G Suite Basic/Business assigned users display in user lookup results and you can add them as Jamf Pro LDAP accounts.

Secure Google LDAP service requires a different configuration than standard LDAP servers. For instructions about how to add Jamf Pro as an LDAP client to the secure LDAP service, configure access permissions, and download the generated certificate, see the following documentation from Google: https://support.google.com/cloudidentity/answer/9048516

After you have added Jamf Pro as an LDAP client, you need to generate the .p12 keystore file. For more information, see the Generating the PKCS12 Keystore File When Integrating Google Cloud Identity Provider with Jamf Pro Knowledge Base article.

Adding a Google Identity Provider Instance

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **System Settings**.
4. Click **Cloud Identity Providers**  .

5. Click **New** .
6. Configure the settings on the pane. Consider the following limitations:
   - The display name for the configuration must be unique.
   - The Domain name value automatically populates the Search Base dc values on the User Mappings and User Groups Mapping tabs.
7. Use the Mappings pane to specify object class and search base data, and map attributes. When configuring the search base, structure the server query in the order that reflects the hierarchical structure of your directory tree to ensure the search returns correct results.
8. Click **Save** .

The LDAP server connection configuration is enabled by default. To disable the configuration, use the switch. Disabling the configuration prevents Jamf Pro from querying data from this secure LDAP server. This means you can add a different instance without deleting the current configuration.

You can also configure attribute mappings for your Google's secure LDAP service instance using Jamf Pro API. For more information, see the Configuring Cloud Identity Provider Attribute Mappings Using Jamf Pro API Knowledge Base article.

Saving an LDAP server connection triggers automatic verification of the hostname, port, and domain. The verification process must succeed before the connection is ready to use.

> **Important**: In large environments, the verification process for valid configurations may fail. Ensure the values in the form are correct and try saving the configuration again.

When troubleshooting the failed Google's secure LDAP service connection, navigate to **Reports** in your Google Admin console, and check the LDAP audit log.

Testing Cloud Identity Provider Attribute Mappings

You can test the following attribute mappings:

- User mappings
- User group mappings
- User group membership mappings

If Jamf Pro returns the appropriate information, the attributes are mapped correctly.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **System Settings**.
4. Click **Cloud Identity Providers** .
5. Click the instance name you want to test.

6. Click **Test** .
7. Click the appropriate tab and enter information in the fields provided.
8. Click **Test** again.

Related Information

For related information, see the following sections in this guide:

- Jamf Pro User Accounts and Groups
  Find out how to add Jamf Pro user accounts or groups from an LDAP directory service.
- Jamf Self Service for macOS User Login Settings
  Find out how to require users to log in to Jamf Self Service for macOS using their LDAP directory accounts.
- Jamf Self Service for iOS
  Find out how to require users to log in to Jamf Self Service for iOS using their LDAP directory accounts.
- Self Service Web Clip
  Find out how to require users to log in to the Self Service web clip using their LDAP directory accounts.
- User-Initiated Enrollment for Computers
  Find out how to require users to log in to the enrollment portal using their LDAP directory accounts before enrolling their computers.
- User-Initiated Enrollment for Mobile Devices
  Find out how to require users to log in to the enrollment portal using their LDAP directory accounts before enrolling their mobile devices.
- Mobile Device PreStage Enrollments
  Find out how to require users to log in during mobile device setup using their LDAP directory accounts before enrolling their mobile devices using a PreStage enrollment.
- Scope
  Learn how to configure scope based on users or groups from an LDAP directory service.

Single Sign-On

You can integrate with a third-party identity provider (IdP) to enable single sign-on (SSO) for portions of Jamf Pro. When SSO is configured and enabled, users are automatically redirected to your organization's IdP login page. After authentication, users obtain access to the resource they were attempting to access.

SSO with Jamf Pro can be enabled for the following:

- **Jamf Pro server—**Every time an unauthenticated user attempts to access the Jamf Pro server, they will be redirected to the IdP login page unless the Allow users to bypass the Single Sign-On authentication checkbox is selected in Jamf Pro's Single Sign-On settings.
- **User-Initiated Enrollment (iOS and macOS)—**Users must authenticate with an IdP to complete User-initiated Enrollment. The username entered during SSO authentication will be used by Jamf Pro to populate the Username field in the User and Location category during an inventory update.
- **Jamf Self Service for macOS—**Users must authenticate with an IdP to access Self Service. The username entered during SSO authentication will be used by Jamf Pro for scope calculations. Self Service is able to access any existing usernames from the IdP.

Notes:

- Using SSL (HTTPS) endpoints and the POST binding for transmission of the SAML protocol is recommended.
- When configuring your IdP settings, using a SHA-256 or higher signatures for SAML assertions is recommended.

Single Sign-On and LDAP

If LDAP is also integrated with Jamf Pro, keep the following in mind when configuring SSO:

- If using LDAP users or groups for SSO, they should first be added as standard Jamf Pro users or groups in the Jamf Pro User Accounts and Groups settings.
- If LDAP is integrated with Jamf Pro, LDAP limitations and exclusions can be used. They will be calculated by matching the username entered into the IdP during Self Service user login with the LDAP username.
- If LDAP is not integrated with Jamf Pro, targets and exclusions for a username will be calculated by matching the username entered into the IdP during Self Service user login with Jamf Pro users accounts and groups.

Single Logout

Jamf Pro uses IdP-initiated SAML Single Logout (SLO) during enrollment to ensure users can end all sessions started with Jamf Pro and the IdP. Afters users complete the enrollment process, a Logout button is available. Use the Messaging pane in User-Initiated Enrollment settings to customize the text displayed during the enrollment experience.

SLO is not available in the following scenarios:

- Your IdP does not provide any SLO endpoints in the metadata.
- A Jamf Pro Signing Certificate is not set up.

When SLO is not available, a message stating that the IdP session may still be active is displayed to users. This is important for Jamf Pro administrators who cannot completely log out after performing the enrollment process for other users.

Note: To support uncommon IdP configurations, the GET binding (less secure than POST) can be used for SAML Single Logout.

Identity Provider Configuration Settings

To implement single sign-on (SSO) with Jamf Pro, you must configure settings in your identity provider's console, portal, or a similar tool. Configuring settings in an IdP usually must be completed before you enable SSO in Jamf Pro, and some commonly used IdPs have pre-configured SSO settings specific to Jamf Pro.

Important: Depending on your IdP, setting up SSO may require simultaneous configuration between your IdP and Jamf Pro to ensure some settings are mapped correctly. Additional settings or steps may also be required.

For IdP-specific instructions for configuring SSO, see the following Knowledge Base articles:

- Configuring Single Sign-On with Okta
- Configuring Single Sign-On with Active Directory Federation Services
- Configuring Single Sign-On with Shibboleth
- Configuring Single Sign-On with OneLogin
- Configuring Single Sign-On with Ping Identity
- Configuring Single Sign-On with G Suite (Google Apps)
- Configuring Single Sign-On with Centrify

For information on configuring SSO with Azure AD , see the following documentation from Microsoft: https://docs.microsoft.com/azure/active-directory/saas-apps/jamfprosamlconnector-tutorial.

Enabling Single Sign-On in Jamf Pro

Requirements

To enable single sign-on (SSO) in Jamf Pro, you need the following:

- Integration with an identity provider (IdP) that supports SAML 2.0 protocols
- Jamf Pro user accounts or groups with matching IdP usernames or groups
- Administrator privileges to Jamf Pro and your IdP

Procedure

Note: Enabling SSO for Jamf Pro services and applications prevents users from authenticating with all other user credentials.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **System Settings**.
4. Click **Single Sign-On**.
5. Click **Edit**  .
6. Select the **Enable Single Sign-On Authentication** checkbox.

   Note: Copy the **Failover Login URL** and save it to a secure location.

7. Choose your IdP from the **Identity Provider** pop-up menu. If your IdP is not available in the pop-up menu, choose "Other".
8. The **Entity ID** is pre-populated by default (e.g., "https://instancename.jamfcloud.com/saml/metadata") in Jamf Pro.

   Note: This value usually must match the Audience URI value in your IdP configuration settings.

9. Choose "Metadata URL" or "Metadata File" from the **Identity Provider Metadata Source** pop-up menu. This value is obtained from your IdP's configuration settings.
10. Enter a value in minutes in the **Token Expiration** field. This value determines the amount of time before the SAML token expires and is pre-populated depending on your IdP.

    Important: Make sure this value matches any token expiration settings configured in your IdP.

11. Configure User Mapping settings:
    a. Select which attribute from the SAML token should be mapped to Jamf Pro users. **NameID** is selected by default. If you select **Custom Attribute**, define a custom attribute that is included in the SAML token sent from the IdP.

       Note: To complete the information exchange between Jamf Pro and the IdP, the SAML token sent by the IdP must include the `NameID` attribute for both options.

    b. Select **Username** or **Email** to determine how users in your IdP will be mapped to Jamf Pro users. B y default, Jamf Pro gets information about the user from the IdP and matches it with existing Jamf Pro user accounts. If the incoming user account does not exist in Jamf Pro, then group name matching occurs.

c. Enter the SAML token attribute that defines users in the IdP in the **Identity Provider Group Attribute Name** field. Jamf Pro matches each group from the Jamf Pro database and compares group names. Users will be granted access privileges from all of the groups in the same manner as a local Jamf Pro user would. `AttributeValue` strings may be formatted as multiple strings or a single string or semicolon-separated values.

> **Example:** `http://schemas.xmlsoap.org/claims/Group`

d. (Optional) Use the **RDN Key For LDAP Group** setting to extract the name of the group from strings sent in LDAP format, Distinguished Names (DN). Jamf Pro will search the incoming string for a Relative Distinguished Name (RDN) with the specified key and use the value of the RDN Key as an actual name of the group.

> **Note:** If the LDAP directory service string contains several RDN parts with the same key (i.e., CN=Administrators, CN=Users, O=YourOrganization), then Jamf Pro will extract group names from the left-most RDN Key (CN=Administrators). If the RDN Key for LDAP Group field is left blank, Jamf Pro will use the entire LDAP format string.

12. (Recommended) Choose an option from the **Jamf Pro Signing Certificate** to secure SAML communication with a digital signature. If uploading the Jamf Pro Signing Certificate, upload a signing certificate keystore (.jks or .p12) with a private key to sign and encrypt SAML tokens, enter the password to the KeyStore file, select a private key alias, and then enter the password for this key.
13. Configure one or more of the following SSO Options for Jamf Pro:

- Select **Allow users to bypass the Single Sign-On authentication** to allow users to sign in in to Jamf Pro without SSO, if they directly navigate to the Jamf Pro URL. When a user tries to access Jamf Pro via your IdP, SSO authentication and authorization still occurs.
- Select **Enable Single Sign-On for Self Service for macOS** to allow users to log in to Self Service via the IdP login page. Self Service is able to access any existing usernames from the IdP.

> **Notes:**
>
> - If selected, Login settings in Self Service for macOS will automatically change Self Service User Login settings to use to Single Sign-On.
> - Disabling SSO for Self Service automatically changes the Self Service User Login settings back to "Allow users to log in to view items available to them using an LDAP account or Jamf Pro user account".

- Select **Enable Single Sign-On for User-Initiated Enrollment** to allow users to enroll with Jamf Pro via the IdP login page. When enabled, the username at the IdP login page will be the username Jamf Pro uses for the Username field in the User and Location category during an inventory update for a computer or mobile device. You can allow access to all users in your IdP or to restrict access to only a select group of users.

> **Notes:**
>
> - If LDAP is integrated with Jamf Pro, the User and Location information will be fully populated using a lookup from Jamf Pro to LDAP.

- If LDAP is not integrated with Jamf Pro, the Username field will be the only item populated in the User and Location category. User lookup will not work during enrollment.

14. Click **Save**.
15. (Optional) Download the Jamf Pro Metadata file.

Users will now be automatically redirected to your organization's IdP login page to access configured portions of Jamf Pro.

To test SSO authentication settings, log out of Jamf Pro and your IdP, and then navigate to your Jamf Pro URL in a web browser. Your IdP login page should display and successfully redirect you to the Jamf Pro dashboard after authentication.

To resolve common errors that users might experience while using SSO, see the Troubleshooting Single Sign-On in Jamf Pro Knowledge Base article.

Related Information

For related information, see the following sections in this guide:

- Integrating with LDAP Directory Services
  Find out how to configure LDAP and test LDAP attribute mappings.
- Jamf Pro User Accounts and Groups
  Find out more about configuring a Jamf Pro user account or group.
- Jamf Self Service for macOS User Login Settings
  Find out how to require users to log in to Jamf Self Service for macOS using their LDAP directory accounts.
- User-Initiated Enrollment for Computers
  Find out where to set the logout message text.
- User-Initiated Enrollment for Mobile Devices
  Find out how to require users to log in to the enrollment portal using their LDAP directory accounts before enrolling their mobile devices.
- Enrollment Customization Settings
  Find out to use Enrollment Customization settings to configure a Single Sign-On Authentication PreStage Pane.

Integrating with an SMTP Server

Integrating with an SMTP server allows you to do the following:

- Send email notifications to Jamf Pro users when certain events occur.
- Send enrollment invitations via email.
- Send mass emails to end users.

To integrate with an SMTP server, you need to configure the SMTP Server settings in Jamf Pro.

Configuring the SMTP Server Settings

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **System Settings**.
4. Click **SMTP Server** .
5. Click **Edit** .
6. Configure the settings on the pane.
7. Click **Save** .

Testing the SMTP Server Settings

Once the SMTP Server settings are configured, you can send a test email from Jamf Pro.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **System Settings**.
4. Click **SMTP Server** .
5. Click **Test** .
6. Enter a test email address and click **Test** again.

A message displays, reporting whether or not the email was sent successfully.

Related Information

For related information, see the following sections in this guide:

- Email Notifications
  Learn about the different email notifications that can be sent to Jamf Pro users.
- User-Initiated Enrollment for Computers
  Find out how to send computer enrollment invitations via email.
- User-Initiated Enrollment for Mobile Devices
  Find out how to send mobile device enrollment invitations via email.
- Sending a Mass Email to Computer Users
  Find out how to send a mass email to computer users.
- Sending a Mass Email to Mobile Device Users
  Find out how to send a mass email to mobile device users.

Email Notifications

Jamf Pro can send email notifications when the following events occur:

- A computer is enrolled using an Imaging PreStage.
- An error occurs during imaging.
- An error occurs while a policy is running.
- A restricted software violation occurs.

  Note: For this to work, email notifications must also be enabled for the individual restricted software records. For more information, see Restricted Software.

- The license limit for a licensed software record is exceeded.

  Note: For this to work, email notifications must also be enabled for the individual licensed software records. For more information, see Licensed Software Records.

- One or more Memcached Endpoint(s) are not reachable.
- Smart computer group membership changes.
- Smart device group membership changes.
- Smart user group membership changes.
- SSL certificate verification is disabled.
- Tomcat is started or stopped.
- The database is backed up successfully.
- A database backup fails.
- Jamf Pro account is locked out because of excessive failed login attempts.
- Jamf Pro fails to add a file to the cloud distribution point.
- An instance of the Jamf Pro web app in a clustered environment fails.
- An updated patch reporting software title is available.

Note: You can choose to be notified of available software title updates via email or a Jamf Pro notification, or both. The Jamf Pro notification option displays a pop-up dialog to the user in Jamf Pro when a new software title update is available. You can also receive notifications for a specific software title. If you disable this notification, you do not receive notifications for any specific software titles that have Patch Notifications enabled. For more information, see Patch Management Software Titles.

- The volume purchasing (formerly VPP) service token for a location is approaching its expiration date.

Note: The first email notification is sent 31 days before the token expires. Email notifications are sent once a week until the token is 7 days from its expiration date. When the expiration date is less than 7 days, they are sent every day until the token expires. After the token has expired, no email notifications are sent.

- A Jamf Infrastructure Manager instance has not checked in with Jamf Pro.

Note: An email notification is sent if the Infrastructure Manager fails to check in with Jamf Pro after three attempts. Only one notification is sent for this event.

- The Jamf Pro JSS Built-in Certificate Authority (CA) is approaching its expiration date or has already expired.
- The Jamf Pro JSS Built-in Certificate Authority (CA) renewal process succeeded or failed.

Enabling Email Notifications

Jamf Pro allows you to enable email notifications for specific events.

Note: Some essential notifications, such as certificate authority (CA) expiration emails, are enabled by default and cannot be disabled.

Requirements

- An SMTP server set up in Jamf Pro (For more information, see Integrating with an SMTP Server.)
- An email address specified for the Jamf Pro user account you want to enable email notifications for (For more information, see Jamf Pro User Accounts and Groups.)

Procedure

1. Log in to Jamf Pro.
2. At the top of the page, click the account settings icon, and then click **Notifications.**

Note: The Notifications option is not displayed if your Jamf Pro user account is associated with an LDAP group.

3. Select the checkbox for each event that you want to receive email notifications for.
4. Click **Save**.

Related Information

For related information, see the following section in this guide:

Integrating with Volume Purchasing
Find out how to configure email notifications for locations.

Activation Code

The Activation Code settings in Jamf Pro allow you to update the activation code for your license. You can also change the organization name associated with the license and view licensing information.

Updating the Activation Code

Every time you receive a new activation code, it must be updated in Jamf Pro.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **System Settings**.
4. Click **Activation Code**  .
5. Click **Edit**  .
6. Enter the new activation code.
7. Click **Save**  .

Change Management

Change Management allows you to track the changes that happen in Jamf Pro, such as the creation of a Jamf Pro user account. The Change Management settings in Jamf Pro allow you to log those changes to a log file (JAMFChangeManagement.log) on the Jamf Pro host server and log the changes to a syslog server.

The Change Management logs can also be viewed in Jamf Pro. The information displayed includes:

- Date/time the change took place
- Username of the administrator who made the change
- Object type (such as a Jamf Pro user account)
- Object name (such as the username of a Jamf Pro user account)
- Action (such as "Created")
- Details about the change

In addition, you can view the changes to a specific object in that object's history.

Note: The option to log changes to a log file or a syslog server is only available for on-premise environments. If your environment is hosted in Jamf Cloud, changes are automatically displayed in the Change Management settings and cannot be exported.

For more information, see Viewing the History of a Jamf Pro Object.

Requirements

To log changes to a log file, the account used to run Tomcat must have write permissions for the directory where the `JAMFChangeManagement.log` file is located.

Configuring the Change Management Settings for On-Premise Environments

The option to configure the Change Management settings is only available for on-premise environments. If your environment is hosted in Jamf Cloud, changes are automatically displayed in the Change Management settings.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **System Settings**.
4. Click **Change Management** .

5. Click **Edit** .
6. Configure the settings on the pane.
7. Click **Save** .

Viewing Change Management Logs in Jamf Pro

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **System Settings**.
4. Click **Change Management** .
   The Change Management logs are displayed on the pane.
5. Do one of the following:
   - To view the object associated with a change, click the object in the Object Name column.
   - To view details about the change, click **Details** in the Details column.

SSL Certificate

Jamf Pro requires a valid SSL certificate to ensure that computers and mobile devices communicate with the Jamf Pro server and not an imposter server.

The Apache Tomcat settings in Jamf Pro allow you to create an SSL certificate from the certificate authority (CA) that is built into Jamf Pro. You can also upload the certificate keystore for an SSL certificate that was obtained from an internal CA or a trusted third-party vendor.

Note: If your environment is hosted in Jamf Cloud, the Apache Tomcat settings are managed by Jamf Cloud and are not accessible.

Requirements

To create or upload an SSL certificate, Jamf Pro must be installed as the "ROOT" web app, and the user running the Tomcat process must have read/write access to Tomcat's `server.xml` file.

Creating or Uploading an SSL Certificate

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **System Settings**.
4. Click **Apache Tomcat Settings** .
5. Click **Edit** .
6. Select **Change the SSL certificate used for HTTPS** and click **Next**.
7. Follow the onscreen instructions to upload or create an SSL certificate.
8. Restart Tomcat for the changes to take effect.
   For instructions on how to restart Tomcat, see the following Knowledge Base article:
   Starting and Stopping Tomcat

Related Information

For related information, see the following Knowledge Base article:

Using OpenSSL to Create a Certificate Keystore for Tomcat
Find out how to use OpenSSL to create a certificate keystore that you can upload to Jamf Pro.

Flushing Logs

Flushing logs reduces the size of the database and can speed up searches. You can flush the following types of logs:

- Application Usage logs
- Computer Usage logs
- Policy logs
- Jamf Remote logs
- Screen sharing logs
- Jamf Imaging logs
- Computer and mobile device management history
- Computer inventory reports (computer inventory information from past inventory submissions)
- Mobile device inventory reports (mobile device inventory information from past inventory submissions)
- Jamf Pro access logs
- Change Management logs
- Event logs

You can schedule log flushing to take place daily, or you can manually flush logs as needed. You can also choose to flush logs that are older than a certain number of days, weeks, or months.

For information on the types of data flushed with each log and the database tables affected, see the Data and Tables Affected by Log Flushing Knowledge Base article.

Scheduling Log Flushing

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **System Settings**.
4. Click **Log Flushing** .
5. Click **Edit** .
6. Use the pop-up menus to choose the number of days, weeks, or months after which each type of log should be flushed.
7. Choose a time of day from the **Time to Flush Logs Each Day** pop-up menu.
8. Click **Save** .

Manually Flushing Logs

1. Log in to any of the Jamf Pro web apps.
2. In the top-right corner of the page, click **Settings** .
3. Click **System Settings**.
4. Click **Log Flushing** .
5. Click **Flush** .
6. Select the checkbox for each type of log you want to flush.
7. From the **Flush Logs Older Than** pop-up menu, choose the number of days, weeks, or months after which logs should be flushed.
8. Click **Flush** .

   A message displays, reporting the success or failure of the flush.

Related Information

For related information, see the following sections in this guide:

- Viewing and Flushing Policy Logs for a Computer
  Find out how to view and flush policy logs for a computer.
- Viewing and Flushing Logs for a Policy
  Find out how to view and flush logs for a policy.
- Viewing the History for a Computer
  Find out how to view the logs and the management history for a computer.
- Viewing Management History for a Mobile Device
  Find out how to view the management history for a mobile device.

Maintenance Pages

The Maintenance Pages setting allows you to create a custom maintenance page for each language used in your environment.

The maintenance page is displayed to users when Jamf Pro is starting up or being upgraded under the following conditions:

- When using the Self Service web clip
- During enrollment

A maintenance page configuration is preconfigured in Jamf Pro for each of the following languages: English, French, German, Japanese, and Spanish. When a computer or mobile device has a preferred language set on it, it displays the maintenance page configuration that corresponds with that language. The English version of the maintenance page is displayed if the computer or mobile device does not have a preferred language set on it.

In addition to the language, the message and the graphic displayed on the maintenance page can be customized. The preconfigured maintenance page message is "We'll be back." You can use Markdown to format the maintenance page message and image. For information about Markdown, see the Using Markdown to Format Text Knowledge Base article.

Creating a Maintenance Page Configuration

The Maintenance Pages setting allows you to create a custom maintenance page for each language used in your environment.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **System Settings**.
4. Click **Maintenance Pages** .
5. Click **New** , and then use the **Language** pop-up menu to specify the language that will be contained within the message. Computers and mobile devices with a preferred language that matches the specified language will display this version of the maintenance page.
6. Use the **Maintenance Page Message** field to customize the message displayed during the Jamf Pro maintenance process.
7. Click **Save** .
8. Repeat this process as needed for other languages.

Jamf Pro Summary

The Jamf Pro Summary is a custom report that can be useful for troubleshooting Jamf Pro issues, and for providing information to Jamf for purposes of support or license renewal.

By default, the Jamf Pro Summary includes the following information:

- Number of managed and unmanaged computers
- Number of managed mobile devices
- Operating system on the Jamf Pro host server
- Path to the Jamf Pro web app
- Apache Tomcat version
- Information about the version of Java installed on the Jamf Pro host server
- Information about the MySQL connection and configuration

You can also add information to the Jamf Pro Summary from the following categories as needed:

- Computers
- Mobile Devices
- Users
- System Settings
- Server Infrastructure
- Global Management
- Computer Management
- Computer Management–Management Framework
- Mobile Device Management
- User Management
- Network Organization
- Database

You can view the Jamf Pro Summary in a browser window or send the Jamf Pro Summary to Jamf.

Requirements

To send the Jamf Pro Summary to Jamf, you need a valid Jamf Nation account.

To create a Jamf Nation account, go to: https://www.jamf.com/jamf-nation/users/new

Viewing the Jamf Pro Summary

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Jamf Pro Information**.
4. Click **Jamf Pro Summary**  .
5. Select the checkboxes next to the items you want to include.
6. Click **Create**.
   The Jamf Pro Summary displays in a browser window.
7. Click the **Back** button in the web browser to return to the Jamf Pro Summary pane.

Sending the Jamf Pro Summary to Jamf

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Jamf Pro Information**.
4. Click **Jamf Pro Summary**  .
5. Select the checkboxes next to the items you want to include.
6. Click **Send Summary to Jamf**.
7. Enter your Jamf Nation credentials, and then click **Send**.

   The Jamf Pro Summary is sent to Jamf via Jamf Nation.

Related Information

For related information about Customer Experience Metrics (CEM), see the following Knowledge Base article:

Customer Experience Metrics
Learn about Customer Experience Metrics and how to configure the setting in your Jamf Pro environment.

For related information about Customer Experience Metrics, visit the following webpage:
https://www.jamf.com/products/jamf-pro/customer-experience-metrics/

Jamf Pro Server Logs

The Jamf Pro Server Logs settings allow you to view and download the Jamf Pro server log from the Jamf Pro web app. You can also use the Jamf Pro Server Logs settings to enable debug mode and statement logging.

Viewing and Downloading the Jamf Pro Server Log

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Jamf Pro Information**.
4. Click **Jamf Pro Server Logs** .
5. Click **Edit** .
6. Configure the options on the screen.
7. Click **Save** .
   The Jamf Pro server log displays on the page.
8. (Optional) Click **Download** to download the log.
   The `JAMFSoftwareServer.log` is downloaded immediately.

Related Information

For related information, see the following Knowledge Base article:

Enabling Debug Mode
Find out how to enable debug mode for several Jamf products, as well as where to view logs from your Apple devices so that you can troubleshoot on a deeper level.

Jamf Pro Health Check Page

The Jamf Pro health check page allows you to view the status of your environment. This can be useful for identifying performance and configuration issues. For example, you can use the Jamf Pro health check page to ensure all instances of the Jamf Pro web app in a clustered environment are running without error.

Note: The Jamf Pro health check page is not the same as the Jamf Pro Health Check service offered by Jamf Professional Services.

The following table lists the possible status the Jamf Pro health check page may return:

Status	Description
[{"healthCode":1,"httpCode":503," description":"DBConnectionError"}]	An error occurred while testing the database connection.
[{"healthCode":2,"httpCode"200:," description":"SetupAssistant"}]	The Jamf Pro Setup Assistant was detected.
[{"healthCode":3,"httpCode":503," description":"DBConnectionConfigError"}]	A configuration error occurred while attempting to connect to the database.
[{"healthCode":4,"httpCode":503," description":"Initializing"}]	The Jamf Pro web app is initializing.
[{"healthCode":5,"httpCode":503," description":"ChildNodeStartUpError"}]	An instance of the Jamf Pro web app in a clustered environment failed to start.
[{"healthCode":6,"httpCode":503," description":"InitializationError"}]	A fatal error occurred and prevented the Jamf Pro web app from starting.
[ ]	The Jamf Pro web app is running without error.

Using the Jamf Pro Health Check Page

To navigate to the Jamf Pro health check page, append "healthCheck.html" to your Jamf Pro URL. For example:

- https://instancename.jamfcloud.com/healthCheck.html (hosted in Jamf Cloud)
- https://jamf.instancename.com:8443/healthCheck.html (hosted on-premise)

The status of your environment displays on the screen.

Once you have identified the status of your environment, you can take steps to resolve any issues that were found.

jamf | PRO

Global Management Settings

Push Certificates

Jamf Pro requires a valid push certificate to communicate with Apple Push Notification service (APNs). This communication is required to do the following:

- Send macOS configuration profiles and macOS remote commands to computers.
- Distribute Mac App Store apps to computers.
- Enroll and manage iOS devices.

An assistant in Jamf Pro guides you through the following steps to create a new push certificate (.pem) and upload it to Jamf Pro:

1. Obtain a signed certificate signing request (CSR) from Jamf Nation.
2. Create the push certificate in Apple's Push Certificates Portal by logging into the portal, uploading the signed CSR obtained from Jamf Nation, and downloading the resulting push certificate.
3. Upload the push certificate to Jamf Pro.

If you have a push certificate in .p12 format, you do not have to create a new one. You can simply upload the .p12 file to Jamf Pro.

You can also use Jamf Pro to renew your push certificate when needed.

Note: Uploading a push certificate to Jamf Pro automatically enables the **Enable Push Notifications** setting in Jamf Pro. For more information, see Security Settings.

Requirements

To create or renew a push certificate, you need:

- A valid Jamf Nation account
  To create a Jamf Nation account, go to:
  https://www.jamf.com/jamf-nation/users/new
- A valid Apple ID (A corporate Apple ID is recommended.)
  If you are renewing a push certificate that was originally obtained from Apple's iOS Developer Program (iDEP), you must use the Apple ID for the iDEP Agent account used to obtain the certificate.

Creating a Push Certificate

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.

4. Click **Push Certificates** .
5. Click **New** and do one of the following:
   - If the server hosting Jamf Pro has an outbound connection, select **Download signed CSR from Jamf Nation**.
     Jamf Pro connects to Jamf Nation over port 443 and obtains the signed CSR.
   - If the server hosting Jamf Pro does not have an outbound connection, select **Download CSR and sign later using Jamf Nation**.
6. Follow the onscreen instructions to create and upload the push certificate (.pem).

Uploading a Push Certificate (.p12)

If you have a push certificate that's in .p12 format, you can upload it to Jamf Pro.

> **Note:** You will only have a push certificate in .p12 format if the CSR used to create the certificate was not issued by Jamf Pro.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **Push Certificates** .
5. Click **New** .
6. Select **Upload push certificate (.p12)**.
7. Follow the onscreen instructions to upload the push certificate.

Renewing the Push Certificate

> **Important**: It is recommended that you do not delete the existing push certificate from Jamf Pro when renewing a push certificate.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **Push Certificates** .
5. Click the push certificate, and then click **Renew** .

6. Choose a method for renewing the push certificate:
   - If the server hosting Jamf Pro has an outbound connection, select **Download signed CSR from Jamf Nation**.
     Jamf Pro connects to Jamf Nation over port 443 and obtains the signed CSR.
   - If the server hosting Jamf Pro does not have an outbound connection, select **Download CSR and sign later using Jamf Nation**.
   - If you have a new push certificate in .p12 format, select **Upload push certificate (.p12)**.
7. Follow the onscreen instructions to renew the push certificate.

Deleting the Push Certificate

Deleting the push certificate from Jamf Pro disables communication between Jamf Pro and APNs. This prevents Jamf Pro from sending macOS configuration profiles and macOS remote commands to computers, and managing iOS devices. In addition, without a push certificate, Mac App Store apps cannot be distributed to computers. To restore these capabilities, you must create a new push certificate, and then re-enroll your computers and mobile devices with Jamf Pro.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.
4. Click **Push Certificates**  .
5. Click the push certificate and click **Delete**  . Then click **Delete** again to confirm.

Related Information

For related information, see the following Jamf Knowledge Base videos:

- Generating an APNs Certificate in Jamf Pro
- Renewing an APNs Certificate in Jamf Pro

For related information, see the following sections in this guide:

- Security Settings
  Find out how to enable certificate-based authentication and push notifications so you can send macOS configuration profiles and macOS remote commands to managed computers.
- PKI Certificates
  Learn how to configure public key infrastructure certificates to ensure secure communication with APNs.

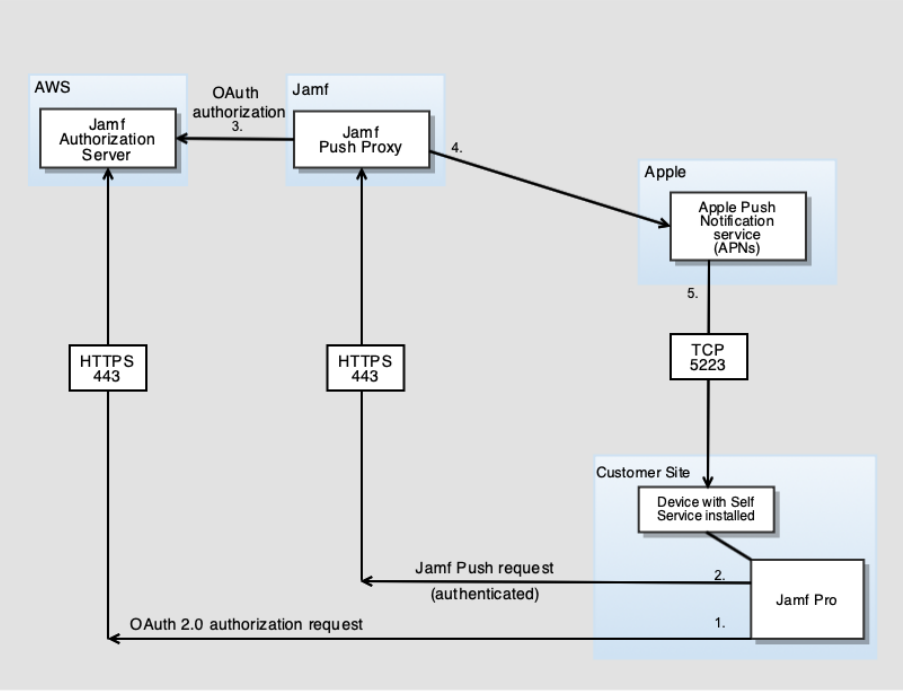
For related information, see the following Knowledge Base article:

Network Ports Used by Jamf Pro
Find out which ports Jamf Pro uses to communicate with APNs.

Jamf Push Proxy

The Jamf Push Proxy enables communication between the Jamf Pro server and devices with Jamf Self Service installed. This communication allows you to send Notification Center notifications to computers and mobile devices with Self Service installed.

Jamf Pro requires a valid proxy server token to authenticate to the Jamf Push Proxy. An assistant in Jamf Pro guides you through the process to request a new proxy server token from the Jamf Authorization Server and upload it to Jamf Pro. The following diagram illustrates the communication between the Jamf Push Proxy and the Apple Push Notification service (APNs), Jamf Pro, and devices in your environment:



Requirements

To request or renew a proxy server token, you need a valid Jamf Nation account.

To create a Jamf Nation account, go to:
https://www.jamf.com/jamf-nation/users/new

Requesting and Uploading a Proxy Server Token

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.
4. Click **Push Certificates**  .
5. Click **New**  .
6. Select **Get proxy server token from Jamf Authorization Server**.
7. Follow the onscreen instructions to get the proxy server token and upload it to Jamf Pro.

Renewing the Proxy Server Token

> **Note:** The proxy server token will be renewed automatically, however, the following steps can be used for troubleshooting purposes.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.
4. Click **Push Certificates**  .
5. Click the push proxy, and then click **Renew**  .

Related Information

For related information, see the Network Ports Used by Jamf Pro Knowledge Base article.

GSX Connection

The GSX Connection settings allow you to integrate Jamf Pro with Apple's Global Service Exchange (GSX) to look up and populate the following purchasing information for computers and mobile devices:

- Purchase date
- Warranty expiration date

Note: GSX may not always return complete purchasing information. Only the information found in GSX is returned.

To integrate Jamf Pro with GSX, you must first create a GSX account and obtain a certificate from Apple. Then you can configure the GSX Connection settings in Jamf Pro, which involves entering GSX account information, retrieving an API token from Apple, and uploading the Apple certificate.

You can also use Jamf Pro to test the GSX connection and upload a renewed Apple certificate when needed.

Requirements

To configure the GSX Connection settings, you need:

- A GSX account with the "Manager" role, access to Web Services, and access to coverage/warranty information
- An Apple certificate (.pem or .p12)

For instructions on creating a GSX account and obtaining an Apple certificate, see the Integrating with Apple's Global Service Exchange (GSX) Knowledge Base article.

Configuring the GSX Connection Settings

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **GSX Connection** .
5. Click **Edit** .
6. Select **Enable Connection to GSX**.

Note: This setting and others on this pane may already be configured if Jamf Pro was used to generate a CSR.

7. Enter the username and account number, including the leading zeros, for the GSX account.
8. Log in to your Apple GSX account, retrieve the API token, and then enter it in the **API Token** field in Jamf Pro.

   Note: The API token is not displayed after you finish configuring the GSX connection or when you edit an existing GSX connection. This is because the API token changes with every request and will always be different.

9. In the Certificate-based Authentication section, click **Upload**.
10. The **URI** field will be populated automatically.
11. Follow the onscreen instructions to upload the Apple certificate (.pem or .p12).

Testing the GSX Connection

After the GSX Connection settings are configured, you can test the connection to verify it works.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **GSX Connection** .
5. Click **Test** .
6. Click **Test** again.

A message displays, reporting the success or failure of the connection.

A successful connection will display information similar to the following:

```
[Accept: application/json, Content-Type: application/json, X-Apple-
SoldTo: 0000000000, X-Apple-ShipTo: 0000000000] GET https://partner-
connect.apple.com/gsx/api/authenticate/check HTTP/1.1

Response: OK
```

Renewing the Apple Certificate

You can use Jamf Pro to upload a renewed Apple certificate without removing the existing certificate so the connection with GSX is not lost. A notification is displayed 31 days prior to the expiration date of the Apple certificate.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **GSX Connection** .
5. Click **Edit** .
6. Click **Renew**.
7. Follow the onscreen instructions to upload a renewed Apple certificate.

Related Information

For related information, see the following sections in this guide:

- Mass Looking up and Populating Purchasing Information for Computers
  Find out how to mass look up and populate purchasing information for computers from GSX.
- Mass Looking up and Populating Purchasing Information for Mobile Devices
  Find out how to mass look up and populate purchasing information for mobile devices from GSX.
- Viewing and Editing Inventory Information for a Computer
  You can look up and populate purchasing information for a single computer by editing the computer's inventory information in Jamf Pro.
- Viewing and Editing Inventory Information for a Mobile Device
  You can look up and populate purchasing information for a single mobile device by editing the device's inventory information in Jamf Pro.
- Local Enrollment Using Recon
  Find out how to look up and populate purchasing information when enrolling a computer by running Recon locally.
- Remote Enrollment Using Recon
  Find out how to look up and populate purchasing information when enrolling a computer by running Recon remotely.

Inventory Preload

The Inventory Preload setting allows you to upload computer and mobile device inventory data before devices are enrolled. The preloaded data will be applied to computers and mobile devices when inventory is collected based on a matching serial number. User data will be applied immediately when the CSV file is uploaded.

The preloaded data is used on an ongoing basis to update device inventory records in Jamf Pro when inventory is collected. For example, device inventory records are updated during the following events:

- When uploading a CSV file with a unique device and set of device data
- When inventory is collected and the specified device is updated in Jamf Pro inventory with the Inventory Preload data
- When uploading a subsequent CSV for the same unique device with a different set of device data
- When inventory is collected again and the specified device is updated in Jamf Pro inventory with the Inventory Preload data

The inventory collection process runs following enrollment or according to the frequency in the Inventory Collection settings. For more information, see the following sections in this guide:

- Inventory for Computers
- Inventory for Mobile Devices

Important: When using Inventory Preload, any manual edits or mass action updates to computer and mobile device inventory details within Jamf Pro will be overwritten by the Inventory Preload data when inventory collection runs.

Following are the valid fields for Inventory Preload CSV upload:

Field	Computers	Mobile Devices
Serial Number (required)	✓	✓
Device Type (required) **Note:** Only two values are valid: "Computer" or "Mobile Device"	✓	✓
Username	✓	✓
Full Name	✓	✓
Email Address	✓	✓
Phone Number	✓	✓

Field	Computers	Mobile Devices
Position	✓	✓
Department	✓	✓
Building	✓	✓
Room	✓	✓
PO Number	✓	✓
PO Date	✓	✓
Warranty Expiration	✓	✓
AppleCare ID	✓	✓
Purchase Price	✓	✓
Life Expectancy	✓	✓
Purchasing Account	✓	✓
Purchasing Contact	✓	✓
Lease Expiration	✓	✓
Bar Code 1	✓	
Bar Code 2	✓	
Asset Tag	✓	✓
Vendor	✓	✓
Extension attributes (For more information, see the “Extension Attributes" section below.)	✓	✓

The CSV template available for download from the Inventory Preload page contains all supported fields.

Requirements

To upload a CSV file, you need:

- A Jamf Pro user account with all privileges for Inventory Preload Records
- A Jamf Pro user account with Create and Update privileges for Users

For more information, see Jamf Pro User Accounts and Groups in the *Jamf Pro Administrator's Guide*.

Example Workflow

The following example describes how data for a mobile device can be uploaded using Inventory Preload, how it updates Jamf Pro inventory records, and how inventory details can be updated by uploading subsequent CSV files.

1. A CSV file with the following contents is uploaded using Inventory Preload:

Serial Number	Device Type	Username	Building	Department
C8PLK8CLFM	Mobile Device	wcrandall	Hopkins Hall	Psychology

2. When mobile device serial number "C8PLK8CLFM" is enrolled, the following happens:
   - The mobile device is assigned to user "wcrandall".
   - The Building field for the mobile device is updated to be "Hopkins Hall".
   - The Department field for the mobile device is updated to be "Psychology".
3. The CSV file is revised to specify mobile device serial number "C8PLK8CLFM" is in building "Smith Hall".
4. The revised CSV file is uploaded to Jamf Pro using Inventory Preload.
5. The next time mobile device "C8PLK8CLFM" updates its inventory, the Building field will be updated to "Smith Hall".

Validation

Uploading a CSV file that contains building and department data requires the building and department to exist in Jamf Pro. If the building and department do not exist in Jamf Pro, the upload will fail.

Users

When a CSV file is uploaded, the CSV data is compared to the Jamf Pro inventory database to determine if new users need to be created or if the information for existing users will be updated.

The following fields are required in the CSV file for users to be created or updated in Jamf Pro:

	New	Update
Username	✓	✓
Email address	✓	

If the CSV file contains a new username and an email address is provided, the new user is created in Jamf Pro.

If the CSV file contains an existing username, the following user-related fields are updated in Jamf Pro:

- Full Name
- Email Address
- Phone Number
- Position

When Data is Applied

Data from the uploaded CSV file is applied in Jamf Pro at different times depending on the data type.

User-related data, including the following fields, is applied immediately when the CSV file is uploaded:

- Username
- Full Name
- Email Address
- Phone Number
- Position

Computer and mobile device data, including the device location, is applied on an ongoing basis each time inventory is collected.

Extension Attributes

Extension attributes are not provided in the CSV template since they vary by each configuration, but you can add them if needed. Extension attributes are dynamically mapped using the "EA " prefix in the column header (note the space after "EA"). For example, if the CSV data contains a column named "EA Memo1", the inventory preload update process will map the value in that column to an existing extension attribute in Jamf Pro named "Memo1".

Further Considerations

Data from the uploaded CSV file takes precedence over existing Jamf Pro data according to the following priorities:

- The data from the uploaded CSV file will overwrite any existing active data records when duplicate serial numbers are found.
- The data from the uploaded CSV file takes precedence over LDAP device data if LDAP is configured.

Uploading a CSV File Using Inventory Preload

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.
4. Click **Inventory Preload**  .
5. To download a CSV file template and prepare the data, click **Download CSV template**.
6. Prepare the CSV file using an editor of your choice.

   Important: If you edit the CSV file using Microsoft Excel on Windows, you must save the file using the file type, "CSV UTF-8 (Comma delimited)(*.csv)". If you saved the CSV file as an XLSX file, you can convert the file to "CSV UTF-8 (Comma delimited)(*.csv)" by using the **Save As** command and changing the file type. However, data may be lost depending on how your data was formatted.

7. Click **Edit**  .
8. Click **Upload Resource File**.
9. Follow the onscreen instructions to upload the CSV file to Jamf Pro.
10. Click **Save** and wait for the uploading process to complete.
11. The uploaded file metadata will be displayed in the History table.

Viewing and Downloading Active Data

View the active data in Jamf Pro or download it as a CSV file.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.
4. Click **Inventory Preload**  .
5. To download the active data, including all data types, click **Download as CSV**. The downloaded file will be named "active-data-(date).csv".
6. To view the active data in Jamf Pro, click **View Active Data**.
7. To download the active data that is currently displayed onscreen, click **Download as CSV**. The downloaded file will be named "active-data-filtered-(date).csv".

> **Note:** Extension attributes are not displayed when you view active data onscreen. To view extension attributes, click **Download as CSV**. The dowloaded active data file includes extension attributes.

Deleting Active Data

You can delete all active data that was previously uploaded to Inventory Preload. Deleting the active data effectively disables the Inventory Preload update process since no preloaded data will exist when inventory is collected.

All inventory details in Jamf Pro that were updated using Inventory Preload will remain intact.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.
4. Click **Inventory Preload**  .
5. Click **Edit**  .
6. Click **Delete Active Data**, and then click **Delete**.
   All data that was previously uploaded is deleted immediately.
7. Click **Save**  .

Viewing Upload History

View the history of all uploaded resource files, including the filename, the name of the user who uploaded the file, and the date the file was uploaded.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.
4. Click **Inventory Preload**  .
5. Click **History**  .
   A list of all uploaded resource files is displayed.
6. To add comments for records in the history list, click **Add Note**, enter a note, and then click **Add Note** again to save the note.

Related Information

For information about how to use Inventory Preload via the Jamf Pro API, see the Jamf developer resources:
https://www.jamf.com/developers/apis/

User-Initiated Enrollment Settings

Enrollment is the process of adding computers and mobile devices to Jamf Pro. This establishes a connection between the computers and mobile devices and the Jamf Pro server. User-initiated enrollment allows users to initiate the enrollment process on their own by navigating to an enrollment URL. For example:

- https://instancename.jamfcloud.com/enroll (hosted in Jamf Cloud)
- https://jss.instancename.com:8443/enroll (hosted on-premise)

Note: Users must use Safari to access the enrollment URL on mobile devices.

Users can enroll the following:

- Mac computers
- Institutionally owned iOS and iPadOS devices
- Personally owned iOS and iPadOS devices

Enrollment of Personally Owned Mobile Devices

Personally owned mobile devices can be enrolled using a Personal Device Profile or User Enrollment. User Enrollment will be replacing Personal Device Profiles as Apple's preferred method for enrolling personally owned devices in a Bring Your Own Device (BYOD) program. Personal Device Profiles will be deprecated in a future release. While you can continue to manage devices enrolled using a Personal Device Profile, any personal devices not yet enrolled in Jamf Pro should be enrolled using User Enrollment. For more information on how to migrate from Personal Device Profiles to User Enrollment, see the Building a BYOD Program with User Enrollment and Jamf Pro technical paper.

User Enrollment is designed to keep corporate data safe on devices with iOS 13.1 and iPadOS 13.1 or later while protecting users' privacy. User Enrollment keeps personal and institutional data separate by associating a personal Apple ID with personal data and a Managed Apple ID with corporate data. This allows for a limited management of devices using a set of configurations that associate management with the user, not the entire device. The user can access their corporate data without the administrator erasing, modifying, or viewing personal data. This separation allows users to keep their personal data protected and intact once the device is removed from Jamf Pro, while the corporate data is deleted. For more information on User Enrollment management capabilities, see Mobile Device Management Capabilities.

To create Managed Apple IDs, you must either use federated authentication to link Apple School Manager or Apple Business Manager to your instance of Microsoft Azure Active Directory (AD) or create them manually in Apple School Manager or Apple Business Manager. For more information, see the following documentation from Apple:

- Turn on and test federated authentication in Apple School Manager
- Turn on and test federated authentication in Apple Business Manager
- Create Managed Apple IDs in Apple School Manager

- Create Managed Apple IDs in Apple Business Manager

Configuring the User-Initiated Enrollment Settings

Requirements

For computers with macOS 10.12.6 or earlier, if you choose to sign the QuickAdd package, you need:

- An installer certificate (.p12) from Apple. For instructions on how to obtain an installer certificate, see the Obtaining an Installer Certificate from Apple Knowledge Base article.
- A certification authority intermediate certificate from Apple in the System keychain in Keychain Access on computers. For instructions on how to obtain this certificate and import it to the System keychain, see the following articles from Apple's support website:
  - Request a certificate from a certificate authority in Keychain Access on Mac
  - Add certificates to a keychain using Keychain Access on Mac

Procedure

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **User-Initiated Enrollment** .
5. Click **Edit** .
6. Use the General pane to configure settings as needed for restricting re-enrollment, skipping certificate installation, or uploading a third-party signing certificate to be used during enrollment.

   Note: The certificate installation step is skipped by default.

7. On the Messaging pane, do the following to customize the text displayed on devices during the enrollment experience and add languages:
   a. Do one of the following:
      - To add a language, click **Add** + Add and then choose the language from the Language pop-up menu.

        Note: English is the default language if the device does not have a preferred language set on it.

      - To customize the text for a language already listed, click **Edit** next to the language.
   b. In the **Page Title for Enrollment** field, enter a page title to display at the top of all enrollment pages.

c. On the **Login** tab, use the fields provided to customize how you want the Login page to be displayed to users.

d. (Mobile devices only) Click the **Device Ownership** tab and use the fields provided to customize the text that is displayed to users based on their device ownership type. The text displayed and the enrollment page on which the text displays depends on the enrollment options that you enable:

- **If you are enabling user-initiated enrollment for both institutionally owned and personally owned mobile devices**—Customize the text that prompts users to choose the appropriate device ownership type, and customize the device management description that explains the IT management capabilities for each device ownership type. When users select the personal or institutional device ownership type, the respective device management description is displayed.
- **If you are enabling user-initiated enrollment for personally owned devices only**—Customize the device management description that explains the IT management capabilities for personal device ownership. This description is accessible to users by tapping the **Information** icon displayed on the Personal MDM Profile page during enrollment.

e. Click the **End User License Agreement** tab and use the fields provided to specify an End User License Agreement (EULA) for personally owned devices. If the EULA fields are left blank, a EULA page is not displayed to users during enrollment.

f. Click the **Sites** tab and use the fields provided to customize the message that prompts users to choose a site.
If a user logs in with a Jamf Pro user account, they can assign an LDAP user to the computer or mobile device.
If you have more than one site in Jamf Pro and have entered information on the Messaging Pane in Personal Device Profiles in Jamf Pro, this information is displayed to users when they are prompted to choose a site. For more information, see Personal Device Profiles.

> **Note:** This setting does not apply to User Enrollment.

g. (Mobile devices only) Click the **Certificate** tab and use the fields provided to customize the message that prompts users to install the CA certificate for mobile devices to trust at enrollment.

h. (Institutionally owned devices only) Click the **Institutional Device MDM Profile** tab and use the fields provided to customize the message that prompts users to install the MDM profile for institutionally owned devices.

i. (Personally owned devices only) Click the **Personal MDM Profile** tab and use the fields provided to customize the message that prompts users to install the MDM profile for devices enrolled using Personal Device Profiles.

j. (User Enrollment only) Click the **User Enrollment MDM Profile** tab and use the fields provided to customize the message that prompts users to install the MDM profile, including guidance for users on what to enter for their Managed Apple ID.

k. (Computers only) Click the **QuickAdd Package** tab and use the fields provided to customize the message that prompts users to download and install the QuickAdd package.

l. Click the **Complete** tab and use the fields provided to customize the messages that are displayed to users if enrollment is successful or fails.

m. Click **Save**.

8. Use the Platforms pane to enable user-initiated enrollment and configure the enrollment settings for each platform as needed.

   Note: If you have personally owned devices currently enrolled in Jamf Pro using a Personal Device Profile, enabling User Enrollment does not remove them from management.

9. Use the Access pane to specify whether an LDAP group has access to enroll mobile devices using an enrollment URL without an invitation. When sites are defined in Jamf Pro, you can choose a site to display to LDAP user groups during enrollment.

   Note: If an LDAP user belongs to more than one LDAP user group in Jamf Pro, the user will have the option to select the sites you assign to each group that user belongs to.

10. Click **Save**.

Related Information

For related information, see the following sections in this guide:

- User-Initiated Enrollment for Computers
  Find out how to allow users to enroll computers.
- User-Initiated Enrollment for Mobile Devices
  Find out how to allow users to enroll mobile devices.
- User-Initiated Enrollment Experience for Computers
  Learn about the steps users take to enroll computers.
- User-Initiated Enrollment Experience for Mobile Devices
  Learn about the steps users take to enroll mobile devices.
- User Enrollment for Mobile Devices
  Find out how to allow users to enroll personally owned mobile devices.
- User Enrollment Experience for Mobile Devices
  Learn about the steps users take to enroll personally owned mobile devices.

For related information on User Enrollment, see User Enrollment into MDM in Apple's *Deployment Reference for iPhone and iPad*.

Integrating with Automated Device Enrollment

Enrollment is the process of adding computers and mobile devices to Jamf Pro. This establishes a connection between the computers and mobile devices and the Jamf Pro server. The Automated Device Enrollment settings allow you to integrate Jamf Pro with Automated Device Enrollment (formerly DEP). This is the first step to enrolling a device with Jamf Pro using a PreStage enrollment. After Jamf Pro is integrated with Automated Device Enrollment, you can use Jamf Pro to configure enrollment and device setup settings. You can also use the Automated Device Enrollment settings to renew an Automated Device Enrollment instance.

To integrate Jamf Pro with Automated Device Enrollment, you need to do the following:

1. Download a public key (.pem) from Jamf Pro.
2. Obtain a server token file (.p7m) from Apple.
3. Upload the server token file to Jamf Pro to configure an Automated Device Enrollment instance.

Jamf Pro automatically refreshes information every two minutes in the Automated Device Enrollment instance. If information in Apple School Manager or Apple Business Manager is updated, this information is displayed in Jamf Pro. There can be up to a two minute delay on the information refresh, which can result in outdated information displayed in Jamf Pro. In addition, environment-specific factors can affect the refresh of information.

Note: Deleting an Automated Device Enrollment instance removes the instance from Jamf Pro but does not delete the settings in Apple School Manager or Apple Business Manager.

Downloading a Public Key

Before you can obtain the server token file from Apple, you need to download a public key from Jamf Pro.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.
4. Click **Automated Device Enrollment**  .
5. Click **Public Key** to download the public key.

The public key (.pem) is downloaded immediately.

Obtaining the Server Token File

Requirements

To obtain the server token file from Apple, you need an Apple School Manager or Apple Business Manager account and the Administrator or Device Manager role assigned.

For more information about Automated Device Enrollment, accounts, and roles, see Apple's documentation:

- Apple School Manager User Guide
- Apple Business Manager User Guide

Note: It is recommended that you only use one Apple School Manager or Apple Business Manager account to integrate with Automated Device Enrollment. Using more than one account makes it difficult to isolate the account causing the issues when troubleshooting.

Procedure

To download the server token file, you need to upload your public key to the Automated Device Enrollment instance.

1. Log in to Apple School Manager or Apple Business Manager .
2. (Optional) Follow the onscreen instructions to verify your identity.
3. Click **Settings** at the bottom of the sidebar, and then click **Device Management Settings**.
4. Click **Add MDM Server**.
5. In the **MDM Server Name** field, enter the name for your server.
6. Click **Choose File**, and then upload the public key (.pem) you downloaded from Jamf Pro.
7. Click **Save**.
8. Click **Download Token** to download the server token file (.p7m).

Uploading the Server Token File to Configure Automated Device Enrollment

This process creates one Automated Device Enrollment instance in Jamf Pro. To meet the needs of your organization, you can repeat the process to create multiple instances.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.

4. Click **Automated Device Enrollment** .
5. Click **New** .
6. Enter a display name for the Automated Device Enrollment instance.
7. Click **Upload Server Token File** to upload the server token file (.p7m) you downloaded from Apple. This creates one Automated Device Enrollment instance in Jamf Pro.
   The information contained in the server token file is displayed.

   Note: A server token is valid for one year after the token is uploaded and saved in Jamf Pro.

8. (Optional) Choose a supervision identity to associate with the Automated Device Enrollment instance. For more information, see Supervision Identities.
9. Click **Save** .
10. To configure another instance, repeat steps 5-9.

Replacing a Server Token File to Renew an Automated Device Enrollment Instance

If your Automated Device Enrollment server token has expired or needs to be replaced, you must download a new token from Apple School Manager or Apple Business Manager and upload it to Jamf Pro.

Note: If you are uploading a new server token file (.p7m) to renew an expired Automated Device Enrollment instance, it is recommended that you do not delete the expired instance from Jamf Pro before uploading the new server token file.

1. Log in to Apple School Manager or Apple Business Manager.
2. Click **Settings** at the bottom of the sidebar.
3. Click to select your Jamf Pro MDM server, and then click **Download Token**. The generated server token file (.p7m) is downloaded to your computer.
4. Log in to Jamf Pro.
5. In the top-right corner of the page, click **Settings** .
6. Click **Global Management**.
7. Click **Automated Device Enrollment** .
8. Select the Automated Device Enrollment instance you want to renew and click **Edit**.
9. Click **Upload Server Token File** to upload the server token file (.p7m) you downloaded from Apple. The information contained in the server token file is displayed.
10. Click **Save**.

Related Information

For related information, see the following Jamf Knowledge Base videos:

- Integrating Jamf Pro with Apple's Device Enrollment
- Renewing a Device Enrollment Server Token

For related information, see the following sections in this guide:

- Mobile Device PreStage Enrollments
  Find out how to enroll mobile devices using a mobile device PreStage enrollment.
- Computer PreStage Enrollments
  Find out how to enroll Mac computers using a computer PreStage enrollment.
- Supervision Identities
  Find out how to create, upload, and download a supervision identity for use with Apple Configurator 2.

Enrollment Customization Settings

The Enrollment Customization settings in Jamf Pro allow you to further customize the experience for a user when they enroll their computer or mobile device with Jamf Pro via a PreStage enrollment. For example, you can display an End User License Agreement (EULA) during enrollment or other custom messaging as the user advances through the Setup Assistant. The Enrollment Customization settings also allow you to apply branding to display a familiar look and feel—such as your company's colors or logos—to users.

Configuring the Enrollment Customization settings creates an Enrollment Customization configuration that you can add to a Computer or Mobile Device PreStage enrollment.

Creating an Enrollment Customization configuration involves configuring the following:

- **PreStage Panes**—PreStage Panes are groups of settings that allow you to customize how the screens display to users during the Setup Assistant. You can configure authentication screens and custom text screens.
- **Settings for Branding**—You can configure settings that allow you to customize how the Enrollment Customization configuration is displayed by adding an icon and configuring colors to present users with a familiar look and feel.

PreStage Panes

A PreStage Pane is a group of settings that allow you to customize the screens that are displayed to the user during enrollment with Jamf Pro. The PreStage Panes are displayed to the user as screens during the Setup Assistant and are presented after the user chooses a Wi-Fi Network or other connection to the Internet.

The following table describes the types of PreStage Panes that you can configure and how the panes are displayed to the user:

Type of PreStage Pane	Description	User Experience
Single Sign-On Authentication	If you have Single Sign-On enabled in Jamf Pro, configuring this pane automatically applies the settings configured in the Single Sign-On settings to enable the user to authenticate with your Identity Provider (IdP) using SSO. You can choose to allow access to any Identity Provider user or to allow access to only a select group of users in your IdP. **Note**: You can only allow access to one group. This automatically assigns the user to their device in Jamf Pro. If LDAP is integrated with Jamf Pro, the User and Location information will be fully populated using a lookup from Jamf Pro to LDAP. If LDAP is not integrated	A screen is presented to the user that displays your IdP's login screen prompting the user to authenticate.

Type of PreStage Pane	Description	User Experience
	with Jamf Pro, the Username field will be the only item populated in the User and Location category, and user lookup will not work during enrollment. If your environment uses Jamf Connect, you can enable Jamf Pro to pass user information to Jamf Connect. This allows Jamf Pro to pass the Account Name (the username that was used to authenticate with your IdP) and the Account Full Name (the full name of the user) to Jamf Connect. For example, if Samantha Johnson authenticates with your IdP, Jamf Pro passes both the username (e.g., samantha.johnson) and the Account Full Name (e.g., Samantha Johnson) to Jamf Connect. This creates the local account on the computer with the user's Account Full Name. The user can log in to their computer with the Account Name. In addition, you can map the Account Name and the Account Full Name to the fields that your IdP uses to define these attributes. For example, if your IdP uses "Short Name" for the Account Name, you can map "Short Name" to Account Name in Jamf Pro. Jamf Pro creates a profile with this information and distributes the profile to the computer during enrollment. This information remains on the computer for up to one hour. **Note**: You can only add one Single Sign-on Authentication PreStage Pane to an Enrollment Customization configuration, and you cannot add a Single Sign-On Authentication pane if there is an LDAP Authentication pane currently added.	If a user is not part of a group that was given access, an "Access Denied" message is displayed to the user after they authenticate with your IdP. If you enabled Jamf Pro to pass user information to Jamf Connect, the user is presented with the Jamf Connect Login screen after authenticating to your IdP. At this screen, they must re-enter their password to continue with enrollment. The Setup Assistant automatically proceeds after the user authenticates.
Text	This pane allows you to enter custom text to display to the user during enrollment, such as a EULA. You can also enter text for a title of the page and text to label the navigational buttons to guide the user through each screen. You can enter text in plain text format or you can customize the text displayed to the user by using Markdown in the text field for the body of the pane. See the Using Markdown to Format Text Knowledge Base article for information on limitations to the Markdown syntax that can be used in this pane. **Note**: This pane does not support HTML.	A screen is displayed with the text and navigational buttons you configured in Jamf Pro. If you added a title to the pane, the title is displayed as a heading.

Type of PreStage Pane	Description	User Experience
	You can configure as many Text PreStage Panes that fit your environment. After you add a Text pane, you can preview the user experience in Jamf Pro.	If you add multiple Text PreStage Panes, the user transitions to each screen by clicking or tapping the navigational buttons. The Setup Assistant automatically proceeds after the user transitions through the last screen you configured.
LDAP Authentication	If you have an LDAP server set up in Jamf Pro, configuring this pane enables the user to authenticate using their LDAP credentials during enrollment. You must enter text for a title of the page, text for the username and password fields, and text to label the navigational buttons to guide the user through the login screen. In addition, you can restrict enrollment access to only a select LDAP group or groups. Only the selected LDAP group is allowed to enroll devices using the PreStage enrollment. You can add as many LDAP groups to the pane as your environment requires. This automatically assigns the user to their device in Jamf Pro. The User and Location information will be fully populated using a lookup from Jamf Pro to LDAP. **Note**: You can only add one LDAP Authentication PreStage Pane to an Enrollment Customization configuration, and you cannot add an LDAP Authentication pane if there is a Single Sign-On Authentication pane currently added.	A screen is presented to the user that displays a login screen prompting the user to authenticate with their LDAP credentials. The Setup Assistant automatically proceeds after the user authenticates.

You can drag-and-drop PreStage Panes in the order you want them displayed to the user. If you added a Single Sign-On Authentication PreStage Pane and a Text PreStage Pane, the transition between each type of pane is accomplished when the user authenticates in the IdP login screen or uses the navigational buttons.

Settings for Branding

Jamf Pro allows you to configure settings that customize elements within the Enrollment Customization configuration to present end users with a familiar look and feel. You can customize the elements in the Text and LDAP Authentication PreStage Panes.

You can upload an icon that displays at the top of all Text and LDAP Authentication PreStage Panes throughout the enrollment process. When uploading an icon, it is required that you use a file with the GIF or PNG format and recommended that the size is 180x180 pixels.

The following elements can be customized by entering a six digit hexadecimal color code or by using the color picker:

- **Body Text Color**—This color is applied to the text in the pane.
- **Button Color**—This color is only applied to the navigational button the allows users to move forward in the enrollment process.
- **Button Text Color**—This color is only applied to the text on the navigational button that allows users to move forward in the enrollment process.
- **Background Color**—This color is displayed in the background, behind the panes during the enrollment process.

The preview field to the right of the Branding settings automatically displays your changes so you can finalize your configuration before saving.

Note: The preview functionality for a Single Sign-On Authentication PreStage Pane is a generic authentication preview. This user experience is dependent on your Identity Provider.

Requirements

To add a Single Sign-On Authentication PreStage Pane, you must have Single Sign-on enabled in Jamf Pro. For more information, see Single Sign-On.

Enabling Jamf Pro to pass user information to Jamf Connect requires Jamf Connect 1.12.0 or later. In addition, you must ensure Jamf Connect is configured appropriately. For more information, see Configuring Jamf Connect Login for the IdP your environment integrates with in the *Jamf Connect Administrator's Guide*.

To add an LDAP Authentication PreStage Pane, you must have an LDAP server set up in Jamf Pro. For more information, see Integrating with LDAP Directory Services.

The Enrollment Customization settings apply to the following:

- Mobile devices with iOS 13 or later, and iPadOS 13 or later
- Computers with macOS 10.15 or later

Creating an Enrollment Customization Configuration

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.
4. Click **Enrollment Customization**  .
5. Click **New**  .
6. Enter a display name and description for the Enrollment Customization configuration.
7. Choose a site to add the Enrollment Customization configuration to from the **Site** pop-up menu. Adding an Enrollment Customization configuration to a site allows you to add the configuration to a PreStage enrollment in that same site.

   Note: If you have site access only, the profile is assigned to the applicable site automatically and the Site pop-up menu is not displayed.

8. Add PreStage Panes to display screens to the end user:
   a. Click **Add Pane**.
   b. In the Add Pane dialog, enter a display name for the pane that will identify it in the list of PreStage Panes.
   c. Choose the type of PreStage Pane you want to add from the **Pane Type** pop-up menu.
   d. Configure the settings for the PreStage Pane.

      Notes:

      - If you are configuring a Text PreStage Pane as the first screen presented to the user in the configuration, the button for navigating back in the enrollment process is not displayed. If the pane is the last screen in the configuration, the button to navigate forward initiates the enrollment process.
      - If you enable Jamf Pro to pass user information to Jamf Connect, you can map the attributes of your Identity Provider to Account Name and Account Full Name. For example, if your IdP uses "Short Name" for the Account Name, you can type "Short Name" in the Account Name field so when the user enters their username (Account Name) during enrollment, Jamf Connect maps the Account Name to the "Short Name" in the IdP.
        Values entered in the Account Name and Full Account Name fields must be entered exactly as they appear in your IdP.

   e. Click Apply.
9. Repeat step 8 to add additional PreStage Panes to the Enrollment Customization configuration.

10. Click the **Branding and Preview** tab to customize the enrollment experience and configure the settings on the page.
    Once a change is made, it automatically displays in the preview field.
11. Click **Save**.

After you create an Enrollment Customization configuration, you can add the configuration to a PreStage enrollment.

Further Considerations

- If a user is unable to authenticate using their IdP credentials at the Single Sign-On Authentication screen, the enrollment process cannot continue until the correct credentials are entered.
- You cannot delete an Enrollment Customization configuration if the configuration has been added to a PreStage enrollment. To delete the configuration, you must first remove it from the PreStage.

Related Information

For related information, see the following sections in the guide:

- Computer PreStage Enrollments
  Learn how to add an Enrollment Customization configuration to a Computer PreStage enrollment.
- Mobile Device PreStage Enrollments
  Learn how to add an Enrollment Customization configuration to a Mobile Device PreStage enrollment.

Apple Education Support Settings

The Apple Education Support settings in Jamf Pro allow you to do the following:

- **Enable support for Shared iPad and Apple's Classroom app**—You can allow computers and iPads to be added to Classes in Jamf Pro for use with Apple's Classroom app. In addition, this setting allows iPads to be added to Classes in Jamf Pro as Shared iPad for use with Apple's Classroom app.
- **Enable user images**—Enabling user images allows an image or student photo to be displayed in the Classroom app and on the login screen for Shared iPads. The user image is also displayed in the inventory information for each user.
- I**ntegrate with Apple School Manager**—Integrating Jamf Pro with Apple School Manager allows you to import students, teachers, and classes from Apple School Manager. This automatically creates new users and classes in Jamf Pro for use with Apple's Classroom app. For more information, see Integrating with Apple School Manager.

Requirements

Support for Apple's Classroom app applies to the following devices:

- Supervised iPads with iOS 9.3 or later
- Teacher computers with macOS 10.14 or later
- Student computers with macOS 10.14.4 or later

Note: When assigning a student or teacher to a computer in Jamf Pro, you must ensure that the username in Jamf Pro matches the username of the MDM-enabled user on the computer. For more information about enabling MDM for users, see the following Knowledge Base articles:

- Enabling MDM for Local User Accounts
- Managing User Approved MDM with Jamf Pro

In addition, support for Shared iPad for use with Apple's Classroom app applies to supervised iPads with iOS 9.3 or later.

To enable user images, you need the following:

- Images hosted on a distribution point with an enabled web server
  It is recommended that you disable directory index browsing for your distribution point to ensure that the image files on the server are secure.

  Note: It is recommended that the user images are in PNG format and are 256x256 pixels.

- A CA certificate (.pem) downloaded from Jamf Pro is needed to establish a secure connection between the Jamf Pro server and the distribution point so that the user images are populated for each user in Jamf Pro. For more information about CA certificates, see PKI Certificates.

In addition, you need a valid push certificate in Jamf Pro. For more information, see Push Certificates.

Shared iPad and Apple's Classroom App Support

When you enable the Apple Education Support settings, Jamf Pro generates an EDU profile that is installed on an iPad or computer when the device is added to a Class in Jamf Pro for use with Apple's Classroom app. The EDU profile configures the device with user and class information. For information about enabling Shared iPad during enrollment, see Mobile Device PreStage Enrollments.

For more information about Shared iPad, see the following Apple documentation:

- Use Shared iPad (Classroom Help documentation)
- Use Shared iPad (Education Deployment Guide)

Supporting Shared iPad and Apple's Classroom App

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **Apple Education Support** .
5. Click **Edit** .
6. Select the **Enable Apple Education Support** checkbox.
7. Click **Save** .

Jamf Pro generates an EDU Profile that is installed on devices when they are added to a Class in Jamf Pro.

iPads that are enrolled with Jamf Pro using a PreStage enrollment that has Shared iPad enabled are enabled as Shared iPad for use with Apple's Classroom app when they are added to a Class in Jamf Pro.

User Images

You can enable user images as a part of Apple Education Support. When you enable user images, you allow an image or student photo to be displayed in the Classroom app and on the login screen for Shared iPads. The user image is also displayed in the inventory information for each user.

User images must be hosted on a distribution point with an enabled web server. The URL for that distribution point must be specified in Jamf Pro when you enable user images.

When setting up the distribution point URL, it is recommended that you use a variable in the URL and name the image files so that they function with the variable you choose. For example, if the distribution point URL is https://www.mycompany.com/$USERNAME.png, the username in Jamf Pro for each user will be inserted into the URL in place of the $USERNAME variable. If you name each image file using the username in Jamf Pro for each user, the correct image will be displayed for each user.

You can use the following variables in the distribution point URL for user images:

- `$USERNAME`
- `$FULLNAME`
- `$REALNAME`
- `$EMAIL`
- `$PHONE`
- `$POSITION`
- `$EXTENSIONATTRIBUTE_<#>`

Note: Once you have specified a distribution point URL for user images, you can choose to specify a custom URL for a single user's image from the inventory information for a user. The custom URL overrides the specified distribution point URL. For more information about specifying a custom URL, see Viewing and Editing Inventory Information for a User.

For step-by-step instructions on preparing to use user images, see the Integrating with Apple School Manager to Support Apple's Education Features Using Jamf Pro technical paper.

Enabling User Images

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **Apple Education Support** .
5. Click **Edit** .
6. If you have not enabled Apple Education Support, select the **Enable Apple Education Support** checkbox.
7. Select the **Enable User Images** checkbox.
8. Enter a distribution point URL for user images.

Important: Editing the distribution point URL for user images causes existing EDU profiles to be redistributed. This can increase network traffic.

9. If you have not already downloaded the CA certificate (.pem), click **Download** to download the certificate, and then save the certificate in the appropriate location dictated by your web server vendor.
10. (Optional) If needed to establish trust between the Jamf Pro server and the distribution point, upload an additional certificate (.p12 or .pem) from your web server to the Jamf Pro server.
11. Click **Save**.
12. (Optional) Use the **Test** button to ensure that the user images on your distribution point are accessible.

    Due to caching, user images may not appear immediately on devices. You may need to restart the device or the Classroom app in order for user images to appear.

Related Information

For related information, see the following sections in this guide:

- Mobile Device PreStage Enrollments
  Find out how to enable Shared iPad for use with Apple's Classroom app when enrolling an iPad with Jamf Pro.
- Classes
  Find out how to create Classes in Jamf Pro for use with Apple's Classroom app.

For related information, see the following technical papers:

Supporting Apple's Classroom App and Shared iPad Using Jamf Pro
Get step-by-step instructions on how to support Shared iPad and Apple's Classroom app with Jamf Pro 9.9.

Integrating with Apple School Manager to Support Apple's Education Features Using Jamf Pro
Get step-by-step instructions on how to integrate with Apple School Manager to support Apple's education features using Jamf Pro.

Integrating with Apple School Manager

The Apple Education Support settings allow you to integrate Jamf Pro with Apple School Manager. Integrating with Apple School Manager allows you to do the following:

- Specify a class naming format. This is applied to all classes imported from Apple School Manager. For more information, see Class Naming and Description Format.
- Specify a class description format. This is applied to all classes imported from Apple School Manager. The description is displayed in Apple's Classroom app. For more information, see Class Naming and Description Format.
- Sync Jamf Pro with Apple School Manager to automatically update user and class information in Jamf Pro at a scheduled time. You can also force Jamf Pro to sync immediately with Apple School Manager. For more information, see Apple School Manager Sync Time.
- Choose user criteria for matching imported users from Apple School Manager with existing users in Jamf Pro. Imported user information is appended to the Roster category of user inventory information for the existing user in Jamf Pro. For more information, see Matching Criteria for Importing Users from Apple School Manager.
- Automatically create new users in Jamf Pro by importing users from Apple School Manager.
- Automatically create classes in Jamf Pro by importing classes from Apple School Manager.

Note: It is recommended that you only use one Apple School Manager account to integrate with Jamf Pro. Using more than one account makes it difficult to isolate the account causing the issues when troubleshooting.

Integrating Jamf Pro with Apple School Manager creates one instance of Apple School Manager in Jamf Pro. To integrate with Apple School Manager, you need to associate an Automated Device Enrollment (formerly DEP) instance with the Apple School Manager instance. You can associate one Automated Device Enrollment instance with one Apple School Manager instance.

For more information about Apple School Manager, see the Apple School Manager User Guide.

Class Naming and Description Format

When you integrate with Apple School Manager, you choose variables in Jamf Pro that match values for class information in Apple School Manager. Jamf Pro allows you to specify variables that apply to a class name and class description when the class is imported from Apple School Manager to Jamf Pro. You can specify variables for the following settings:

- **Class Naming Format**—When a class is imported, the variables are applied to the display name of the class in the order you select. For example, if you select "Course Name" and "Class Source ID", the class is imported to Jamf Pro with a name like "Biology12345".
  The default values for the class naming format are "Course Name" and "Class Source ID".

- **Class Description Format**—When a class is imported, the variables are applied to the description of the class in the order you select. For example, if you select "Location" and "Instructor", the class is imported to Jamf Pro with a description like "EauClaireSamanthaJohnson".
  This setting overwrites existing class descriptions the next time Jamf Pro syncs with Apple School Manager for classes that have already been imported.

The following table displays the available variables in Jamf Pro and the values for class information that the variables match in Apple School Manager. The same variables are available for the class naming format and the class description format:

Variable in Jamf Pro	Class Information in Apple School Manager	Notes
Location Name	Role /Location	
Class ID	Class ID	
Class Source ID	Course ID	
Course Name	Course Name	"Course Name" must contain a value prior to importing the class to Jamf Pro.
Class Name	Class Name	
Course Number	Course Number	
Class Room	Room	
Class Site	N/A	Value is populated based on the site the class is imported to in Jamf Pro.
Instructor Name	N/A	Value is populated based on "Last Name" for the teacher that is imported with the class. If there is no value for "Last Name", this value is populated with the value for "Full Name". If there are multiple teachers in a class, the "Instructor Name" value is populated with the teacher name that comes first alphabetically by last name.
Instructor Grade	N/A	Value is populated based on "Grade" for the teacher that is imported with the class. If there are multiple teachers in a class, the "Instructor Grade" value is populated with the teacher name that comes first alphabetically by last name.
Class Number	Class Number	

Variable in Jamf Pro	Class Information in Apple School Manager	Notes
Custom	N/A	In addition to variables, you can apply a custom field to the class naming format to separate variables or enter custom text. For example, if you select "Course Name", "Custom Text", and "Class Source ID", and enter a hyphen (-) in the Custom Text field, the class is imported to Jamf Pro with a name like "Biology-12345".

Note: If a value is not available in Apple School Manager for the variable selected in Jamf Pro, a blank value is displayed in Jamf Pro for that selected variable in the class name.

Apple School Manager Sync Time

You can configure how frequently Jamf Pro syncs information from Apple School Manager. Configuring a sync time allows user and class information to be updated automatically if there is updated information available in Apple School Manager. You can choose to sync never, daily, once a week, every other week, or once a month. The default sync time is "Never". In addition, you can force Jamf Pro to sync immediately with Apple School Manager. For more information, see Forcing an Apple School Manager Sync.

Information is only synced from Apple School Manager to Jamf Pro, not from Jamf Pro to Apple School Manager.

When the configured sync time is reached or you have forced an Apple School Manager sync, inventory information in the Roster category is updated for the imported users and users associated with an imported class. Class information, such as the display name, is also updated. If you modify the class naming format after a class has been imported, the class name is updated and the class naming format is re-applied to the classes that have been imported.

If a student or teacher is added to a class in Apple School Manager after a class has been imported, the user is imported to Jamf Pro and matched with existing users during a sync based on the criteria for matching imported users from Apple School Manager. If there is no match, the imported user is added to Jamf Pro as a new user in the Users tab. For more information, see Matching Criteria for Importing Users from Apple School Manager .

If you have not yet imported users or classes from Apple School Manager when the configured sync time is reached, information is synced at the time configured and stored in the Jamf Pro database for the class or user until they are imported. For more information, see Importing Users to Jamf Pro from Apple School Manager and Classes.

Note : Jamf Pro performs one sync at a time.

Matching Criteria for Importing Users from Apple School Manager

When you integrate Jamf Pro with Apple School Manager, you choose Jamf Pro user criteria to match with Apple School Manager user criteria. Users that are imported to Jamf Pro are matched to existing users in Jamf Pro based on the selected user criteria.

The following table displays the criteria you can use to match imported users from Apple School Manager to existing users in Jamf Pro:

Jamf Pro User Criteria	Apple School Manager User Criteria
Email (Jamf Pro server)	Email
Email (Jamf Pro server)	Managed Apple ID
Username (Jamf Pro server)	Source System Identifier
	Source System Identifier Username
User Extension Attributes	
Managed Apple ID (Jamf Pro server)	Managed Apple ID

The default criteria matches "Email (Jamf Pro)" with "Managed Apple ID" from Apple School Manager and an operator of "equals".

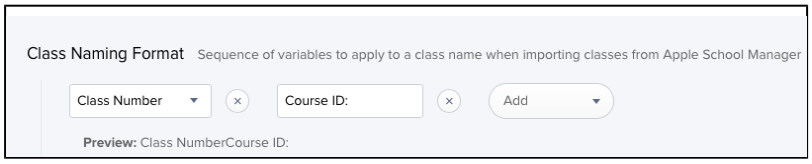
Requirements

To integrate with Apple School Manager, you need to integrate Jamf Pro with Automated Device Enrollment. For more information, see Integrating with Automated Device Enrollment.

Configuring an Instance of Apple School Manager

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **Apple Education Support** .

5. Click **Edit** .
6. Click the **Apple School Manager** tab.
7. Select the **Enable Apple School Manager Integration** checkbox.
8. Click **Add**.
   If you have not integrated Jamf Pro with Automated Device Enrollment (formerly DEP), click the **Automated Device Enrollment settings** link.
   For instructions on how to integrate with Automated Device Enrollment see Integrating with Automated Device Enrollment.
9. Enter a display name for the Apple School Manager instance.
10. Choose an Automated Device Enrollment instance from the **Automated Device Enrollment Instance** pop-up menu.
11. Use the **Class Naming Format** options to select a variable to apply to the name of a class when importing the class from Apple School Manager. To add more variables, click **Add** and select "Variable" or "Custom Text".
    To remove a variable, click the "X" next to the variable field.

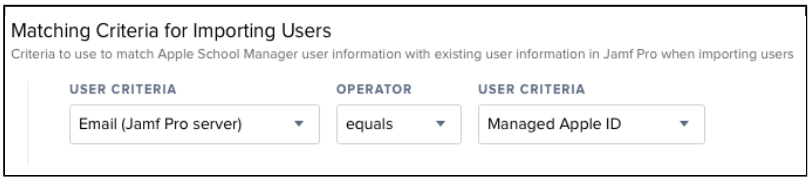


12. (Optional) Use the **Class Description Format** options to select a variable to apply to the description of a class when importing the class from Apple School Manager. To add more variables, click **Add** and select "Variable" or "Custom Text".
    To remove a variable, click the "X" next to the variable field.
13. (Optional) To select a time that Jamf Pro should sync with Apple School Manager, choose a time interval from the **Apple School Manager Sync Time** pop-up menu, and then configure the days and time to sync.
    The time zone that is displayed is the time zone that is configured in System Preferences.

    Note: It is recommended that you choose to sync with Apple School Manager at a time other than when you choose to flush logs or back up your database.

14. Choose criteria to use for matching imported users from Apple School Manager with existing users in Jamf Pro using the **Matching Criteria for Importing Users** options:
    a. Select Jamf Pro or Apple School Manager user criteria from the **User Criteria** pop-up menu on the left.
    b. Choose an operator from the **Operator** pop-up menu.

c. Select Jamf Pro or Apple School Manager user criteria from the **User Criteria** pop-up menu on the right.



15. Click **Save**.

When you import users or classes, the variables selected for the Class Naming Format are applied to the class display name, and the user information from Apple School Manager is matched to existing user information in Jamf Pro based on the selected criteria.

Jamf Pro updates user and class information from Apple School Manager at the time configured.

Forcing an Apple School Manager Sync

You can force Jamf Pro to sync immediately with Apple School Manager. This allows you to update user and class information in Jamf Pro when needed. For more information about syncing Jamf Pro with Apple School Manager, see Apple School Manager Sync Time.

Note: Forcing Jamf Pro to sync with Apple School Manager can add significant network traffic in Jamf Pro. It is recommended that you force sync at a time other than when you choose to flush logs or back up your database.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**.
3. Click **Global Management**.
4. Click **Apple Education Support**.
   A list of Apple School Manager instances is displayed.
5. Click the **Force Sync** button next to the Apple School Manager instance that you want to manually sync Jamf Pro with.

   Jamf Pro immediately syncs information from Apple School Manager.

   If you force Jamf Pro to sync with more than one instance of Apple School Manager, Jamf Pro performs one sync at a time.

Further Considerations

Deleting an Apple School Manager instance removes the information in the Roster category of user inventory information that is imported from Apple School Manager. This disables Shared iPad for users.

Note: Deleting an Apple School Manager instance does not remove the users or classes that have been imported from Apple School Manager.

Related Information

For related information, see the following sections in this guide:

- Mobile Device PreStage Enrollments
  Find out how to support Shared iPad for use with Apple's Classroom app when enrolling an iPad with Jamf Pro.
- Classes
  Find out how to create Classes in Jamf Pro for use with Apple's Classroom app.
- Apple Education Support Settings
  Find out how to enable support for Shared iPad for use with Apple's Classroom app.

For related information, see the following technical papers:

Integrating with Apple School Manager to Support Apple's Education Features Using Jamf Pro
Get step-by-step instructions on how to integrate with Apple School Manager to support Apple's education features with Jamf Pro.

For related information, see the following Apple website:
https://support.apple.com/HT207409

Re-enrollment Settings

The Re-enrollment settings in Jamf Pro allow you to clear certain information from inventory for a computer or mobile device when it is re-enrolled with Jamf Pro.

The Re-enrollment settings are applied to computers and mobile devices when they are re-enrolled with Jamf Pro via the following enrollment methods:

- Automated Device Enrollment
- Device Enrollment
- User Enrollment (personally owned mobile devices only)

The following table lists the settings that you can apply to inventory information during re-enrollment:

Setting	Description
Clear user and location information on mobile devices and computers	This setting clears all information from the User and Location category on the **Inventory** tab in computer and mobile device inventory information during re-enrollment with Jamf Pro. When devices are re-enrolled, the user and location fields display a blank value. Information is not cleared, however, when the following happens: ▪ If a user logs in to the enrollment portal using an LDAP directory account, or a Jamf Pro user logs in and assigns an LDAP user to the device, then the user and location information associated with the LDAP account is assigned to the device during re-enrollment. If the user chooses a site at enrollment, the device is associated with the selected site. ▪ If there is an extension attribute displayed on the User and Location category on the **Inventory** tab, the value for the extension attribute is not cleared during re-enrollment. ▪ If a PreStage enrollment is used to enroll devices and the **Use existing location information, if applicable** option is selected, the user and location information of the user logging in is populated in the device's inventory information. For more information about user and location information, see Viewing and Editing Inventory Information for a Computer and Viewing and Editing Inventory Information for a Mobile Device.
Clear user and location history information on mobile devices and computers	This setting clears all information from the User and Location History category on the **History** tab in computer and mobile device inventory information during re-enrollment with Jamf Pro. For more information about user and location history information, see Viewing the History for a Computer and Viewing the History for a Mobile Device.

Setting	Description
Clear policy logs on computers	This setting clears all information from the Policy Logs category on the **History** tab in computer inventory information during re-enrollment with Jamf Pro. For more information about the policy logs for computers, see Viewing the History for a Computer. In addition, this setting clears the logs for a policy for re-enrolled computers that have run the policy. For information on viewing and flushing logs for a policy, see Policy Management. When the computer is re-enrolled with Jamf Pro, any policies that the computer is in the scope of are re-run on the computer at the policy's next trigger.
Clear extension attribute values on computers and mobile devices	This option clears all values for extension attributes that are populated by the following input types: ▪ Text field ▪ Pop-up menu ▪ Script (computers only) ▪ LDAP Attribute Mapping **Note:** Values for extension attributes that are populated by scripts and LDAP Attribute Mappings are cleared during re-enrollment, but are then re-populated the next time computers and mobile devices check in with Jamf Pro. This option does not remove the extension attribute from Jamf Pro. For more information about extension attributes, see Computer Extension Attributes and Mobile Device Extension Attributes.
Clear management history on mobile devices and computers	This setting clears all information from the Management History category on the **History** tab in computer and mobile device inventory information during re-enrollment with Jamf Pro. You can clear the following information: ▪ Completed, pending, and failed commands ▪ Pending and failed commands ▪ Failed commands ▪ Nothing The default setting is to clear pending and failed commands. **Note:** If there are pending commands at the time of re-enrollment, these commands are cleared. For more information about management history information, see Viewing the History for a Computer and Viewing the History for a Mobile Device.

General Requirements

To re-enroll a device, you must send the Remove MDM Profile remote command to the device before re-enrolling it. For more information about how to send a remote command, see Remote Commands for Computers and Remote Commands for Mobile Devices.

Configuring the Re-enrollment Settings

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.
4. Click **Re-enrollment**  .
5. Choose the settings that you want to apply to device inventory information during re-enrollment.
6. Click **Save**  .

When computers and mobile devices are re-enrolled with Jamf Pro, the settings are applied to inventory information.

Related Information

For related information, see the following sections in this guide:

- User-Initiated Enrollment for Computers
  Find out how to allow users to enroll their own computers by having them log in to an enrollment portal.
- Computer PreStage Enrollments
  Find out how to enroll Mac computers using a PreStage enrollment.
- User-Initiated Enrollment for Mobile Devices
  Find out how to allow users to enroll mobile devices by having them log in to an enrollment portal.
- Mobile Device PreStage Enrollments
  Find out how to enroll mobile devices using a PreStage enrollment.
- Apple Configurator Enrollment Settings
  Find out how to enable Apple Configurator enrollment so you can enroll mobile devices using Apple Configurator and an enrollment URL.

Jamf Pro URL

The Jamf Pro URL is the URL that client applications, computers, and mobile devices connect to when communicating with the Jamf Pro server. You can view and configure the Jamf Pro URL in Jamf Pro if you are hosting your own Jamf Pro server. It is recommended that you configure the Jamf Pro URL to include the correct protocol, fully qualified domain name (FQDN), and port of the server.

Important: In general, you should not change the Jamf Pro URL in a production environment with managed computers and mobile devices. If the Jamf Pro URL is incorrect or not specified, client applications, computers, and mobile devices are unable to connect to the server. If you are considering making a change to your Jamf Pro URL, contact your Jamf account representative.

You can also view or configure the Jamf Pro URL that's used for enrolling mobile devices with an enrollment profile and Apple's iPhone Configuration Utility (iPCU).

Note: If your environment is hosted in Jamf Cloud, the Jamf Pro URL setting is managed by Jamf Cloud and is not accessible.

Viewing or Configuring the Jamf Pro URLs

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **Jamf Pro URL** .
   The Jamf Pro URLs are displayed on the pane.
5. To configure the Jamf Pro URLs:
   a. Click **Edit**.
   b. Enter the new URLs in the fields on the pane.
   c. Click **Save**.

Related Information

For related information, see the following section in this guide:

Enrollment Profiles
Find out how to create and download enrollment profiles so you can enroll mobile devices by connecting them to a computer via USB.

PKI Certificates

The PKI Certificates settings allow you to manage the public key infrastructure needed to establish communication between computers and mobile devices and certificate authorities (CA). Jamf Pro requires a PKI that supports certificate-based authentication.

The PKI must include the following components:

- A certificate authority (CA). You can use the built-in CA, a trusted third-party CA, or an external CA that supports SCEP.
- A certificate authority (CA) certificate
- A signing certificate

For more information on PKI and its components, see Security.

In addition, you can use the PKI Certfiicates settings to configure a JSON Web Token to secure downloads of iOS and tvOS in-house apps and books. For more information, see the Configuring a JSON Web Token to Secure Downloads of iOS and tvOS In-House Apps and Books Knowledge Base article.

Viewing and Exporting Certificates

You can view the following information for a certificate:

- Subject name
- Serial number
- Device name associated with the certificate
- Username associated with certificate
- CA configuration name
- Date/time issued
- Expiration date/time
- Status (Active or Inactive)
- State (Issued, Expiring, Expired, or Revoked)
- Configuration profiles associated with a third-party certificate

When you are viewing a list of certificates, you can export the list to a .csv, .txt, or XML file.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **PKI Certificates** .
   A list of CAs will be displayed with the number of expiring, active, inactive, or all certificates for each CA.

5. Click a number in the Expiring, Active, Inactive, or All column.
   A list of corresponding certificates will be displayed.
6. Click a certificate subject to view more details about a specific certificate.
   If applicable, the certificate details will include the revoked date. For third-party CA certificates, any c onfiguration profiles associated with the certificate are also displayed.
7. (Optional) If you want to export the list of certificates displayed in step 5:
   a. Click **Export.**
   b. Select a file format for the exported file.
   c. Click **Next**.
   d. The export begins immediately.
   e. Click **Done**.

The Built-in CA

No configuration is necessary to use Jamf Pro's built-in CA. The built-in CA is used by default to issue certificates to computers and mobile devices. The CA certificate and signing certificate are created and stored for you automatically. When a device checks in with Jamf Pro, it communicates with the SCEP server to obtain the CA certificate.

Note: If you do not want computers or mobile devices to communicate directly with a SCEP server and you are using the built-in CA, you can enable Jamf Pro as SCEP Proxy to issue device certificates via configuration profiles. For more information, see the Enabling Jamf Pro as SCEP Proxy technical paper.

Downloading the Built-in CA Certificate

The downloaded built-in CA certificate (.pem) can be used to establish trust with other servers or services. For example, you can establish trust for IIS on Windows servers for HTTPS distribution points. For more information, see the Using IIS to Enable HTTPS Downloads on a Windows Server 2016 or 2019 File Share Distribution Point Knowledge Base article.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **PKI Certificates** .
5. Click the **Management Certificate Template** tab, and then click **Built-in CA**.
6. Click **Download CA Certificate**. The certificate file (.pem) will download.

   The certificate issued by the built-in CA is also stored in the System keychain in Keychain Access on Mac computers as "JAMF Software JSS Built-in Certificate Authority".

Revoking a Certificate from the Built-in CA

Warning: Revoking a certificate stops communication between Jamf Pro and the computer or mobile device that the certificate was issued to. To restore the communication, re-enroll the computer or mobile device.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **PKI Certificates** .
   A list of CAs will be displayed with the number of expiring, active, inactive, or all certificates for each CA.
5. Click a number in the Expiring, Active, Inactive, or All column.
   A list of corresponding certificates will be displayed.
6. Click a certificate subject to view more details about a specific certificate.
7. To revoke the certificate, click **Revoke** .
8. Click **Revoke** again to confirm.
   The status of the certificate is changed to "Inactive", and the state is changed to "Revoked".

Note: You can also view a record of revoked certificates in the `jamfsoftwareserver.log` file. For more information, see Jamf Pro Server Logs in this guide.

Creating a Built-in CA Certificate from a CSR

Depending on your environment, you may need to create a certificate from a certificate signing request (CSR). For example, you may need to do this if you have a clustered environment with Tomcat configured to work behind a load balancer.

Note: The certificate created from the CSR is intended solely for purposes of communication between Jamf Pro and a managed computer or mobile device.

To create a certificate from a CSR, you need a request in Base64-encoded PEM format.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **PKI Certificates** .
5. Click the **Management Certificate Template** tab, and then click **Built-in CA**.
6. Click **Create Certificate from CSR**.

7. In the **CSR** field, paste the CSR.
   The request must begin with
   `----BEGIN CERTIFICATE REQUEST----`
   and end with
   `----END CERTIFICATE REQUEST----`
8. Select a certificate type.
9. Click **Create**.
   The certificate file (.pem) will download immediately.

Creating a Backup of the Built-in CA Certificate

It is recommended that you create a password-protected backup of the CA certificate issued by the built-in CA and store it in a secure location.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.
4. Click **PKI Certificates**  .
5. Click the **Management Certificate Template** tab, and then click **Built-in CA**.
6. Click **Create CA Backup**.
7. Create and verify a password to secure the backup of the built-in CA certificate.
   You will need to enter this password to restore the certificate backup.
8. Click **Create Backup**.
   The backup file (.p12) will download immediately.

Renewing the Built-in CA

When the CA expires, some critical Jamf Pro flows do not work. For example, enrolling computers or mobile devices when the CA is expired prevents them from being managed. It is recommended to renew the built-in CA before the expiration date.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.
4. Click **PKI Certificates**  .
5. Click a number in the All column.
   A list of corresponding certificates will be displayed.
6. Click the certificate with "Certificate Authority" in the subject to view the certificate details.
7. Click **Renew**  and confirm the renewal.

8. (Optional) Verify the new expiration date.
9. Refresh the page. The renewal status is displayed in Jamf Pro Notifications. Additionally, an email with the renewal process status is sent if email notifications are configured for your account.

When the built-in CA is renewed, its expiration date is extended by 10 years. All signing certificates issued by the built-in CA are automatically renewed.

Note: After the built-in certificate authority (CA) renewal succeeds, t he MDM profile for computers and mobile devices is automatically queued for renewal. The next time computers and mobile devices check in to Jamf Pro, the MDM profile will be renewed, and the **MDM Profile Expiration Date** field value in the inventory will show the new expiration date. The device identity certificates will expire in two years. To monitor which MDM profiles are not renewed, you can create a smart computer or mobile device group and set the **MDM Profile Renewal Needed** search criteria value to "Yes".

Consider the following:

- Renewing the built-in CA may affect integrations that use the built-in CA itself or certificates created from a CSR that was signed by the CA. These certificates may need to be re-issued. The affected integrations may include:
  - HTTPS file share distribution point configuration
  - Signing custom configuration profiles
  - SCCM (System Center Configuration Manager) plug-in
- When Apple Education Support is enabled in your environment, renewing the built-in CA causes existing EDU profiles to be redistributed. This may increase network traffic.

Important: If the built-in CA renewal fails, do not trigger the process again. If the expiration date is not extended or you notice issues with the renewed CA, e.g., Jamf Pro cannot communicate with managed computers or mobile devices, contact Jamf Support.

Third-Party CAs

You can integrate Jamf Pro with trusted third-party CAs, including DigiCert, Venafi, or Active Directory Certificate Services (AD CS). These integrations allow an organization to have a CA that controls all of the identity certificates across all devices. Using a third-party CA will allow for unified reporting on all certificates for IT teams.

- **DigiCert**—DigiCert certificates are managed in Jamf Pro using the DigiCert PKI Platform service. After communication between Jamf Pro and the DigiCert PKI Platform is established, you can deploy certificates to computers or mobile devices. For more information, see the Integrating with DigiCert Using Jamf Pro technical paper.
- **Venafi**—Venafi certificates are managed in Jamf Pro using Venafi Trust Protection Platform. After communication between Jamf Pro and Venafi Trust Protection Platform is established, you can deploy certificates to computers or mobile devices. For more information, see the Integrating with Venafi Using Jamf Pro technical paper.

- **AD CS**—After communication with the PKI provider is successfully established, you can deploy certificates via configuration profiles using AD CS as the CA. You can also distribute in-house apps developed with the Jamf Certificate SDK to establish identities to support certificate-based authentication to perform Single Sign-On (SSO) or other actions specific to your environment. For more information, see the Integrating with Active Directory Certificate Services (AD CS) Using Jamf Pro technical paper.

External CAs

If you are using an organizational or third-party CA that supports SCEP, you can use it to issue management certificates to computers and mobile devices. When a device checks in with Jamf Pro, the device communicates with the SCEP server to obtain the certificate.

Note: If you do not want computers or mobile devices to communicate directly with a SCEP server and you are using an external CA, you can use Jamf Pro to obtain management certificates from the SCEP server and install them on devices during enrollment. You can also enable Jamf Pro as SCEP Proxy to issue device certificates via configuration profiles. For more information, see the Enabling Jamf Pro as SCEP Proxy technical paper.

Integrating an external CA with Jamf Pro involves the following steps:

- Specifying SCEP parameters for the external CA
- Uploading a signing certificate and CA certificate for the external CA

Note: If you need to make changes to your organizational or third-party CA in Jamf Pro, it is recommended that you contact your Jamf account representative. Changes to the PKI settings may require re-enrollment of mobile devices in your environment to restore trusted communication between the Jamf Pro server and mobile devices required for Mobile Device Management (MDM). Preparing for a change to PKI settings for computer management or restoring trusted communication between the Jamf Pro server and managed computers after a change is made to PKI settings in Jamf Pro may be possible using policy features available in Jamf Pro. Policies can be used to update trusted certificate settings on managed computers required for MDM.

Specifying SCEP Parameters for an External CA

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **PKI Certificates** .
5. Click the **Management Certificate Template** tab, and then click **External CA**.
6. Click **Edit**.
7. Use the External CA pane to specify SCEP parameters.

8. Choose the type of challenge password to use from the **Challenge Type** pop-up menu:

   - **Static**—If you want all computers and mobile devices to use the same challenge password, choose “Static” and specify a challenge password. The challenge password will be used as the pre-shared secret for automatic enrollment.
   - **Dynamic**—If you are using a non-Microsoft CA and you want each computer and mobile device to use a unique challenge password, choose “Dynamic”. The Dynamic challenge type requires use of the Classic API and membership in the Jamf Developer Program. The Dynamic challenge uses the "Fingerprint" or "Thumbprint" to authenticate the user instead of a username and password. The Thumbprint hash value for the **Fingerprint** field in Jamf Pro can be found on the profile you receive. Before selecting this option, contact your Jamf account representative to learn more about the Jamf Developer Program and the additional steps you need to take to use this option.

     Note: The "Dynamic” challenge type requires you to use user-initiated enrollment to enroll computers and mobile devices so that a unique challenge password is used for each device. For more information, see User-Initiated Enrollment for Computers and User-Initiated Enrollment for Mobile Devices.

   - **Dynamic-Microsoft CA**—If you are using a Microsoft CA and you want each computer and mobile device to use a unique challenge password, choose “Dynamic-Microsoft CA”.

     Note: The “Dynamic-Microsoft CA” challenge type requires you to use user-initiated enrollment to enroll computers and mobile devices so that a unique challenge password is used for each device. For more information, see User-Initiated Enrollment for Computers and User-Initiated Enrollment for Mobile Devices.

   - **Dynamic-Entrust**—If you are using an Entrust CA, choose "Dynamic-Entrust".

     Note: If you enable Jamf Pro as SCEP Proxy and you are integrating with an Entrust CA, additional steps are needed to distribute certificates via configuration profiles. For more information, see the Enabling Jamf Pro as SCEP Proxy technical paper.

9. Click **Save**.

Uploading Signing and CA Certificates for an External CA

To integrate an external CA with Jamf Pro, you must provide the signing and CA certificates for the external CA. This is done by uploading a signing certificate keystore (.jks or .p12) that contains both certificates to Jamf Pro. For information about how to obtain and download a SCEP Proxy signing certificate from a Microsoft CA, see the following Knowledge Base articles:

- Obtaining a SCEP Proxy Signing Certificate from a Microsoft CA Using Terminal and Uploading the Certificate to Jamf Pro
- Obtaining a SCEP Proxy Signing Certificate from a Microsoft CA Using Command Prompt and Uploading the Certificate to Jamf Pro

Note: By default, Jamf Pro uses the signing and CA certificates for the Jamf Pro built-in CA. You must replace these certificates with the ones for the external CA when you initially set up the integration.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.
4. Click **PKI Certificates**  .
5. Click the **Management Certificate Template** tab, and then click **External CA**.
6. At the bottom of the External CA pane, click **Change Signing and CA Certificates**.
7. Follow the onscreen instructions to upload the signing and CA certificates for the external CA.

Related Information

For related information, see the following Knowledge Base articles:

- Certificate-Based Authentication for Mac Computers
  Learn how Jamf Pro uses certificate-based authentication to verify the identity of Mac computers.
- Using OpenSSL to Create a Certificate Keystore for Tomcat
  Find out how to use OpenSSL to create a certificate keystore that you can upload to Jamf Pro.

Integrating with Volume Purchasing

Integrating with volume purchasing (formerly VPP) is the first step to using managed distribution. To distribute apps and books purchased in volume, you must first add one or more locations to Jamf Pro.

When you add a location to Jamf Pro, you upload the service token that you obtained from Apple, and specify the country associated with the location. You can also specify other information about the account, such as the contact person and Apple ID.

In addition, you can specify that all content purchased in volume is populated in the app and eBook catalogs.

Volume Purchase Location Considerations

Consider the following when adding locations to volume purchasing in Jamf Pro:

- To avoid issues with content scoping and renewal dates, it is recommended that you do not configure multiple locations for the same distribution content.
- Each service token for the specific distributed content should only be allocated once. For example, if the service token you want to upload already exists in Apple's Profile Manager, delete the service token from Apple's Profile Manager before uploading it to Jamf Pro. This limitation includes a single server instance.
- If you upload a new token file to renew distributed content licenses, it is recommended that you do not delete the expired location from Jamf Pro before uploading the new server token file.
- If you configured a location for your distributed content licenses and later integrated your environment with Apple School Manager or Apple Business Manager, it is recommended that you do not add a separate location for these licenses.
  Use the "Renew Service Token" button on the location **Details** tab to upload the new token (.vpptoken) that you acquired from Apple School Manager or Apple Business Manager. This will allow Location to display for your Apple School Manager token in Jamf Pro. When prompted, reclaim the service token to use it with your Jamf Pro instance. For information on how to obtain the token file, see the following documentation:
  - Apple School Manager User Guide
  - Apple Business Manager User Guide

  Note: It is recommended that you only use one Apple School Manager or Apple Business Manager account to integrate with volume purchasing. Using more than one account makes it difficult to isolate the account causing the issues when troubleshooting.
- Deleting a location removes the instance from Jamf Pro but does not delete the settings in Apple School Manager or Apple Business Manager.

Managed Distribution Types

After Jamf Pro is integrated with Apple School Manager or Apple Business Manager, you can use Jamf Pro to distribute content via managed distribution by assigning content to users (user assignment), or directly to computers or mobile devices (device assignment). The following table outlines the managed distribution types:

Managed Distribution Type	Applies to	User Requirements	Basic Procedure
Managed distribution for computers	Mac App Store apps	Computers with macOS 10.11 or later	Managed distribution for computers involves the following steps: 1. Add a location to Jamf Pro. 2. Configure device assignments when distributing a Mac App Store app. For information, see Mac App Store Apps.
Managed distribution for mobile devices	▪ App Store apps ▪ Apps purchased in volume (including custom apps)	Mobile devices with iOS 9 or later	Managed distribution for mobile devices involves the following steps: 1. Add a location to Jamf Pro. 2. Configure device assignments when distributing an App Store app or app purchased in volume. For information, see App Store Apps.
Managed distribution for users	▪ App Store apps ▪ Apps purchased in volume (including custom apps for iOS devices) ▪ Mac App Store apps ▪ Books	▪ Mobile devices with iOS 7 or later ▪ Computers with macOS 10.9 or later ▪ Valid, personal Apple ID	Managed distribution for users involves the following steps: 1. Add a location to Jamf Pro. 2. Invite users to register with volume purchasing. For information, see Volume Purchasing User Registration. 3. Create user assignments in Jamf Pro. For information, see User-Based Volume Assignments.

Requirements

To add a location to Jamf Pro, you need a service token (.vpptoken) from Apple.

Adding a Location

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **Volume Purchasing** .
5. Click **New** .
6. Enter a display name for the location.

   Note: If you configure email notifications for the location, this name will be displayed in the email body.

7. Click **Upload Service Token** and upload the service token (.vpptoken) for the location.

   Note: Each service token should only exist in one location at a time. If the service token you want to upload already exists in Apple's Profile Manager, delete the service token from Apple's Profile Manager before uploading it to Jamf Pro.

8. Choose the country that is associated with the account.
9. (Optional) Select **Automatically Populate Purchased Content** if you want content purchased in volume to be populated in the app and eBook catalogs.
10. (Optional) Select **Notify users when an app is no longer assigned to them** if you want to send a notification to users when an app is revoked.
11. (Optional) If your environment integrates with Apple School Manager and you do not want the users that have Managed Apple IDs to receive an invitation or get prompted to register with volume purchasing, select **Automatically register with volume purchasing if users have Managed Apple IDs**.

    Note: For users that have Managed Apple IDs to be automatically registered with volume purchasing, you need to create an invitation that includes the users in the scope and configure the invitation to automatically register the users. For more information, see Volume Purchasing User Registration.

12. (Optional) Enter additional information about the account, including the contact person and Apple ID.
13. Click **Save**.

Adding Volume Purchasing Notifications

To make the managed distribution content management more efficient, you can enable a volume purchasing notification. This allows Jamf Pro to send you a daily email after the predefined condition is triggered. You can also specify the recipients to send the notification to. To properly configure a notification, at least one location must exist in Jamf Pro, and you must be logged in with a Jamf Pro user account that has full access or site access and an email address configured.
(An SMTP server must be set up in Jamf Pro. For information on setting up an SMTP server and enabling email notifications for Jamf Pro user accounts, see Integrating with an SMTP Server and Email Notifications.)

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.
4. Click **Volume Purchasing**  .
5. Click **Notifications**.
6. Click **New**  .
7. Use the **New Volume Purchasing Subscription** pane to configure the settings for the notification, including the display name, the trigger, and tokens that you want to monitor.

   Note: Jamf Pro users with the "Volume Purchasing Admin Accounts" privilege that have site access are allowed to manage notifications in the context of the site.

8. Click the **Scope** tab and configure the scope of the notification by adding recipients:
   a. Click **Add**  to add recipients of the notification. You can select the existing Jamf Pro user accounts, or manually add external recipients that are not registered in Jamf Pro.
   b. Click **Done** in the top-right corner of the pane.
9. Click **Save**.

After adding a volume purchasing notification, you must enable it.

Related Information

For related information, see the following Jamf Knowledge Base videos:

- Integrating Jamf Pro with Apps and Books
- Renewing a Managed Distribution Token with Jamf Pro

For related information, see the following Knowledge Base article:

Recently Purchased Volume Content is not Displayed in Jamf Pro
The Content tab for a location can be used when content recently purchased from volume purchasing fails to display in Jamf Pro. The functionality available in that tab allows you to pull that content into Jamf Pro.

Categories

Categories are organizational components that allow you to group policies, packages, scripts, and printers in Jamf Admin and Jamf Pro. You can also use categories to group policies, configuration profiles, apps, and books in Jamf Self Service. This makes these items easier to locate.

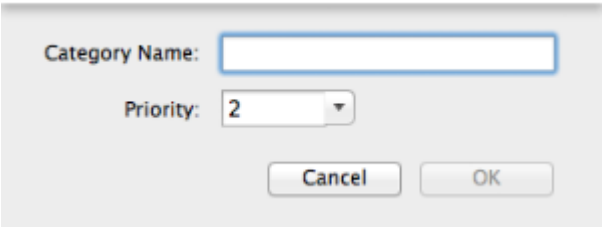
You can add categories to Jamf Admin or Jamf Pro. When you add, edit, or delete a category in Jamf Admin, the changes are reflected in Jamf Pro and vice versa.

After you add a category to Jamf Admin or Jamf Pro, you can add items to the category when configuring them in Jamf Admin or Jamf Pro.

Adding a Category to Jamf Admin

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. Click **New Category** .
3. Enter a display name and choose a priority for the category.

   Note: Priority is used for displaying the category in Self Service (e.g., A category with a priority of "1" is displayed before other categories).



4. Click **OK**.

Adding a Category to Jamf Pro

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **Categories** .
5. Click **New** .

6. Enter a display name and choose a priority for the category.

   Note: Priority is used for displaying the category in Self Service.

7. Click **Save**.

Editing or Deleting a Category in Jamf Admin

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. In the "Categories" list above the main repository, select the category you want to edit or delete.
3. Do one of the following:
   - To edit the category, double-click it and change the display name and priority as needed. Then click **OK**.
   - To delete the category, click **Delete**  , and then click **Delete** again to confirm.

Related Information

For related information, see the following sections in this guide:

- Managing Packages
  You can add packages to a category.
- Managing Scripts
  You can add scripts to a category.
- Managing Printers
  You can add printers to a category.
- Policy Management
  You can add policies to a category.
- Computer Configuration Profiles
  Find out how to display or feature macOS configuration profiles in one or more categories in Self Service.
- Mac App Store Apps
  Find out how to display or feature Mac App Store apps in one or more categories in Self Service.
- Books Available in the iBooks Store
  Find out how to display or feature books that are available in the iBooks Store in one or more categories in Self Service.
- In-House Books
  Find out how to display or feature in-house books in one or more categories in Self Service.

Event Logs

Jamf Pro records events in the form of logs. You can view the status of these events using the Event Logs.

The Event Logs pane displays the following information:

- Date/time the status was last updated for an event
- Name of the device that is in the scope of an event
- Object type (such as "macOS Configuration Profile" or "Jamf Imaging")
- Object name associated with an event (such as the name of a configuration profile or "Standard Imaging")
- Action of the event (such as "Install" or "Imaging")
- Status of the event (such as "Started" or "Completed")

Event logs can be viewed for macOS configuration profiles and iOS configuration profiles. As of Jamf Pro 9.7, event logs can also be viewed for imaging.

Depending on your system configuration:

- Some historical event logs data may not be available for macOS configuration profiles and iOS configuration profiles installed using 9.63 or earlier.
- Some historical event logs data may not be available for imaging performed using Jamf Imaging 9.66 or earlier.

Requirements

To access Event Logs, a Jamf Pro user account or group must have the Administrator or Auditor privilege set. For more information, see Jamf Pro User Accounts and Groups.

Viewing Event Logs

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.

4. Click **Event Logs**  .
   The event logs are displayed on the pane.
   - "Standard Imaging" includes Target Mode Imaging (TMI) events.

     Note: All migrated imaging events will be displayed as "Standard Imaging".

   - "Autorun Imaging" represents events that include Autorun data.
   - "PreStage Imaging" represents events that include PreStage data.
5. Do one of the following:
   - To view details about a particular device, click a device in the Device Name column.
   - (Configuration profiles only) To view the object associated with an event, click an object in the Object Name column.
   - To view log details, click a status in the Status column.

Related Information

For related information, see the following sections in this guide:

- Computer Configuration Profiles
  Learn about macOS configuration profiles, including how to view the status and the logs of a macOS configuration profile.
- Mobile Device Configuration Profiles
  Learn about iOS configuration profiles, including how to view the status and the logs of an iOS configuration profile.
- About Imaging
  Learn about imaging and the different imaging methods.

Webhooks

The Webhooks setting in Jamf Pro allows you to create outbound webhooks for any event in the Events API. In conjunction with the Events API, webhooks allow you to use real-time events from Jamf Pro to build custom workflows on-demand using the programming language of your choice. For example, you could configure a webhook to send an event to an instant message plug-in you have written that will notify a chatroom when a third-party macOS software title in Jamf Pro has been updated.

Configuring a Webhook

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Global Management**.
4. Click **Webhooks**  .
5. Click **New**  .
6. Enter a display name for the webhook.
7. Enter a URL for the webhook to post to.
8. Choose the type of authentication required to connect to the webhook.
9. Enter the connection timeout for the webhook.
10. Enter the read timeout for the webhook.
11. Choose either "XML" or "JSON" as the format for sending the webhook information.
12. Choose the event that will trigger the webhook.
13. Click **Save**  .

For information on supported webhooks, see the Jamf developer resources: https://www.jamf.com/developers/webhooks/

AirPlay Permissions

AirPlay Permissions allow you to map one or more mobile devices to an AirPlay destination, such as an Apple TV, so that those mapped mobile devices can be automatically paired with the AirPlay destination. When a mobile device is mapped to an AirPlay destination via AirPlay Permissions, you can also choose to automatically give the mobile device the password for the AirPlay destination, or to make only the permitted AirPlay destinations available to that device.

Mobile Device Inventory Field Mapping

When configuring AirPlay Permissions, you must choose a mobile device inventory field to use to map devices to permitted AirPlay destinations. The inventory field you choose is automatically mapped to an AirPlay destination when the value in that field is the same for both the mobile device and the AirPlay destination device.

Requirements

To use AirPlay Permissions, you need:

- Mobile devices with iOS 8 or later
- Apple TV devices enrolled with Jamf Pro

Creating an AirPlay Permission

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **AirPlay Permissions** .
5. Click **New** .
6. Enter a display name for the AirPlay Permission.
7. Select the inventory field from the **Mapping Field** pop-up menu.
8. (Optional) Enable settings for restricting AirPlay destinations and automating passwords, as needed.
9. Click **Save**.
10. Repeat this process for each new AirPlay Permission you want to create.

    The mobile devices and AirPlay destinations that share the selected inventory field are mapped immediately.

Microsoft Intune Integration

Microsoft Intune (via Conditional Access) allows organizations to ensure that only trusted users from compliant macOS computers, using approved applications, are accessing company resources.

Integrating Jamf Pro with Microsoft Intune allows you to do the following:

- Share Jamf Pro computer inventory information with Microsoft Intune.
- Enforce compliance policies defined in Microsoft Intune on computers managed by Jamf Pro.
- Restrict access to applications set up with Azure Active Directory (Azure AD) authentication (e.g., Office 365).
- Feature policies for users in the Device Compliance category in Jamf Self Service for macOS.
- Create a policy registering user computers with Azure AD.
- View the Conditional Access Inventory State for a computer in Jamf Pro.

There are two ways to connect Jamf Pro and Microsoft Intune:

- **Cloud Connector**—(Jamf Cloud-hosted environments only) The Cloud Connector simplifies the process of configuring the communication between Jamf Pro and Microsoft Azure by automating the creation of the Jamf Pro application in Azure. In addition, the Cloud Connector allows you to connect multiple Jamf Pro instances to a single Azure AD tenant.
- **Manual connection**

For step-by-step instructions on how to integrate with Microsoft Intune, including information on the workflows listed above, see the following technical paper:
Integrating with Microsoft Intune to Enforce Compliance on Macs Managed by Jamf Pro

General Requirements

To configure the Intune integration, you need:

- (Manual connection only) The Jamf Pro application added in Microsoft Azure (For more information, see the Integrating with Microsoft Intune to Enforce Compliance on Macs Managed by Jamf Pro technical paper)
- (Cloud Connector only) A Jamf Pro instance hosted in Jamf Cloud
- A Jamf Pro user account with Conditional Access privileges
- Microsoft Enterprise Mobility + Security (specifically Microsoft AAD Premium and Microsoft Intune)
- Microsoft Intune Company Portal app for macOS v1.1 or later

In addition, the macOS Intune Integration requires computers with macOS 10.11 or later that are using a local or mobile account. Network accounts are not supported for the macOS Intune Integration.

Note: When configuring the connection between Jamf Pro and Microsoft Intune, you must use the Microsoft Azure website (portal.azure.com) and not the Microsoft Azure portal desktop app.

Manually Configuring the macOS Intune Integration

The Conditional Access settings allow you to set up the connection to Microsoft Intune in Jamf Pro. When the connection is saved, Jamf Pro shares computer inventory information with Microsoft Intune and applies compliance policies configured in Microsoft Intune to computers.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **Conditional Access** .
5. Navigate to the **macOS Intune Integration** tab, and then click **Edit** .
6. Select the **Enable Intune Integration for macOS** checkbox.

   Note: When this setting is selected, Jamf Pro sends inventory updates to Microsoft Intune. Deselect the checkbox if you want to disable the connection but save your configuration.

7. (Cloud-hosted instances only) Select "Manual" under Connection Type.

   Note: This setting does not display for instances hosted on-premise.

8. Select the location of your Sovereign Cloud from Microsoft.
9. Click **Open administrator consent URL** and follow the onscreen prompts to allow the Jamf Native macOS Connector app to be added to your Azure AD tenant.
10. Add the **Azure AD Tenant Name** from Microsoft Azure.
11. Add the **Application ID** and **Client Secret** (previously called Application Key) for the Jamf Pro application from Microsoft Azure.
12. Select one of the following landing page options for computers that are not recognized by Microsoft Azure:
    - The Default Jamf Pro Device Registration page

      Note: Depending on the state of the computer, this option redirects users to either the Jamf Pro device enrollment portal (to enroll with Jamf Pro) or the Company Portal app (to register with Azure AD).

    - The Access Denied page
    - A custom webpage

13. Click **Save**. Jamf Pro tests the configuration and report the success or failure of the connection.

    When the connection between Jamf Pro and Microsoft Intune is successfully established, Jamf Pro sends inventory information to Microsoft Intune for each computer that has been registered with Azure AD (registering with Azure AD is an end user workflow). You can view the Conditional Access Inventory State (previously called Azure Active Directory ID information) for a user and a computer in the Local User Account category of a computer's inventory information in Jamf Pro. For detailed information on Azure AD device registration and inventory information sent to Microsoft Intune, see the Integrating with Microsoft Intune to Enforce Compliance on Macs Managed by Jamf Pro technical paper.

Configuring the macOS Intune Integration using the Cloud Connector

The Cloud Connector simplifies the process of connecting a cloud-hosted Jamf Pro instance with Microsoft Intune by automating many of the steps needed to configure the macOS Intune Integration. When the connection is saved, Jamf Pro sends computer inventory information to Microsoft Intune and applies compliance policies to computers.

You can also use the Cloud Connector to connect multiple Jamf Pro instances to a single Azure AD tenant.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**.
3. Click **Global Management**.
4. Click **Conditional Access**.
5. Navigate to the **macOS Intune Integration** tab, and then click **Edit**.
6. Select the **Enable Intune Integration for macOS** checkbox.

   Note: When this setting is selected, Jamf Pro sends inventory updates to Microsoft Intune. Deselect the checkbox if you want to disable the connection but save your configuration.

7. (Cloud-hosted instances only) Select "Cloud Connector" under Connection Type.

   Note: This setting does not display for instances hosted on-premise.

8. Select the location of your Sovereign Cloud from Microsoft.

9. Select one of the following landing page options for computers that are not recognized by Microsoft Azure:
   - The Default Jamf Pro Device Registration page

     Note: Depending on the state of the computer, this option redirects users to either the Jamf Pro device enrollment portal (to enroll with Jamf Pro) or the Company Portal app (to register with Azure AD).

   - The Access Denied page
   - A custom webpage
10. Click **Connect**. You are redirected to the application registration page in Microsoft.
11. Enter your Microsoft Azure credentials and follow the onscreen instructions to grant the permissions requested by Microsoft.
    After permissions have been granted for the Cloud Connector and the Cloud Connecter user registration app, you are redirected to the Application ID page.
12. Click **Copy and open Intune**. A new tab opens to the **Partner device management blade** in Microsoft Azure.
13. Paste the Application ID into the **Specify the Azure Active Directory App ID for Jamf** field.
14. Click **Save** .
15. Navigate back to the original tab and click **Confirm**. You are redirected back to Jamf Pro.
    Jamf Pro completes and tests the configuration. The success or failure of the connection displays on the Conditional Access settings page.
16. (Optional) Repeat this process to connect additional Jamf Pro instances to the same Azure AD tenant.

When the connection between Jamf Pro and Microsoft Intune is successfully established, Jamf Pro sends inventory information to Microsoft Intune for each computer that is registered with Azure AD (registering with Azure AD is an end user workflow). You can view the Conditional Access Inventory State (previously called Azure Active Directory ID information) for a user and a computer in the Local User Account category of a computer's inventory information in Jamf Pro. For detailed information on Azure AD device registration and inventory information sent to Microsoft Intune, see the Integrating with Microsoft Intune to Enforce Compliance on Macs Managed by Jamf Pro technical paper.

Testing the macOS Intune Integration

If you connected Jamf Pro to Microsoft Intune using the manual connection method, you can test the connection to Microsoft Intune at any time.

Note: This option does not display if you used the Cloud Connector to connect Jamf Pro to Microsoft Intune.

1. Log in to Jamf Pro.

2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **Conditional Access** .
5. Navigate to the **macOS Intune Integration** tab, and then click **Run Test**.

   A message displays, reporting the success or failure of the connection.

Sending an Inventory Update to Intune

If you connected Jamf Pro to Microsoft Intune using the manual connection method, you can trigger an update of inventory to be sent to Microsoft Intune. This allows Jamf Pro to send computer inventory attributes to Microsoft Intune outside of the standard communication schedule.

> **Note:** This option does not display if you used the Cloud Connector to connect Jamf Pro to Microsoft Intune.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **Conditional Access** .
5. Navigate to the **macOS Intune Integration** tab, and then click **Send Update**.

   A message displays, reporting the success or failure of the update.

Related Information

For related information, see the following sections in this guide:

- Viewing and Editing Inventory Information for a Computer
  Find out more about the Conditional Access Inventory State displayed in the Local User Account category of a computer's inventory information.
- Viewing the History for a Computer
  Find out how to view inventory data sent to Microsoft Intune for each username associated with a computer.

Cloud Services Connection

You can connect your Jamf Pro instance with available Jamf-hosted services by enabling the Cloud Services Connection.

Icon Service

The Icon Service is currently the only Jamf-hosted service available through the Cloud Services Connection. When you enable the Cloud Services Connection, your Jamf Pro instance is automatically connected to the Icon Service. After enabling the connection, new icons uploaded to Jamf Pro are stored in the Icon Service rather than in the Jamf Pro database. This removes the work of storing, moving, and displaying icons for items made available in Self Service and helps you save on database storage and memory usage.

Note: The Icon Service uses the following hosted data regions:

- us-east-1
- us-west-2

Enabling the Cloud Services Connection

Requirements

To enable the Cloud Services Connection, you need a Jamf Nation account with a valid Jamf Pro subscription.

To create a Jamf Nation account, go to:
https://www.jamf.com/jamf-nation/users/new

Procedure

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **Cloud Services Connection** .
5. Enter your Jamf Nation credentials.
6. Click **Save**.

A message displays, reporting the success or failure of the connection. After you have successfully enabled the Cloud Services Connection, your environment is automatically connected to the Icon Service.

Related Information

For related information see the following Knowledge Base article:

Network Ports Used by Jamf Pro
Find out which ports Jamf Pro uses to communicate with the Cloud Services Connection.

jamf | PRO

Jamf Self Service

Jamf Self Service for macOS

About Jamf Self Service for macOS

Jamf Self Service for macOS allows users to browse and install configuration profiles, Mac App Store apps, and books. Users can also run policies and third-party software updates via patch policies, as well as access webpages using bookmarks.

Jamf Pro allows you to manage every aspect of Self Service, including its installation, user authentication, and the items available to users. In addition, you can configure how Self Service is displayed to users by replacing the default Self Service application name, icon, and header image with custom branded elements to present users with a familiar look and feel.

You can make any configuration profile, policy, software update (via patch policy), Mac App Store app, or book available in Self Service and customize how it is displayed to users. This includes displaying an icon and description for the item, adding the item to the in relevant categories, and displaying item-specific notifications. You can also specify which computers display the item in Self Service and which users can access it.

Related Information

For related information, see the following sections in this guide:

- Jamf Self Service for macOS Installation Methods
  Find out how to install Self Service on managed computers.
- Jamf Self Service for macOS User Login Settings
  Find out how to require or allow users to log in to Self Service.
- Jamf Self Service for macOS Configuration Settings
  Find out how to customize aspects of the Self Service user experience
- Jamf Self Service for macOS Branding Settings
  Find out how to customize how Self Service is displayed to users.
- Items Available to Users in Jamf Self Service for macOS
  Learn about the items you can make available in Self Service
- Bookmarks
  Find out how to add bookmarks to Self Service

Jamf Self Service for macOS Installation Methods

There are two ways to install Jamf Self Service on managed computers. You can install Self Service automatically using the settings in Jamf Pro, or you can install Self Service using a policy. Installing Self Service using a policy gives you more control over the installation.

General Requirements

Jamf Self Service for macOS 10.10.0 or later can run on macOS 10.11.x or later.

If Self Service is configured to install automatically, computers in your environment will install the version of Self Service that is compatible with the computer's macOS version:

macOS Version	Self Service Version Installed
macOS 10.12 or later	Latest Version
macOS 10.11	Self Service 10.14.1
macOS 10.10	Self Service 10.8.0
macOS 10.9	Self Service 9.101.0
macOS 10.7 or 10.8	Self Service 9.96

Installing Self Service for macOS Automatically

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Self Service**.
4. Click **macOS** .
5. Click **Edit** .
6. Select the **Install Automatically** checkbox.
7. (Optional) Configure the installation location for Self Service.
8. Click **Save** .

Self Service is installed on all managed computers the next time they check in with Jamf Pro. It is also installed on computers as they are newly enrolled.

Installing Self Service for macOS Using a Policy

You can download the latest version of Self Service for manual installation using a policy on computers with 10.12 or later.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Self Service**.
4. Click **macOS**  .
5. Click **Download**  .
   The `Self Service.tar.gz` file is downloaded immediately.

   Note: To download earlier versions of Self Service for manual installation, append one of the following to your Jamf Pro URL:

   - macOS 10.11: /bin/level2/SelfService.tar.gz
   - macOS 10.10: /bin/level3/SelfService.tar.gz
   - macOS 10.9: /bin/level4/SelfService.tar.gz
   - macOS 10.7 or 10.8: /bin/level5/SelfService.tar.gz

   For example: https://instancename.jamfcloud.com/bin/level2/SelfService.tar.gz
6. Double-click the file to decompress it.
7. Use Composer or another package-building tool to package the Self Service application included in the file. For information on building packages using Composer, see the Composer User Guide.
8. Add the package to Jamf Admin or Jamf Pro. For more information, see Managing Packages.
9. Create a policy to install Self Service. For detailed instructions, see Installing Packages.

   You are now ready to configure the Self Service user login settings. For instructions, see Jamf Self Service for macOS User Login Settings.

Jamf Self Service for macOS User Login Settings

The Self Service User Login settings allow you to configure the method for logging in to Jamf Self Service for macOS. Self Service User Login is disabled by default. After enabling Self Service User Login, you must select a login method and authentication type.

There are two login methods you can choose from:

- Allow users to log in to view items available to them
- Require login

After selecting a login method, you must select one of the following authentication methods:

- LDAP account or Jamf Pro user account
  To require or allow users to log in using an LDAP account or Jamf Pro user account, you must have an LDAP server set up in Jamf Pro or you must create a Jamf Pro user account for that user. For more information, see Integrating with LDAP Directory Services or Jamf Pro User Accounts and Groups.
- Single Sign-On
  To require or allow a user to log in using Single Sign-On, you must enable Single Sign-On for Self Service for macOS. For more information, see Single Sign-On.

Configuring Jamf Self Service for macOS User Login

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Self Service**.
4. Click **macOS** .
5. Click **Edit** .
6. From the **Configuration** tab, select the **Enable Self Service User Login** checkbox.
7. Select a login method from the **Login Method** pop-up menu.
8. (Optional) If you want the **Remember Me** checkbox to display on the Self Service Login page, select the **Allow users to store their login credentials in Keychain Access** checkbox.
9. Select an authentication type.
10. Click **Save** .

The settings are applied the next time computers check in with Jamf Pro.

After configuring the User Login settings, you can continue to customize aspects of the user experience. For information, see Jamf Self Service for macOS Configuration Settings.

Related Information

For related information, see the following sections in this guide:

- Jamf Self Service for macOS Branding Settings
  Learn more about how to customize how Self Service for macOS displays to users.

Jamf Self Service for macOS Configuration Settings

You can use the Self Service Configuration settings in Jamf Pro to do the following:

- Automatically install Self Service on managed computers and customize the installation location. For more information, see Jamf Self Service for macOS Installation Methods.
- Configure the method for logging in to Self Service. For more information, see Jamf Self Service for macOS User Login Settings.
- Enable Self Service notifications. For more information, see Jamf Self Service for macOS Notification Settings .
- Enable the User Approved MDM Profile notification. For more information, see the Managing User Approved MDM with Jamf Pro Knowledge Base article.
- Select the category that displays on the Home page when users launch Self Service.
- Customize the bookmarks display name in Self Service. The bookmarks display name is populated with "Bookmarks" by default, but you can change it to meet the needs of your organization (e.g., "Websites" or "Resources").

Configuring Jamf Self Service for macOS

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Self Service**.
4. Click **macOS** .
5. Click **Edit**.
6. Click the **Configuration** tab.
7. Configure the settings on the pane.
8. Click **Save** .

The settings are applied the next time computers check in with Jamf Pro.

Once you have configured Self Service, you may want to customize how Self Service is displayed to users. For more information, see Jamf Self Service for macOS Branding Settings.

Jamf Self Service for macOS Notifications

You can enable Self Service notifications using the Self Service Configuration settings. After enabling Self Service notifications, item-specific notification options are made available in Jamf Pro when adding or editing items. These settings allow you to add a notification for the item or software title update to Self Service only, or to both Self Service and Notification Center.

Notifications in Self Service display in the Notifications list in the Self Service toolbar. A badge appears on the **Notifications** icon when new items or software updates are added to Self Service.

You can also display notifications in Notification Center as banners or alerts in macOS. Users can then click the notification to open the item in Self Service.

Enabling Self Service Notifications

Requirements

To display Self Service notifications in Notification Center, you need the following:

- A push certificate in Jamf Pro (For more information, see Push Certificates.)
- The **Enable push notifications** checkbox selected in Jamf Pro (For more information, see Security Settings.)
- A valid proxy server token uploaded to Jamf Pro (For more information, see Jamf Push Proxy.)

Procedure

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Self Service**.
4. Click **macOS** .
5. Click **Edit** .
6. Click the **Configuration** tab.
7. Select the **Enable Self Service Notifications** checkbox
8. Click **Save** .

Once saved, the option to display notifications for items made available in Self Service is made available when configuring those items. For more information on which items can be made available in Self Service, see Items Available to Users in Jamf Self Service for macOS.

Jamf Self Service for macOS Branding Settings

You can customize how Self Service displays to your end users by configuring the following settings:

- **Branding Icon**—The branding icon displays on the Self Service Login page, in the branding header in Self Service, and as the Self Service icon in the Finder and the Dock. You can customize the branding icon by replacing the default Self Service logo with your organization's logo or another icon of your choice. It is recommended that you use a GIF or PNG file that is 512x512 pixels.
- **Branding Header**—The branding header displays across the top of Self Service. You can customize the branding header image by replacing the default image with an image of your choosing. It is recommended that you use a GIF or PNG file that is 1500x500 pixels.
- **Branding Name**—The branding name displays on the Self Service Login page and in the branding header in Self Service. By default, "Self Service" is displayed as the branding name. You can customize the branding name by selecting the **Customize branding name** option and modifying the following text fields:
  - The **Main Header** field is automatically populated with the organization name you entered during the initial setup of your Jamf Pro instance.
  - The **Secondary Header** field is automatically populated with "Self Service".
- **Application Name**—The application name displays in the Finder, the Dock, and in the app title bar and menu. By default, "Self Service" is displayed as the application name. You can customize the application name by modifying the **Application Name** text field.

Configuring the Branding Settings

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Self Service**.
4. Click **macOS** .
5. Click **Edit** .
6. Click the **Branding** tab.
7. Configure the settings on the pane.
   Once a change is made, it automatically appears in the Branding Preview field at the top of the page.
8. Click **Save** .

The updated branding is displayed in Self Service the next time computers check in with Jamf Pro.

You are now ready to start making items available in Self Service. For more information, see Items Available to Users in Jamf Self Service for macOS.

Related Information

For related information, see the following section in this guide:

Jamf Self Service for iOS Branding Settings
Find out how to customize how Self Service for iOS is displayed to end users.

Bookmarks

You can use bookmarks to give your users easy access to specified webpages directly from Jamf Self Service for macOS.

When you make a bookmark available in Self Service, you can customize how the bookmark is displayed to users. This includes uploading an icon for the bookmark, and specifying whether the bookmarked webpage opens in Self Service or in a web browser. You can also specify which computers display the bookmark in Self Service and which users can access it (called "scope").

Configuring a Bookmark

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Self Service**.
4. Click **Bookmarks** .
5. Click **New** .
6. Enter a display name and description, and then choose a priority for the bookmark.
7. Configure the bookmark using the options on the pane.
8. Click the **Scope** tab and configure the scope of the bookmark. For more information, see Scope.
9. Click **Save** .

The bookmark is available in Self Service on computers in the scope the next time they check in with Jamf Pro.

Items Available to Users in Jamf Self Service for macOS

You can make the following items available in Jamf Self Service for macOS for users to install on their computers:

- Configuration profiles
- Policies
- Mac App Store apps
- Books
- Third-party software updates (via patch policies)

It is up to you to determine which items are appropriate for Self Service. For example, it may be helpful to make a policy available in Self Service that users can run to map printers to their computers.

To make a policy available in Self Service, select the **Make the policy available in Self Service** checkbox when configuring the policy.

To make a configuration profile, app, book, or patch policy available in Self Service, choose "Make Available in Self Service" from the **Distribution Method** pop-up menu when configuring it in Jamf Pro.

You can customize how items available in Self Service are displayed to users. The following table shows the customization options for each item:

Option	Description	Configuration Profiles	Policies	Mac App Store Apps	Books	Patch Policies
Customize the Self Service Display Name	You can customize the name for the item that displays in Self Service. For example, if you create a policy with the name “Install Office 2011 with Service Pack 3”, you may want an abbreviated name to display in Self Service (such as “Office 2011”). **Note:** If this field is left blank, the item name you entered on the General payload displays in Self Service.	✓	✓		✓ In-house books only	

Option	Description	Configuration Profiles	Policies	Mac App Store Apps	Books	Patch Policies
Customize the action button	You can customize the name for the button that users click to initiate the item (e.g., "Install").	✓	✓	✓	✓	✓
Customize the secondary action button	You can customize the name for the button that users click to initiate the item again (e.g., "Reinstall").		✓			
Customize the item description	You can enter a description that users can view to get more information. In addition, you can customize the text displayed in the description by using Markdown in the **Description** field. For more information, see the Using Markdown to Format Text Knowledge Base article.	✓	✓	✓	✓	✓
Display notifications for the item	You can add a notification to Self Service and Notification Center when a new item is added to Self Service for macOS. When configuring a notification, you can specify subject and message text. All notifications are required to have a subject. If subject text is not specified, the item name is displayed in the subject line by default. In addition, you can customize the text displayed in the message by using Markdown in the **Message** field. For more information, see the Using Markdown to Format Text Knowledge Base article.	✓	✓	✓	✓	✓

Option	Description	Configuration Profiles	Policies	Mac App Store Apps	Books	Patch Policies
Upload an icon	You can upload an icon to display for the item. It is recommend that you use a file with the GIF or PNG format that is 512 x 512 pixels.	✓	✓	✓	✓	✓
Display in the "Featured" category	You can configure an item to display in the "Featured" category in Self Service.	✓	✓	✓	✓	
Display or feature in one or more categories	You can configure an item to display or be featured in one or more categories in Self Service.	✓	✓	✓	✓	

Item URLs

When you make an item (excluding patch policies) available in Self Service, the following two URLs are available in Jamf Pro:

- **Installation URL**—URL you can provide to users so they can install the item.
- **Description URL**—URL you can provide to users so they can view the item description in Self Service.

You can copy an item URL from Jamf Pro by clicking the **Clipboard** button after configuring the item. You can then paste the URL to another location (e.g., an email or webpage) so that your users can simply click the link to install the item or view the item description without having to search for it in Self Service.

Related Information

For related information, see the following sections in this guide:

- Computer Configuration Profiles
  Learn how to make computer configuration profiles available in Self Service.
- Policy Management
  Learn how to make policies available in Self Service.
- Mac App Store Apps
  Learn how to display or feature Mac App Store apps in Self Service.
- In-House Books
  Learn how to display or feature in-house books in Self Service.
- Books Available in the iBooks Store
  Learn how to display or feature iBooks Store books in Self Service.
- Patch Policies
  Learn how to make patch policies available in Self Service.
- Jamf Self Service for macOS Configuration Settings
  Learn how to customize aspects of the user experience.

Jamf Self Service for Mobile Devices

About Jamf Self Service for Mobile Devices

Jamf Self Service allows users to browse and install mobile device configuration profiles, apps, and books on managed mobile devices. Users can tap their way through Self Service using an intuitive interface.

Jamf Pro allows you to manage every aspect of Self Service, including its installation, authentication, and the items available to users.

There are two kinds of Self Service for mobile devices:

- **Jamf Self Service for iOS**—You can use Jamf Pro to group configuration profiles, apps, and books in categories, which makes those items easier to locate in Self Service. For more information, see Categories. If iBeacon monitoring is enabled in your environment, Self Service is the component that detects when a mobile device enters or exits an iBeacon region. In addition, you can send notifications to mobile devices with Self Service installed. (For more information, see Mass Actions for Mobile Devices.) Notifications are displayed to users in the following ways:
  - The Self Service app icon displays a badge with the number of notifications that have not been viewed by the user.
  - In Self Service, the **Notifications** browse button displays a badge with the number of notifications that have not been viewed by the user. Items are listed in the "Notifications" area of the app as they are added.
  - (Optional) Each notification can be configured to also display an alert and appear in Notification Center. This requires a proxy server token in Jamf Pro. For more information, see Jamf Push Proxy.

  The latest version of the Self Service app available in the App Store requires devices with iOS 11 or later, or iPadOS 13 or later. For more information on the Self Service levels of compatibility, see Jamf Self Service for iOS.
  Jamf Self Service for iOS is available for free from the App Store.
- **Self Service web clip**—In addition to configuration profiles, apps, and books, you can use the Self Service web clip to distribute updated MDM profiles to mobile devices for users to install.

Related Information

For related information, see the following sections in this guide:

- Self Service Web Clip
  Learn about the Self Service web clip.
- Mass Actions for Mobile Devices
  Find out how to send a mass notification to mobile devices.
- App Store Apps
  Find out how to make App Store apps available in Self Service.

- In-House Apps
  Find out how to make in-house apps available in Self Service.
- Books Available in the iBooks Store
  Find out how to make iBooks Store books available in Self Service.
- In-House Books
  Find out how to make in-house books available in Self Service.
- iBeacon Regions
  Learn what iBeacon regions can be used for and how you can add them to Jamf Pro.

Jamf Self Service for iOS

The Jamf Self Service for iOS settings allow you to do the following:

- Install or uninstall Self Service on managed mobile devices.
- Require or allow users to log in to Self Service with an LDAP directory account or Jamf Pro user account.
  To require or allow users to log in using an LDAP account or Jamf Pro user account, you must have an LDAP server set up in Jamf Pro or you must create a Jamf Pro user account for that user. For more information, see Integrating with LDAP Directory Services or Jamf Pro User Accounts and Groups.
- Display in-house app updates in Self Service.

The Self Service app can be automatically installed on all managed mobile devices with iOS 7 or later except Apple TV devices and personally owned devices.

Starting with Self Service 10.10.1, you can manually install the Self Service app on personally owned devices with iOS 13 or later, or iPadOS 13 or later that were enrolled using User Enrollment.

Note: If you do not want users to be prompted to enter an Apple ID when Self Service is being installed on their device, you must distribute Self Service using device-based volume assignment. For more information, see Understanding App Distribution Methods.

General Requirements

Self Service can run on mobile devices with iOS 7 or later that are managed by Jamf Pro 9.4 or later. The latest version of the Self Service app available in the App Store requires devices with iOS 11 or later, or iPadOS 13 or later.

If Self Service is configured to install automatically, devices in your environment will install the version of the Self Service app that is compatible with the device's iOS version:

iOS Version	iPadOS Version	Self Service Version Installed
iOS 11 or later	iPadOS 13 or later	Latest version
iOS 10		Self Service 10.9.1
iOS 8 or 9		Self Service 10.4.0
iOS 7		Self Service 9.98.1

Note: For manual installations, devices with iOS 11 or later must use Self Service 9.101.0 or later. Earlier versions of Self Service will not work on devices with iOS 11 or later.

Automatically Installing Self Service for iOS

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Self Service**.
4. Click **iOS**  .
5. Click **Edit**  .
6. Select "Automatically install Self Service app" from the **Installation Method** pop-up menu.
7. (Optional) Click the **App Options** tab and configure the User Login setting.
8. Click **Save**  .

   Users are prompted to install the app from the App Store the next time the device checks in with Jamf Pro. Users are also prompted to install the app from the App Store on mobile devices as they are newly enrolled.

Manually Installing Self Service for iOS

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Self Service**.
4. Click **iOS**  .
5. Click **Edit**  .
6. On the General pane, choose "Manually install Self Service app" from the **Installation Method** pop-up menu.
7. (Optional) Click the **App Options** tab and configure the preferences as needed.
8. Click **Save**  .
9. Click **Devices** at the top of the page.
10. Click **Mobile Device Apps**.
11. Click **New** .
12. Select **App Store app** and click **Next**.
13. Add Jamf Self Service from the App Store catalog.
14. On the General pane, select "Install Automatically/Prompt Users to Install" from the **Distribution Method** pop-up menu, and configure any additional settings.

15. Click the **Scope** tab and configure the scope of the app.
16. On the **App Configuration** tab, add the following lines to the **Preferences** field:

```
<dict>
<key>INVITATION_STRING</key>
<string>$MOBILEDEVICEAPPINVITE</string>
<key>JSS_ID</key>
<string>$JSSID</string>
<key>SERIAL_NUMBER</key>
<string>$SERIALNUMBER</string>
<key>DEVICE_NAME</key>
<string>$DEVICENAME</string>
<key>MAC_ADDRESS</key>
<string>$MACADDRESS</string>
<key>UDID</key>
<string>$UDID</string>
<key>JSS_URL</key>
<string>$JPS_URL</string>
</dict>
```

> **Important:** To install Self Service Self Service 10.10.1 or later on personally owned devices with iOS 13 or later or iPadOS 13 or later that were enrolled using User Enrollment, include the following in the app configuration:`<key>MANAGEMENT_ID</key><string>$MANAGEMENTID</string>`

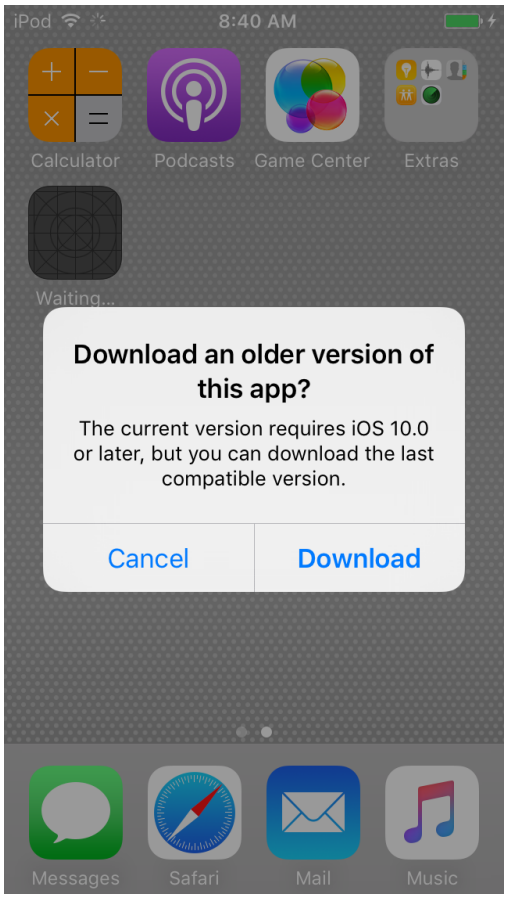
17. Click **Save**.

Self Service is distributed to mobile devices in the scope the next time they check in with Jamf Pro.

Installation Experience

If you did not distribute the Self Service app using device-based volume assignment, users may be prompted to enter an Apple ID before Self Service installs on their device.

On devices with iOS 10.x or earlier, users are prompted to download an older version of the Self Service app. The user must tap **Download** to install the last compatible version of the Self Service app. For more information on the Self Service levels of compatibility, see Requirements.



Jamf Self Service for iOS Branding Settings

The Branding settings allow you to customize elements within the Jamf Self Service for iOS app in order to present your end users with a familiar look and feel. You can customize Self Service by configuring the following settings:

- **Icon**—The icon displays in the header in the Self Service app. When uploading a custom icon, it is recommended that you use a file with the GIF or PNG format that is 180x180 pixels.
- **Branding Name**—The branding name displays in the header in the Self Service app. By default, "Self Service" is displayed as the branding name .
- **Status Bar Color**—The status bar appears above the header in the Self Service app and displays information about the device's current state (e.g., the time, cellular carrier, battery level). You can choose to display the status bar as either light or dark.
- The following elements can be customized by entering a six digit hexadecimal color code or by using the color picker:
  - **Branding Name Color**
  - **Header Background Color**—The header displays across the top of the Self Service app.
  - **Menu Icon Color**—The menu icon displays in the header in the Self Service app.

Note: Customizing the icon or branding name does not change the app icon or app name as it displays on the Home Screen of a device. The Self Service icon and name cannot be changed outside of the app.

The preview field to the right of the Branding settings automatically displays your changes so you can finalize your branding configuration before deploying it to end users.

Configuring the Branding Settings

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Self Service**.
4. Click **Branding** .
5. Click **New**.
6. Configure the settings on the page.
7. Click **Save** .

The settings are applied the next time mobile devices check in with Jamf Pro.

Note: You can only have one Self Service for iOS branding configuration in Jamf Pro at a time. To modify or delete your existing configuration, click the configuration's name in the Branding settings.

Related Information

For related information, see the following section in this guide:

Jamf Self Service for macOS Branding Settings
Find out how to customize how Self Service for macOS is displayed to end users.

Self Service Web Clip

The Self Service web clip allows you to distribute mobile device configuration profiles, apps, books, and updated MDM profiles to mobile devices for users to install.

You can use the Self Service settings in Jamf Pro to do the following:

- Install or uninstall the Self Service web clip on managed mobile devices.
- Require users to log in to the Self Service web clip with an LDAP directory account. (For more information, see Integrating with LDAP Directory Services.)
- Display or hide the **Install All** button for in-house apps.
- Display the following updates in the Self Service web clip:
  - MDM profile updates
  - App Store app updates
  - In-house app updates

Installing the Self Service Web Clip

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Self Service**.
4. Click **iOS** .
5. Click **Edit** .
6. Select "Automatically install Self Service web clip" from the **Install Automatically** pop-up menu and configure the settings on the pane.
7. (Optional) Click the **Web Clip Options** tab and configure the settings on the pane.
8. Click **Save** .

The changes are applied the next time mobile devices check in with Jamf Pro.

Distributing Updated MDM Profiles

You can distribute an updated MDM profile to devices using the Self Service web clip.

Note: Mobile devices that were enrolled using an enrollment profile cannot obtain an updated MDM profile via the Self Service web clip.

1. Log in to Jamf Pro.

2. In the top-right corner of the page, click **Settings**  .
3. Click **Self Service**.
4. Click **iOS**  .
5. Click **Edit**  .
6. Click the **Web Clip Options** tab.
7. Select the **MDM profile updates** checkbox.
8. Click **Save**  .

Related Information

For related information, see the following Knowledge Base article:

- Customizing the Self Service Web Clip Icon
  Find out how to display a custom icon for the Self Service web clip.

App Request

App Request allows you to enable a select group of users to request iPad apps directly from Jamf Self Service for iOS. This is useful for environments such as schools, where you may want to empower teachers to request educational apps on behalf of the students in their classrooms.

Before you enable App Request, make sure you do the following:

- **Determine who can submit app requests**—After your organization has identified the users who should have access to the App Request feature in Self Service, you must create a static user group that includes those users. The users you want to enable as requesters must be able to log in to Self Service.
- **Determine who should review and approve app requests**—Your organization should determine who should approve app requests and how that approval should be submitted. After a request is submitted, an email containing the request details and a link to the app information in the App Store is automatically sent to the email addresses to specified when configuring App Requests. The email addresses you add as reviewers do not need to match a user in Jamf Pro.

After you determine who should be added as requesters and approvers, you are ready to enable App Request. You can specify how the App Request form displays in Self Service by configuring up to five text fields. The customizable labels allow you to specify what information is needed from requesters when they submit a request. For example, you may want to include fields similar to the following:

- Reason for Request
- Quantity Needed
- Intended Users
- Training Details

Configuring App Request

Requirements

To enable App Request, you need:

- An SMTP server set up in Jamf Pro
  For more information, see Integrating with an SMTP Server.
- A static user group that contains the users you want to enable as requesters
  For more information, see Static Groups.

To access App Request, requesters must be using an iPad with Self Service 10.9.0 or later installed. In addition, requesters must be logged in to Self Service to submit requests.

Procedure

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .

3. Click **Self Service**.
4. Click **App Request** .
5. Click **Edit** .
6. From the **App Request Form** tab, select the **Enable App Request in Self Service for iOS** checkbox.
7. Select the App Store you want Self Service to use.

   Note: "User's Location" is selected by default.

8. Configure up to five text fields to display in the App Request form in Self Service.

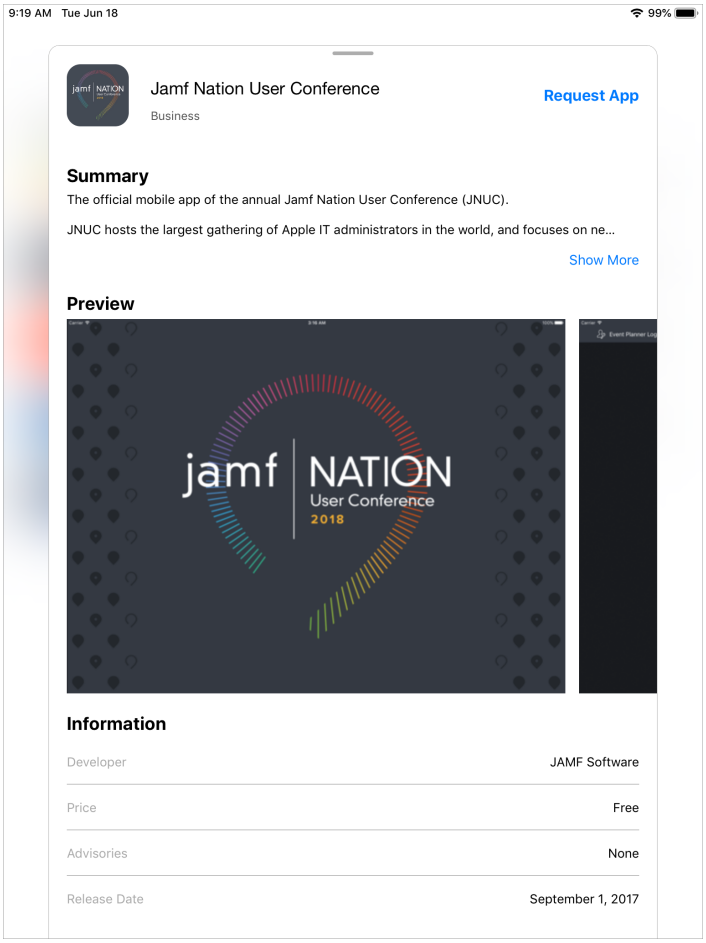
   Note: Each field you configure requires user input before the App Request form can be submitted. You must configure at least one field in order to save the App Request configuration.

9. Click the **Requesters and Approvers** tab.
10. From the **Requesters** pop-up menu, select the static group you want to enable as requesters.
11. In the **Approver Email Addresses** field, enter the emails of those you want to enable as approvers.
12. Click **Save** .

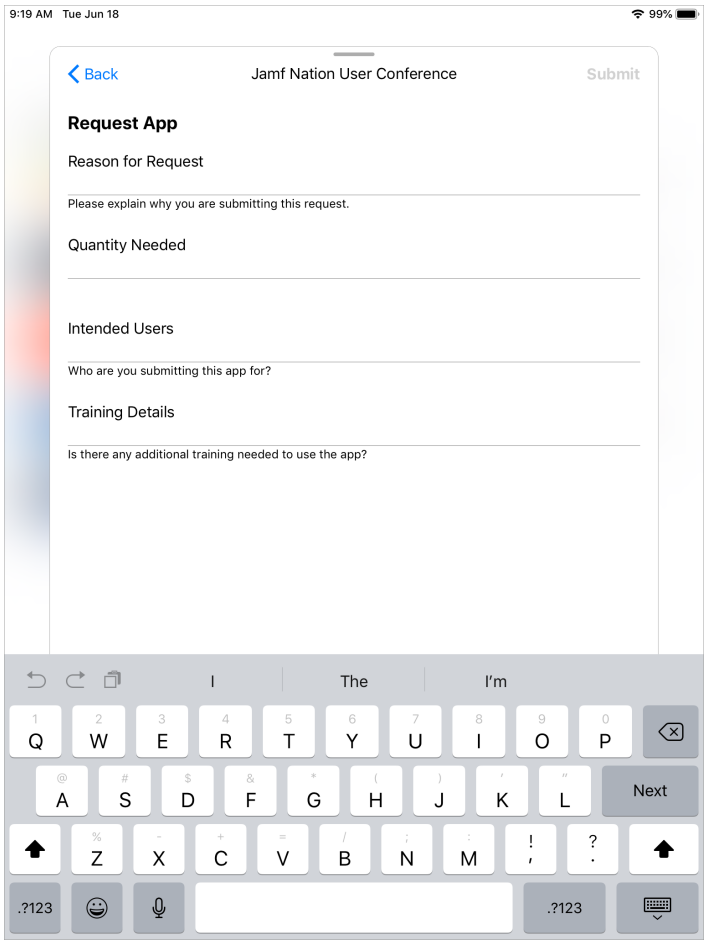
    The "Request App" option is made available in Self Service the next time the Self Service app is refreshed on the device.

App Request User Experience

When a requester performs a search, Self Service searches the App Store in addition to the content available in Self Service. When the requester taps on an App Store result, they are presented with the app details.



When the requester taps **Request App**, a form similar to the following displays:



Note: All fields require user input before the **Submit** button is activated.

When a request is submitted, an email containing the request details is automatically sent to approvers. After all approvals are given, you can use Jamf Pro to either automatically install the app on the devices included in the request or make the app available in Self Service for users to install themselves. For more information, see Understanding App Distribution Methods.

jamf | PRO

Server Infrastructure

About Distribution Points

Distribution points are servers used to host files for distribution to computers and mobile devices. The following types of files can be distributed from a distribution point using Jamf Pro:

- Packages
- Scripts
- In-house apps
- In-house books

Jamf Pro supports two types of distribution points:

- File share distribution points
- A cloud distribution point

You can use any combination of these types of distribution points.

By default, the first distribution point you add to Jamf Pro is the principal distribution point. The principal distribution point is used by all other distribution points as the authoritative source for all files during replication. You can change the principal distribution point at any time.

Note: On computers with macOS 10.15 or later that do not have an MDM profile, you must use an HTTP, HTTPS, or cloud distribution point to install packages.

When planning your distribution point infrastructure, it is important to understand the differences between each type of distribution point. The following table explains the key differences:

	File Share Distribution Point	Cloud Distribution Point
Description	Standard server that is configured to be a distribution point	Distribution point that uses one of the following content delivery networks (CDNs) to host files: ▪ Rackspace Cloud Files ▪ Amazon Web Services ▪ Akamai ▪ Jamf Cloud Distribution Service (JCDS)
Maximum Number per Jamf Pro Instance	Unlimited	One

	File Share Distribution Point	Cloud Distribution Point
Server /Platform Requirements	Any server with an Apple Filing Protocol (AFP) or Server Message Block (SMB) share **Note:** File share distribution points cannot be mounted and hosted on the same server.	None
Protocol	AFP, SMB, HTTP, or HTTPS	HTTPS
Ports	▪ AFP: 548 ▪ SMB: 139 ▪ HTTP: 80 ▪ HTTPS: 443	443

Authentication Options	▪ AFP or SMB:
	  ▪ No authentication
	  ▪ Username and password
	▪ HTTP or HTTPS:
	  ▪ No authentication
	  ▪ Username and password
		None

Files that Can Be Hosted	Packages	▪ Packages ▪ In-house apps ▪ In-house books
Parent-Child Capabilities	No	No
File Replication Method	Replication to file share distribution points must be initiated from Jamf Admin.	Replication to a cloud distribution point must be initiated from Jamf Admin.
Selective Replication	Not available when replicating to file share distribution points.	Available when replicating to a cloud distribution point if the principal distribution point is a file share distribution point. The files for replication must be specified in Jamf Pro and the replication initiated from Jamf Admin.

Related Information

For related information, see the following sections in this guide:

- File Share Distribution Points
  Find out how to manage file share distribution points in Jamf Pro.

- Cloud Distribution Point
  Find out how to manage the cloud distribution point.

File Share Distribution Points

A server with an AFP or SMB share can be used as a file share distribution point. Before you can use a file share distribution point with Jamf Pro, you must set up the distribution point and add it to Jamf Pro.

Note: A server with an AFP share cannot share files on the Apple File System (APFS), which is the default file system for computers with macOS 10.13 or later. Computers with macOS 10.13 or later that are HFS+ formatted can still support AFP. If you need a file share distribution point for APFS formatted computers, SMB is an option.

For more information on APFS and SMB, see the following Apple macOS Deployment Reference: https://support.apple.com/guide/deployment-reference-macos/welcome/web

For information on setting up a file share distribution point, see the Setting Up a File Share Distribution Point Knowledge Base article.

When you add a file share distribution point to Jamf Pro, you can do the following:

- Make it the principal distribution point.
- Choose a failover distribution point.
- Configure HTTP downloads.

Adding a File Share Distribution Point

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Server Infrastructure**.
4. Click **File Share Distribution Points**  .
5. Click **New**  .
6. Use the General pane to configure basic settings for the distribution point.
7. Click the **File Sharing** tab and enter information about the AFP or SMB share.
8. (Optional) Click the **HTTP** tab and configure HTTP downloads.
9. Click **Save**  .

Replicating Files to a File Share Distribution Point

During replication, all files on the principal distribution point are replicated to the file share distribution point that you choose.

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. In the sidebar, select the file share distribution point you want to replicate files to.
3. Click **Replicate**.

Related Information

For related information, see the following section in this guide:

Network Segments
You can use network segments to ensure that computers and mobile devices use the closest distribution point by default.

For related information, see the following Knowledge Base articles:

- Setting Up a File Share Distribution Point on Linux Using Samba
  Find out how to use Samba to set up a file share distribution point with an SMB share on a Linux server.
- Using Apache HTTP Server to Enable HTTP Downloads on a Linux File Share Distribution Point
  Find out how to use Apache HTTP Server to enable HTTP downloads on a Linux file share distribution point.
- Using IIS to Enable HTTPS Downloads on a Windows Server 2016 or 2019 File Share Distribution Point
  Find out how to activate Internet Information Services (IIS) and use it to enable HTTPS downloads on a Windows Server 2016 or 2019 file share distribution point.

Cloud Distribution Point

The cloud distribution point uses a content delivery network (CDN) to host packages, in-house apps, and in-house books. Jamf Pro supports the following content delivery services:

- Rackspace Cloud Files
- Amazon S3 or Amazon CloudFront
- Akamai NetStorage
- Jamf Cloud Distribution Service (JCDS)

When you configure the cloud distribution point in Jamf Pro, you can choose to make it the principal distribution point. You can also choose whether to replicate specific files or the entire contents of the principal distribution point if the principal distribution point is a file share distribution point.

Note: If you plan to use the JCDS for your cloud distribution point, it is recommended that you do not attempt to upload files larger than 20 GB. Due to the file size download limit set by Amazon CloudFront, files larger than 20 GB may not download successfully. For more information, see the following website:
https://docs.aws.amazon.com/AmazonCloudFront/latest/DeveloperGuide/cloudfront-limits.html

Jamf Pro supports the use of signed URLs created with Amazon CloudFront. It also supports Akamai Remote Authentication. For more information about signed URLs created with CloudFront, see the following website:
http://docs.aws.amazon.com/AmazonCloudFront/latest/DeveloperGuide/private-content-signed-urls.html

For more information about Akamai Remote Authentication, contact your Akamai Account Manager.

If your Jamf Pro server is hosted in Jamf Cloud and you have the subscription-based option, you can use JCDS as your cloud distribution point. For more information about pricing, contact your Jamf account representative.

Requirements

If you plan to use Akamai for your cloud distribution point, Akamai must be configured to use File Transfer Protocol (FTP).

Note: If you have upgraded from Jamf Pro 8.x, you must migrate the scripts and packages on your principal distribution point before configuring the cloud distribution point. For more information, see the Migrating Packages and Scripts Knowledge Base article.

Files that are uploaded to a cloud distribution point cannot have filenames that include the following characters :

/ : ? < > \ * | " [ ] @ ! % ^ #

Configuring the Cloud Distribution Point

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Server Infrastructure**.
4. Click **Cloud Distribution Point** .
5. Click **Edit** .
6. Choose a content delivery network from the **Content Delivery Network** pop-up menu.
7. Configure the settings on the pane.
8. Click **Save** .

Testing the Cloud Distribution Point

Once the cloud distribution point is configured, you can test the connection to the content delivery network.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Server Infrastructure**.
4. Click **Cloud Distribution Point** .
5. Click **Test** .
6. Click **Test** again.

A message displays, reporting the success or failure of the connection.

Replicating Files to the Cloud Distribution Point

During replication, files on the principal distribution point are replicated to the cloud distribution point via Jamf Admin. The files that are replicated depend on whether the cloud distribution point is configured to replicate specific files or the entire contents of the principal distribution point.

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. In the sidebar, select the cloud distribution point you want to replicate files to.
3. Click **Replicate**.

Related Information

For related information, see the following section in this guide:

Network Segments
You can use network segments to ensure that computers and mobile devices use the closest distribution point by default.

For related information, see the following Knowledge Base article:

Information Required to Configure a Cloud Distribution Point in Jamf Pro
Learn about the information that must be obtained from your cloud services provider to configure the cloud distribution point in Jamf Pro.

For more information about content delivery services, visit the following websites:

- Rackspace Cloud Files
  http://www.rackspace.com/cloud/files/
- Amazon S3
  http://aws.amazon.com/s3/
- Amazon CloudFront
  http://aws.amazon.com/cloudfront/
- Akamai NetStorage
  http://www.akamai.com/html/solutions/netstorage.html
- Jamf Cloud Distribution Service
  http://www.jamfsoftware.com/products/jamf-cloud/

Software Update Servers

Adding an internal software update server to Jamf Pro is the first step to running Software Update from an internal software update server using a policy or Jamf Remote.

Using an internal software update server allows you to reduce the amount of bandwidth used when distributing software updates from Apple. Instead of each computer downloading updates from Apple's Software Update server, updates are only downloaded from Apple once per server.

Using an internal software update server also allows you to control and approve updates before you make them available.

Adding a Software Update Server

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Server Infrastructure**.
4. Click **Software Update Servers**  .
5. Click **New**  .
6. Configure the settings on the pane.
7. Click **Save**.

Related Information

For related information, see the following sections in this guide:

Running Software Update
Find out how to run Software Update using a policy or Jamf Remote.

For related information, see the following:

NetBoot/SUS Appliance
Find out how to host an internal software update server on Linux.

NetBoot Servers

Adding a NetBoot server to Jamf Pro is the first step to booting computers to a NetBoot image using a policy or Jamf Remote. NetBoot images are commonly used in place of recovery partitions or external drives when imaging.

Adding a NetBoot Server

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Server Infrastructure**.
4. Click **NetBoot Servers** .
5. Click **New** .
6. Configure the settings on the pane.
7. Click **Save** .

Related Information

For related information, see the following sections in this guide:

- Booting Computers to NetBoot Images
  Find out how to boot computers to a NetBoot image using a policy or Jamf Remote.
- Network Segments
  You can use network segments to ensure that computers use the closest NetBoot server by default.

For related information, see the following Knowledge Base articles:

- Creating a NetBoot Image and Setting Up a NetBoot Server
  Find out how to host a NetBoot server on a server with macOS Server installed.
- Booting macOS 10.11 or Later Computers to a NetBoot Image Using a Policy or Jamf Remote
  Find out how to add a trusted NetBoot server so that you can boot a macOS 10.11 or later computer to a NetBoot image using a policy or Jamf Remote.

For related information, see the following:

NetBoot/SUS Appliance
Find out how to host a NetBoot server on Linux.

Jamf Infrastructure Manager Instances

A Jamf Infrastructure Manager instance is a service that is managed by Jamf Pro. It can be used to host the following:

- **LDAP Proxy**—This allows traffic to pass securely between Jamf Pro and an LDAP directory service. The Infrastructure Manager and the LDAP Proxy typically reside within the DMZ.
  The LDAP Proxy requires integration with an LDAP directory service.
  For more information, see LDAP Proxy.
- **Healthcare Listener**—This allows traffic to pass securely from a healthcare management system to Jamf Pro.
  For more information, see Healthcare Listener.

When you install an instance of the Infrastructure Manager, Jamf Pro allows you to enable the LDAP Proxy or the Healthcare Listener. Infrastructure Manager instances can be installed on Linux and Windows.

For more information, see the Jamf Infrastructure Manager Installation Guide.

Viewing Inventory Information for a Jamf Infrastructure Manager Instance

Jamf Pro displays the following inventory information for each Infrastructure Manager instance:

- Last Check-in
- IP Address at Last Check-in
- Operating System
- Operating System Version

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Server Infrastructure.**
4. Click **Infrastructure Managers** .
   A list of Infrastructure Manager instances is displayed along with the services that are installed on each instance.
5. Click the Infrastructure Manager instance you want to view inventory information for.

Further Considerations

- When editing an Infrastructure Manager instance, only the display name and recurring check-in frequency can be changed.

  Note: The default check-in frequency at which the Infrastructure Manager instance checks in with Jamf Pro is 30 seconds.

- An Infrastructure Manager instance cannot be deleted if there are dependencies for the Infrastructure Manager. For example, an Infrastructure Manager cannot be deleted if there is an LDAP Proxy hosted on it. To delete the Infrastructure Manager, you must first disable the LDAP Proxy.
- If a Healthcare Listener is hosted on the Infrastructure Manager, the Healthcare Listener is deleted when the Infrastructure Manager is deleted.

Related Information

Email Notifications
Learn how to enable an email notification in the event that an Infrastructure Manager instance does not check in with Jamf Pro.

Healthcare Listener

The Healthcare Listener is a service that receives ADT messages from a healthcare management system and allows traffic to pass securely from the healthcare management system to Jamf Pro. When the Healthcare Listener receives an ADT message, Jamf Pro interprets the message to automatically send remote commands to mobile devices based on rules you configure. For more information about the communication process of the Healthcare Listener, see the Healthcare Listener Communication Knowledge Base article.

For example, you could configure a rule so that when the Healthcare Listener receives a "Patient Discharge" ADT message, Jamf Pro sends a Wipe Device command to the device assigned to the patient room.

When you configure the Healthcare Listener, you must do the following:

- Specify IP addresses or a range of IP addresses to accept incoming messages from

  Note: The Healthcare Listener is compatible with IPv4 and IPv6 connection methods.

- Specify a port number

  Note: The default port value is 8080. This should be changed to the port number that the Healthcare Listener uses to receive healthcare management system communications.

- Add rules by configuring settings that enable Jamf Pro to send commands to devices (For more information, see Healthcare Listener Rules.)
  You can also enable email notifications in the event that a command is not sent.

In addition, email notifications can be sent from Jamf Pro when a remote command fails to send or remains in a pending state. For more information, see "Email Notifications" in the table below.

The Healthcare Listener is hosted by the Jamf Infrastructure Manager, a service that is managed by Jamf Pro. After you install an instance of the Infrastructure Manager, Jamf Pro allows you to enable the Healthcare Listener. For more information, see Jamf Infrastructure Manager Instances.

Healthcare Listener Rules

Configuring a rule enables Jamf Pro to send remote commands to devices when the Healthcare Listener receives an ADT message. If you want to send more than one type of command or use more than one type of ADT message, you must configure a separate rule for each. You can configure as many rules as your organization requires.

The following table provides an overview of the settings you must configure for each rule:

Setting	Description
Operating System	This setting allows you to apply the rule to either iOS devices or tvOS devices. For example, you can choose to wipe only the tvOS devices in your environment. **Note:** For tvOS, the Wipe Device remote command is the only option available.
Remote Command	This setting allows you to specify which command you want sent from Jamf Pro when the Healthcare Listener receives an ADT message. You can choose from the following commands: ▪ Wipe Device (Optional) You can also choose to suppress Proximity Setup for mobile devices with iOS 11.3 or later. **Note:** If a mobile device has Activation Lock enabled, the Activation Lock is cleared when the device is wiped. ▪ Lock Device ▪ Clear Passcode ▪ Enable Lost Mode Choosing Enable Lost Mode requires you to configure custom messaging. ▪ Disable Lost Mode For more information, see Remote Commands for Mobile Devices.
ADT Message	For Jamf Pro to send commands to devices, the Healthcare Listener must receive an ADT message. You can choose from the following ADT message types: ▪ Admit/Visit Notification (ADT-A01) ▪ Patient Transfer (ADT-A02) ▪ Patient Discharge (ADT-A03) ▪ Cancel Admit/Visit Notification (ADT-A11) ▪ Cancel Transfer (ADT-A12) ▪ Cancel Discharge/End Visit (ADT-A13)
Mapping Fields	ADT messages contain multiple fields of information that the Healthcare Listener can extract. You can choose which ADT message field to extract, and then map that field to an attribute from user and location information in device inventory. For example, you can choose the field that returns "bed number" and map that field to the "Room" attribute in a device's inventory information. The command you specify is then sent to devices that match the inventory attribute you select. You can choose from the following ADT message fields: ▪ Patient Visit - Person Location - Bed (PV1-3-3) ▪ Patient Visit - Prior Person Location - Bed (PV1-3-6) In addition, you can use an alternative field from the ADT message. You can also create an extension attribute for a specific inventory attribute that fits your environment. After you create the extension attribute, it is available as an option. For more information about creating an extension attribute for a mobile device, see Mobile Device Extension Attributes.

Setting	Description
Email Notifications (Optional)	Email notifications can be sent from Jamf Pro to specified users for the following events: ▪ A command fails to send or is in a pending state after a specified amount of time. ▪ A command is sent to a device that does not meet the requirements for the command. For more information about mobile device remote command requirements, see Remote Commands for Mobile Devices. To enable email notifications, you need an SMTP server set up in Jamf Pro. For more information, see Integrating with an SMTP Server.

Requirements

To configure the Healthcare Listener and take full advantage of its latest features and enhancements in Jamf Pro, you must install the latest version of the Jamf Infrastructure Manager that hosts the Healthcare Listener. For complete instructions on installing and configuring the Healthcare Listener, see the Installing and Configuring the Healthcare Listener technical paper.

In addition, you need to ensure that your healthcare management system is compliant with Health Level Seven (HL7) messaging and that it communicates the version of HL7 protocol. For more information about HL7 messaging, see www.hl7.org.

Setting up the Healthcare Listener

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Server Infrastructure**.
4. Click **Infrastructure Manager Instances** .
   A list of Infrastructure Manager instances is displayed along with the services that are installed on each instance.
5. Click the Infrastructure Manager instance with the Healthcare Listener that you want to configure.
6. Click **Edit** .
7. Select the **Enable Healthcare Listener** checkbox.
8. Enter a display name for the Healthcare Listener.
   This is the name that is displayed for the Healthcare Listener on the Infrastructure Manager. For more information about viewing the services that are installed on an Infrastructure Manager instance, see Jamf Infrastructure Manager Instances.
9. To specify the IP addresses to accept incoming ADT messages from, do one of the following:
   - Select **All IP addresses** to accept incoming messages from any IP address.

- Select **Single IP address or Range of IP addresses** to specify the IP addresses to accept incoming ADT messages from, and do the following:
    a. To specify a single IP address, click the **(+) Add** button for Single and enter the IP address.
    b. To specify a range of IP addresses, click the **(+) Add** button for Range and enter the starting and ending IP addresses.

10. Enter the port number of your healthcare management system.
11. Click **Save**.

After the Healthcare Listener is set up, you can add rules. Adding a rule enables Jamf Pro to send remote commands to devices.

Adding a Healthcare Listener Rule

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**.
3. Click **Server Infrastructure**.
4. Click **Infrastructure Manager Instances**.
   A list of Infrastructure Manager instances is displayed along with the services that are installed on each instance.
5. Click the Infrastructure Manager instance with the Healthcare Listener that you want to add a rule to.
6. Click **Edit**, and then click the **Add (+)** button.
7. Select the operating system you want to apply the rule to.
8. Choose the remote command you want Jamf Pro to send to devices when the Healthcare Listener receives an ADT message.
9. Choose which ADT message the Healthcare Listener can receive.
10. Use the **Field Mapping** options to map a field from the ADT message to an attribute of inventory information.
    If you want to use an alternative field from the ADT message, choose "Other" from the **ADT Message Field** pop-up menu, and then type the field.
11. (Optional) To enable email notifications, click the **Notifications** tab, and do the following:
    a. Select the events that you want to send an email notification for.
    b. Enter an email address or multiple email addresses separated by a line break or a comma.
    c. Use the **Email Delay** pop-up menu to choose how many minutes to wait when a command is pending before sending an email to specified email addresses.
12. Click **Save**.

When the Healthcare Listener receives an ADT command, Jamf Pro sends the specified command to devices that are mapped to the field in the ADT message.

Further Considerations

- If you edit or delete a rule that has a remote command in a pending state, the pending command is still sent to devices regardless of editing or deleting the rule.
- If the Healthcare Listener cannot communicate with Jamf Pro (e.g., during a Jamf Pro upgrade), any ADT messages that the Healthcare Listener receives during that time are saved and then processed once communication is re-established.

Related Information

For related information, see the following sections in this guide:

- Viewing Audit Logs for a Mobile Device
  Find out how you can view the date/time of the remote command that was sent to a specific mobile device in the device's inventory information.
- Change Management
  Find out how to view Healthcare Listener changes that happen in Jamf Pro.

LDAP Proxy

Jamf Pro allows you to enable an LDAP Proxy. Enabling an LDAP Proxy creates a secure tunnel to allow traffic to pass between Jamf Pro and an LDAP directory service. For example, if your environment uses a firewall, an LDAP Proxy can be used to allow a directory service on an internal network to pass information securely between the directory service and Jamf Pro.

The LDAP Proxy is hosted by the Infrastructure Manager, a service that is managed by Jamf Pro. After you install an instance of the Infrastructure Manager, Jamf Pro allows you to enable an LDAP Proxy if you have an LDAP server set up in Jamf Pro. For more information, see Jamf Infrastructure Manager Instances.

Note: The LDAP Proxy that is hosted on the Infrastructure Manager is not the same service as the open source NetBoot/SUS/LP server. For more information about the open source NetBoot/SUS/LP server, see the following webpage: https://github.com/jamf/NetSUS/tree/master/docs .

Network Communication

When using the LDAP Proxy, the Jamf Infrastructure Manager can be customized for incoming access by any available port 1024 or greater. The port used must be opened, inbound, on your firewall and also on the computer on which the Infrastructure Manager is installed. The recommended port is 8389 for communication between your Jamf Pro server and the Infrastructure Manager.

Note: The Infrastructure Manager does not currently respect network proxy settings configured in the host operating system or in Java. Therefore, the Infrastructure Manager must be enrolled with Jamf Pro and receive its initial configuration on a network that does not require connection via an outbound proxy. Unless a firewall rule is created to allow the Infrastructure Manager to connect to Jamf Pro without using an outbound proxy, the Infrastructure Manager will not receive LDAP configuration updates or be able to notify Jamf Pro that it is operational. It will still be able to receive the inbound LDAP lookup requests from Jamf Pro, however.

For communication between the Infrastructure Manager and an LDAP directory service, your LDAP server's regular incoming port is used. This port is specified in the LDAP server's configuration in Jamf Pro. The most common configurations are port 389 for LDAP and port 636 for LDAPS. This communication occurs between the Infrastructure Manager in the DMZ and an internal LDAP directory service only.

Note: If your environment is hosted in Jamf Cloud and uses Network Address Translation (NAT), you can configure the Jamf Infrastructure Manager to ensure successful communication between the Infrastructure Manager and Jamf Pro. For more information, see the Configuring the Jamf Infrastructure Manager to Use Network Address Translation (NAT) Knowledge Base article.

When using Jamf Pro hosted on Jamf Cloud, the necessary external IP addresses for Jamf Cloud must be allowed inbound to the Infrastructure Manager. For more information, see the Permitting Inbound /Outbound Traffic with Jamf Cloud Knowledge Base article.

> **Note:** Internal domain addresses (for example, .local, .company, or .mybiz) are not supported at this time. The Infrastructure Manager must be resolvable to the external Jamf Pro server.

For more information about network communication and the connections initiated between the Infrastructure Manager and Jamf Pro, see the Network Ports Used by Jamf Pro Knowledge Base article.

Requirements

To configure an LDAP Proxy, you need the following:

- An Infrastructure Manager instance installed and configured (For more information, see the *Jamf Infrastructure Manager Installation Guide*.)
- An LDAP server set up in Jamf Pro (For more information, see Integrating with LDAP Directory Services.)

Configuring the LDAP Proxy

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **System Settings.**
4. Click **LDAP Servers** .
5. Click the LDAP Server to which you want to assign an LDAP Proxy.
6. Click **Edit** .
7. Select the **Enable LDAP Proxy** checkbox.
8. Select the proxy server to use.
   The proxy binding address is automatically populated based on the server you select.
9. Enter a port number.
10. Click **Save** .

jamf | PRO

Organizing Your Network

Buildings and Departments

Buildings and departments are organizational components that allow you to group computers and mobile devices by physical location and organizational infrastructure. You can use them to perform inventory searches, create smart groups, and configure the scope of remote management tasks.

Adding a Building or Department

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Network Organization**.
4. Click **Buildings** or **Departments** .
5. Click **New** .
6. Enter a display name for the building or department.
7. Click **Save** .

Related Information

For related information, see the following sections in this guide:

- Viewing and Editing Inventory Information for a Computer
  You can add a computer to a building or department by editing the computer's inventory information Jamf Pro.
- Viewing and Editing Inventory Information for a Mobile Device
  You can add a mobile device to a building or department by editing the mobile device's inventory information in Jamf Pro.
- Mass Editing the Building or Department for Computers
  Find out how to use the mass edit function to add multiple computers to a building or department.
- Mass Editing the Building or Department for Mobile Devices
  Find out how to use the mass edit function to add multiple mobile devices to a building or department.
- Network Segments
  You can use a network segment to update the building or department to which computers and mobile devices belong.
- Smart Groups
  You can create smart computer or device groups based on buildings or departments.
- Simple Computer Searches
  You can perform simple computer searches based on buildings or departments.

- Simple Mobile Device Searches
  You can perform simple mobile device searches based on buildings or departments.
- Advanced Computer Searches
  You can create advanced computer searches based on buildings or departments.
- Advanced Mobile Device Searches
  You can create advanced mobile device searches based on buildings or departments.
- Scope
  Learn how to configure scope based on buildings or departments.

Network Segments

A network segment is a range of IP addresses that can be used to group computers and mobile devices based on their network location. Network segments can be class B or class C subnets, or any IP range therein.

Adding network segments to Jamf Pro allows you to do the following:

- Ensure that computers and mobile devices use the closest distribution point by default.
- Ensure that computers use the closest NetBoot server by default.
- Specify a software update server for computers to use by default.
- Automatically update the building and department to which computers and mobile devices belong.
- Base the scope of remote management tasks on network segments.

If a computer belongs to multiple network segments, Jamf Pro uses and updates both IP addresses to distribute content. For more information about how IP addresses are collected and network segments are calculated, see the Collecting the IP Address and Reported IP Address in Jamf Pro Knowledge Base article.

Adding a Network Segment

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Network Organization**.
4. Click **Network Segments** .
5. Click **New** .
6. Configure the network segment using the settings on the pane.
7. Click **Save** .

Related Information

For related information, see the following section in this guide:

Scope
Learn how to configure scope based on network segments.

For related information, see the following Knowledge Base article:

Using the Jamf Pro Subnet Importer
Find out how to use Jamf Pro Subnet Importer to import a CSV file that contains network segment information into Jamf Pro.

iBeacon Regions

Jamf Pro allows you to utilize Apple's iBeacon technology to monitor when computers and mobile devices enter or exit an iBeacon region. This allows you to ensure that configuration profiles and policies are only installed on a device when the device is in the specified region.

You can use iBeacon regions as the basis for the following:

- The scope of a configuration profile
- The scope of a policy (This initiates the policy the first time that a computer checks in to Jamf Pro while in the specified region.)
- A custom trigger for a policy (The event name for initiating a policy when an iBeacon region change occurs is "beaconStateChange". This initiates the policy immediately when a computer enters the specified region.)

For more information about iBeacon devices and iBeacon regions, see Apple's documentation at: https://developer.apple.com/ibeacon/Getting-Started-with-iBeacon.pdf

If you have an iBeacon device in your environment, you can add that device to Jamf Pro as an iBeacon region. Jamf Pro can then detect when computers and mobile devices enter or exit the region.

Requirements

To monitor an iBeacon region for computers, you need:

- One or more iBeacon devices in your environment
- Computers that are Bluetooth Low Energy capable and have Bluetooth turned on
- The Computer Inventory Collection settings configured to monitor iBeacon regions (For more information, see Computer Inventory Collection Settings.)

To monitor an iBeacon region for mobile devices, you need:

- One or more iBeacon devices in your environment
- Mobile devices with:
  - iOS 7 or later
  - Bluetooth Low Energy capability
  - Bluetooth turned on
  - Jamf Self Service for iOS installed (For more information, see Jamf Self Service for iOS.)
  - Location Services enabled for Jamf Self Service for iOS
- The Mobile Device Inventory Collection settings configured to monitor iBeacon regions (For more information, see Mobile Device Inventory Collection Settings.)

Note: iBeacon region monitoring is not available for personally owned devices.

Adding an iBeacon Region

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Network Organization**.
4. Click **iBeacons**  .
5. Click **New**  .
6. Enter a display name for the iBeacon region.
7. Define the iBeacon region using the settings on the pane.
8. Click **Save**  .

Related Information

For related information, see the following sections in this guide:

- Scope
  Find out how to configure the scope of configuration profiles and policies based on iBeacon regions.
- Computer Inventory Collection Settings
  Find out how to configure the Computer Inventory Collection settings to monitor iBeacon regions.
- Mobile Device Inventory Collection Settings
  Find out how to configure the Mobile Device Inventory Collection settings to monitor iBeacon regions.

For related information, see the following Knowledge Base article:

Smart Group and Advanced Search Criteria for iBeacon Regions
Learn about the smart group and advanced search criteria available for iBeacon regions.

Sites

Sites are components that Jamf Pro administrators can create to determine which objects (for example, computers, mobile devices, or apps) Jamf Pro users can view and manage. Sites and the objects within sites do not have to be organized based on physical location. For example, a Jamf Pro administrator in a school system could create sites for K-2, 3-5, 6-8, and 9-12 and then delegate control of each site to a specific Jamf Pro user.

Sites are only necessary when full Jamf Pro administrators need to allow specific users to manage a subset of objects. If all Jamf Pro users should have access to all objects, do not configure sites.

When a user logs in to a Jamf Pro user account with site access, the user can view and edit only the objects within that site. If the user has access to multiple sites, a menu is displayed at the top of the page, allowing the user to switch between sites.

Creating a Site

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Network Organization**.
4. Click **Sites**  .
5. Click **New**  .
6. If prompted, choose a method for adding sites:
   - To add sites manually, select **Add sites manually** and click **Next**.
   - To create a site for each existing building, select **Create sites from buildings** and click **Next**.
   - To create a site for each existing department, select **Create sites from departments** and click **Next**.
7. If prompted, enter a display name for the site and click **Save**  .

> **Note:** You can only create sites from buildings or departments if you are adding sites for the first time and have buildings or departments set up in Jamf Pro.

Adding Objects to a Site

The following objects can be added to a site:

- Computers
- Mobile devices
- Users
- Enrollment invitations

- Enrollment profiles
- Advanced searches
- Smart groups
- Static groups
- Self Service bookmarks
- Policies
- Configuration profiles
- Imaging PreStage
- Restricted software records
- Licensed software records
- Classes
- Apps
- Books
- Automated device enrollment (formerly DEP) instances
- PreStage enrollments
- Volume purchasing (formerly VPP) locations
- Network integration instances
- Patch management software titles

There are several ways to add computers to a site:

- Create sites from existing buildings and departments. This automatically adds computers to the site that corresponds with the building or department they belong to.
- Enroll computers using one of the following methods:
  - Provide an enrollment URL to users for user-initiated enrollment. If using an enrollment invitation, computers will be added to the site specified in the invitation. If an enrollment URL is provided to users via a different method, users are prompted to select a site during enrollment. For more information, see User-Initiated Enrollment for Computers.
  - Use a Recon QuickAdd package. For more information, see QuickAdd Packages Created Using Recon.
  - Use the network scanner. For more information, see Network Scanner.
  - Run Recon remotely on a single computer. For more information, see Remote Enrollment Using Recon.
  - Run Recon locally. For more information, see Local Enrollment Using Recon.
- Mass edit the **Site** field for computers that are already enrolled with Jamf Pro. For more information, see Mass Editing the Site for Computers.
- Manually edit the **Site** field for individual computers that are already enrolled with Jamf Pro. For more information, see Viewing and Editing Inventory Information for a Computer.

There are several ways to add mobile devices to a site:

- Create sites from existing buildings and departments. This automatically adds mobile devices to the site that corresponds with the building or department they belong to.
- Enroll mobile devices using one of the following methods:
  - Provide an enrollment URL to users for user-initiated enrollment. If using an enrollment invitation, mobile devices will be added to the site specified in the invitation. If an enrollment URL is provided to users via a different method, users are prompted to select a site during enrollment. For more information, see User-Initiated Enrollment for Mobile Devices.
  - Apply an enrollment profile to a mobile device using Apple Configurator 2. For more information, see Enrollment Profiles.
- Mass edit the **Site** field for mobile devices that are already enrolled with Jamf Pro. For more information, see Mass Editing the Site for Mobile Devices.
- Manually edit the **Site** field for individual mobile devices that are already enrolled with Jamf Pro. For more information, see Viewing and Editing Inventory Information for a Mobile Device.

There are several ways to add users to a site:

- Add the user to a computer or mobile device that belongs to a site.
- Add a computer or mobile device with a user assigned to it to a site.
- Mass add users to a site for users in Jamf Pro. For more information, see Adding Multiple Users to a Site.
- Manually add users to a site for individual users in Jamf Pro. For more information, see Viewing and Editing Inventory Information for a User.

To add other objects to a site, choose a site from the **Site** pop-up menu when configuring the objects in Jamf Pro.

Related Information

For related information, see the following section in this guide:

Jamf Pro User Accounts and Groups
Find out how to grant site access to Jamf Pro user accounts and groups.

Network Integration

Jamf Pro can be integrated with a network access management service, such as Cisco Identity Services Engine (ISE). Network integration allows the service to communicate with Jamf Pro to verify that the computers and mobile devices on your network are compliant with your organization's standards. With information from Jamf Pro, the service can determine the level of network access to grant to a computer or mobile device, provide messaging to end users, and refer end users to enroll their computers and mobile devices to Jamf Pro to become compliant.

Note: When the network access management service refers end users to enroll their computer or mobile device with Jamf Pro, an enrollment URL is provided to the user in a webpage when they access the Internet. The end user can then access the enrollment URL to enroll with Jamf Pro via user-initiated enrollment. For more information, see User-Initiated Enrollment Settings.

Network integration can also allow the network access management service to send remote commands to computers and mobile devices via Jamf Pro, including passcode lock and wipe commands.

Creating a network integration instance in Jamf Pro prepares Jamf Pro to integrate with a network access management service. This allows you to do the following:

- When sites are defined in Jamf Pro, select the site to add the network integration instance to.
- Select the saved advanced computer search and advanced mobile device search to be used by the network access management service to verify computers and mobile devices that are compliant with your organization's standards. Computers and mobile devices that appear in the search results are reported as compliant to the network access management service.
- Specify compliance verification failure and compliance remediation messaging that can be displayed to end users via the network access management service.
- Configure the passcode to be used when remotely locking or wiping computers via the network access management service.
- After saving the network integration instance, view the network integration URL to be used by the network access management service to communicate with the specific Jamf Pro network integration instance.

Important: When using network integration on a per-site basis in Jamf Pro, ensure that any site-specific configuration profiles and policies in Jamf Pro do not conflict with computer and mobile device compliance verification performed through network integration.

Requirements

For more information and requirements for configuring your network access management service to communicate with an MDM server, see your vendor's documentation.

To allow the network access management service to send remote commands via Jamf Pro, your environment must meet the requirements for sending remote commands to computers and mobile devices. For more information, see Remote Commands for Computers and Remote Commands for Mobile Devices.

Adding a Network Integration Instance

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Network Organization**.
4. Click **Network Integration**  .
5. Click **New**  .

   Note: Only one network integration instance can be added per site in Jamf Pro. If all sites already have a network integration instance, you will not be able to add a new one.

6. Configure the network integration instance using the settings on the pane, including the site, the advanced computer search and advanced mobile device search to be used for compliance verification, compliance messaging to be displayed to users, and the remote lock and wipe passcode setting for computers.

   Note: If you select the "Create Random Passcode" option for the passcode assignment method for computers, to identify the passcode used for a remote lock or wipe on a specific computer, you will need to view the management history for the computer in Jamf Pro. For more information, see Viewing the History for a Computer.

7. Click **Save**  .
   After saving the network integration instance, a unique network integration URL appears at the bottom of the pane. This URL will be used by the network access management service to communicate with the specific Jamf Pro network integration instance.

Related Information

For related information, see the following sections in this guide:

- Sites
  Learn about sites and how to add them to Jamf Pro.
- Advanced Computer Searches
  Learn how to create and save an advanced computer search.
- Advanced Mobile Device Searches
  Learn how to create and save an advanced mobile device search.

Scope

Scope gives you granular control over which computers, mobile devices, and users receive remote management tasks. For example, you can use scope to ensure that a policy to install desktop publishing software only runs on computers in the Design department, or that a book is only distributed to students in a particular class.

Scope can be based on the following items:

- Individual computers, mobile devices, or users
- Computer, mobile device, or user groups
- Departments
- Buildings
- LDAP or local users
- LDAP user groups

  Note: Jamf Pro may experience performance issues if too many LDAP groups are included in the scope of an object. If you need to use multiple LDAP criteria within a scope, consider creating a smart group with those criteria, and then scope to that smart group instead.

- Network segments
- Classes
- iBeacon regions

The items available vary depending on the remote management task you are configuring the scope for. For example, only book scope can be based on classes.

Note: Scope cannot be based on personally owned mobile devices.

Configuring Scope

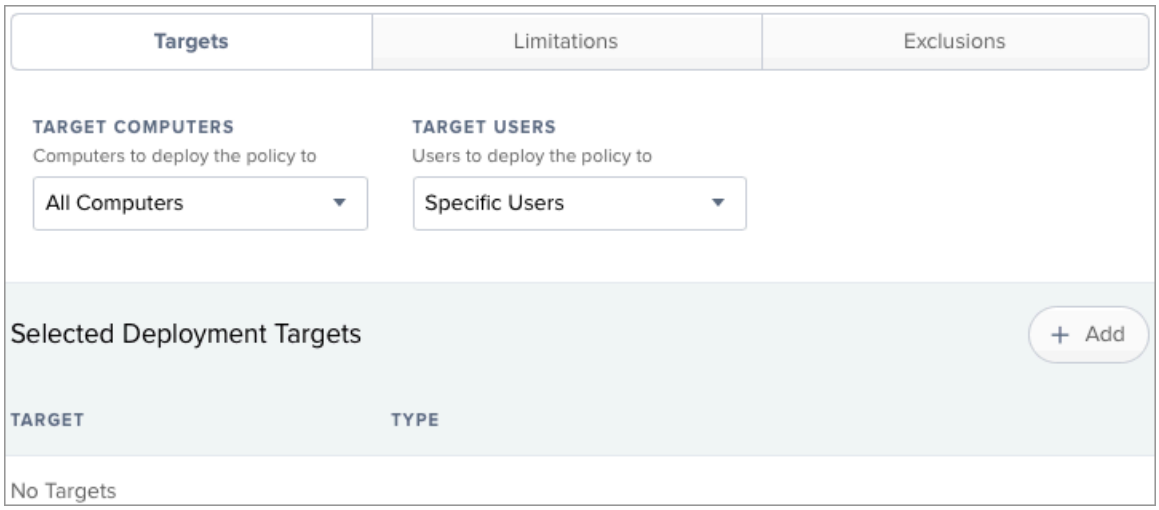
For most remote management tasks, configuring the scope involves adding targets, limitations, and exclusions. (The process varies depending on the remote management task you are configuring the scope for.)

Adding Targets

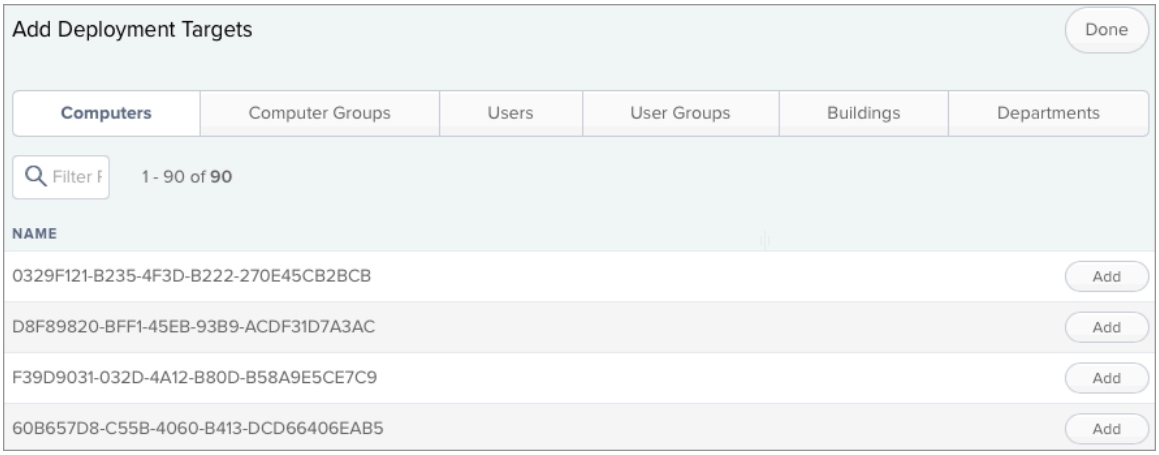
Targets make up the initial pool of computers, mobile devices, or users that receive the remote management task. You can add all computers, mobile devices, or users, or you can add a combination of specific items (e.g., computers, groups, buildings).

1. On the Targets pane, use the pop-up menus to choose items to add to the scope.

> **Note**: All computers, mobile devices, and users selected from the pop-up menus will be added to the scope. One pop-up menu selection does not override another. For example, selecting "All Computers" and "Specific Users" as targets to the scope of a book will cause the book to be distributed to all mobile devices, as well as any computers or mobile devices that the chosen user or users are assigned to.



2. If you chose to add specific items:
   a. Click **Add** + Add .
   b. On each tab, click **Add** for the items you want to add.



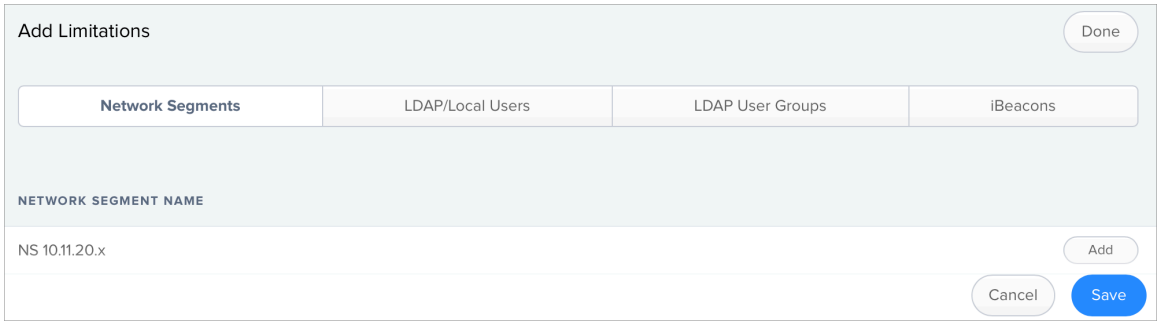
   c. Click **Done** in the top-right corner of the pane.
   The items you added are displayed in a list on the Targets pane.

Adding Limitations

Adding limitations to the scope of a remote management task allows you to do the following:

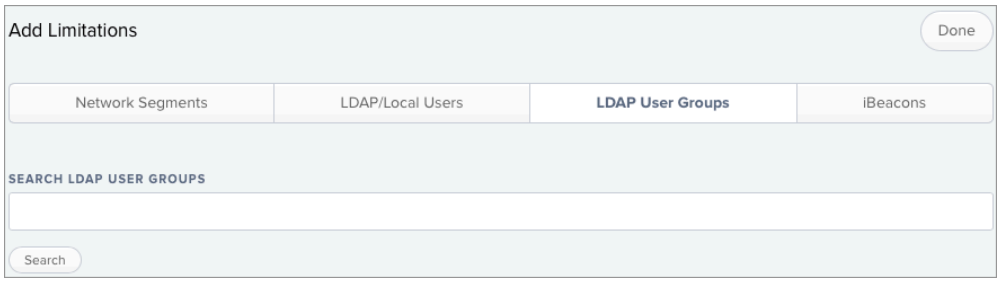
- **Limit the task to specific users in the target.** For example, if you want a certain application to open at login for specific users regardless of the computer they use, you can use all computers as the target and add specific users as limitations.
- **Limit the task to specific network segments in the target.** For example, if you want each computer in a department to install a package but only while on the company's production network, you can use the department as the target and add a specific network segment as a limitation.
- **Limit policies and configuration profiles to devices in the target when the devices are in a specific iBeacon region.** For example, if you want to install a configuration profile on mobile devices when they are in a specific iBeacon region, you can add the iBeacon region as a limitation.

1. On the Limitations pane, click **Add** + Add .
2. On each tab, add items as needed.
   To add a network segment, click the **Network Segments** tab, and then click **Add** for the network segment.



To add an LDAP or local user, click the **LDAP/Local Users** tab. Then enter the username in the search field and click **Add**.

To add an LDAP user group, click the **LDAP User Groups** tab, enter the name of the group in the search field and click **Search**. Then click **Add** for the group you want to add.



3. Click **Done** in the top-right corner of the pane.
   The items you added are displayed in a list on the Limitations pane.

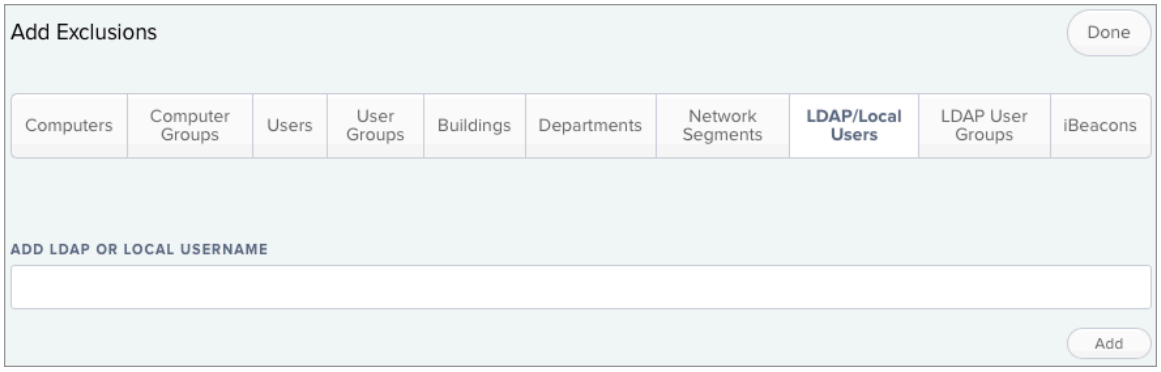
Adding Exclusions

Adding exclusions to the scope of a remote management task allows you to exclude specific computers or mobile devices, groups, buildings, departments, users, user groups, or network segments. For example, if you want to restrict an application for everyone except the head of the department, you can add them as an exclusion.

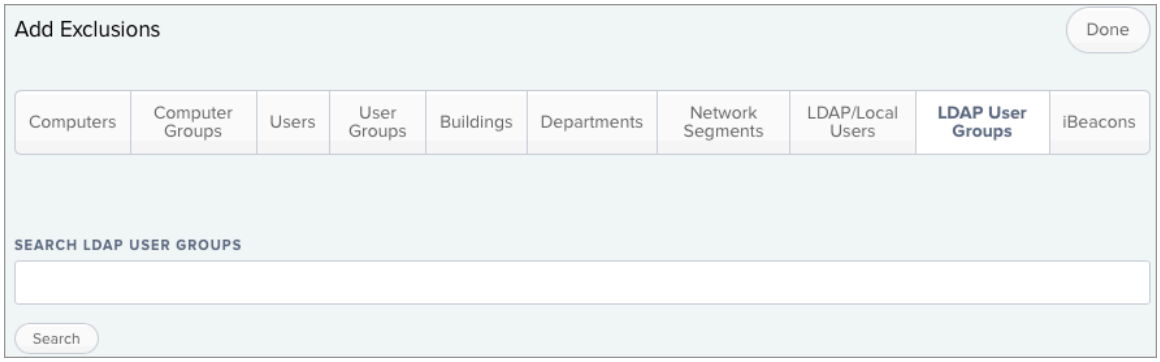
You can also add iBeacon regions as exclusions to the scope of policies and configuration profiles. For example, if you want to prevent a mobile device from having a configuration profile installed when it is in a specific iBeacon region, you can add the iBeacon region as an exclusion.

1. On the exclusions pane, click **Add** + Add .

2. On each tab, add items as needed.
   To add an LDAP or local user, click the **LDAP/Local Users** tab. Then enter the username in the search field and click **Add**.



To add an LDAP user group, click the **LDAP User Groups** tab, enter the name of the group in the search field and click **Search**. Then click **Add** for the group you want to add.



To add another type of item, click the appropriate tab and then click **Add** for the item you want to add.

3. Click **Done** in the top right-corner of the pane.
The items you added are displayed in a list on the Exclusions pane.

Removing Targets

For most remote management tasks, removing a target from the scope also removes the remote management task from the device the next time the device checks in with Jamf Pro. However, some remote management tasks—such as policies or PreStage enrollment—are not removed from the device after the target is removed from the scope.

For information on how a feature behaves when a target is removed from the scope, see the documentation for that feature.

jamf | PRO

Managing Computers

Building the Framework for Managing Computers

Recurring Check-in Frequency

The recurring check-in frequency is the interval at which computers check in with Jamf Pro for available policies.

By default, the recurring check-in frequency is set to “Every 15 Minutes”.

Configuring the Recurring Check-in Frequency

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the “Computer Management–Management Framework” section, click **Check-In** .
5. Click **Edit** .
6. Configure the recurring check-in frequency using the pop-up menu on the pane.
7. Click **Save** .

Each computer checks in at the specified interval, starting at the time the setting is applied to the computer. This means that check-in times will vary across computers.

Related Information

For related information, see the following section in this guide:

Policy Management
You can create policies that are triggered at the recurring check-in frequency.

Components Installed on Managed Computers
Find out where the files that control the recurring check-in frequency are stored on computers.

Startup Script

The Startup Script settings in Jamf Pro allow you to create a startup script on computers and use it to perform the following actions at startup:

- Log Computer Usage information (date/time of startup).
- Check for policies triggered at startup.
- Ensure SSH (Remote Login) is enabled on computers.

Configuring the Startup Script

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the "Computer Management–Management Framework" section, click **Check-In** .
5. Click **Edit** .
6. Configure the startup script settings using the checkboxes on the pane.
7. Click **Save** .

Related Information

For related information, see the following sections in this guide:

- Computer Usage
  Find out how to view Computer Usage information logged at startup.
- Policy Management
  You can create policies that are triggered at startup.
- Components Installed on Managed Computers
  Find out where the startup script is stored on computers.

Login and Logout Hooks

The Login/Logout Hooks settings in Jamf Pro allow you to create login and logout hooks on computers and use them to perform the following actions:

- Log Computer Usage information (username and date/time) at login and logout.
- Check for policies triggered at login or logout.
- Hide the Restore partition at login.

> **Warning:** Creating login and logout hooks with Jamf Pro can disable existing login and logout hooks.

Configuring Login and Logout Hooks

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the "Computer Management–Management Framework" section, click **Check-In** .
5. Click **Edit** .
6. Configure the login/logout hooks settings using the checkboxes on the pane.
7. Click **Save** .

Related Information

For related information, see the following sections in this guide:

- Computer Usage
  Find out how to view Computer Usage information logged at login and logout.
- Policy Management
  You can create policies that are triggered at login or logout.
- Components Installed on Managed Computers
  Find out where login/logout hooks are stored on computers.

Security Settings

The Security settings in Jamf Pro allow you to do the following:

- Enable certificate-based authentication.
- Enable push notifications.
- Automatically install the Privacy Preferences Policy Control profile.
- Automatically install a Jamf Notifications profile.
- Configure SSL certificate verification.
- Specify the condition under which the checksum will be used to validate packages. If you choose to validate packages, the validation occurs after the package is downloaded.
- Specify a maximum clock skew between managed computers and the Jamf Pro host server.
- Require login authentication when retrieving PreStage imaging and Autorun imaging information.

When a Mac computer attempts to communicate with the Jamf Pro server and the security requirements specified in Jamf Pro are not met, communication is blocked.

Automatically Installing the Privacy Preferences Policy Control Profile

When you enroll a computer with Jamf Pro, the computer automatically becomes managed by Jamf Pro. This allows you to perform remote management tasks on the computer. To perform some tasks on computers with macOS 10.14 or later, you must allow the Jamf management framework to access the target computer's system files and processes by installing the Privacy Preferences Policy Control profile.

Note: The Privacy Preferences Policy Control profile is part of a security feature introduced in macOS 10.14. For more information about the Privacy Preferences Policy Control profile, see the following website:
https://support.apple.com/guide/mdm/mdm38df53c2a/

This option is enabled by default and allows Jamf Pro to automatically install the Privacy Preferences Policy Control profile on computers with macOS 10.14 or later that have a User Approved MDM status. This allows the Jamf management framework to be installed on computers to access the necessary system files and processes for managing computers and performing the remote management tasks on the computers.

The **Enable certificate-based authentication** and **Enable push notifications** settings must be enabled to access this feature.

For more information about the contents of the Privacy Preferences Policy Control profile, see the "Privacy Preferences Policy Control Profile Contents" section of the Preparing your Organization for User Data Protections on macOS 10.14 Knowledge Base article.

Automatically Installing a Jamf Notifications Profile

Configuring the **Automatically install a Jamf Notifications profile** setting in Jamf Pro automatically enables notifications from the Jamf management framework and Jamf Self Service for macOS. End users are not prompted to allow notifications the first time they log in to Self Service.

This option is enabled by default and allows Jamf Pro to automatically install the Notifications profile on computers with macOS 10.15 or later.

The **Enable certificate-based authentication** and **Enable push notifications** settings must be enabled to access this feature.

Configuring SSL Certificate Verification

Configuring the SSL Certificate Verification setting in Jamf Pro ensures that computers only communicate with a host server that has a valid SSL certificate. This prevents computers from communicating with an imposter server and protects against man-in-the-middle attacks.

Consider the following when configuring SSL certificate verification:

- If you are using the self-signed certificate from Apache Tomcat that is built into Jamf Pro, you must select "Always except during enrollment".
- If you are using an SSL certificate from an internal CA or a trusted third-party vendor, select either "Always" or "Always except during enrollment". It is recommended that you use "Always" if computers in your environment are configured to trust the certificate before they are enrolled.

For more information, see the following Knowledge Base articles:

- Safely Configuring SSL Certificate Verification
- Change to the SSL Certificate Verification Setting in Jamf Pro 9.98 or Later

Requirements

To enable push notifications, you must have a push certificate in Jamf Pro. For more information, see Push Certificates.

Configuring Security Settings

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the "Computer Management–Management Framework" section, click **Security** .
5. Click **Edit** .
6. Configure the settings on the pane.
7. Click **Save** .

Related Information

For related information, see the following sections in this guide:

- Certificates
  Learn about device certificates and the SSL certificate.
- SSL Certificate
  Find out how to create or upload an SSL certificate that Mac computers can use to verify the identity of the Jamf Pro server.
- Calculating a Checksum
  Learn about using the checksum to validate a package and how to manually calculate the value.
- PreStage Imaging
  Learn about using PreStage Imaging.
- Autorun Imaging
  Learn about using Autorun Imaging.

For related information, see the following Knowledge Base articles:

- Certificate-Based Authentication for Mac Computers
  Learn how Jamf Pro uses certificate-based authentication to verify the identity of Mac computers.
- Safely Configuring SSL Certificate Verification
  Learn about why it is important to configure SSL Certificate Verification in Jamf Pro and how to do so without putting your environment at risk.

Enrollment of Computers

Computer Enrollment Methods

Enrollment is the process of adding Mac computers to Jamf Pro. When computers are enrolled, inventory information for the computers is submitted to Jamf Pro.

Enrolling computers makes them managed by Jamf Pro. This allows you to perform inventory tasks, remote management, and configuration tasks on the computers. When you enroll computers, you specify a local administrator account called the “management account” that you will use to manage them.

The management account can be used to perform the following tasks on the computer:

- Screen sharing
- Enable FileVault using a policy (when SecureToken is enabled)
- Add or remove users from FileVault using a policy (when SecureToken is enabled)
- Generate a personal recovery key using a policy (when SecureToken is enabled)
- Perform authenticated restarts using a policy (when SecureToken is enabled)

You must enable the management account in the User-Initiated Enrollment settings before the account can be created during enrollment. To enable the management account, you must enable user-initiated enrollment, and then configure the management account username and password. When configuring the management account password settings in the User-initiated Enrollment settings, it is recommended that you choose the "Randomly generate passwords" option for maximum security. You can see if a computer is managed by the management account by viewing the Managed attribute field in the computer inventory information.

There are two types of computer enrollment, with various methods to enroll a computer using that type:

- **Automated Device Enrollment**—Automated Device Enrollment allows organizations to configure and manage devices from the moment the devices are removed from the box (known as zero-touch deployment). These devices become supervised, and the MDM profile can’t be removed by the user. Automated Device Enrollment is designed for devices owned by the organization. For more information, see Information about Automated Device Enrollment into MDM from Apple's *Mobile Device Management Settings*.
- **Device Enrollment**—Device Enrollment allows organizations to manually enroll devices and manage many different aspects of device use, including the ability to erase the device. If a user removes the MDM profile, all settings and apps that are being managed by the MDM solution are removed. For more information, see Information about Device Enrollment into MDM from Apple's *Mobile Device Management Settings*.

Automated Device Enrollment for Computers

The only method you can use to enroll devices with Automated Device Enrollment and Jamf Pro is a PreStage enrollment. You can use a PreStage enrollment to customize the computer enrollment experience, distribute configuration profiles and packages during enrollment, and store setup settings in Jamf Pro to reduce the amount of time and interaction it takes to enroll computers with Jamf Pro. Using a PreStage enrollment, computers with macOS 10.10 or later can also be managed automatically. For more information about how to enroll computers using a PreStage enrollment, see Computer PreStage Enrollments. This method is one way to achieve a User Approved MDM status. For more information about User Approved MDM and Jamf Pro, see the Managing User Approved MDM with Jamf Pro Knowledge Base article.

Note: This enrollment method requires an Apple School Manager or Apple Business Manager account. For more information, see Integrating with Automated Device Enrollment.

Device Enrollment for Computers

There are several methods you can use to enroll computers with Device Enrollment and Jamf Pro:

- **(Recommended)** User-initiated enrollment—You can use the User-Initiated Enrollment settings to customize the enrollment experience for users, including the messaging that displays for each step of the enrollment process. Users can then enroll their own computers by logging in to a web-based enrollment portal and following the onscreen instructions. During enrollment, users are prompted to download either an MDM profile or QuickAdd package based on the computer's macOS version. This method is one way to achieve a User Approved MDM status. For more information about User Approved MDM and Jamf Pro, see the Managing User Approved MDM with Jamf Pro Knowledge Base article.
- Use a QuickAdd package created with Recon—You can use Recon to create a QuickAdd package that enrolls computers when it is installed. This type of QuickAdd package can be deployed using almost any deployment tool, such as Apple Remote Desktop or Jamf Pro. You can also give the QuickAdd package to users to install on their own.
- Use the network scanner—You can remotely enroll multiple computers in specified IP ranges by using the network scanner in Recon. Recon scans the specified IP ranges and enrolls any computers that it can connect to over SSH (Remote Login).
- Run Recon remotely on a single computer—If you know the IP address of the computer that you want to enroll and SSH (Remote Login) is enabled on the computer, you can enroll the computer by running Recon remotely.

  Note: Because of increased user data protections with macOS 10.14 or later, you cannot enable remote management remotely using the SSH protocol. To enable remote management on computers with macOS 10.14 or later, the user must select the **Screen Sharing** checkbox in System Preferences.

- Run Recon locally—If you have physical access to the computer that you want to enroll, you can run Recon locally on the computer.

- **(Not Recommended)** Image computers—You can enroll computers by imaging them with a configuration that is associated with a management account.

Related Information

For related information, see the following section in this guide:

Components Installed on Managed Computers
See a list of the components installed on managed computers and find out how to remove them.

Computer PreStage Enrollments

A PreStage enrollment allows you to create enrollment configurations and sync them to Apple. This enables you to enroll new computers with Jamf Pro, reducing the amount of time and interaction it takes to prepare computers for use.

Before you can use a PreStage enrollment, you must do the following:

- Integrate Jamf Pro with Automated Device Enrollment (formerly DEP). This creates an Automated Device Enrollment instance in Jamf Pro.
  For more information, see Integrating with Automated Device Enrollment.
- Enable user-initiated enrollment for macOS in Jamf Pro.
  For more information, see User-Initiated Enrollment Settings.

After creating an Automated Device Enrollment instance, you need to create a PreStage enrollment in Jamf Pro for the computers you want to enroll. Creating a PreStage enrollment allows you to configure the enrollment settings and customize the user experience of the Setup Assistant. You can also specify the computers that should be enrolled using the PreStage enrollment and automatically add computers newly associated with the Device Enrollment instance to the PreStage Enrollment. Only computers with macOS 10.10 or later that are associated with the Automated Device Enrollment instance can be enrolled with Jamf Pro using a PreStage enrollment.

Jamf Pro automatically refreshes information about the computers in the PreStage enrollment. If there is updated information about the computers in Automated Device Enrollment, this information is displayed in Jamf Pro. This information is automatically refreshed every two minutes.

Note: There can be up to a two minute delay on the information refresh which can result in outdated information displayed in Jamf Pro. In addition, environment-specific factors can affect the refresh of information.

A PreStage enrollment is one of the methods that result in a User Approved MDM state for eligible computers. This state is required for managing certain security and privacy settings on macOS. For more information about User Approved MDM and Jamf Pro, see the Managing User Approved MDM with Jamf Pro Knowledge Base article.

Computer PreStage Enrollment Settings

When you create a PreStage enrollment, you use a payload-based interface to configure settings to apply to devices during enrollment. The following table displays the enrollment settings available in a PreStage enrollment:

Payload	Description
General	This payload allows you to configure basic settings for the PreStage enrollment, specify authentication and management requirements, add an Enrollment Customization configuration, and customize the Setup Assistant experience.
Account Settings	You can use the Account Settings payload to specify account information for the user account created in the Setup Assistant. This payload also can define a managed administrator account to be created at setup.
Configuration Profiles	You can use the Configuration Profiles payload to select profiles to distribute to computers during enrollment. This allows the profiles to be installed on computers before the user completes the Setup Assistant.
User and Location	You can use the User and Location payload to specify user and location information to store in Jamf Pro for each computer enrolled using a PreStage enrollment. **Note:** Using Inventory Preload or authentication during enrollment can automatically populate this information for computers. This information is stored in Jamf Pro for each computer enrolled using a PreStage enrollment.
Passcode (deprecated)	The Passcode payload is only displayed for existing PreStage enrollments that were configured using this payload in Jamf Pro 10.9.0 or earlier. To specify passcode requirements for computers during enrollment using Jamf Pro 10.10.0 or later, create a configuration profile with a Passcode payload configured, and then add that profile to a PreStage enrollment using the Configuration Profiles payload.
Purchasing	You can use the Purchasing payload to specify purchasing information for the computers. This information is stored in Jamf Pro for each computer enrolled using a PreStage enrollment.
Attachments	You can use the Attachments payload to upload attachments to store for computers. This information is stored in Jamf Pro for each computer enrolled using a PreStage enrollment.

Payload	Description
Certificates	You can use the Certificates payload to establish trust during enrollment if your Jamf Pro instance uses an SSL certificate that is not natively trusted by Apple products. The computer attempts a secure connection with Jamf Pro using only this certificate to enroll. For more information about the certificates that are trusted by Apple, see the following article from Apple's support website: https://support.apple.com/HT209143 **Note:** If your Jamf Pro instance uses an SSL certificate that was created by the Jamf Pro built-in CA, an anchor certificate for enrollment is automatically added to this payload. If your Jamf Pro server URL ends with "jamfcloud.com" you should not configure this payload.
Directory (deprecated)	The Directory payload is only displayed for existing PreStage enrollments that were configured using this payload in Jamf Pro 10.9.0 or earlier. To choose a directory server for computers during enrollment using Jamf Pro 10.10.0 or later, create a configuration profile with a Directory payload configured, and then add that profile to a PreStage enrollment using the Configuration Profiles payload.
Enrollment Packages	You can use the Enrollment Packages payload to choose packages to deploy to computers during enrollment. Installation commands for the selected packages are deployed to computers before the user completes the Setup Assistant.

Enrollment Experience Customization

You can customize the enrollment experience for the user with the following features in the PreStage enrollment:

- **Enrollment Customization configurations**—You can use the General payload to add an Enrollment Customization configuration to the PreStage enrollment. For example, you can add an Enrollment Customization configuration to display an End User License Agreement (EULA) during enrollment or other custom messaging as the user advances through the Setup Assistant. For more information, see Enrollment Customization Settings.
  To add an Enrollment Customization configuration to the PreStage enrollment, you must have at least one configuration in the Enrollment Customization settings. Enrollment Customization configurations are applied to computers with macOS 10.15 or later only.

- **Configuration profiles**—You can use the Configuration Profiles payload to distribute profiles that define settings and restrictions for computers during enrollment. This allows the profiles to be installed on computers before the user completes the Setup Assistant, enabling the user to access resources on your network immediately after their computer is enrolled with Jamf Pro. For example, you can distribute a profile that enables a user to automatically join your network during enrollment.
  To add configuration profiles to the Configuration Profiles payload, you must create the profile prior to configuring the PreStage enrollment. For more information, see Computer Configuration Profiles. In addition, when you create the computer configuration profile, you must ensure that the scope of the profile contains the computers that are in the scope of the PreStage enrollment.

  Note: Configuration profiles that contain payload variables are not replaced with the attribute values for the variable. If you want to distribute profiles that contain payload variables, it is recommended that you distribute the profile after the computer is enrolled with Jamf Pro.

- **Enrollment packages**—You can add as many packages to the Enrollment Packages payload per PreStage enrollment instance that fits your environment (multiple packages apply to computers with macOS 10.14.4 or later). This enables you to install packages that are needed in your provisioning workflow (e.g., Jamf Connect).
- **Setup Assistant steps**—You can use the General payload to select Setup Assistant screens that you want the user to skip during enrollment (e.g., Apple ID login). When you select a step, that screen is not presented to the user during enrollment. For more information about the screens that can be skipped during enrollment, see the following article from Apple's support website: https://support.apple.com/guide/mdm/mdmc5a826c7/
- **Account creation**—You can create a local administrator account and specify the type of account for the user to create on the computer during enrollment. You can pre-fill and lock the account information so when a user enrolls their computer, the Full Name and Account Name will be pre-populated in the Account Creation screen of the Setup Assistant.

Enrollment Packages

You can use the Enrollment Packages payload to choose packages to deploy to computers during enrollment. You can install software on the computer that is critical to the enrollment workflow before the user completes the Setup Assistant or before the jamf binary is installed during enrollment with Jamf Pro.

Consider the following when configuring the Enrollment Packages payload:

- **Multiple packages**—You can add multiple packages to the Enrollment Packages payload to be deployed to computers with macOS 10.14.4 or later. Order of package installation is determined by the package priority. If multiple packages have the same priority, packages are installed in alphabetical order based on the package name. Earlier versions of macOS can only install one package and will install the package with the lowest priority number. For example, a package with a priority of "1" is installed instead of the package with a priority of "5". These packages are installed on the computer during the Setup Assistant process and larger packages (e.g., Microsoft Office) may slow the enrollment process.

- **Package hosting**—To deploy an enrollment package to computers using a distribution point other than a cloud distribution point, the distribution point must use HTTPS and cannot use any authentication.
- **Signed packages**—You must upload a signed package to Jamf Pro prior to configuring the PreStage enrollment. You can use Composer or a third-party packaging tool to build a signed PKG. For more information about building packages using Composer, see the Composer User Guide.

  Note: Packages must be signed using a certificate that is trusted by the device at the time of enrollment. It is recommended that the package is signed with a certificate generated from either the Jamf Pro built-in CA or from an Apple Developer Program account.For more information, see the following Knowledge Base articles:

  - Creating a Signing Certificate using Jamf Pro's Built-in Certificate Authority
  - Obtaining an Installer Certificate from Apple

- **Custom manifest file**—Packages must have a corresponding manifest file (XML plist format) that contains the URL to download the package from an HTTPS server and other required information for the package. By default, Jamf Pro creates this file when you upload it directly to Jamf Pro or add it to Jamf Admin. If your environment uses an HTTPS server that is not a Jamf Pro HTTPS-capable distribution point to host your packages, you can create a custom manifest file and upload it along with the package to Jamf Pro. To use a custom manifest file, ensure that you upload the file when you upload the package. For more information about uploading packages to Jamf Pro, see Managing Packages.
  For more information about creating and hosting a manifest file, see the following article from Apple's support website:
  https://support.apple.com/guide/deployment-reference-macos/preparing-to-distribute-in-house-macos-apps-ior5df10f73a/web

Account Creation

You can use the Account Settings payload to create a managed administrator account and specify the type of local user account to create for computers with macOS 10.10 or later enrolled via the PreStage enrollment. You can also pre-fill and lock the account information for the user during the Account Creation screen of the Setup Assistant for computers with macOS 10.15 or later.

Note: A managed administrator created is eligible to receive a SecureToken when it logs in to a computer with macOS 10.15 or later if a Bootstrap Token has been escrowed to Jamf Pro. For more information about Bootstrap Token, see the following article from Apple's support website:
https://support.apple.com/guide/deployment-reference-macos/using-bootstrap-token-apda5cd41b67/1/web/1

For more information about how to manually create and escrow the Bootstrap Token on the computer and to allow Jamf Pro to store the token, see the Manually Leveraging Apple's Bootstrap Token Functionality Knowledge Base article.

You can create the following settings:

- **Create a local administrator account**—When you create a local administrator account, you enter the username and password. You can choose to hide this account from the user. If you do not enter information for this account, Jamf Pro automatically populates this information from the User-Initiated Enrollment settings; however, you can edit the information.
- **Create a local user account**—You can choose the following types of local user accounts you want the user to create during enrollment:
  - **Administrator Account**—This option makes the user the administrator for the computer.
  - **Standard Account**—This option makes the user a standard user for the computer. You must create the local administrator account when choosing this option.
  - **Skip Account Creation**—The user does not create an account during enrollment. You must create the local administrator account when choosing this option and the local administrator is the only user on the computer.

When you create the local user account, you can pre-fill and lock the primary account information on computers during enrollment. When users enroll their computers, the Full Name and Account Name will be pre-populated in the Account Creation screen during the Setup Assistant. If you lock the account information, users cannot change it during the Account Creation screen in the Setup Assistant.

You can choose the following options to pre-fill this information:

- **Custom Details**—This option allows you to enter the account full name and the account name for the computer. This information is applied to all computers enrolled via the PreStage.
- **Device Owner's Details**—This option sets the account name and account full name based off of the Username and Full Name values in the computer's inventory information at the time of enrollment. If authentication is required during enrollment, the user's information is associated with the device using a lookup from Jamf Pro to LDAP.

  Note: If you add an Enrollment Customization configuration that uses a Single Sing-On Authentication PreStage Pane and an LDAP directory lookup is not available, Jamf Pro will be informed of only the Username and will not be able to define a Full Name for the Setup Assistant user's account creation. The username information from your identity provider (IdP) is populated by the `NameID` attribute defined within your IdP's SAML application. Check with your IdP for options to customize this value.

If your environment has an LDAP server set up, you can enter user variables in the Account Full Name and Account Name fields when configuring the Pre-Fill Primary Account settings. This allows the user variables to populate with the value for the LDAP attribute during the account creation screen in the Setup Assistant. To enable the user variables to populate with the value for the LDAP attribute, you must have an LDAP server set up. For more information, see Integrating with LDAP Directory Services.

You can enter the following variables:

- $USERNAME
- $FULLNAME
- $REALNAME
- $EMAIL
- $PHONE
- $POSITION
- $ROOM
- $EXTENSIONATTRIBUTE_#

Note: If a blank value is returned for the user variable, locking primary account information is ignored. Users can edit the account fields during account creation in the Setup Assistant.

Computer Management Capability Settings

You can use the General payload to enable additional management capabilities. The following do not impact the user's enrollment experience, but do offer you additional remote management when applied:

- **User Authentication**—To increase the security of sensitive user information, it is recommended that you require users to authenticate during computer setup using an LDAP directory account or a Jamf Pro user account. If users authenticate with an LDAP directory account, user and location information is submitted during enrollment.
  To require LDAP users or Jamf Pro users to authenticate during setup, you need an LDAP server set up in Jamf Pro. For more information, see Integrating with LDAP Directory Services.
  If an Enrollment Customization configuration is added to this PreStage, this setting is ignored for computers with macOS 10.15 or later.
- **MDM Profile**—The MDM Profile enables you to remotely manage computers using Jamf Pro. Users are automatically required to apply the MDM profile on computers with macOS 10.15 or later during enrollment with Jamf Pro. If the MDM profile is removed, you can no longer send remote commands or distribute configuration profiles to the computer. You can use Jamf Pro to prevent a user from removing this profile after enrollment.
- **Activation Lock functionality**—You can prevent a user from enabling Activation Lock for compatible computers with macOS 10.15 or later during enrollment. When computers are enrolled with Jamf Pro, the user cannot enable Activation Lock on the computer if they enable the Find My Mac service.
  For more information about Activation Lock and macOS compatibility, see the following article from Apple's support website:
  https://support.apple.com/HT208987

Configuring a Computer PreStage Enrollment

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **PreStage Enrollments**.
4. Click **New** + New .
5. Use the General payload to configure basic settings for the PreStage enrollment. In addition, you can do the following on the General pane:
   - To require that users authenticate with their username and password, select the **Require Authentication** checkbox.

     Note: The **Require Authentication** checkbox is only displayed if an LDAP server has been set up in Jamf Pro.

   - To customize the user experience of the Setup Assistant, do the following:
     - Choose an Enrollment Customization configuration to apply to computers.
     - Select which steps you want to skip in the Setup Assistant. If you choose to skip steps, the user can enable these settings after the computer is configured unless otherwise restricted.

     Note: The computer must be connected to the Internet during the Setup Assistant.
6. Click the **Scope** tab and configure the scope of the PreStage enrollment by selecting the checkbox next to each computer you want to add to the scope.
   The computers listed on the Scope tab are the computers that are associated with the Automated Device Enrollment instance (formerly DEP) via the server token file (.p7m) you downloaded from Apple. If you clone a PreStage enrollment, computers in the scope of the original PreStage enrollment are not included in the scope of the cloned PreStage enrollment.
   You can use the **Select All** button to add all associated computers to the scope. This adds all computers associated with Automated Device Enrollment via the server token file regardless of any results that have been filtered using the **Filter Results** search field. The **Deselect All** button removes all associated computers from the scope.

   Note: If you want to add computers to the scope automatically as they become associated with the Automated Device Enrollment instance, select the **Automatically assign new devices** checkbox in the General payload.
7. Click **Save** .

User-Initiated Enrollment for Computers

You can allow users to enroll their own computers by having them log in to an enrollment portal where they follow the onscreen instructions to complete the enrollment process.

User-initiated enrollment is one of the methods that results in a User Approved MDM state for eligible computers. This state is required for certain performance and security enhancements, like managing kernel extensions. For more information about User Approved MDM and Jamf Pro, see the Managing User Approved MDM with Jamf Pro Knowledge Base article.

Users will be prompted to download either an MDM profile or QuickAdd package during user-initiated enrollment based on the version of macOS on their computer. The following are the different types of user-initiated enrollment:

- **User-initiated enrollment with an MDM profile (macOS 10.13 or later)—**The user will be prompted to download and install a CA certificate and MDM profile during the user-initiated enrollment process. Users must manually return to the enrollment portal webpage after CA certificate installation to install the MDM profile and complete the enrollment process. The jamf binary is installed automatically after MDM enrollment is complete.

  Note: If user-initiated enrollment settings are configured to skip certificate installation during enrollment, users will only be prompted to download the MDM profile.

- **User-initiated enrollment with a QuickAdd package (macOS 10.12.6 or earlier)—**The user will be prompted to download and install a QuickAdd package during the user-initiated enrollment process.

General Requirements

To allow computers to be enrolled with user-initiated enrollment, you need:

- User-initiated enrollment enabled (For more information, see User-Initiated Enrollment Settings.)
- The user-initiated enrollment QuickAdd package configured in Jamf Pro (For more information, see User-Initiated Enrollment Settings.)
  If the QuickAdd package is signed, target computers must have a CA intermediate certificate from Apple in the System keychain in Keychain Access.
- (LDAP log in only) An LDAP server set up in Jamf Pro (For more information, see Integrating with LDAP Directory Services.)

Providing an Enrollment URL to Users

To direct users to the enrollment portal, you need to provide them with the enrollment URL. The enrollment URL is the full URL for the Jamf Pro server followed by "/enroll". For example:

- https://instancename.jamfcloud.com/enroll (hosted in Jamf Cloud)
- https://jamf.instancename.com:8443/enroll (hosted on-premise)

You can provide the enrollment URL to users in the way that best fits your environment.

Users can log in to the enrollment portal using an LDAP directory account or a Jamf Pro user account. When a user logs in with an LDAP directory account, user and location information is submitted to Jamf Pro during enrollment. When a user logs in with a Jamf Pro user account, it allows an LDAP user to be assigned to the computer.

Sending a Computer Enrollment Invitation

You can send an email invitation that contains the enrollment URL from Jamf Pro to one or more users. Users click the enrollment URL in the email message to access the enrollment portal. Enrollment invitations give you more control over user access to the enrollment portal by allowing you to do the following:

- Set an expiration date for the invitation
- Require users to log in to the portal
- Allow multiple uses of the invitation
- Add the computer to a site during enrollment
- View the status of the invitation

Requirements

To send a computer enrollment invitation, you need an SMTP server set up in Jamf Pro (For more information, see Integrating with an SMTP Server.)

Procedure

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Enrollment Invitations**.
4. Click **New** + New .
5. Follow the onscreen instructions to send the enrollment invitation.

An enrollment invitation is immediately sent to the email addresses you specified.

You can view the status of the enrollment invitation in the list of invitations.

Viewing Computer Enrollment Invitation Usage

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Enrollment Invitations**.
4. Click the enrollment invitation you want to view usage for.

5. Click **View Enrolled Computers**  .
   A list of computers enrolled with the invitation is displayed.

Related Information

For related information, see the following sections in this guide:

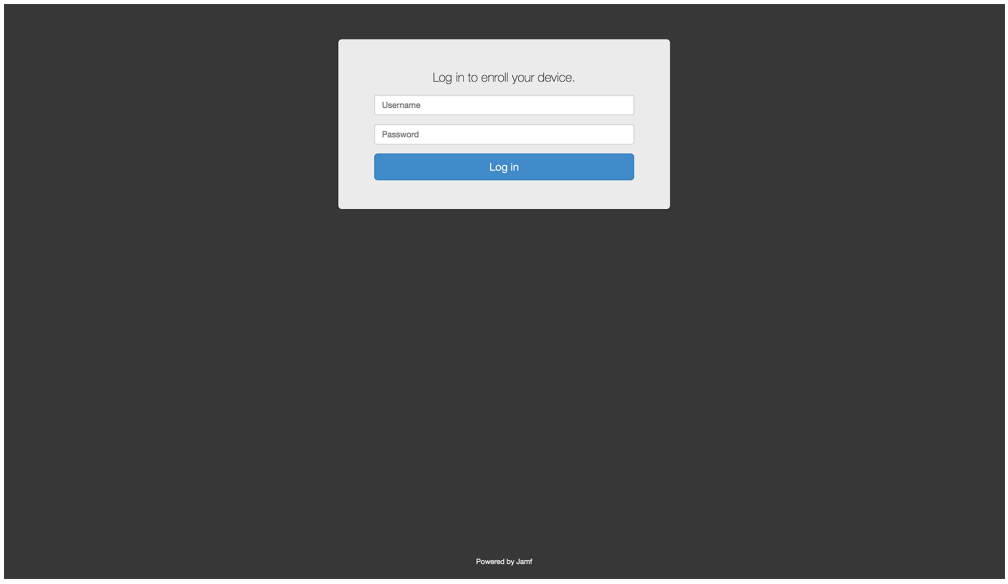
- User-Initiated Enrollment Settings
  Learn about the settings you can configure for user-initiated enrollment.
- User-Initiated Enrollment Experience for Computers
  Learn about the steps users take to enroll computers.

User-Initiated Enrollment Experience for Computers

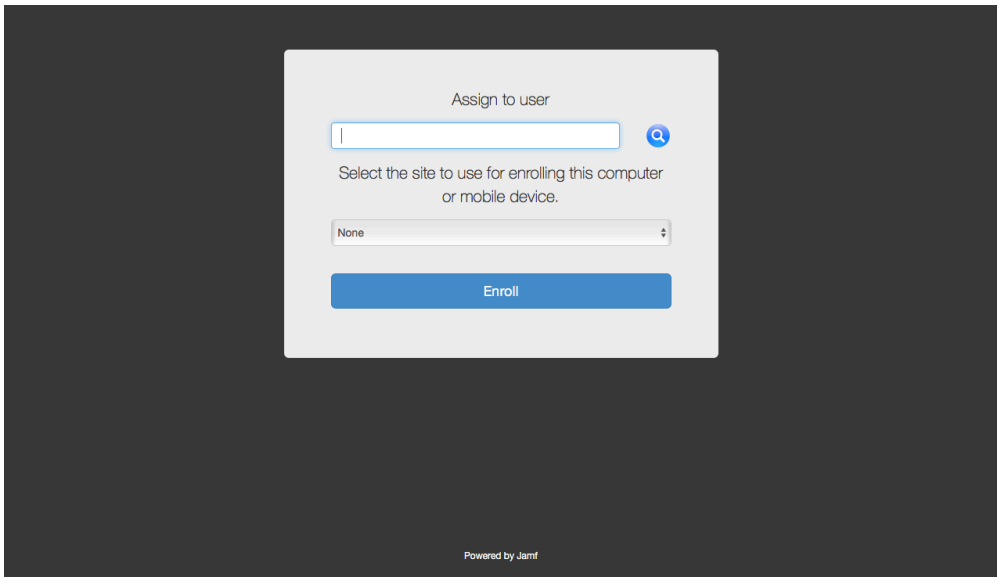
When a user accesses the enrollment URL, they are guided through a series of steps to enroll the computer. The steps vary depending on the version of macOS installed on the computer being enrolled.

Enrollment Experience for macOS 10.13 or Later

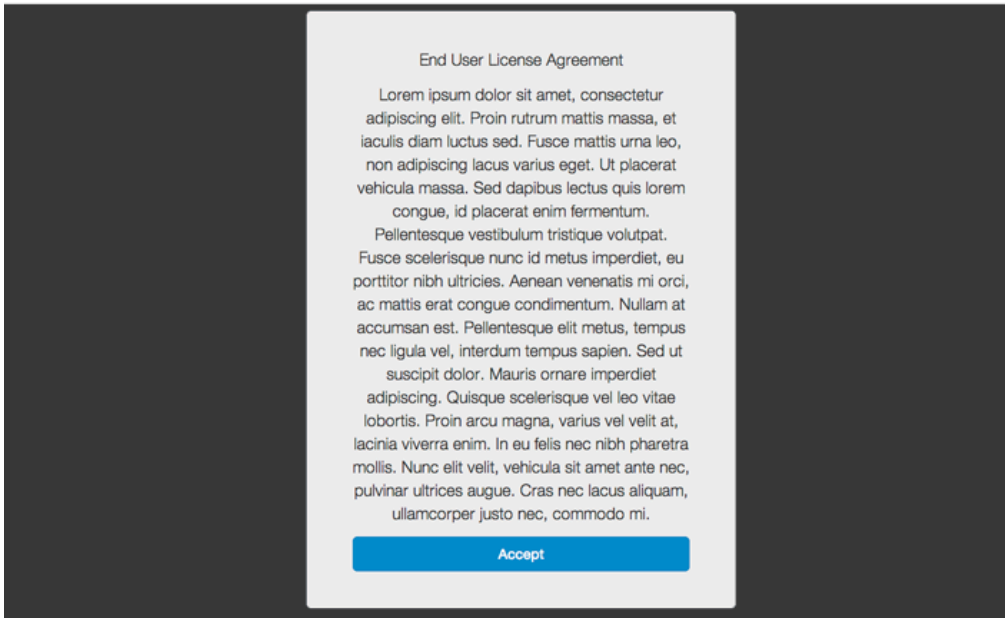
1. The user is prompted to enter credentials for an LDAP directory account, single sign-on (SSO) credentials, or Jamf Pro user account with user-initiated enrollment privileges, and then they must click **Log in**.
   To allow users to use SSO credentials, you must integrate a third-party Identity Provider (IdP) and enable the "Enable Single Sign-On for User-Initiated Enrollment" setting. For more information, see Single Sign-On.
   The login prompt is not displayed if the enrollment portal was accessed via an enrollment invitation in which the **Require Login** option is disabled. For more information about enrollment invitations, see User-Initiated Enrollment for Computers.



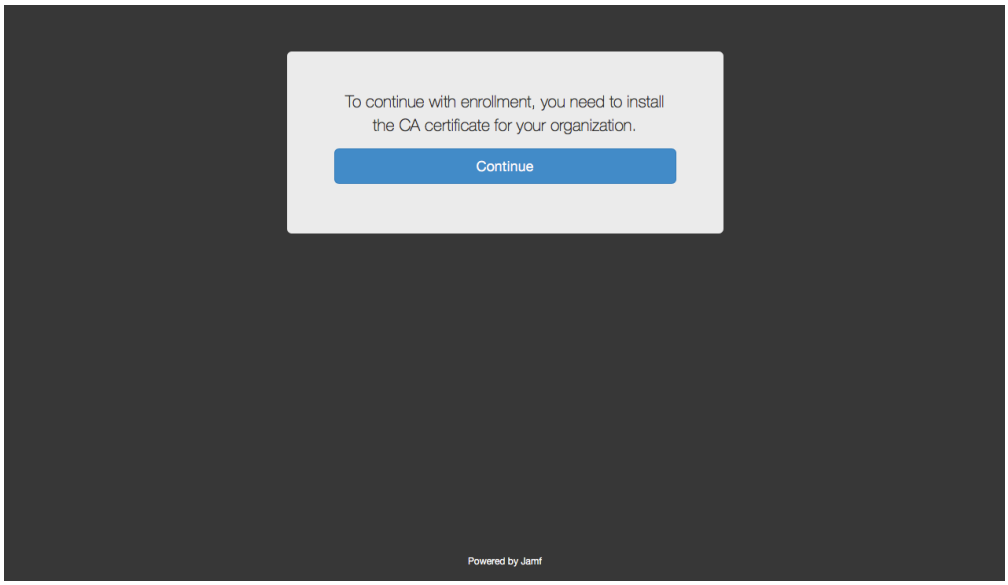
2. When prompted, the user must choose the site that they are associated with.
   If the user is associated with multiple sites, they must select the site that will assign the appropriate settings to the computer.
   If the user signed in with a Jamf Pro user account, they can assign an LDAP user to the computer at this time.

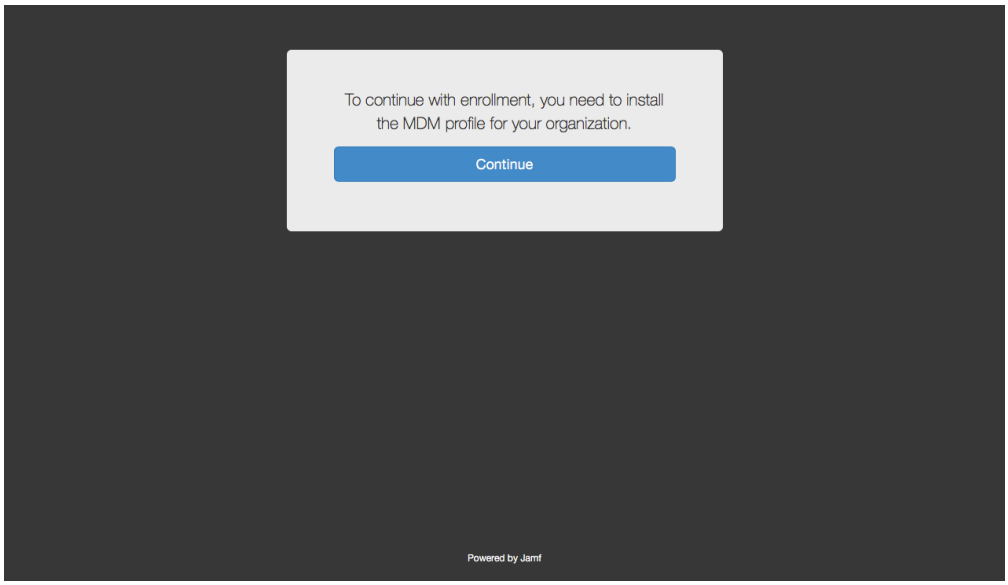


3. If the user signed in with an LDAP directory account and the text for an End User License Agreement (EULA) was entered in Jamf Pro, the user must accept the EULA to continue.



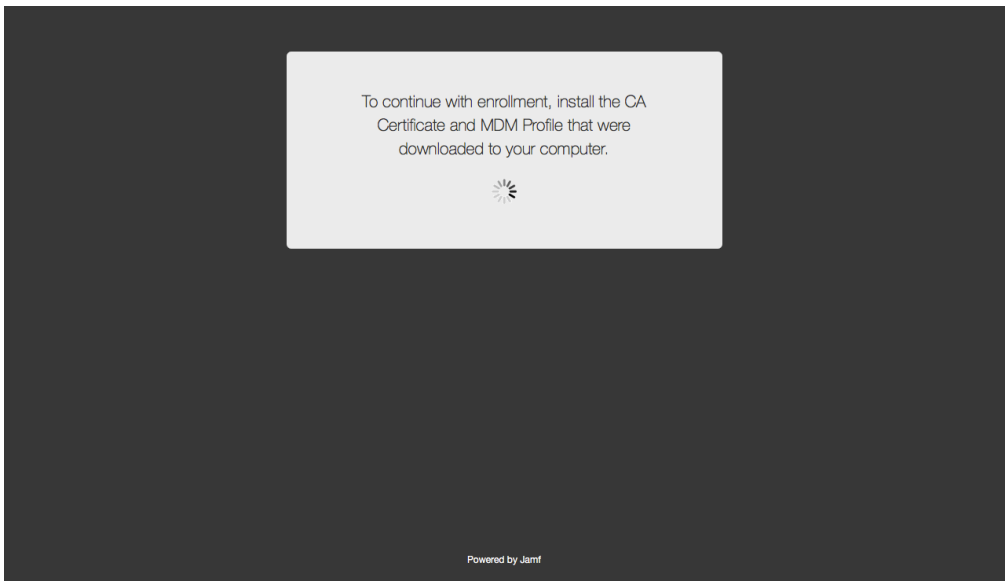
4. When prompted, the user must download the CA certificate and MDM profile.





5. The user must double-click the downloaded CA certificate and wait for the installation process to complete. Then, the user must double-click the downloaded MDM profile and wait for the installation process to complete.

   Note: Users must manually return to the enrollment portal webpage after CA certification installation to install the MDM profile and complete the enrollment process.

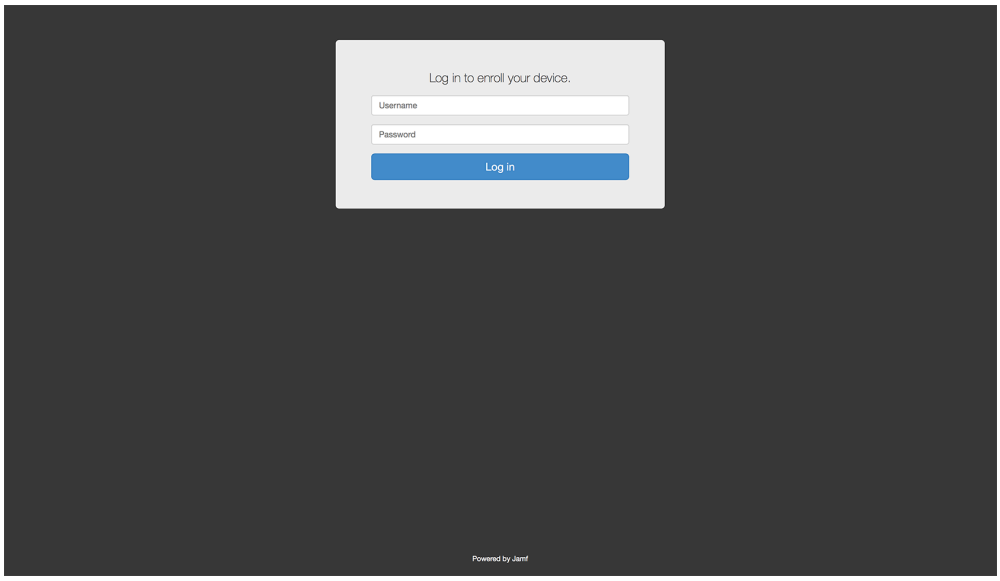


6. When the installation is complete, an enrollment complete message is displayed in the enrollment portal.

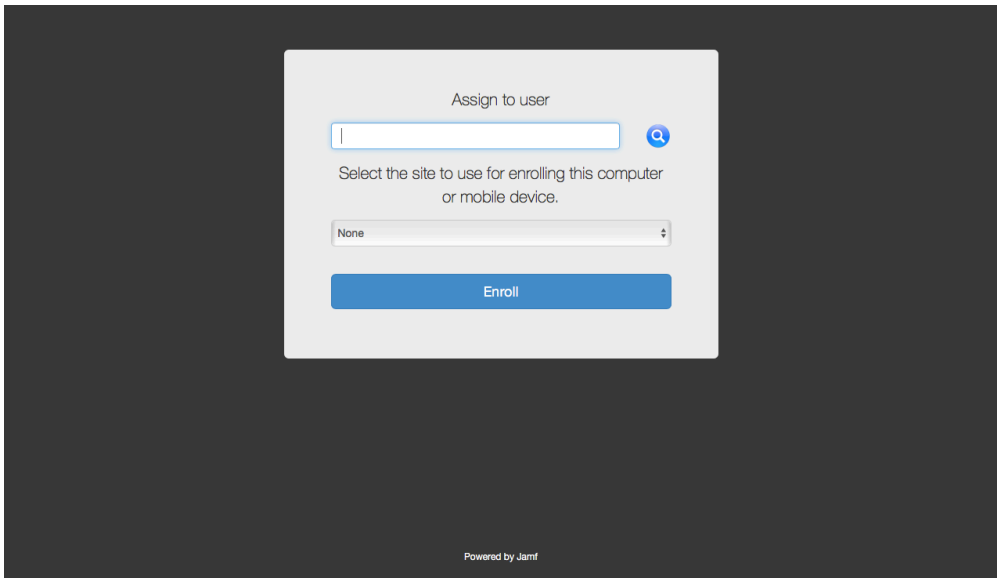
   The computer is enrolled with Jamf Pro.

Enrollment Experience for macOS 10.12.6 or Earlier

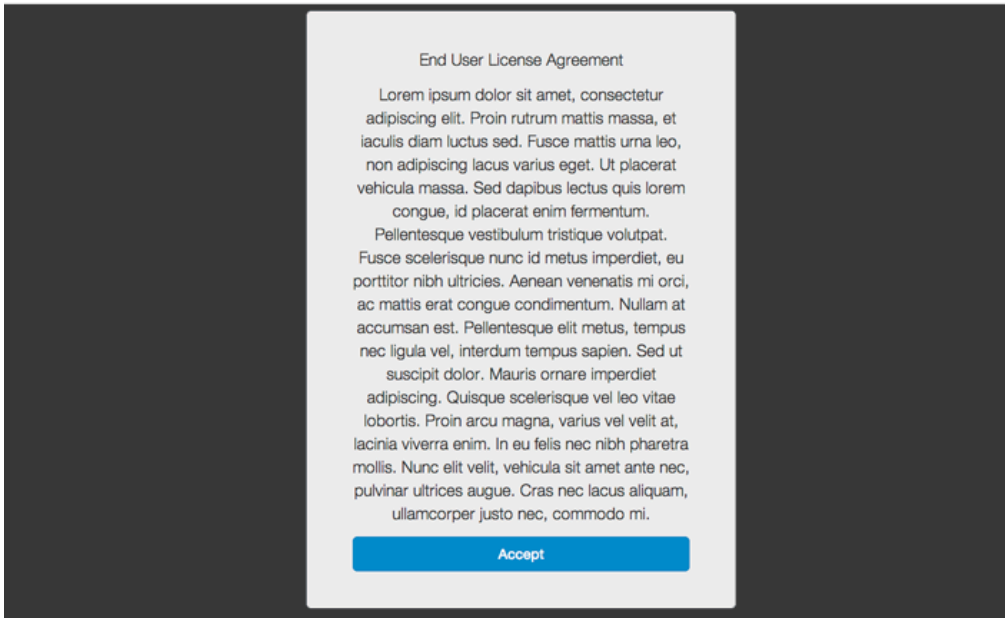
1. The user is prompted to enter credentials for an LDAP directory account, single sign-on (SSO) credentials, or Jamf Pro user account with user-initiated enrollment privileges, and then they must click **Log in**.
   To allow users to use SSO credentials, you must integrate a third-party Identity Provider (IdP) and enable the "Enable Single Sign-On for User-Initiated Enrollment" setting. For more information, see Single Sign-On.
   The login prompt is not displayed if the enrollment portal was accessed via an enrollment invitation in which the **Require Login** option is disabled. For more information about enrollment invitations, see User-Initiated Enrollment for Computers.



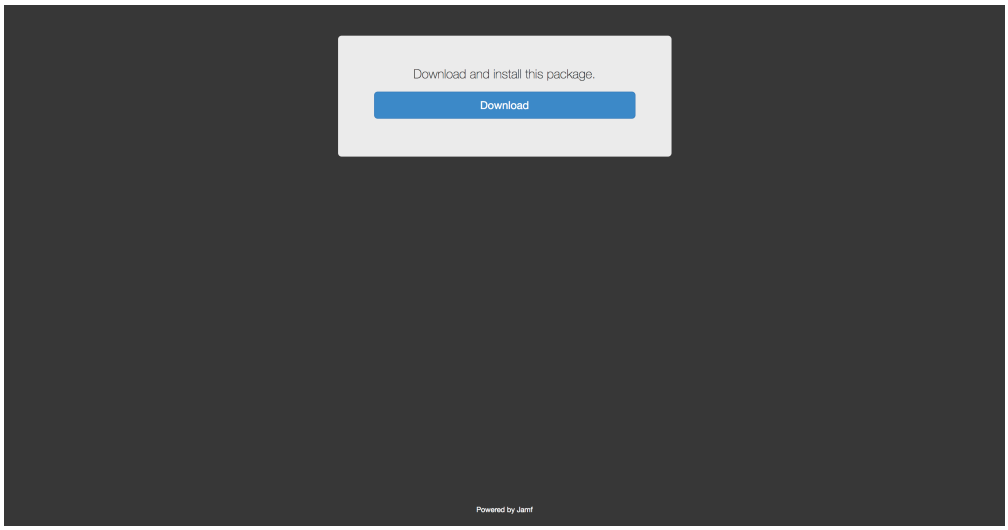
2. When prompted, the user must choose the site that they are associated with.
   If the user is associated with multiple sites, they must select the site that will assign the appropriate settings to the computer.
   If the user signed in with a Jamf Pro user account, they can assign an LDAP user to the computer at this time.



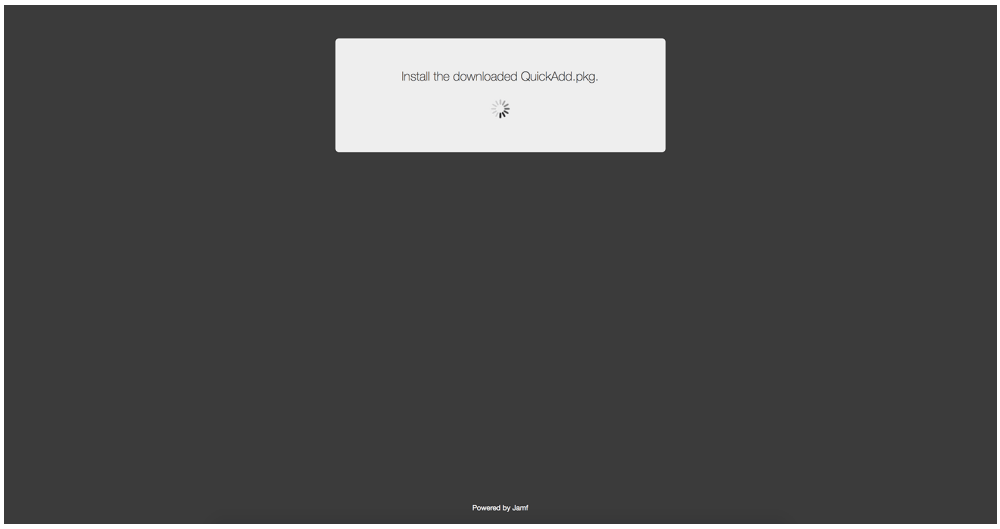
3. If the user signed in with an LDAP directory account and the text for an End User License Agreement (EULA) was entered in Jamf Pro, the user must accept the EULA to continue.



4. When prompted, the user must download the QuickAdd package.



5. After the QuickAdd package downloads, the user must double-click the QuickAdd package installer and follow the onscreen instructions to install the package.



6. When the installation is complete, an enrollment complete message is displayed in the enrollment portal.

   The computer is enrolled with Jamf Pro.

Related Information

For related information, see the following sections in this guide:

User-Initiated Enrollment Settings
Learn about the settings you can configure for user-initiated enrollment.

QuickAdd Packages Created Using Recon

You can use Recon to create a QuickAdd package that enrolls Mac computers when it is installed. This type of QuickAdd package can be deployed using almost any deployment tool, such as Apple Remote Desktop or Jamf Pro. You can also give the QuickAdd package to users to install.

When you create a QuickAdd package using Recon, you can do the following:

- Specify that the management account password be randomly generated.
- Create the management account during enrollment and configure settings for the account.
- Ensure that SSH (Remote Login) gets enabled on computers that have it disabled.
- Ensure that computers launch Self Service after they are enrolled.
- Ensure that computers that already belong to a site will retain existing site membership.
- Sign the QuickAdd package.
- Choose a site to add computers to during enrollment.

To install a QuickAdd package, you double-click it and then follow the onscreen instructions.

Signing a QuickAdd Package

Signing a QuickAdd package ensures that it appears as verified to users that install it. It also allows users to install the QuickAdd package on computers that have Apple's Gatekeeper feature set to only allow applications downloaded from the Mac App Store and identified developers.

There are some additional requirements for signing a QuickAdd package and installing a signed QuickAdd package. For more information, see the "Requirements" section below.

Requirements

To sign a QuickAdd package, the computer running Recon must have:

- macOS 10.7 or later
- An installer certificate (.p12) from Apple in the System keychain in Keychain Access (For more information, see the Obtaining an Installer Certificate from Apple Knowledge Base article.)

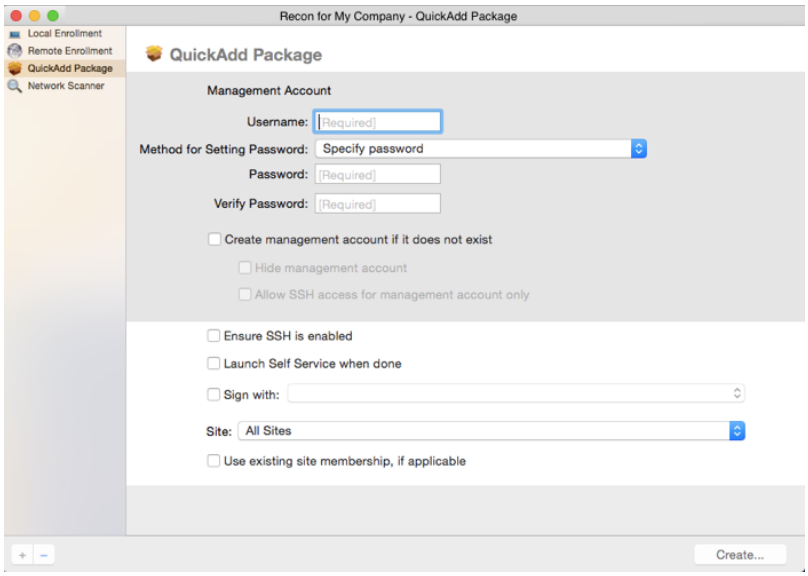
To install a signed QuickAdd package, computers must have a Certification Authority intermediate certificate from Apple in the System keychain in Keychain Access.

Creating a QuickAdd Package Using Recon

1. Open Recon and authenticate to the Jamf Pro server.
2. Select **QuickAdd Package** in the sidebar.

3. Enter credentials for a local administrator account.
   This account is used as the management account.
   To randomly generate a management account password, choose "Randomly generate password" from the Method for Setting Password pop-up menu.
   The randomly generated password will contain eight characters by default.

   Note: If you choose to randomly generate passwords and create the management account during enrollment, the **Hide management account** and **Allow SSH for management account only** checkboxes are not available by default. To make these options available, you need to first select the **Create management account if it does not exist** checkbox, and then select the **Randomly generate password** method for setting the management account password.



4. If the management account you specified is a new account, select the **Create management account if it does not exist** checkbox and configure additional settings for the management account as needed.
5. To enable SSH on computers that have it disabled, select the **Ensure SSH is enabled** checkbox.
6. To launch Self Service on computers immediately after they are enrolled, select the **Launch Self Service when done** checkbox.
7. To sign the QuickAdd package, select the **Sign with** checkbox and choose an installer certificate from the pop-up menu.
   Installer certificates that are located in the login keychain in Keychain Access are displayed in the pop-up menu.

   Note: The pop-up menu also displays application certificates that are located in the login keychain in Keychain Access. It is important that you choose an installer certificate, not an application certificate, to sign QuickAdd packages.

8. To add the computers to a site, choose a site from the **Site** pop-up menu.

9. To ensure that computers that already belong to a site will retain their existing site membership, select the **Use existing site membership, if applicable** checkbox.
10. Click **Create** and save the package.

After creating the QuickAdd package, you can deploy it using a deployment tool or give the package to users to install. When the QuickAdd package is installed on computers, they are enrolled with Jamf Pro.

Related Information

For related information, see the following section in this guide:

Installing Packages
Find out how to install a QuickAdd package using a policy or Jamf Remote.

Network Scanner

The network scanner in Recon allows you to remotely enroll multiple Mac computers. It scans specified IP ranges and enrolls any computers that it can connect to over SSH (Remote Login).

There are two ways to specify the IP ranges you want to scan: choose network segments that are set up in Jamf Pro, or manually specify IP ranges. If you manually specify the IP ranges, you can choose a building, department, and site to add computers to during enrollment.

> **Note:** Because of increased user data protections with macOS 10.14 or later, you cannot enable remote management remotely using the SSH protocol. To enable remote management on computers with macOS 10.14, the user must select the **Screen Sharing** checkbox in System Preferences.

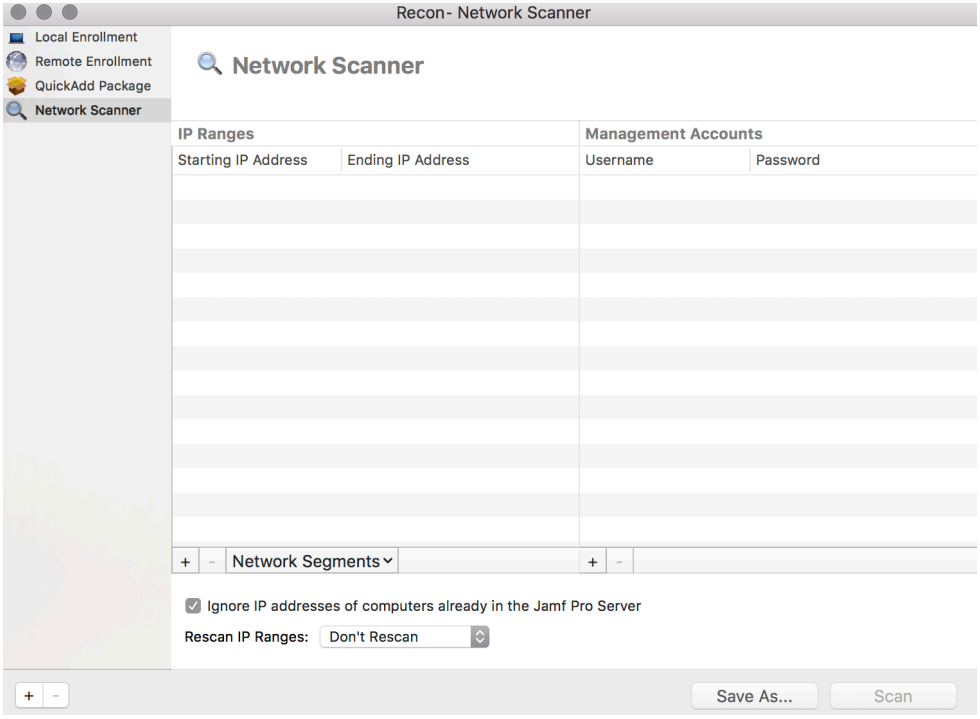
Requirements

To enroll computers using the network scanner, SSH must be enabled on the computers.

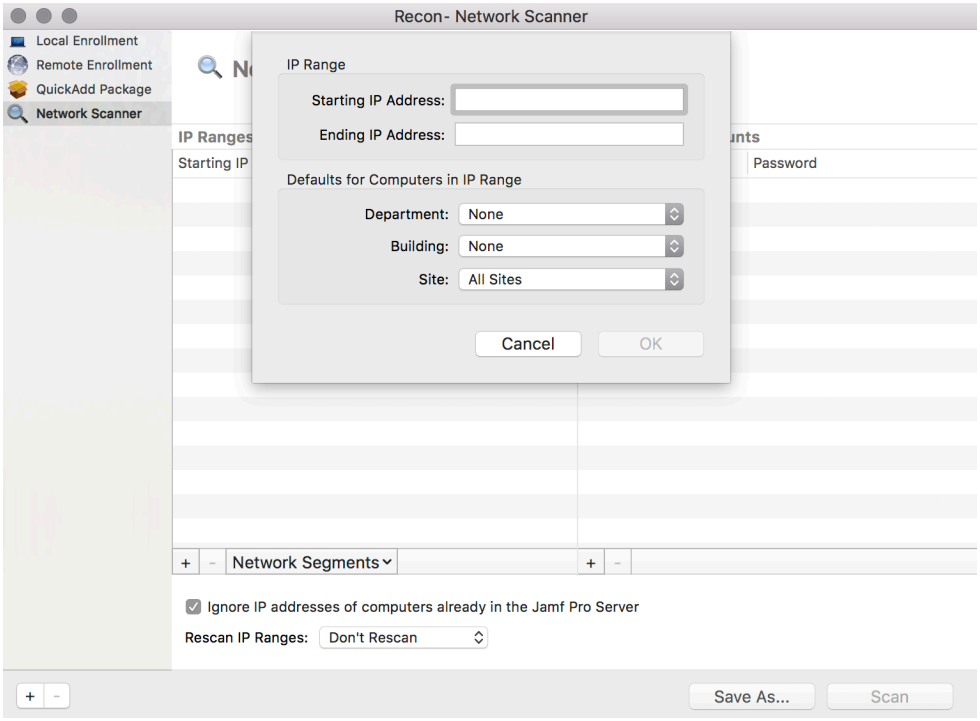
Enrolling Computers Using the Network Scanner

1. Open Recon and authenticate to the Jamf Pro server.
2. Select **Network Scanner** in the sidebar.
3. Specify the IP ranges you want to scan:

- To choose network segments that are set up in Jamf Pro, click **Network Segments** below the list of IP ranges and select the network segment you want to scan. Repeat as needed.



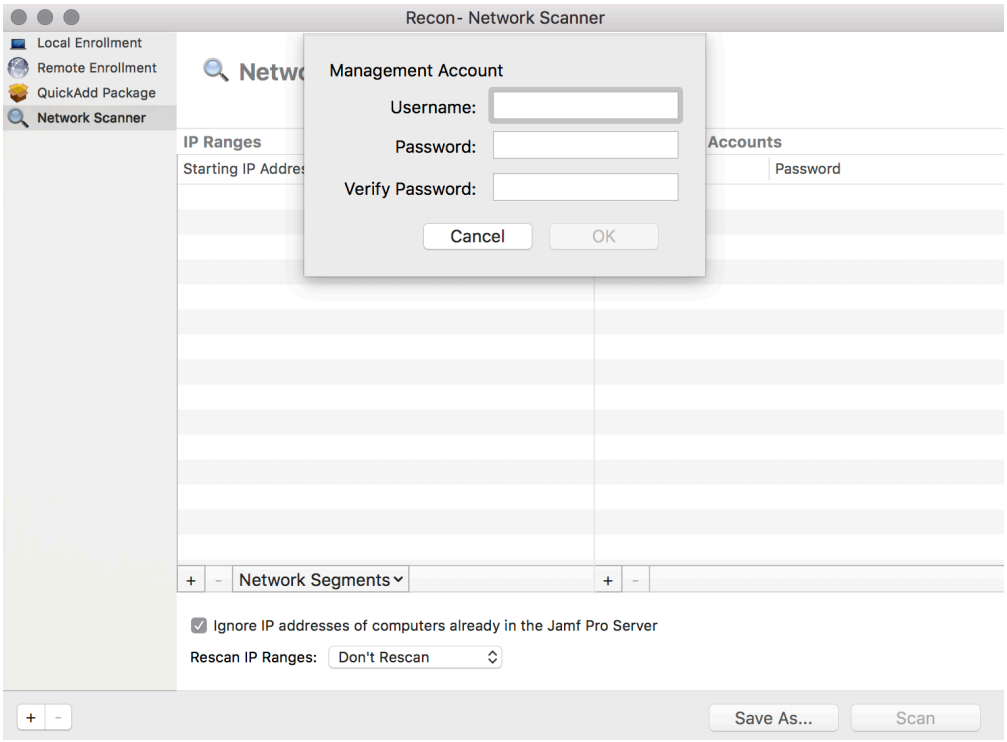
- To specify IP ranges manually, click **Add (+)** below the list of IP ranges and specify information about the IP range you want to scan. Click **OK** and repeat as needed.



4. Specify one or more local administrator accounts that have SSH access to computers in the IP range. When the network scanner finds a computer on the network, it tries each account until it finds one that can be used to connect to the computer over SSH. The first valid account is used as the management account.

   a. Click **Add (+)** below the list of accounts.

   b. Enter credentials for a local administrator account that has SSH access to computers.



   c. Click **OK**.

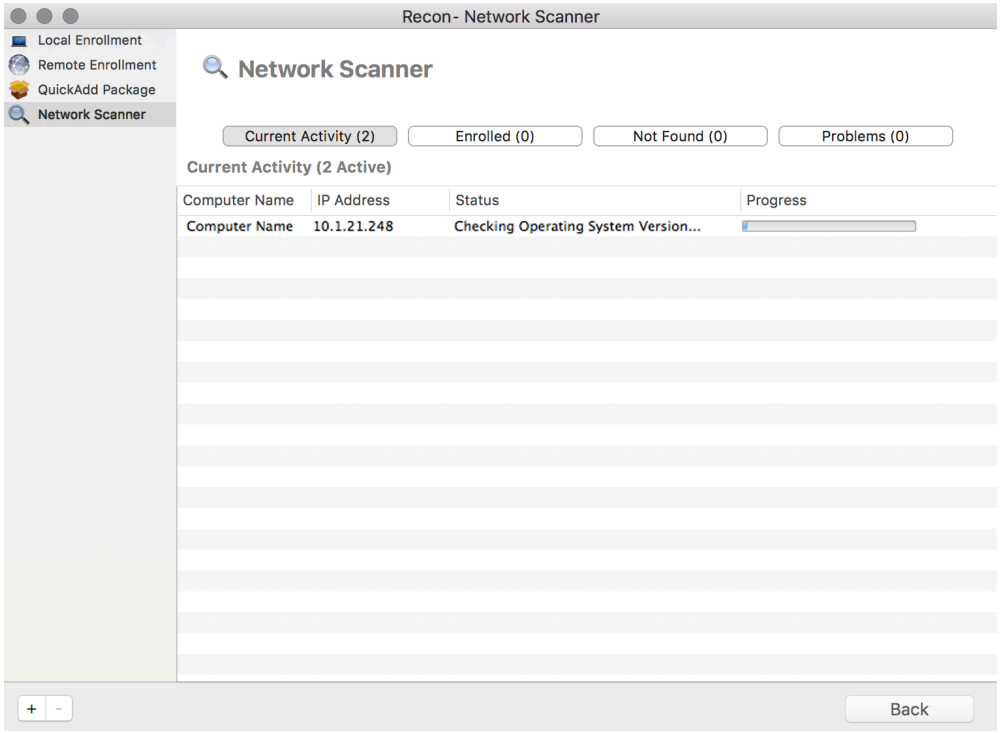
   d. If there is more than one administrator account in the specified IP ranges, repeat steps a through c as needed.

5. To ignore computers that are already enrolled with Jamf Pro, select the **Ignore IP addresses of computers already in Jamf Pro** checkbox.

6. To continuously scan for new computers, use the **Rescan IP Ranges** pop-up menu to specify how often Recon should rescan.

7. To create a .recon file that contains the network scanner settings you just configured, click **Save As**. Then specify a name and location for the file.
   Double-clicking the file opens Recon (if it is not already open) and populates the network scanner settings.
   You can open the file at any time to have Recon automatically configure the network scanner settings.

8. Click **Scan.**
   Recon scans the specified IP ranges and enrolls any computers that it can connect to over SSH. The progress of the scan is displayed on the Current Activity pane. The results of the scan are displayed on the Enrolled, Not Found, and Problems panes.



Remote Enrollment Using Recon

If you know the IP address of the Mac computer you want to enroll and SSH (Remote Login) is enabled on the computer, you can enroll the computer by running Recon remotely. This allows you to submit detailed inventory information for the computer. It also allows you to add computers to a site during enrollment.

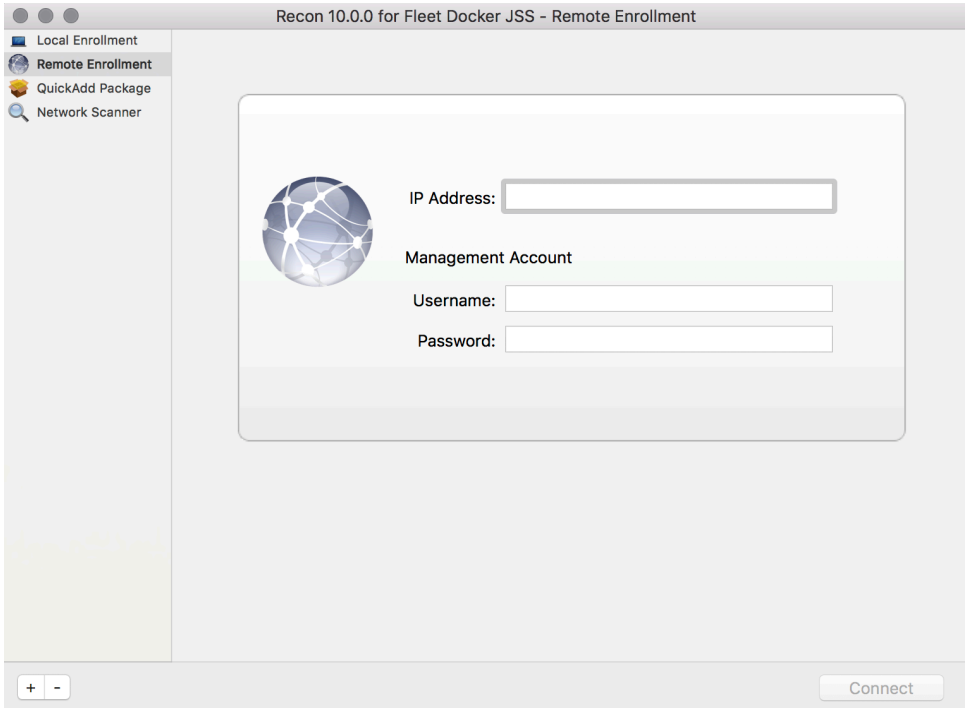
Requirements

To enroll a computer by running Recon remotely, you need:

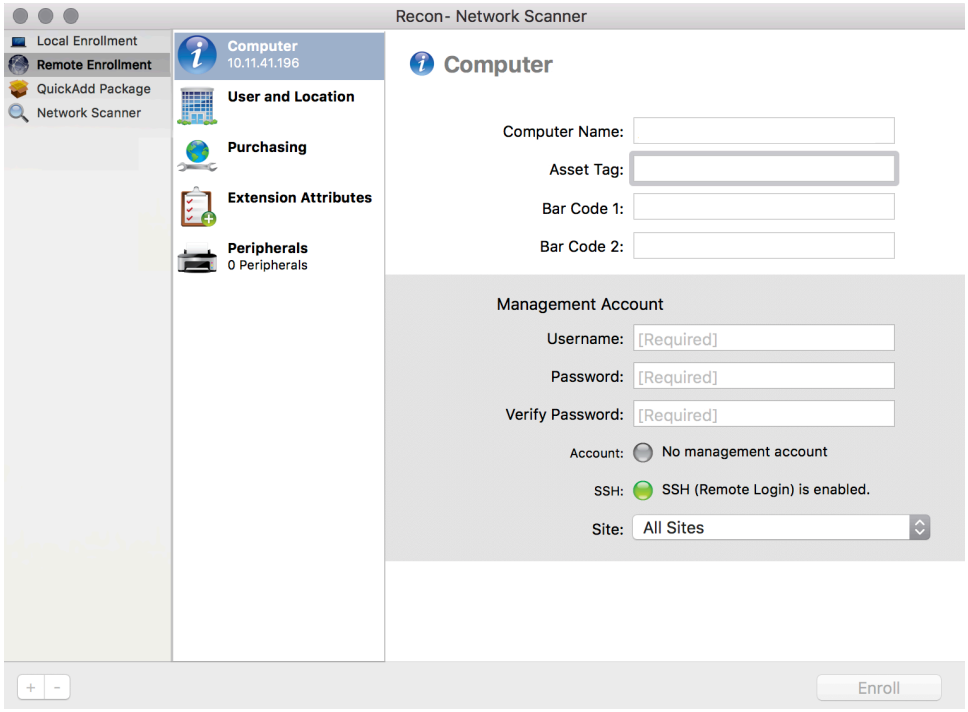
- The IP address of the computer
- SSH (Remote Login) enabled on the computer

Enrolling a Computer by Running Recon Remotely

1. Open Recon and authenticate to the Jamf Pro server.
2. Select **Remote Enrollment** in the sidebar.
3. Enter the IP address of the computer you want to enroll.



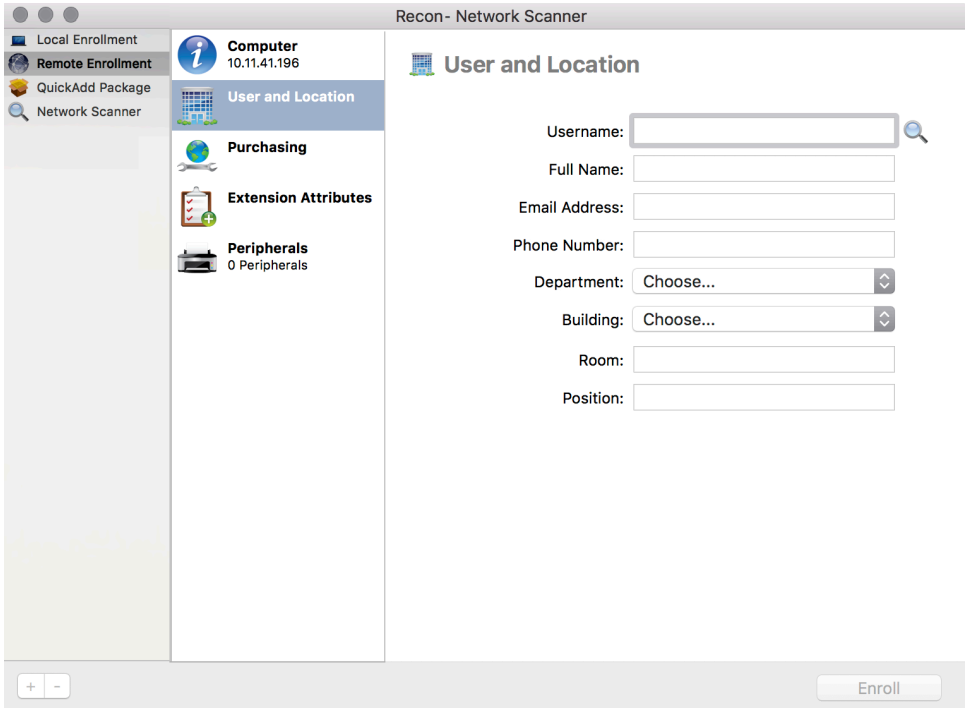
4. Enter credentials for a local administrator account that has SSH access.
   This account is used as the management account.



5. (Optional) Select User and Location and specify user and location information for the computer.

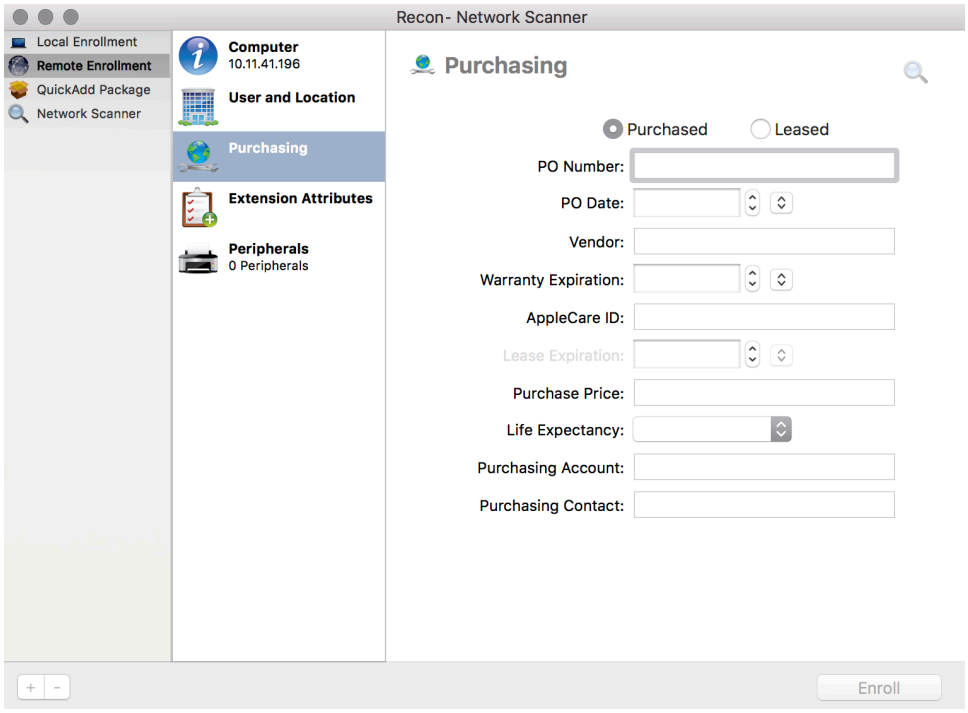
   If an LDAP server is set up in Jamf Pro, click **Search** to populate information from the LDAP server. This assigns the user to the computer during enrollment. For more information on setting up an LDAP server, see Integrating with LDAP Directory Services.

   If you specified a username that matches an existing username in Jamf Pro, the user is assigned to the computer during enrollment. If you specified a username that does not match an existing username in Jamf Pro, the user is created and assigned to the computer during enrollment.



6. (Optional) Select **Purchasing** and specify purchasing information for the computer.

   If a GSX connection is set up in Jamf Pro, click **Search** to populate information from Apple's Global Service Exchange (GSX). For more information on setting up a GSX connection, see GSX Connection.



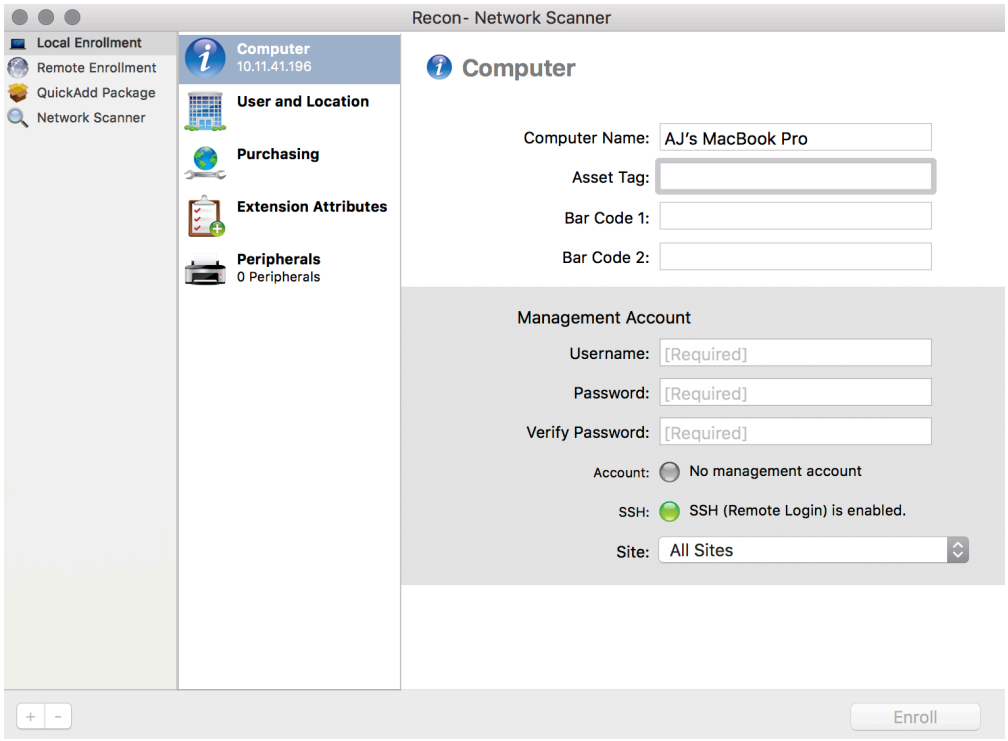
7. (Optional) Select **Extension Attributes** and specify information as needed.
8. Click **Enroll**.

Local Enrollment Using Recon

If you have physical access to the Mac computer that you want to enroll, you can run Recon locally on the computer. This allows you to submit detailed inventory information for the computer. It also allows you to add computers to a site during enrollment.

Enrolling a Computer by Running Recon Locally

1. On the computer you want to enroll, open Recon and authenticate to the Jamf Pro server.
2. (Optional) Enter an asset tag or use a bar code scanner to enter bar codes.
   The computer name is populated by default.



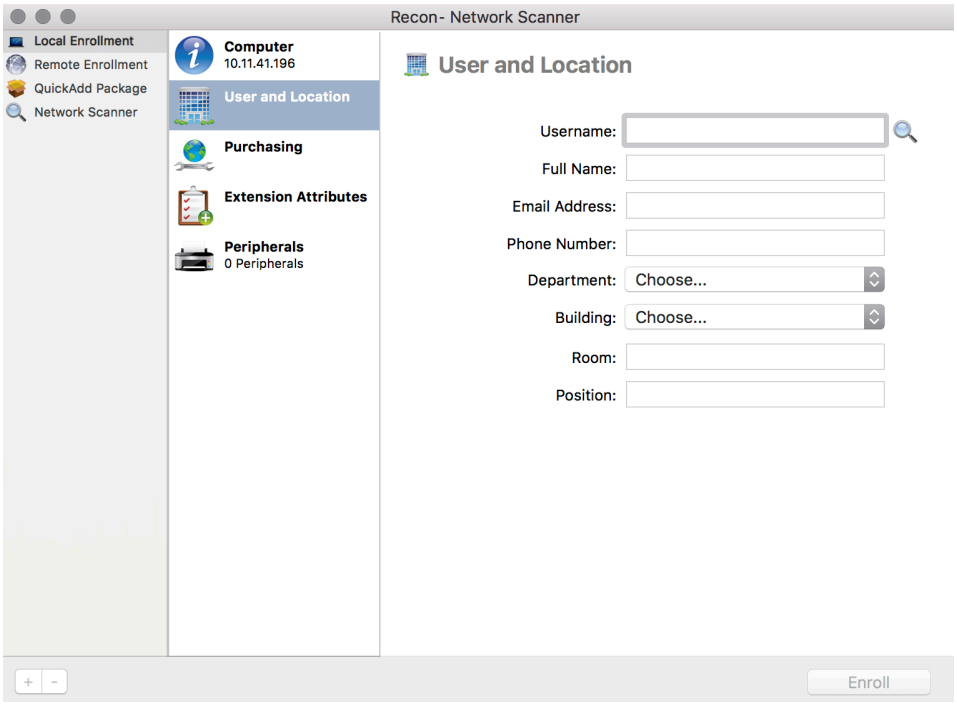
3. Enter credentials for a local administrator account that you want to use to manage computers.
   This can be an existing or new account. If the account does not already exist, Recon creates it.

> **Note:** If the account you specify does not have SSH (Remote Login) access to the computer, Recon enables SSH during enrollment.

4. (Optional) Select **User and Location** and specify user and location information for the computer.

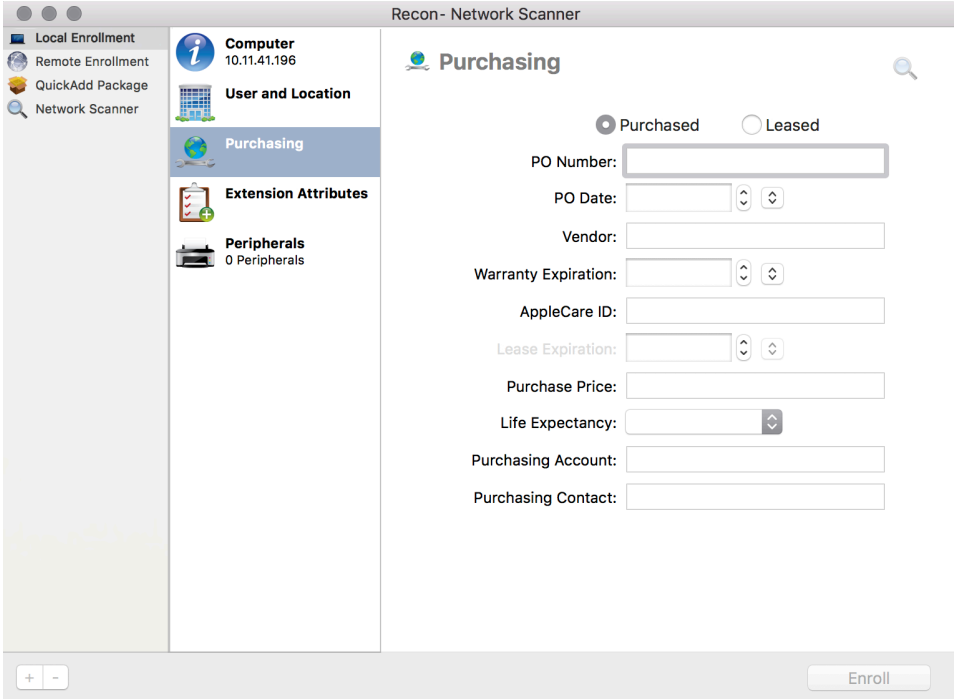
   If an LDAP server is set up in Jamf Pro, click **Search** to populate information from the LDAP server. This assigns the user to the computer during enrollment. For more information on setting up an LDAP server, see Integrating with LDAP Directory Services.

   If you specified a username that matches an existing username in Jamf Pro, the user is assigned to the computer during enrollment. If you specified a username that does not match an existing username in Jamf Pro, the user is created and assigned to the computer during enrollment.



5. (Optional) Select **Purchasing** and specify purchasing information for the computer.

   If a GSX connection is set up in Jamf Pro, click **Search** to populate information from Apple's Global Service Exchange (GSX). For more information on setting up a GSX connection, see GSX Connection.



6. (Optional) Select **Extension Attributes** and specify information as needed.
7. Click **Enroll**.

Inventory for Computers

Computer Inventory Collection

By default, inventory is collected from computers using the "Update Inventory" policy that is created automatically when you install Jamf Pro. This policy collects inventory from all computers once every week.

You can make changes to the default inventory collection policy at any time. In addition, if you want more control over inventory collection, you can create additional inventory collection policies as needed.

MDM commands are also used to collect additional inventory information and populate other inventory fields. For more information, see the Computer Inventory Information Collected by MDM Commands Knowledge Base article.

Related Information

For related information, see the following sections in this guide:

- Policy Management
  Find out how to create and edit policies.
- Policy Payload Reference
  Learn about each payload in the policy interface.

For related information, see the following Knowledge Base article:

Collecting the IP Address and Reported IP Address in Jamf Pro
Learn how the IP address and reported IP address computer inventory items are collected and how you can manually retrieve the reported IP address.

Computer Inventory Collection Settings

Computers can submit many types of inventory information to Jamf Pro. Basic inventory information—such as hardware, operating system, user and location information, storage, and applications—is collected automatically.

The Computer Inventory Collection settings in Jamf Pro allow you to collect the following additional items:

- Local user accounts, with the option to include home directory sizes and hidden system accounts
- Printers
- Active services
- Last backup date/time for managed mobile devices that are synced to computers
- User and location from an LDAP directory service (only available if an LDAP server is set up in Jamf Pro)
- Package receipts
- Available software updates
- Application Usage information
- Fonts
- Plug-ins

For descriptions of the information collected for each of these items, as well as information on the items that are collected automatically, see Viewing and Editing Inventory Information for a Computer .

You can also use the Computer Inventory Collection settings to do the following:

- Specify custom search paths to use when collecting applications, fonts, and plug-ins.
- Monitor iBeacon regions so that computers submit information to Jamf Pro when they enter or exit a region.

Note: By default, Jamf Pro uses Unix user paths to save space in the application details database table. To manage this feature, navigate to **Settings** > **Computer Management** > **Inventory Collection** > **Software**.

Time and Traffic Estimates for Collecting Additional Items

Collecting additional inventory items may add reporting time and network traffic to the inventory process.

The following table provides estimates of how much time and traffic may be added when collecting user home directory sizes, available software updates, fonts, and plug-ins. These estimates are based on a MacBook Pro with approximately 300 GB of user home directories, 100 applications, 300 fonts, and 900 plug-ins.

Additional Inventory Item	Time (Seconds)	Traffic (KB)
(No additional items)	9	102
Home directory sizes	25	104
Available software updates	110	104
Fonts	10	128
Plug-ins	13	248

The following table provides estimates of how much time and traffic may be added when collecting Application Usage information. These estimates are based on a MacBook Pro with eight applications used per day, one week between inventory reports, and one computer user.

Additional Inventory Item	Time (Seconds)	Traffic (KB)
(No additional items)	16	24
Application Usage information	17	48

Search Paths for Collecting Applications, Fonts, and Plug-ins

The following table lists the default search paths that are used when collecting applications, fonts, and plug-ins from computers on the Mac and Windows platforms.

Collected Item	Mac Platform Default Search Paths	Windows Platform Default Search Paths
Applications (and Application Usage information, if collecting)	`/Applications/`	`C:\Program Files\`

Fonts	`/Library/Fonts/`
	`/System/Library/Fonts/`
	`/Library/Application Support/Adobe/Fonts/`
	`~/Library/Fonts/`
	(collected at the user level for each account)
		`C:\Windows\Fonts\`

Plug-ins	`/Library/Internet Plug-Ins/`	--

If you store these items in locations not listed in the table, you can use the Computer Inventory Collection settings to specify custom search paths for those locations.

Configuring the Computer Inventory Collection Settings

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the "Computer Management–Management Framework" section, click **Inventory Collection** .
5. Click **Edit** .
6. On the General pane, select the checkbox for each inventory item you want to collect.
7. To collect Application Usage information or add custom paths in which to search for applications, do the following:
   a. Click the **Software** tab, and then click **Applications**.
   b. To collect Application Usage information, select the **Collect Application Usage Information** checkbox.
   c. To add a custom search path, click **Add** + Add . Then enter the full path for the location you want to search and the platform to which it applies.
   d. Repeat step c to specify additional custom search paths as needed.
8. To collect fonts and add custom paths in which to search for fonts, do the following:
   a. Click the **Software** tab, and then click **Fonts**.
   b. Select the **Collect Fonts** checkbox.
   c. To add a custom search path, click **Add** + Add . Then enter the full path for the location you want to search and the platform to which it applies.
   d. Repeat step c to specify additional custom search paths as needed.
9. To collect plug-ins and add custom paths in which to search for plug-ins, do the following:
   a. Click the **Software** tab, and then click **Plug-ins**.
   b. Select the **Collect Plug-ins** checkbox.
   c. To add a custom search path, click **Add** + Add . Then enter the full path for the location you want to search and the platform to which it applies.
   d. Repeat step c to specify additional custom search paths as needed.
10. Click **Save** .

Related Information

For related information, see the following sections in this guide:

- Computer Extension Attributes
  Find out how to create extension attributes that allow you to collect almost any type of data from computers.
- Simple Computer Searches
  Learn how to quickly search the items in your inventory for a general range of results.
- Advanced Computer Searches
  Learn how to create and save an advanced computer search.
- Viewing and Editing Inventory Information for a Computer
  Find out how to view and edit inventory information for a computer.
- Viewing the Application Usage Logs for a Computer
  Find out how to view Application Usage logs for a computer.
- iBeacon Regions
  Learn what iBeacon regions can be used for and how you can add them to Jamf Pro.

Computer Extension Attributes

Computer extension attributes are custom fields that you can create to collect almost any type of data from a computer. For example, you can create an extension attribute to collect the host name of a computer or collect data about the activity of the company's antivirus software.

There are several ways to create a computer extension attribute in Jamf Pro. You can manually create the extension attribute, use an extension attribute template available in Jamf Pro, or upload an extension attribute template obtained from Jamf Nation.

When you create a computer extension attribute, you specify the following information:

- Type of data being collected, such as string, integer, or date
- Inventory category in which to display the extension attribute in Jamf Pro, such as Hardware or Operating System
- Input type, which determines how the extension attribute is populated with data
- Pane on which to display the extension attribute in Recon (text field and pop-up menu input types only)
- Script to use to collect data from computers (script input type only)

Extension attributes can add time and network traffic to the inventory process depending on the type of data you choose to collect and the input type used to collect it.

Computer Extension Attribute Input Types

You can choose to populate the value of a computer extension attribute using any of the following input types:

- **Text field**—This displays a text field in Recon and in computer inventory information. You can enter a value in the field when enrolling a computer using Recon, or at any time using Jamf Pro. Only extension attributes created manually can be populated using a text field.
- **Pop-up menu**—This displays a pop-up menu in Recon and in computer inventory information. You can choose a value from the pop-up menu when enrolling a computer using Recon, or at any time using Jamf Pro. Only extension attributes created manually can be populated using a pop-up menu.
- **Script**—This allows you to run a script that populates the extension attribute each time a computer submits inventory to Jamf Pro. Extension attributes created manually can be populated by a script. Extension attributes created from a template are always populated by a script. You can disable extension attributes with the script input type.
- **LDAP Attribute Mapping**—This populates the extension attribute with the value for an LDAP attribute. Creating the LDAP Attribute Mapping computer extension attribute also generates a variable that can be used to populate configuration profile settings with values for the LDAP attribute. The variable is $EXTENSIONATTRIBUTE_#, where # is the extension attribute ID. For more information on payload variables for configuration profiles, see Computer Configuration Profiles.

Beginning with Jamf Pro 10.14.0, extension attributes can be mapped to multiple-value attributes from the LDAP server, such as "memberOf". When the inventory collection settings are configured to collect user and location information from LDAP, these values will be displayed in the inventory information for a computer.

Important: To configure LDAP extension attributes, navigate to **Settings** > **Computer Management - Management Framework** > **Inventory Collection** and make sure the **Collect user and location information from LDAP** checkbox is selected.

The multiple values can later be used when creating smart groups and advanced searches with the extension attribute criteria and the “has" or "does not have” operators.
Consider the following limitations when using LDAP multiple-value extension attributes:

- When creating smart groups and advanced searches, the criteria value must accurately reflect the value returned in the computer inventory. It is recommended that you copy the extension attribute inventory value and paste it in the criteria value field.
- Multiple-value attribute mapping will not work with nested groups. Only the groups directly listed on the User record will be displayed in the mapped LDAP extension attribute.
- For the extension attributes to work correctly, values returned from the LDAP server cannot contain the sequence of repeating vertical-bar characters (ASCII code 124, HTML entity = |).

Creating a computer extension attribute generates a variable that can be used to populate configuration profile settings. The variable is $EXTENSIONATTRIBUTE_#, where # is the extension attribute ID. For extension attributes with the "Text field" or "Pop-up menu" input type, the ID number is found in the extension attribute URL. In the example URL below, "id=2" indicates the extension attribute ID number:
https://instancename.jamfcloud.com/mobileDeviceExtensionAttributes.html?id=2&o=r

For more information on payload variables for configuration profiles, see Computer Configuration Profiles.

Computer Extension Attributes Populated by a Script

When an extension attribute is populated by a script, the text between the `<result></result>` tag is stored in Jamf Pro.

For Mac computers, scripts can be written in any language that has an interpreter installed. The most common interpreters are:

```
/bin/bash
/bin/sh/usr/bin/perl/usr/bin/python
```

All scripts must start with a shebang (#!) followed by the absolute path to the interpreter. For example, the script for an extension attribute that collects the host name from Mac computers looks like this:

```
#!/bin/sh
echo "<result>`hostname 2>&1`</result>"
```

For Windows computers, scripts can be written in VBScript, Batch file, and PowerShell.

Note: PowerShell scripts only run on computers that have the components necessary to run the script.

Requirements

To create a computer extension attribute with the "LDAP Attribute Mapping" input type, you need:

- An LDAP server set up in Jamf Pro (For more information, see Integrating with LDAP Directory Services.)
- The Computer Inventory Collection settings configured to collect user and location information from LDAP (For more information, see Computer Inventory Collection Settings.)

Manually Creating a Computer Extension Attribute

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the "Computer Management–Management Framework" section, click **Extension Attributes** .
5. Click **New** .
6. Configure the settings on the pane.
7. Click **Save** .

   If the extension attribute has the "LDAP Attribute Mapping" input type, the LDAP attribute variable is displayed on the pane.

Creating a Computer Extension Attribute from a Template

Jamf Pro has built-in templates for many commonly used extension attributes.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the "Computer Management–Management Framework" section, click **Extension Attributes** .
5. Click **New From Template**.
6. Click the extension attribute template you want to use.

7. Make changes to the settings as needed.
8. Click **Save**.

Uploading a Template for a Computer Extension Attribute

You can create an extension attribute by uploading an extension attribute template obtained from Jamf Nation. Extension attribute templates are available in Jamf Nation at: https://www.jamf.com/jamf-nation/third-party-products/files/extension-attributes

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**.
3. Click **Computer Management**.
4. In the "Computer Management–Management Framework" section, click **Extension Attributes**.
5. Click **Upload** and upload the extension attribute template.
6. Make changes to the settings as needed.
7. Click **Save**.

Disabling a Computer Extension Attribute

To troubleshoot processes, you can temporarily disable extension attributes with the script input type. You can also choose whether to retain or delete data collected by that extension attribute.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**.
3. Click **Computer Management**.
4. In the "Computer Management–Management Framework" section, click **Extension Attributes**.
5. Select the extension attribute you want to disable.

   Note: Only extension attributes with the script input type can be disabled.

6. Click **Edit**.
7. Deselect the **Enabled (script input type only)** checkbox.
8. Click **Save**.

9. Use the pop-up dialog to choose one of the following:
   - To retain data collected by the extension attribute, select **Retain Existing Data**, and then click **Save**.

     Note: All settings and computers that use data collected by this extension attribute will display or use the last value collected by the extension attribute before it was disabled.

   - To delete data collected by the extension attribute, select **Delete Existing Data**, and then click **Save**.

     Note: If items, such as smart computer groups, are using the extension attribute data, deleting existing data may prevent those items from functioning correctly.

Related Information

For related information, see the following sections in this guide:

- Computer Inventory Display Settings
  You can display extension attributes in the results of a simple computer search.
- Viewing and Editing Inventory Information for a Computer
  You can view the extension attributes collected from a computer and edit non-script extension attribute values for that computer.
- Smart Groups
  You can create smart computer groups based on extension attributes.

Computer Inventory Display Settings

The Computer Inventory Display settings allow each Jamf Pro user to choose which attribute fields to display in the results of a simple computer search.

Configuring the Computer Inventory Display Settings

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the "Computer Management–Management Framework" section, click **Inventory Display** .
5. On each pane, select or deselect the checkbox for each attribute field you want to display or remove.
6. Click **Save** .

Related Information

For related information, see the following section in this guide:

Simple Computer Searches
Find out how to quickly search the items in your inventory for a general range of results.

Simple Computer Searches

A simple computer search functions like a search engine, allowing you to quickly search the items in your inventory for a general range of results.

The following table shows the items that you can search by and the attributes on which you can base each search:

Inventory Item	Searchable Attributes
Computers (This includes both managed and unmanaged computers.)	Computer name MAC address Bar code IP address Asset tag Serial number Username Full name Email address Phone number Position Department Building Room
Applications	Application name
Local User Accounts	Username
Application Usage	Application name
Fonts	Font name
Package Receipts	Package receipt name
Plug-ins	Plug-in name
Printers	Printer name
Services	Service name
Software Updates	Software update name Software update version

You can also create an advanced search using detailed search criteria. These types of searches give you more control over your search. For more information, see Advanced Computer Searches.

Note: Computers and applications are searchable by default. The other items are searchable if Jamf Pro is configured to collect them as inventory. For more information, see Computer Inventory Collection Settings.

Search Syntax

This section explains the syntax to use for search functions. In general, searches are not case-sensitive.

Note: The default search preference is "Exact Match". For most items, the option can be changed to either "Starts with" or "Contains". For more information about configuring account preferences, see Jamf Pro User Accounts and Groups.

The following table explains the syntax you can use for search functions:

Search Function	Usage	Example
Return all Results	Use an asterisk (*) without any other characters or terms, or perform a blank search.	Perform a search for "*" or leave the search field empty to return all results.
Perform Wildcard Searches	Use an asterisk after a search term to return all results with attributes that begin with that term.	Perform a search for "key*" to return all results with names that begin with "key".
	Use an asterisk before a search term to return all results with attributes that end with that term.	Perform a search for "*note" to return all results with names that end with "note".
	Use an asterisk before and after a search term to return all results that include that term.	Perform a search for "*ABC*" to return all results that includes "ABC".
Include Multiple Search Terms	Use multiple search terms separated by a comma (,) to return all results that include those search terms.	Perform a search for "key*, *note" to return all results that begins with "key" and ends with "note".
Exclude a Search Term	Use a hyphen (-) before a search term to exclude results that include the term.	Perform a search for "ABC*, -*note" to return all results with names that begin with "ABC" except for those that end with "note".

Performing a Simple Computer Search

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Search Inventory**.
4. Choose an item from the **Search** pop-up menu.
5. Enter one or more search terms in the fields provided.
6. Press the Enter key.
   The list of search results is displayed.

If you searched for an item other than computers, you can view the computers associated with a result by clicking **Expand** next to the result. You can also change the item on which the results are based by choosing an item from the pop-up menu at the top of the page.

Related Information

For related information, see the following sections in this guide:

- Viewing and Editing Inventory Information for a Computer
  Find out how to view and edit inventory information for a computer.
- Computer Reports
  Find out how to export the data in your search results to different file formats.
- Mass Actions for Computers
  Find out how to perform actions on the results of a computer search.
- Computer Inventory Display Settings
  Find out how to change the attribute fields displayed in the results of a simple computer search.

Advanced Computer Searches

Advanced computer searches allow you to use detailed search criteria to search the managed and unmanaged computers in Jamf Pro. These types of searches give you more control over your search by allowing you to do the following:

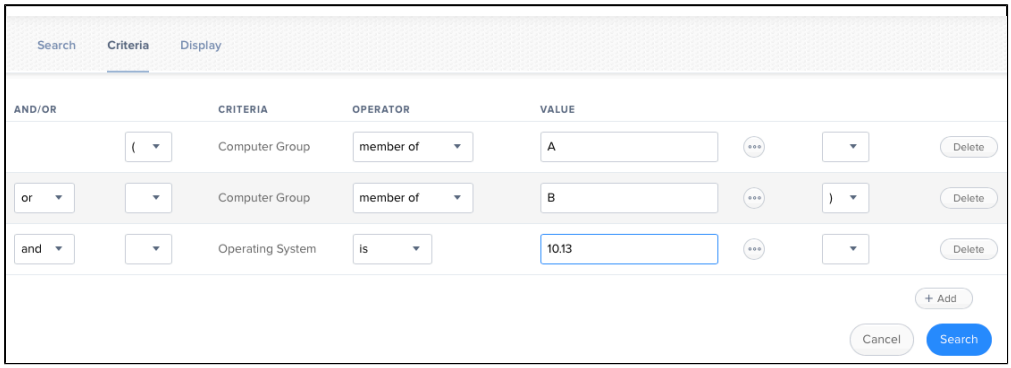
- Generate specific search results.
- Specify which attribute fields to display in the search results.
- Save the search.

Creating an Advanced Computer Search

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Search Inventory**.
4. Click **New** + New .
5. Use the Search pane to configure basic settings for the search.
   To save the search, select the **Save this Search** checkbox.
6. Click the **Criteria** tab and add criteria for the search:
   a. Click **Add** + Add .
   b. Click **Choose** for the criteria you want to add.

      Note: Only your 30 most frequently used criteria are listed. To display additional criteria, click **Show Advanced Criteria**.

   c. Choose an operator from the **Operator** pop-up menu.
   d. Enter a value in the **Value** field or browse for a value by clicking **Browse** .
   e. Repeat steps a through d to add criteria as needed.
7. Choose an operator from the **And/Or** pop-up menus to specify the relationships between criteria.
8. To group criteria and join multiple operations, choose parentheses from the pop-up menus around the criteria you want to group.



Operations in the search take place in the order they are listed (top to bottom).

9. Click the **Display** tab and select the attribute fields you want to display in your search results.
10. Click **Save** .
11. To view the search results, click **View** .
    The results of a saved search are updated each time you view the membership.
12. (Optional) To export the search results, click **Export** and follow the on-screen instructions.

Related Information

For related information, see the following sections in this guide:

- Computer Reports
  Find out how to export the data in your search results to different file formats.
- Mass Actions for Computers
  Find out how to perform actions on the results of a computer search.
- Viewing and Editing Inventory Information for a Computer
  Find out how to view and edit inventory information for a computer.
- Simple Computer Searches
  Learn how to quickly search the items in your inventory for a general range of results.

Computer Reports

Data displayed in smart and static groups or computer search results can be downloaded from Jamf Pro. You can also email reports for advanced computers searches.

The following file formats are available for downloading or email reporting:

- Comma-separated values file (.csv)
- Tab-separated Values (.tsv)
- XML file

You can organize the data by basing the report on any of the following inventory items:

- Computers
- Applications
- Fonts
- Plug-ins
- Packages installed by Jamf Pro
- Packages installed by Installer.app/Software Update
- Cached packages
- Local user accounts
- Mapped printers
- Available software updates
- Running services
- Computer groups
- Licensed software
- Certificate name

The data is displayed in alphanumeric order by the selected inventory item.

Creating Reports for Smart and Static Groups or Simple Computer Searches

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Do one of the following:
   - View computer group memberships. For more information, see Smart Groups or Static Groups
   - View simple or advanced computer search results. For more information, see Simple Computer Searches or Advanced Computer Searches.

     Note: You can only create a report from a simple computer search if you searched by computers.

   - View license usage matches. For more information, see Viewing License Usage.

4. At the bottom of the list, click **Export**.
5. Follow the onscreen instructions to export the data. The report downloads immediately.

Creating Reports for Advanced Computer Searches

You can download unsaved and saved advanced computer search reports. Advanced computer search reports can also be emailed instantly or on a defined schedule.

> **Note:** SMTP must be configured before you can email saved advanced computer search reports. For more information, see Integrating with an SMTP Server.

Downloading an Advanced Computer Search Report

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Do one of the following:
   - Select the saved advanced computer search for which you want to create a report.
   - Click **New** + New, and then use the Criteria and Display panes to configure your search.
4. Click the **Reports** tab.
5. Select a file format for the report.
6. Select the inventory item on which to base the report results.
7. Click **Download Report**. The report downloads immediately.

Emailing an Advanced Computer Search Report

> **Note:** To email reports from newly created advanced searches, you must select **Save this search** and complete the **Display Name** field in the Search Pane.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Do one of the following:
   - Select the advanced computer search for which you want to create a report.
   - Click **New** + New, and then use the Search, Criteria, and Display panes to configure your search.
4. Click the **Reports** tab.
5. Select a file format.
6. Select the inventory item on which to base the report results.
7. In the Email Reporting section, enter email addresses, a subject for the email, and the body text for the email.

8. Click **Send Email Report**. The report is sent immediately.
9. To set up another email report, click the  button, and then repeat the process.

Scheduling Email Reports for Saved Advanced Computer Searches

You can email saved advanced computer search reports according to a defined schedule.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Select the advanced computer search for which you want to create a report.
4. Click the **Reports** tab.
5. Select a file format for the report.
6. Select the inventory item on which to base the report results.
7. In the Email Reporting section, enter email addresses, a subject for the email, and the body text for the email.
8. Select **Schedule automatic email reports**.
9. Set the frequency and interval schedule that you want to email the report.
10. Click **Save**. The reports will be emailed on the specified schedule.
11. To set up another email report, click the  button, and then repeat the process.

Related Information

For related information, see the following sections of this guide:

- Advanced Computer Searches
- Simple Computer Searches

Mass Actions for Computers

Mass actions allow you to perform potentially tedious tasks for multiple computers at the same time. Mass actions can be performed on smart or static group membership lists, computer search results, or lists of license usage matches. The following table explains the mass actions you can perform using Jamf Pro:

Mass Action	Description
Edit the building or department	Mass editing the building or department for computers allows you to add the computers to a building or department or change the building or department they belong to. This option is only displayed if there are one or more buildings or departments in Jamf Pro. For more information, see Buildings and Departments.
Edit the site	Mass editing the site for computers allows you to add the computers to a site or change the site they belong to. When computers are added to a site, any users assigned to those computers are also added to that site. This option is only displayed if there are one or more sites in Jamf Pro. For more information, see Sites.
Edit the management account	Mass editing the management account for computers allows you to change the username and password for the computers' management accounts. This can be useful when the management account is from a directory service and has been changed. Mass editing the management account updates the username and password in Jamf Pro, not on the computers. **Important:** When configuring the management account password settings, it is recommended that you randomly generate the password for maximum security.
Look up and populate purchasing information from Apple's Global Service Exchange (GSX)	You can mass look up purchasing information from Apple's Global Service Exchange (GSX) and populate the information in Jamf Pro if desired. This requires a GSX connection set up in Jamf Pro. For more information, see GSX Connection. **Note:** GSX may not always return complete purchasing information. Only the information found in GSX is returned.
Send a mass email to users	You can send a mass email to users associated with the computers in Jamf Pro. The email is sent to the email address associated with each computer. This requires an SMTP server set up in Jamf Pro. For more information, see Integrating with an SMTP Server.
Edit Autorun data	You can mass edit Autorun data for computers. For more information about creating, editing, or deleting Autorun data for a single computer, see Autorun Imaging.

Mass Action	Description
Delete Autorun data	You can mass delete Autorun data for computers. For more information about creating, editing, or deleting Autorun data for a single computer, see Autorun Imaging.
Delete the computers from Jamf Pro	You can mass delete computers from Jamf Pro.
Send remote commands	You can mass send remote commands to computers. The remote commands available for a particular computer vary depending on the computer's OS version. For more information, see Remote Commands for Computers and Computer Management Capabilities.
Cancel management commands	You can mass cancel all pending or failed management commands.

Performing Mass Actions for Computers

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Do one of the following:
   - View computer group memberships. For more information, see Smart Groups or Static Groups.
   - View simple or advanced computer search results. For more information, see Simple Computer Searches or Advanced Computer Searches.

     Note: You can only perform mass actions from a simple computer search if you searched by computers.

   - View license usage matches. For more information, see Viewing License Usage.
4. At the bottom of the list, click **Action**.
5. Select the mass action you want to perform from the list of mass actions.
6. Follow the onscreen instructions.

Related Information

For related information, see the following sections in this guide:

- Viewing and Editing Inventory Information for a Computer
  Find out how to edit the building, department, site, purchasing information, or management account for a single computer.
- Autorun Imaging
  Find out how to create, edit, or delete Autorun data for a single computer.

- Components Installed on Managed Computers
  Find out how to remove all Jamf Pro-related components from computers that have been deleted from Jamf Pro.

Viewing and Editing Inventory Information for a Computer

Jamf Pro stores detailed inventory information for each computer. You can view and edit this information from Jamf Pro.

By default, basic inventory information—such as hardware, operating system, storage, and applications—is collected based on the preconfigured “Update Inventory” policy that is created automatically when you install Jamf Pro. This information is submitted by computers after they enroll with Jamf Pro and is updated if there is new information on the computer when it checks in and runs the "Update Inventory" policy. For more information about the "Update Inventory" policy, see Computer Inventory Collection. MDM commands are also used to collect additional inventory information and populate other inventory fields. For more information, see the Computer Inventory Information Collected by MDM Commands Knowledge Base article. In addition, you can configure the Computer Inventory Collection settings in Jamf Pro to collect additional inventory information. For more information, see Computer Inventory Collection Settings.

Note: The frequency at which computers check in to Jamf Pro and submit inventory information is determined by the Recurring Check-in Frequency settings. See Recurring Check-in Frequency for more information.

If a computer is enrolled with Jamf Pro via a PreStage enrollment, you can use the PreStage Enrollment settings to specify the information that is submitted by the computer and stored in Jamf Pro. For more information, see Computer PreStage Enrollments.

Re-enrolling a computer with Jamf Pro retains the inventory information that was collected for the computer prior to re-enrollment. This information, however, can be cleared or changed depending on the Re-enrollment settings. For more information, see Re-enrollment Settings. In addition, if the computer is re-enrolled via a PreStage enrollment, there are settings that can affect the user and location information for that computer. For more information, see Computer PreStage Enrollments.

The following table lists all possible information that you can view and edit for each computer.

Note: Extension attributes are displayed in computer inventory information in the category in which they are configured to display.

Field	Editable	Notes
General Category		
Computer Name	✓	
Site	✓	
Last Inventory Update		

Field	Editable	Notes
Last Check-in		
IP Address	✓	
Reported IP Address		
jamf binary Version		
Platform		
Managed		
Supervised		Displays whether a computer is supervised (collected for macOS 10.15 or later only).
Last iCloud Backup		
Enrollment Method		Displays the expiration date of the device identity certificate in the MDM profile. The device identity certificate has a default expiration period of two years.
Last Enrollment		
MDM Profile Expiration Date		
MDM Capability		
Enrolled via Automated Device Enrollment		Displays whether a computer was enrolled via Automated Device Enrollment (collected for macOS 10.13.2 or later only).
User Approved MDM		Displays the status of User Approved MDM enrollment (collected for macOS 10.13.2 or later only). For more information about User Approved MDM and Jamf Pro, see the Managing User Approved MDM with Jamf Pro Knowledge Base article.
Jamf Pro Computer ID		
Asset Tag	✓	
Bar Code 1	✓	
Bar Code 2	✓	
Bluetooth Low Energy Capability		

Field	Editable	Notes
Logged in to App Store		This value will be reported as “Active” when a user-level configuration profile is installed from Self Service using MDM-enabled credentials
Management Account Username	✓	
Management Account Password	✓	**Important:** When configuring the management account password settings, it is recommended that you randomly generate the password for maximum security.
Hardware Category		
Make		
Model		
Model Identifier		
UDID	✓	
Serial Number		
Processor Speed		
Number of Processors		
Number of Cores		
Processor Type		
Architecture Type		
Bus Speed		
Cache Size		
Primary MAC Address	✓	
Primary Network Adapter Type	✓	
Secondary MAC Address	✓	
Secondary Network Adapter Type	✓	

Field	Editable	Notes
Total RAM		Capacity is reported using the decimal system (base 10), which calculates 1GB as 1 billion bytes.
Available RAM Slots		
Battery Capacity		
SMC Version		
NIC Speed		
Optical Drive		
Boot ROM		
Operating System Category		
Operating System		
Operating System Version		
Operating System Build		
Active Directory Status		
Master Password Set		
FileVault Users		
Service Pack		
User and Location Category[1]		
Username	✓ You can assign a user to the computer and populate user information from the **Users** tab. For more information, see User Assignments.	
Full Name		
Email Address		
Phone Number		
Position		
Department		
Building		
Room		

Field	Editable	Notes
Security Category		
System Integrity Protection		Displays whether System Integrity Protection is enabled for a computer (collected for macOS 10.11 or later only). For more information, see the Jamf Pro Reporting Capabilities for Apple's macOS Security Features Knowledge Base article.
Gatekeeper		Displays whether Gatekeeper is enabled for a computer (collected for macOS 10.9 or later only). For more information, see the Jamf Pro Reporting Capabilities for Apple's macOS Security Features Knowledge Base article.
XProtect Definitions Version		Displays the current version of XProtect Definitions installed on a computer (collected for macOS 10.9 or later only). For more information, see the Jamf Pro Reporting Capabilities for Apple's macOS Security Features Knowledge Base article.
Disable Automatic Login		Displays whether Disable Automatic Login is enabled for a computer (collected for macOS 10.10 or later only). For more information, see the Jamf Pro Reporting Capabilities for Apple's macOS Security Features Knowledge Base article.
Remote Desktop Enabled		Displays whether Remote Desktop is enabled for a computer (collected for macOS 10.14.4 or later only).
Secure Boot Level		Displays the level of Secure Boot for the computer (collected for compatible computers with macOS 10.15 or later only). For more information on compatibility, see Apple's documentation: https://support.apple.com/HT208330
External Boot Level		Displays whether the computer allows or disallows booting from external media (collected for compatible computers withmacOS 10.15 or later only). For more information on compatibility, see Apple's documentation: https://support.apple.com/HT208330

Field	Editable	Notes
Activation Lock		Displays whether Activation Lock is enabled for a computer (collected for compatible computers with macOS 10.15 or later only). For more information, see the Jamf Pro Reporting Capabilities for Apple's macOS Security Features Knowledge Base article. For more information on macOS compatibility, see Apple support documentation: https://support.apple.com/HT208987
Purchasing Category		
Purchased or Leased	✓ You can look up and populate purchasing information from Apple's Global Service Exchange (GSX). (This requires a GSX connection set up in Jamf Pro. For more information, see GSX Connection.)	
PO Number		
PO Date		
Vendor		
Warranty Expiration		
AppleCare ID		
Lease Expiration		
Purchase Price		
Life Expectancy		
Purchasing Account		
Purchasing Contact		
Extension Attributes Category		
	✓ Non-script extension attributes only	Displays a list of custom data fields collected using extension attributes.
Storage Category		
Model		
Revision		
Serial Number		
Drive Capacity		
S.M.A.R.T. Status		

Field	Editable	Notes
Number of Partitions ▪ Name ▪ Size ▪ % Used ▪ Available ▪ FileVault 2 State ▪ Core Storage Partition Scheme		The value for Available displays the space available for Boot Partition. Available space is reported using the decimal system (base 10), which calculates 1GB as 1 billion bytes. The value for the FileVault 2 status will be reported as "Unknown" when: ▪ Inventory has not been updated since the last Jamf Pro upgrade ▪ Jamf Pro is unable to detect encryption status due to an error
Disk Encryption Category		
Last Inventory Update		
FileVault 2 Partition Encryption State		This value will be reported as "Unknown" when: ▪ Inventory has not been updated since the last Jamf Pro upgrade ▪ Jamf Pro is unable to detect encryption status due to an error
Individual Recovery Key Validation		Displays whether the individual recovery key on a computer matches the individual recovery key escrowed for that computer in Jamf Pro This value will be reported as "Unknown" when: ▪ macOS version is 10.8 or earlier ▪ No recovery key in Jamf Pro to validate against ▪ Inventory has not been updated since the last Jamf Pro upgrade
Individual Recovery Key		
Device Recovery Key		
Institutional Recovery Key		
Disk Encryption Configuration		Displays the name of the disk encryption configuration if the computer is encrypted via policy. If the computer is encrypted via configuration profile or locally on the computer, this field is left blank.
FileVault 2 Enabled Users		Displays the usernames of FileVault 2-enabled users on the computer
Licensed Software Category		
		Displays a list of licensed software titles installed on the computer

Field	Editable	Notes
Applications Category[2]		
		Displays a list of applications installed on the computer
Fonts Category[2]		
		Displays a list of fonts installed on the computer
Plug-ins Category[2]		
		Displays a list of plug-ins installed on the computer
Profiles Category		
		Displays a list of profiles installed on the computer
iBeacon Regions Category		
		Displays a list of iBeacon regions that the computer is currently in. **Note:** This category is only displayed if the Computer Inventory Collection settings are configured to monitor iBeacon regions. For more information, see Computer Inventory Collection Settings.
Certificates Category		
		Displays a list of certificates installed on the computer
Package Receipts Category[2]		
		Displays a list of packages installed by Installer.app or Software Update, and a list of packages installed or cached by Jamf Pro
Software Updates Category[2]		
		Displays a list of software updates available for the computer
Local User Accounts Category[2]		
UID		Displays a list of local user accounts and information about them. Capacity is reported using the decimal system (base 10), which calculates 1GB as 1 billion bytes. You can access commands to remotely unlock a local user account, or remotely remove a local or mobile user account by clicking **Manage** for a user. For more information, see Remote Commands for Computers. **Note:** This information is only displayed if the Computer Inventory Collection settings are configured to collect local user accounts. For more information, see Computer Inventory Collection Settings.
Username		
Full Name		
Admin		
Home Directory		
Legacy FileVault Enabled		
FileVault 2 Enabled		

Field	Editable	Notes
Password Type		Displays passcode information for computers (collected for macOS 10.10 or later only) The Type value is only displayed if Jamf Pro can identify the user account type (“Local", “LDAP", or "Mobile LDAP").
Minimum Passcode Length		
Maximum Passcode Age		
Minimum Number of Complex Characters		
Password History		
Computer Azure Active Directory ID		Unique identifier within Microsoft Azure for the computer local account. The Computer Azure Active Directory ID is unique across each computer and each local user account. Every time a user registers a computer with Azure AD that local account will be given a unique identifier.
User Azure Active Directory ID		Unique identifier within Microsoft Azure for users that registered their computers with Azure AD. If the user registers many local accounts or multiple computers, their User Azure Active Directory ID is always the same.
Conditional Access Inventory State **Note:** This criteria was previously named "Azure Active Directory ID".		Displays one of the following values when the macOS Intune Integration is enabled: ▪ "Activated"—Computer is registered with Azure AD and regularly checks in with Jamf Pro. ▪ "Unresponsive"—Computer has not checked in with Jamf Pro in the last 24 hours using the standard Jamf Pro check-in process, or the computer has not checked in with Microsoft Intune in the last 24 hours. Unresponsive devices are marked "non-compliant" after the validity period passes. (The validity period is specified in the "Compliance status validity period (days)" setting in Microsoft Intune. Default is 30 days.) ▪ "Deactivated"—Computer is no longer registered with Azure AD.

Field	Editable	Notes
Printers Category[2]		
		Displays a list of printers mapped to the computer and information about those printers
Services Category[2]		
		Displays a list of active services
Attachments Category		
		Displays a list of files attached to the inventory record Upload and delete attachments
Content Caching Category[3]		
Activated		
Active		
Actual Cache Used		
Alerts ▪ Cache Limit ▪ Class Name ▪ Path Preventing Access ▪ Post Date ▪ Reserved Volume Space ▪ Resource		
Cache Details		
Cache Free		
Cache Limit		
Cache Status		
Cache Used		
Data Migration Completed		
Data Migration Error ▪ Code ▪ Domain ▪ User Information		

Field	Editable	Notes
Data Migration Progress		
Max Cache Pressure in Last Hour		
Parents ▪ Address ▪ Alert: Address ▪ Alert: Name ▪ Alert: Post Date ▪ Details: AC Power ▪ Details: Cache Size ▪ Capabilities: Import and Upload ▪ Capabilities: Namespace Handling ▪ Capabilities: Personal Content ▪ Capabilities: Query Parameters ▪ Capabilities: Shared Content ▪ Capabilities: Import and Upload Prioritization ▪ Details: Is Portable ▪ Local Network: Speed ▪ Local Network: Wired ▪ GUID ▪ Healthy		

Field	Editable	Notes
▪ Port ▪ Version		
Personal Cache Free		
Personal Cache Limit		
Personal Cache Used		
Port		
Public Address		
Registration Error		
Registration Response Code		
Registration Started		
Registration Status		
Restricted Media		
Server GUID		
Startup Status		
Tetherator Status		
Total Bytes are Since		
Total Bytes Dropped		
Total Bytes Imported		
Total Bytes Returned to Children		
Total Bytes Returned to Clients		
Total Bytes Returned to Peers		

Field	Editable	Notes
Total Bytes Returned from Origin		
Total Bytes Returned from Parents		
Totally Bytes Returned from Peers		

1. The Collect User and Location Information from LDAP setting must be enabled in the Computer Inventory Collection settings. For more information, see Computer Inventory Collection Settings.
2. Information is collected by Jamf Pro if the Computer Inventory Collection settings have been configured to collect the information. For more information, see Computer Inventory Collection Settings.
3. The Content Caching category is only collected for computers with macOS 10.15.4 or later. For more information, see Apple's documentation: https://developer.apple.com/documentation/devicemanagement/contentcachinginformationresponse/statusresponse?changes=latest_minor

Viewing Inventory Information for a Computer

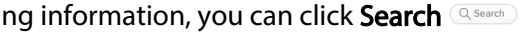
1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view information for.

   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
   The computer's inventory information is displayed.
5. Use the categories to view information for the computer.

Editing Inventory Information for a Computer

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to edit information for.

   If you performed a simple search for an item other than computers, you must click **Expand** next to an item name to view the computers related to that item.
   The computer's inventory information is displayed.

5. Select the category that contains the information you want to edit and click **Edit**.
6. Make changes as needed.
   If you are editing purchasing information, you can click **Search**  to look up and populate information from Apple's Global Service Exchange (GSX).

   > **Note:** This button is only displayed if you have a GSX connection set up in Jamf Pro.

   If you are editing user and location information, the changes are applied in the Users tab. This specified information is also applied in the inventory information for mobile devices and other computers that the user is assigned to. For information on assigning a user to a computer or removing a user assignment, see User Assignments.
7. Click **Save**.

Related Information

For related information, see the following Knowledge Base article:

Collecting the IP Address and Reported IP Address in Jamf Pro
Learn how the IP address and reported IP address computer inventory items are collected and how you can manually retrieve the reported IP address.

Viewing Management Information for a Computer

Jamf Pro allows you to view the following management information for each computer:

- Pending management commands
- Policies
- Books
- Mac App Store apps
- Computer configuration profiles
- Activation Lock Bypass Code
- Restricted software
- Group memberships
- Patch management software titles

Requirements

To view pending management commands for a computer, the computer and Jamf Pro must meet the requirements for sending a remote command or installing a computer configuration profile. For more information, see Remote Commands for Computers or Computer Configuration Profiles.

Viewing the Pending Management Commands for a Computer

When viewing management information for a computer, you can view a list of pending management commands for the computer. The list includes all pending actions related to sending a remote command and installing or removing a computer configuration profile.

You can also cancel a pending management command.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view pending management commands for.
   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **Management** tab.
   A list of pending management commands for the computer is displayed.

   Note: You cannot view pending management commands if the MDM profile has been removed from the computer.

6. To cancel a pending management command, click **Cancel** for the command.

Viewing Policies for a Computer

When viewing management information for a computer, you can view a list of policies that have the computer in the scope. You can also view a list of policies for a specific user on that computer.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view policies for.

   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **Management** tab, and then click the **Policies** category.
   A list of policies for the computer is displayed.
6. To view policies for a specific user, enter the username in the **Username** field and click **Update**.
   A list of policies for the user is displayed.

Viewing Books for a Computer

When viewing management information for a computer, you can view a list of books that have the computer in the scope. You can also view a list of books for a specific user on that computer.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view books for.

   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **Management** tab, and then click the **eBooks** category.
   A list of books for the computer is displayed.
6. To view books for a specific user, enter the username in the **Username** field and click **Update**.

   A list of books for the user is displayed.

Viewing Mac App Store Apps for a Computer

When viewing management information for a computer, you can view a list of Mac App Store apps that have the computer in the scope. You can also view a list of Mac App Store apps for a specific user on that computer.

1. Log in to Jamf Pro.

2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view apps for.

   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **Management** tab, and then click the **Mac App Store Apps** category.
   A list of apps for the computer is displayed.
6. To view apps for a specific user, enter the username in the **Username** field and click **Update**.
   A list of apps for the user is displayed.

Viewing Configuration Profiles for a Computer

When viewing management information for a computer, you can view a list of computer configuration profiles that have the computer in the scope. You can also view a list of configuration profiles for a specific user on that computer.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view configuration profiles for.

   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **Management** tab, and then click the **Configuration Profiles** category.
   A list of configuration profiles for the computer is displayed.

   Note: This list of profiles does not take into account users assigned to the computer or user actions taken on the computer.
6. To view configuration profiles for a specific user, enter the username in the **Username** field and click **Update**.
   A list of configuration profiles for the user is displayed.

Viewing the Activation Lock Bypass Code for a Computer

When viewing management information for a computer, you can view the Activation Lock bypass code for the computer.

For information about what the Activation Lock bypass code can be used for, see the Leveraging Apple's Activation Lock Feature with Jamf Pro Knowledge Base article.

1. Log in to Jamf Pro.

2. Click **Computers** at the top of the page.
3. Perform a simple or advanced mobile device search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view the Activation Lock bypass code for.

   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computer related to that item.
5. Click the **Management** tab, and then click the **Activation Lock Bypass** category.
6. Click **Show Activation Lock Bypass Code**.
   The Activation Lock bypass code is displayed on the pane.

Viewing Restricted Software for a Computer

When viewing management information for a computer, you can view a list of restricted software that has the computer in the scope. You can also view a list of restricted software for a specific user on that computer.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view restricted software for.

   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **Management** tab, and then click the **Restricted Software** category.
   A list of restricted software for the computer is displayed.
6. To view restricted software for a specific user, enter the username in the **Username** field and click **Update**.
   A list of restricted software for the user is displayed.

Viewing Group Memberships for a Computer

When viewing management information for a computer, you can view the smart and static group memberships for the computer.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view group memberships for.

   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.

5. Click the **Management** tab, and then click the **Computer Groups** category.
   A list of smart computer group memberships is displayed.
6. To view the static computer group memberships, click **Static Groups**.
   A list of static computer group memberships is displayed.

Viewing Patch Management Software Titles for a Computer

When viewing management information for a computer, you can view patch management software titles for the computer. Patch management software titles in Jamf Pro are third-party macOS software titles that can be used for patch reporting and patch notifications. For information on patch management for third-party updates, see About Patch Management.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view patch management software titles for.

   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **Management** tab, and then click the **Patch Management** category.
   A list of software titles is displayed.
6. To view the software titles that are on the latest version, click **Latest Version**.
   A list of software titles on the latest version is displayed.
7. To view the software titles that are on a version other than the latest, click **Other Version**.
   A list of software titles on a version other than the latest is displayed.

Related Information

For related information, see the following sections in this guide:

- Viewing Smart Computer Group Memberships
  Find out how to view all group memberships for a smart group.
- Viewing Static Computer Group Memberships
  Find out how to view all group memberships for a static group.

Viewing the History for a Computer

Jamf Pro allows you to view the history for each computer. The information you can view includes:

- Application Usage logs
- Computer Usage logs
- Audit logs
- Policy logs
- Jamf Remote logs
- Screen sharing logs
- Jamf Imaging logs
- Management history (completed, pending, and failed management commands)
- Hardware/software history
- User and location history
- Completed, pending, and failed Mac App Store app installations
- macOS Intune Integration logs

You can also flush policy logs for a computer.

Viewing Application Usage Logs for a Computer

The Application Usage logs for a computer allow you to view a pie chart that shows the amount of time each application was in the foreground during a specified date range.

> **Note:** You can only view Application Usage logs for a computer if the Computer Inventory Collection settings are configured to collect Application Usage information. For more information, see Computer Inventory Collection Settings.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view Application Usage logs for.
   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **History** tab.
   Application Usage logs for the computer are displayed.
6. To view Application Usage logs for a different date range, specify the starting and ending dates using the **Date Range** pop-up menus. Then click **Update**.

Viewing Computer Usage Logs for a Computer

The Computer Usage logs for a computer allow you to view the following information:

- Startup dates/times
- Login and logout dates/times
- Usernames used to log in and out of the computer

> **Note:** You can only view Computer Usage logs for a computer if a startup script or login/logout hooks are configured to log Computer Usage information. For more information, see Startup Script and Login and Logout Hooks.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view Computer Usage logs for.
   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **History** tab, and then click the **Computer Usage Logs** category.
   Computer Usage logs for the computer are displayed.

Viewing Audit Logs for a Computer

The audit logs allow you to view a list of the following events that occurred for a computer:

- The computer's FileVault encryption key has been viewed.
- The Wipe Computer remote command has been sent to the computer.

The date/time that the event occurred and the username of the administrator who initiated the event are included in the log.

1. Log in to Jamf Pro.
2. Click Computers at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view audit logs for.
   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **History** tab, and then click the **Audit Logs** category.
   Audit logs for the computer are displayed.

Viewing and Flushing Policy Logs for a Computer

The policy logs for a computer include a list of the policies that have run on the computer and the following information for each policy:

- The date/time that the policy ran on the computer
- The duration of time the policy ran on the computer
- The status of the policy
- The actions logged for the policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view policy logs for.
   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **History** tab, and then click the **Policy Logs** category.
   Policy logs for the computer are displayed.
6. To view the actions logged for a policy, click **Details** for the policy.
   To hide the information when you are done viewing it, click **Hide**.
7. To flush a policy log, click **Flush** for the policy.
8. To flush all policies for the computer, click **Flush All** at the top of the pane.

Viewing Jamf Remote Logs for a Computer

The Jamf Remote logs for a computer allow you to view the following information:

- The date/time that the Jamf Remote event took place on the computer
- The status of the Jamf Remote event
- The actions logged for the Jamf Remote event

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view Jamf Remote logs for.
   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.

5. Click the **History** tab, and then click the **Jamf Remote Logs** category.
   Jamf Remote logs for the computer are displayed.
6. To view the actions logged for a Jamf Remote event, click **Show** for the event.
   To hide the information when you are done viewing it, click **Hide**.

Viewing Screen Sharing Logs for a Computer

The screen sharing logs for a computer allow you to view the following information:

- The date/time that the screen sharing session took place
- The status of the screen sharing session
- Details of the screen sharing session

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view screen sharing logs for.
   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **History** tab, and then click the **Screen Sharing Logs** category.
   Screen sharing logs for the computer are displayed.

Viewing Jamf Imaging Logs for a Computer

The Jamf Imaging logs for a computer allow you to view the following information:

- The date/time that the computer was imaged
- The status of the imaging event
- The actions that took place during the imaging event

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view Jamf Imaging logs for.
   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **History** tab, and then click the **Jamf Imaging Logs** category.
   Jamf Imaging logs for the computer are displayed.
6. To view the actions logged for a Jamf Imaging event, click **Show** for the event.
   To hide the information when you are done viewing it, click **Hide**.

Viewing Management History for a Computer

The management history for a computer allows you to view lists of completed, pending, and failed management commands for the computer. The lists include all actions related to sending a remote command and installing or removing a computer configuration profile.

You can also cancel a pending management command.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view group memberships for.
   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **History** tab, and then click the **Management History** category.
   A list of completed management commands for the computer is displayed.
6. To view pending management commands, click **Pending Commands**.
   You can cancel a pending management command by clicking **Cancel** for the command.
7. To view failed management commands, click **Failed Commands**.

Viewing Hardware/Software History for a Computer

The hardware/software history for a computer allows you to view a list of inventory reports submitted for the computer during a specified date range. Each inventory report includes hardware information for the computer, such as the operating system, make, model, and serial number, and information about any software changes that occurred since the previous inventory report.

Inventory report listings that show a change in a computer's hardware are displayed in red.

> **Note:** You can only view software history for a computer if the Computer Inventory Collection settings are configured to collect applications, fonts, or plug-ins. For more information, see Computer Inventory Collection Settings.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view hardware/software history for.
   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.

5. Click the **History** tab, and then click the **Hardware/Software History** category.
   The hardware/software history for the computer is displayed.
6. To view hardware/software history for a different date range, specify the starting and ending dates using the **Date Range** pop-up menus on the pane. Then click **Update**.

Viewing User and Location History for a Computer

The user and location history for a computer allows you to view a list of the user and location information associated with the computer over time. A record of the current information is added to the list whenever changes are made to the User and Location category in the computer's inventory information.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view user and location history for.
   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **History** tab, and then click the **User and Location History** category.
   The user and location history for the computer is displayed.

Viewing Mac App Store App Installations for a Computer

You can view the completed, pending, and failed Mac App Store app installations for a computer. You can also cancel pending Mac App Store app installations.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view app installation information for.
   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **History** tab, and then click the **Mac App Store Apps** category.
   A list of apps installed on the computer is displayed.
6. To view a list of apps that are pending installation, click **Pending Apps**.
   You can cancel a pending installation by clicking **Cancel** for the app.
7. To view a list of apps that failed to install, click **Failed Apps**.

Viewing macOS Intune Integration Logs for a Computer

When the macOS Intune Integration is enabled and a computer is registered with Azure AD, you can view inventory sent to Microsoft Intune for each username associated with the computer.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view macOS Intune Integration logs for.
5. Click the **History** tab, and then click the **macOS Intune Integration Logs** category.
   A list of usernames associated with the computer is displayed.
6. To view inventory data for a username, click the **View Data Sent** button.

> **Note:** You can also manually trigger an update of inventory to be sent to Microsoft Intune. This allows Jamf Pro to send computer inventory attributes to Microsoft Intune outside of the standard communication schedule.

Related Information

For related information, see the following section in this guide:

Flushing Logs
Find out how to schedule automatic log flushing or manually flush logs.

Deleting a Computer from Jamf Pro

You can remove a computer from your inventory by deleting it from Jamf Pro.

The files and folders installed during enrollment are not removed from the computer when it is deleted from Jamf Pro. For instructions on how to remove these components, see Components Installed on Managed Computers.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Search Inventory**.
4. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches .
5. Click the computer you want to delete.
   If you performed a simple search for an item other than computers, such as computer applications, you must click **Expand** next to an item name to view the computers related to that item.
6. Click **Delete** , and then click **Delete** again to confirm.

Related Information

For related information, see the following section in this guide:

Mass Actions for Computers
Find out how to mass delete computers from Jamf Pro.

Policies

About Policies

Policies allow you to remotely automate common management tasks on managed computers. Using a policy, you can run scripts, manage accounts, and distribute software. When you create a policy, you specify the tasks you want to automate, how often it should run ("execution frequency"), when the policy should run ("trigger"), and the users and computers for which it should run ("scope"). You can also make policies available in Self Service for users to run on their computers as needed.

Note: Removing a target from the scope of a policy does not remove the settings applied by the policy if it has already run on the computer.

Execution Frequency for Policies

A policy can run at one of the following frequencies:

- **Once per computer**—This policy runs on any computer in the current scope one time only. If the **Automatically re-run policy on failure** checkbox is enabled, you can configure the policy to retry up to ten times after a policy fails. If a log entry exists for a given computer in the policy's history, the policy will not run again for that computer until the log is flushed.
- **Once per user per computer**—This policy runs once per distinct username per distinct computer. If Self Service has user logins enabled, the policy will run once through Self Service on each computer the user logs in to.
- **Once per user**—This policy runs only once per distinct username. It runs through Self Service as long as Self Service has user logins enabled. The policy will only run once per username in the scope, not once per username per computer.
- **Once every day**—This policy runs if the scoped computer has not submitted a policy log to Jamf Pro in the past day (24 hours).
- **Once every week**—This policy runs if the scoped computer has not submitted a policy log to Jamf Pro in the past seven days (168 hours).
- **Once every month**—This policy runs if the scoped computer has not submitted a policy log to Jamf Pro in the past 30 days (720 hours).
- **Ongoing**—This policy runs each time the specified trigger takes place.

Important: When using an ongoing execution frequency with a recurring check-in trigger, policies will run during every check-in. This may negatively impact server and client performance.

Triggers for Policies

Triggers are events that initiate a policy. When you create a policy, you can choose one or more pre-defined triggers, or you can choose a custom trigger.

You can use the following pre-defined triggers to run a policy:

- **Startup**—When a computer starts up. The startup script must be enabled in the Check-In section of Computer Management Settings.
- **Login**—When a user logs in to a computer. Login hooks must be enabled in the Check-In section of Computer Management Settings.
- **Logout**—When a user logs out of a computer. Logout hooks must be enabled in the Check-In section of Computer Management Settings.
- **Network State Change**—When a computer's network state changes (for example, when the network connection changes, when the computer name changes, or when the IP address changes)
- **Enrollment Complete**—Immediately after a computer completes the enrollment process
- **Recurring Check-in**—At the recurring check-in frequency configured in Jamf Pro

  Note: On computers with macOS 10.15 or later, Jamf Pro must be safelisted in the Privacy Preferences Policy Control payload to run policies that access data on a network volume at recurring check-in. By default, Jamf Pro is automatically safelisted in the Privacy Preferences Policy Control payload.

- **Custom**—Initiate the policy manually using the `jamf policy -event` binary command. For an iBeacon region change event, use `beaconStateChange`

Execution Order of Policies

If multiple policies are triggered at the same time, the policies will run based on their name in alphanumeric order. Policies with names beginning with a number will run before policies that do not.

Policies can be renamed to ensure that they run on a device in a specific order. This is useful when an application needs to first be uninstalled before installing a newer version. The uninstall policy can be renamed to ensure that it runs prior to the install policy.

For example, if policies "Alpha" and "Beta" are triggered at the same time, "Alpha" will run first. However, if it would be preferable for "Beta" to run first, "Beta" should be renamed to "1Beta".

Related Information

For related information, see the following sections in this guide:

- Policy Management
  Find out how to create policies, view the plan and status for a policy, and view and flush policy logs.
- Policy Payload Reference
  Learn about each payload in the policy interface.

Policy Management

When you create a policy, you use a payload-based interface to configure settings for the policy and add tasks to it. For more information on the settings you can configure, see Policy Payload Reference.

After you create a policy, you can view the plan, status, and logs for the policy. You can also flush policy logs.

> **Note:** To run a policy on a computer, the **Allow Jamf Pro to perform management tasks** checkbox must be selected in the computer inventory information to enable the management account. For more information about the management account, see Computer Enrollment Methods.

Creating a Policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click **New** + New .
5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Use the rest of the payloads to configure the tasks you want to perform.
   For an overview of each payload, see Policy Payload Reference.
7. Click the **Scope** tab and configure the scope of the policy.
   For more information, see Scope.
8. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
   For more information, see Items Available to Users in Jamf Self Service for macOS.

   > **Note:** On computers with macOS 10.15 or later, if Jamf Pro is not safelisted in the Privacy Preferences Policy Control payload, users are prompted when policies that access data on a network volume are run through Self Service. By default, Jamf Pro is automatically safelisted in the Privacy Preferences Policy Control payload.

9. (Optional) Click the **User Interaction** tab and enter messages to display to users or allow users to defer the policy.
   For more information, see User Interaction with Policies.
10. Click **Save** .

The policy runs on computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

Running a Policy

There are two ways to run a policy with a pre-defined trigger. You can run a policy using the following methods:

- Wait until the configured trigger event occurs.
- Manually trigger the policy using the jamf binary.

To manually trigger the policy using the jamf binary, execute the following command on managed computers:

```
sudo jamf policy -event <triggerName> -verbose
```

If the policy has a pre-defined trigger, replace `<triggerName>` with the appropriate value. The following is a list of pre-defined triggers:

- **Startup**—`startup`
- **Login**—`login`
- **Logout**—`logout`
- **Network State Change**—`networkStateChange`
- **Enrollment Complete**—`enrollmentComplete`
- **Recurring Check-in**—None (execute `sudo jamf policy -verbose`)

If the policy has a custom trigger, replace `<triggerName>` with the custom trigger name specified in the policy.

Note: A policy with a custom trigger must be run manually using the jamf binary.

Viewing the Plan for a Policy

The plan for a policy includes the following information:

- An indicator light that shows whether the policy is enabled.
- The execution frequency.
- The triggers.
- The scope.
- The site that the policy belongs to.
- A list of actions for the policy .

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
   A list of policies and their plans are displayed.
4. To view the actions for a policy, click **Expand** for the policy.

Viewing the Status of a Policy

For each policy, you can view a pie chart that shows the number of computers for which the policy has completed, failed, and is still remaining.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click **Grid View** at the top of the list.

Viewing and Flushing Logs for a Policy

The logs for a policy include a list of computers that have run the policy and the following information for each computer:

- The date/time that the policy ran on the computer
- The status
- The actions logged

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click the policy you want to view logs for.
5. Click **Logs**.
6. To view the actions logged for a computer, click **Details** for the computer.
   To hide the information when you are done viewing it, click **Hide**.
7. To flush a policy log for a single computer, click **Flush** for the computer.
8. To flush all logs for the policy, click **Flush All** at the bottom of the pane.

Related Information

For related information, see the following sections in this guide:

- Viewing and Flushing Policy Logs for a Computer
  Find out how to view and flush policy logs for a single computer.
- Flushing Logs
  Find out how to flush all policy logs.

Policy Payload Reference

When creating or editing a policy, you use a payload-based interface to configure settings for the policy and add tasks to it. This section provides an overview of each payload.

Payload	Description
General	This payload allows you to do the following: ▪ Enable or disable the policy. (For example, if you need to take the policy out of production temporarily, you may want to disable it.) ▪ Add the policy to a site. For more information, see Sites. ▪ Add the policy to a category. For more information, see Categories. ▪ Choose one or more triggers. ▪ Choose the execution frequency. ▪ Retry the policy if it fails. (This only works with the "Once per computer" execution frequency.) ▪ Make the policy available offline. (This only works with the "Ongoing" execution frequency.) ▪ Specify the drive on which to run the policy. ▪ Specify server-side and client-side limitations for the policy. (For example, you can specify an expiration date/time for the policy, or ensure that the policy does not run on weekends.)
Packages	This payload allows you to perform the following software distribution tasks: ▪ Install packages (For more information, see Installing Packages.) ▪ Cache packages (For more information, see Caching Packages.) ▪ Install cached packages (For more information, see Installing Cached Packages.) **Note:** To install all cached packages, use the Maintenance payload. ▪ Uninstall packages (For more information, see Uninstalling Packages.) This payload also allows you to do the following when installing packages: ▪ Specify the distribution point computers should download the packages from. ▪ Add the packages to the Autorun data of each computer in the scope.
Software Updates	This payload allows you to run Apple's Software Update and choose the software update server that you want computers to install updates from. For complete instructions on creating a policy to run Software Update, see Running Software Update.
Scripts	This payload allows you to run scripts and choose when they run in relation to other tasks in the policy. You can also enter values for script parameters. For complete instructions on running scripts using a policy, see Running Scripts.
Printers	This payload allows you to map and unmap printers. You can also make a printer the default. For complete instructions on administering printers using a policy, see Administering Printers.

Payload	Description
Disk Encryption	This payload allows you to enable FileVault 2 on computers with macOS 10.8 or later by distributing disk encryption configurations. For complete instructions on enabling FileVault 2, see Deploying Disk Encryption Configurations. This payload also allows you to issue a new FileVault 2 recovery key for computers with macOS 10.9 or later. For complete instructions on issuing a new recovery key, see Issuing a New FileVault 2 Recovery Key.
Dock Items	This payload allows you to add and remove Dock items. When you add Dock items, you can also choose to add them to the beginning or end of the Dock. For complete instructions on administering Dock items, see Administering Dock Items .
Local Accounts	This payload allows you to create and delete local accounts, and reset local account passwords. When you create an account, you can do the following: ▪ Specify a location for the home directory. ▪ Configure the account picture. ▪ Allow the user to administer the computer. ▪ Enable the account for FileVault 2 on computers with macOS 10.9 or later. This payload also allows you to disable an existing local account for FileVault 2 on computers with macOS 10.9 or later. For complete instructions on administering local accounts, see Administering Local Accounts.
Management Account	This payload allows you to reset the management account password. You can choose to specify the new password or randomly generate it. This payload also allows you to enable or disable the management account for FileVault 2 on computers with macOS 10.9 or later. **Important:** When configuring the management account password settings, it is recommended that you select the "Randomly generate new password" option for maximum security. For complete instructions on administering the management account, see Administering the Management Account.
Directory Bindings	This payload allows you to bind computers to a directory service. For complete instructions on binding to a directory service, see Binding to Directory Services.
EFI Password	This payload allows you to set or remove an Open Firmware or EFI password. For complete instructions on administering Open Firmware and EFI passwords, see Administering Open Firmware/EFI Passwords.

Payload	Description
Restart Options	This payload allows you to restart computers after the policy runs and do the following: ▪ Specify the disk to restart computers from, such as a NetBoot image. ▪ Specify criteria for the restart depending on whether or not a user is logged in. ▪ Configure a restart delay. ▪ Perform an authenticated restart on computers with macOS 10.8.2–10.12.x, or macOS 10.14 or later that are FileVault 2 enabled. **Note:** For this to work on computers with FileVault 2 activated, the enabled FileVault 2 user must log in after the policy runs for the first time and the computer has restarted. ▪ Configure the restart timer to start immediately without requiring the user to acknowledge the restart message. You can also display a message to users before a policy restarts computers. For more information, see User Interaction with Policies. For complete instructions on booting computers to a NetBoot image, see Booting Computers to NetBoot Images.
Maintenance	This payload allows you to perform the following maintenance tasks: ▪ Update inventory. ▪ Reset computer names. ▪ Install all cached packages. ▪ Fix disk permissions (macOS 10.11 or earlier). ▪ Fix ByHost files. ▪ Flush caches. ▪ Verify the startup disk. For complete instructions on installing all cached packages, see Installing Cached Packages.
Files and Processes	This payload allows you to search computers for specific files and processes, and use policy logs to log when they are found. You can kill processes that are found and delete files that are found when searching by path. This payload also allows you to execute commands.
Microsoft Intune Integration	This payload allows you to register computers with Azure Active Directory (Azure AD) using the Company Portal app for macOS from Microsoft. End users need to launch the Company Portal app through Jamf Self Service for macOS to register their devices with Azure AD as a computer managed by Jamf Pro. It is recommended that you notify end users to let them know they will be prompted to take action prior to deployment. The payload also automatically triggers an inventory submission from the computer to Jamf Pro. For complete instructions on using the Microsoft Intune Integration payload, see the Integrating with Microsoft Intune to Enforce Compliance on Macs Managed by Jamf Pro technical paper.

User Interaction with Policies

User Interaction allows you to display custom messages to users about the policies that run on their computers and allow users to defer policies. You can display these messages to users before and after a policy runs and before a policy restarts computers.

When allowing users to defer a policy, you can specify a date and time, or number of days after the user is first prompted by the policy at which to prohibit further deferral (called the “deferral limit”). This allows you to give users more control over when the policy runs while ensuring that the policy eventually runs.

Before a policy runs on a computer, the user is prompted to choose to have the policy run immediately or to defer the policy for one of the following:

- 1 hour
- 2 hours
- 4 hours
- 1 day
- The amount of time until the deferral limit is reached

If the user chooses to defer the policy, they are prompted with the original message after the chosen amount of time. When the deferral limit is reached, a message is displayed to notify the user, and the policy runs immediately.

Note: When a policy fails and is made available in Self Service with an execution frequency of "Once per computer" and is configured to automatically retry, the policy will still display in Self Service so users can retry it. If the user does not re-run the policy using Self Service, the jamf binary will automatically re-run it on the next configured trigger.

Configuring User Interaction for a Policy

1. Log in to Jamf Pro.
2. Create or edit a policy.
   For more information, see Policy Management.
3. Click the **User Interaction** tab.
4. Configure the settings on the pane.

   Note: When configuring User Interaction messages for computers with macOS 10.8 or later, most messages are displayed in Notification Center in a category called “Management”. Otherwise, messages are displayed using the Jamf Helper utility.

5. When you are done configuring the policy, click **Save**.

Volume Store Content Distribution for Computers

Managed Distribution for Computers

You can distribute Mac App Store apps and books purchased in volume to computers and users via managed distribution.

For more information about purchasing apps and books in volume, visit one of the following websites:

- Apple School Manager User Guide
- Apple Business Manager User Guide

Note: As an alternative to managed distribution, Jamf Pro also supports distributing Mac App Store apps and books to computers by associating redeemable VPP codes with apps and books. For more information, see VPP Code Distribution for Computers.

Managed Distribution for Computers

Jamf Pro allows you to distribute Mac App Store apps directly to computers for managed distribution. Because managed distribution for computers is device-based, user registration with volume purchasing is not required and users do not need to provide an Apple ID. Anyone using the computer can access apps distributed to the computer.

With managed distribution for computers, Jamf Pro has full control of your Mac App Store apps. Jamf Pro can be used to automatically update apps in Jamf Pro and on computers on a schedule, and app updates can be forced at any time. Apps distributed directly to computers do not appear in the user's own Mac App Store purchase history and cannot be updated by users.

Managed distribution for computers requires computers with macOS 10.11 or later. To distribute Mac App Store apps to computers using managed distribution, you need a location set up in Jamf Pro. For more information, see Integrating with Volume Purchasing.

To distribute a Mac App Store app directly to a computer, when configuring the app distribution settings, choose the location that purchased the app for managed distribution. For more information, see Mac App Store Apps.

Note: If you have apps that were distributed with user-based assignments and the apps are device-assignable, you can move to device-based managed distribution for the apps. For more information, see the Moving from User- to Device-based Volume Purchasing Assignments Knowledge Base article.

Managed Distribution for Users

Jamf Pro also allows you to distribute Mac App Store apps and books to users for managed distribution. Because managed distribution for users is user-based, it involves user registration and user assignments. For more information, see Volume Purchasing User Registration and User-Based Volume Assignments.

Managed distribution for users requires computers with macOS 10.9 or later.

Related Information

For related information, see the following Jamf Knowledge Base video:

Deploying a Device-Based Volume Purchase Program (VPP) macOS Application with Jamf Pro

For related information, see the following sections in this guide:

- Simple Volume Purchasing Content Searches for Computers
  Find out how to search the content purchased in volume in Jamf Pro.
- Managed Distribution for Mobile Devices
  Learn about assigning content to mobile devices with managed distribution.

VPP Code Distribution for Computers

Jamf Pro allows you to distribute Mac App Store apps and books purchased in volume to computers by distributing redeemable VPP codes. When you distribute Mac App Store apps and books, and associate VPP codes with the app or book, you can track VPP code redemption.

To distribute an app or book to computers using VPP codes, you need an Excel spreadsheet (.xls) that contains VPP codes for the app or book.

For more information on purchasing apps and books in volume, visit one of the following websites:

- Apple School Manager User Guide
- Apple Business Manager User Guide

Note: As an alternative to VPP code distribution, Jamf Pro also supports device-based managed distribution for computers and user-based managed distribution for users. For more information, see Managed Distribution for Computers and User-Based Volume Assignments.

For information on distributing Mac App Store apps to computers using redeemable VPP codes, see Mac App Store Apps.

For information on distributing books to computers using redeemable VPP codes, see Books Available in the iBooks Store.

Simple Volume Purchasing Content Searches for Computers

A simple volume purchasing content search functions like a search engine, allowing you to quickly search the Mac App Store apps and books in Jamf Pro for a general range of results.

Volume purchasing content searches are based on the name of the app or book you are searching for and display the following information:

- Name of the app or book
- Volume purchasing location used to purchase the content
- Type of content
- Total content that has been purchased with the volume purchasing location
- Number of apps or books assigned to computers, mobile devices, or users
- Number of volume assignments that the content is associated with

Search Syntax

This section explains the syntax to use for search functions. In general, searches are not case-sensitive.

Note: The default search preference is "Exact Match". For most items, the option can be changed to either "Starts with" or "Contains". For more information about configuring account preferences, see Jamf Pro User Accounts and Groups.

The following table explains the syntax you can use for search functions:

Search Function	Usage	Example
Return all Results	Use an asterisk (*) without any other characters or terms, or perform a blank search.	Perform a search for "*" or leave the search field empty to return all results.
Perform Wildcard Searches	Use an asterisk after a search term to return all results with attributes that begin with that term.	Perform a search for "key*" to return all results with names that begin with "key".
	Use an asterisk before a search term to return all results with attributes that end with that term.	Perform a search for "*note" to return all results with names that end with "note".
	Use an asterisk before and after a search term to return all results that include that term.	Perform a search for "*ABC*" to return all results that includes "ABC".

Search Function	Usage	Example
Include Multiple Search Terms	Use multiple search terms separated by a comma (,) to return all results that include those search terms.	Perform a search for “key*, *note” to return all results that begins with “key” and ends with “note”.
Exclude a Search Term	Use a hyphen (-) before a search term to exclude results that include the term.	Perform a search for “ABC*, -*note” to return all results with names that begin with “ABC” except for those that end with “note”.

Performing a Simple Volume Purchasing Content Search

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Search Volume Content**.
4. Enter one or more search terms in the field provided.
5. Press the Enter key.
   The list of search results is displayed.

Viewing the Computers that Content is Assigned To

You can view the computers that content is assigned to.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Search Volume Content**.
4. Enter one or more search terms in the field provided.
5. Press the Enter key.
   A list of content is displayed.
6. To view the computers that the content is associated with, click the number displayed in the In Use column.
   The computers that have the content assigned to them are listed on the Computers pane.

Viewing the Volume Assignments that Content is Associated With

You can view the volume assignments that content is associated with.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Search Volume Content**.

4. Enter one or more search terms in the field provided.
5. Press the Enter key.
   A list of content is displayed.
6. To view the Volume assignments that the content is assigned to, click the number displayed in the Volume Assignments column.

Related Information

For related information, see the following sections in this guide:

- Advanced Volume Purchasing Content Searches for Computers
  Find out how to create and save an advanced volume purchasing content search.
- Volume Purchasing Content Reports for Computers
  Find out how to export the data in your search results to different file formats.
- Mac App Store Apps
  Find out how to assign apps to computers for managed distribution.
- User-Based Volume Assignments
  Find out how to assign content to users for managed distribution.

Advanced Volume Purchasing Content Searches for Computers

Advanced volume purchasing content searches allow you to use detailed search criteria to search Mac App Store apps and books in Jamf Pro. These types of searches give you more control over your search by allowing you to do the following:

- Generate specific search results.
- Specify which attribute fields to display in the search results.
- Save the search.

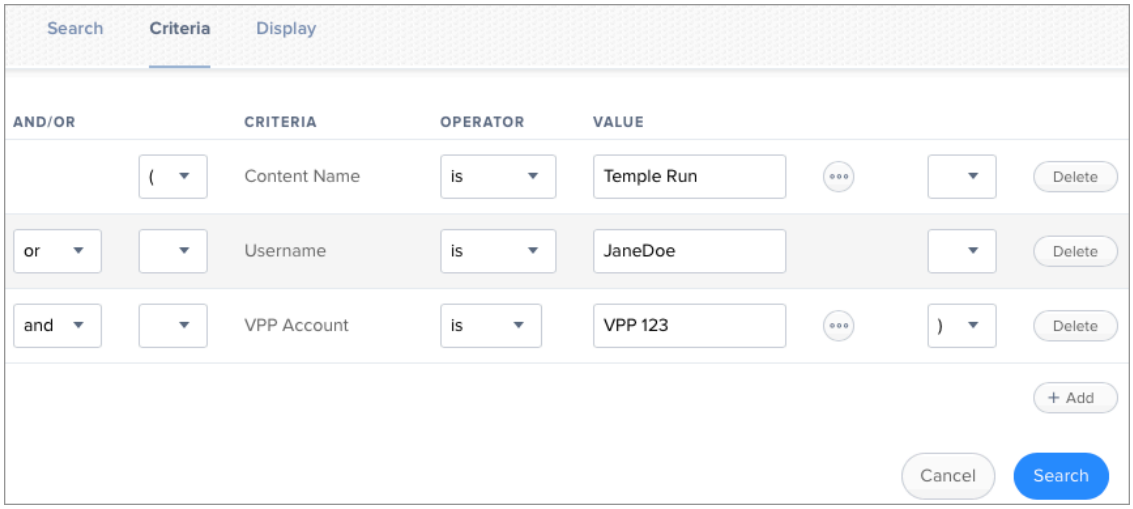
Creating an Advanced Volume Purchasing Content Search

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Search Volume Content**.
4. Click **New** 

.
5. Use the Search pane to configure basic settings for the search.
   To save the search, select the **Save this Search** checkbox.
6. Click the Criteria tab and add criteria for the search:
   a. Click **Add**

.
   b. Click **Choose** for the criteria you want to add.
   c. Choose an operator from the **Operator** pop-up menu.
   d. Enter a value in the **Value** field or browse for a value by clicking **Browse** 
.
   e. Repeat steps a through d to add criteria as needed.
7. Choose an operator from the **And/Or** pop-up menus to specify the relationships between criteria.

8. To group criteria and join multiple operations, choose parentheses from the pop-up menus around the criteria you want to group.



9. Click the **Display** tab and select the attribute fields you want to display in your search results.
10. Click **Save**.

Operations in the search take place in the order they are listed (top to bottom).

The results of a saved search are updated each time content is modified and meets or fails to meet the specified search criteria.

To view the search results, click **View**.

Viewing Advanced Volume Purchasing Content Search Results

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Search Volume Content**.
4. Click the advanced volume content search you want to view the results for.
5. Click **View**.

The list of search results is displayed.

Related Information

For related information, see the following sections in this guide:

- Simple Volume Purchasing Content Searches for Computers
  Learn how to quickly search volume purchasing content for a general range of results.
- Volume Purchasing Content Reports for Computers
  Find out how to export the data in your search results to different file formats.

Volume Purchasing Content Reports for Computers

The data displayed in volume purchasing content search results can be exported from Jamf Pro to the following file formats:

- Comma-separated values file (.csv)
- Tab delimited text file (.txt)
- XML file

Creating Volume Purchasing Content Reports

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Search Volume Content**.
4. View simple or advanced volume purchasing content search results.
   For more information, see Simple Volume Purchasing Content Searches for Computers or Advanced Volume Purchasing Content Searches for Computers.
5. At the bottom of the list, click **Export**.
6. Follow the onscreen instructions to export the data.

   The report downloads immediately.

Software Distribution

Mac App Store Apps

Jamf Pro allows you to distribute Mac App Store apps to computers and users. You can also use Jamf Pro to update Mac App Store apps that have been installed by Jamf Pro.

Jamf Pro provides two Mac App Store app distribution methods: make the app available in Self Service, or install the app automatically/prompt users to install the app. When you distribute a Mac App Store app, you add it to Jamf Pro and configure settings for the app, including the distribution method. Then, you specify the users and computers that should receive it (called "scope").

Note: Removing targets from the scope of the app revokes the app license (if applicable) but does not remove the app from the computer. To completely remove the app, the app must be manually dragged to the Trash on the target computer.

Mac App Store apps purchased in volume can be distributed to computers or users with managed distribution. For more information, see Managed Distribution for Computers and User-Based Volume Assignments.

As an alternative to managed distribution, Jamf Pro also supports distributing Mac App Store apps to computers using redeemable VPP codes. For more information, see VPP Code Distribution for Computers.

Mac App Store apps distributed with user-based assignments or with VPP codes are not managed by Jamf Pro. Users can update apps using the Mac App Store or uninstall the apps from their computers.

Requirements

To allow users to install Mac App Store apps from Self Service via MDM, or to allow Mac App Store apps to be installed automatically you need:

- A push certificate in Jamf Pro (For information, see Push Certificates.)
- The **Enable certificate-based authentication** and **Enable push notifications** settings configured in Jamf Pro (For information, see Security Settings.)
- Computers that are bound to a directory service or local user accounts that have been MDM-enabled (For information, see Binding to Directory Services and the Enabling MDM for Local User Accounts Knowledge Base article.)

  Note: On computers with macOS 10.10 or later and Jamf Pro v9.64 or later, the local user account is automatically MDM-enabled the first time a Mac App Store app is installed automatically or via Self Service, or a user-level configuration profile is installed via Self Service. With PreStage enrollment, the first local user account that is created is made MDM-enabled.

On computers with macOS 10.9 or earlier and Jamf Pro v9.4–v9.64, the user is prompted with a "Local Administrator credentials required" message the first time a Mac App Store app is installed automatically or via Self Service, or a user-level configuration profile is installed via Self Service. The user can click **OK** or **Cancel** when prompted.

- Apps assigned to computers or users via managed distribution
  - For device-based assignments, you need:
    - Computers with macOS 10.11 or later
  - For user-based assignments, you need:
    - Computers with macOS 10.9 or later

      Note: If a computer does not have macOS 10.9 or later and the "Install Automatically/Prompt Users to Install" distribution method is selected, the app will instead be made available in Self Service.

    - Users registered with volume purchasing and the apps assigned to them using volume assignments
      (For information, see Volume Purchasing User Registration and User-Based Volume Assignments.)
    - Users must be logged in to Mac App Store with the Apple ID used during volume purchasing registration

      Note: If the scope for a Mac App Store app is configured to include a computer and the user is not assigned to that computer in Jamf Pro, the app will instead be made available in Self Service.

To allow users to install apps from the Mac App Store (linked from Self Service), you need:

- Computers with macOS 10.7 or later
- Computers that are bound to a directory service or local user accounts that have been MDM-enabled (For information, see Binding to Directory Services and the Enabling MDM for Local User Accounts Knowledge Base article.)
- Users may be prompted to enter an Apple ID

Distributing a Mac App Store App

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Mac App Store Apps**.
4. Click **New** 

.
5. Do one of the following:
   - To add the app by browsing the App Store, enter the name of the app, choose an App Store country, and then click **Next**. Then click **Add** for the app you want to add.

- To add the app by uploading a VPP code spreadsheet, click **Choose File** and upload the Excel spreadsheet (.xls) that contains VPP codes for the app.
- To add the app by manually entering information about it, click **Enter Manually**.

6. Use the General pane to configure settings for the app, including the distribution method. For apps distributed using managed distribution, you can also enable automatic app updates.
7. Click the **Scope** tab and configure the scope of the app.
   For more information, see Scope.
8. (Optional) Click the **Self Service** tab and configure the way the app is displayed in Self Service. You can customize the text displayed in the description for the app in Self Service by using Markdown in the Description field.
   For information about Markdown, see the Using Markdown to Format Text Knowledge Base article.

   Note: The **Self Service** tab is only displayed if "Make Available in Self Service" is chosen in the **Distribution Method** pop-up menu.

9. (Optional) If you want to distribute the app directly to computers via managed distribution, do the following:
   a. Click the **Managed Distribution** tab, and then click the **Device Assignments** tab.
   b. Select the **Assign Volume Content** checkbox.
   c. Choose the location that has purchased the app to distribute to computers.
10. (Optional) If you want to associate VPP codes with the app and have not already uploaded a VPP code spreadsheet, do the following:
    a. Click the **Managed Distribution** tab, and then click the **VPP Codes** tab.
    b. Upload the Excel spreadsheet (.xls) that contains VPP codes for the app.
11. Click **Save**.

If users were added as targets to the scope, the app is distributed to the computers those users are assigned to the next time the computers check in with Jamf Pro.

Updating a Mac App Store App

Jamf Pro allows you to update an individual Mac App Store app in the following ways:

- **Schedule automatic Mac App Store app updates**—This automatically updates the app description, icon, and version in Jamf Pro and on computers. This update happens once a day depending on the time of day you specify.
- **Automatically force Mac App Store apps to update**—You can automatically force a Mac App Store app to update on computers. This update happens automatically every time computers check in with Jamf Pro.
- **Manually force a Mac App Store app to update**—You can manually force an app to update immediately on computers if there are updates available in Jamf Pro. This applies only to apps distributed using managed distribution for computers.

- **Distribute a Mac App Store app update**—You can distribute an update for a Mac App Store app by manually updating the version number and URL for the app in Jamf Pro. The update is distributed to computers the next time they contact Jamf Pro.

> **Note:** Jamf Pro also allows you to enable automatic updates for all Mac App Store apps, or force all Mac App Store apps to update immediately. For more information, see Mac App Store App Update Settings.

Scheduling Automatic App Updates

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Mac App Store Apps**.
4. Click the app for which you want to enable automatic app updates.
5. Click **Edit**.
6. Select **Schedule Jamf Pro to automatically check the App Store for app updates**.
7. Choose a country or region to use when syncing apps with the App Store from the **App Store Country or Region** pop-up menu.
8. Set the time of day to sync apps with the App Store with the **App Store Sync Time** pop-up menus.
9. Click **Save**.

The app is updated in Jamf Pro and on computers in the scope based on the time you configure the app to sync with the Mac App Store.

Automatically Forcing an App Update

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Mac App Store Apps**.
4. Click the app you want to update.
5. Click **Edit**.
6. Click **Force Update**.
7. Click **Save**.

The app is updated immediately on computers in the scope each time computers check in with Jamf Pro.

Manually Forcing an App Update

1. Log in to Jamf Pro.

2. Click **Computers** at the top of the page.
3. Click **Mac App Store Apps**.
4. Click the app you want to update.
5. Click **Edit** .
6. Click **Force Update**.
7. Click **Save** .

The app is updated immediately on computers in the scope if there is an update available in Jamf Pro.

Distributing an App Update

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Mac App Store Apps**.
4. Click the app you want to update.
5. Click **Edit** .
6. Enter the new version number and URL.
   Important: Do not change the bundle identifier. Jamf Pro uses the existing bundle identifier to distribute the update.
7. Click **Save** .

The update is distributed the next time computers in the scope contact Jamf Pro.

Further Considerations

Apps are enabled by default when added to Jamf Pro. This means you can edit the app details and assign licenses, and the app will be installed on computers or displayed in Self Service based on the selected distribution method. You can disable an app by deselecting the **Enable** checkbox. This stops the app's subsequent installations and it is not displayed in Self Service. You cannot edit app details if it is disabled.

A Mac App Store app will be automatically disabled in Jamf Pro if it is a managed distribution item that has been removed from the Mac App Store. You will not be able to assign licenses, and the installation commands will not be sent. The app will not be displayed in Self Service. An automatically disabled managed distribution item will not be removed from computers that already have this item installed.

Related Information

For related information, see the following sections in this guide:

- Viewing and Editing Inventory Information for a Computer
  Find out how to view and edit inventory information for a computer.
- Viewing Mac App Store Apps for a Computer
  Find out how to view the Mac App Store apps in the scope of a computer.
- Viewing the History for a Computer
  Find out how to view and cancel pending Mac App Store app installations for a computer.
- Items Available to Users in Jamf Self Service for macOS
  Learn about which items can be made available to users in Self Service for macOS.

Mac App Store App Update Settings

Jamf Pro allows you to configure settings to update all Mac App Store apps in Jamf Pro and on computers that were distributed using managed distribution. You can use the App Updates settings in Jamf Pro to do the following:

- **Schedule automatic app updates**—You can schedule automatic app updates for all Mac App Store apps. This automatically updates app descriptions, icons, and versions in Jamf Pro. This update happens once a day depending on the time of day you specify.
- **Automatically force apps to update**—You can automatically force all Mac App Store apps to update on computers. This update happens automatically every time computers check in with Jamf Pro.
- **Manually force apps to update**—You can manually force all Mac App Store apps to update immediately on computers if there are updates available in Jamf Pro.

Note: Jamf Pro also allows you to enable an automatic app update and force an update for an individual Mac App Store app. For more information, see Mac App Store Apps.

Scheduling Automatic App Updates

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. Click **App Updates** .
5. Click **Edit** .
6. Select **Schedule Jamf Pro to automatically check the App Store for app updates**.
7. Choose a country or region to use when syncing apps with the App Store from the **App Store Country or Region** pop-up menu.
8. Set the time of day to sync apps with the App Store with the **App Store Sync Time** pop-up menus.
9. Click **Save** .

Apps are updated in Jamf Pro based on the time you configure apps to sync with the Mac App Store.

Automatically Forcing App Updates

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.

4. Click **App Updates**  .
5. Click **Edit**  .
6. Click **Automatically Force App Updates**.
7. Click **Save**  .

Mac App Store apps are updated automatically on computers each time the computers check in with Jamf Pro.

Manually Forcing App Updates

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Computer Management**.
4. Click **App Updates**  .
5. Click **Edit**  .
6. Click **Force Updates**.
7. Click **Save**  .

Mac App Store apps are updated immediately on computers if there are updates available in Jamf Pro.

Managing Packages

You can use Jamf Pro and Jamf Admin to manage the packages you plan to deploy to computers in your environment. Managing packages involves adding the package to your distribution point and to Jamf Pro, and configuring settings for the package.

Before you can deploy a package, it must exist on the distribution point you plan to deploy it from and in Jamf Pro. There are three ways to achieve this:

- **Add the package to Jamf Admin**—This method adds the package to the principal distribution point and Jamf Pro. You can then add the package to other distribution points via replication.
- **Upload the package directly to Jamf Pro**—This method is only available if your principal distribution point is the cloud distribution point. It adds the package to the principal distribution point and Jamf Pro. You can then add the package to other distribution points via replication.
- **Manually**—This method is only available if your principal distribution point is a file share distribution point. It involves manually copying the package to the distribution point and then entering information about the package in Jamf Pro.

Note: On computers with macOS 10.15 or later that do not have an MDM profile, you must use an HTTP, HTTPS, or cloud distribution point to install packages.

Each of these methods also involves configuring settings for the package. When you configure settings for a package, you can do the following:

- Add the package to a category. For more information, see Categories.
- Choose a priority for deploying or uninstalling the package.
- Fill user templates with the contents of the home directory in the package's Users folder.
- Fill existing user home directories with the contents of the home directory in the package's Users folder.
- Allow the package to be uninstalled.

  Note: You must index a package before you can uninstall it.

- Specify whether computers must be restarted after installing the package.
- Choose whether the package must be installed on the boot drive after imaging.
- Specify operating system and architecture type requirements for deploying the package.
- Only allow the package to be installed if it is available in Software Update.

You can also index packages. Indexing creates a log of all the files contained within a package. This allows you to uninstall the package and view the contents of the package from Jamf Pro. Packages can only be indexed using Jamf Admin.

In addition, you can validate packages using the checksum. For more information, see Calculating a Checksum.

When you add, edit, or delete a package in Jamf Admin, the saved changes are reflected in Jamf Pro and vice versa.

Requirements

To manage packages, you need a distribution point set up in Jamf Pro. For more information, see About Distribution Points.

To add a package to Jamf Admin, the file must be in one of the following formats:

- Disk Image (.dmg)
- Installer Package (.pkg)
- Metapackage (.mpkg)
- Compressed archive (.zip)
- Application (.app)

To deploy the package using Jamf Pro, it must be in one the following formats:

- DMG
- PKG
- MPKG
  The MPKG format may not always work natively with Jamf Remote or policies. This is because permissions that are embedded in the files within the MPKG may conflict with the privileges used by the distribution point read/write user. It is recommended that you deploy the MPKG file to a test computer first. If the deployment does not install successfully, use Composer to make a DMG package for distribution with Jamf Remote or a policy. Composer will not convert the MPKG to DMG format, but you can use the Snapshot or the Pre-installed method to create a DMG package. Composer can be used to convert DMG and PKG packages.
  For more information, see the Composer User Guide.

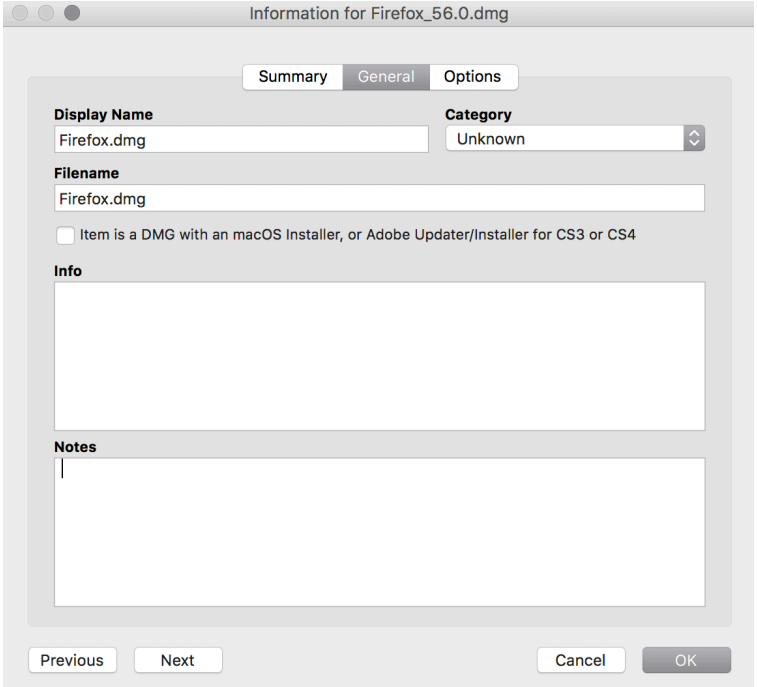
Note: There are special instructions for managing macOS Installers. For more information, see Managing macOS Installers.

Adding a Package to Jamf Admin

Adding a package to Jamf Admin automatically adds the package to the principal distribution point and Jamf Pro.

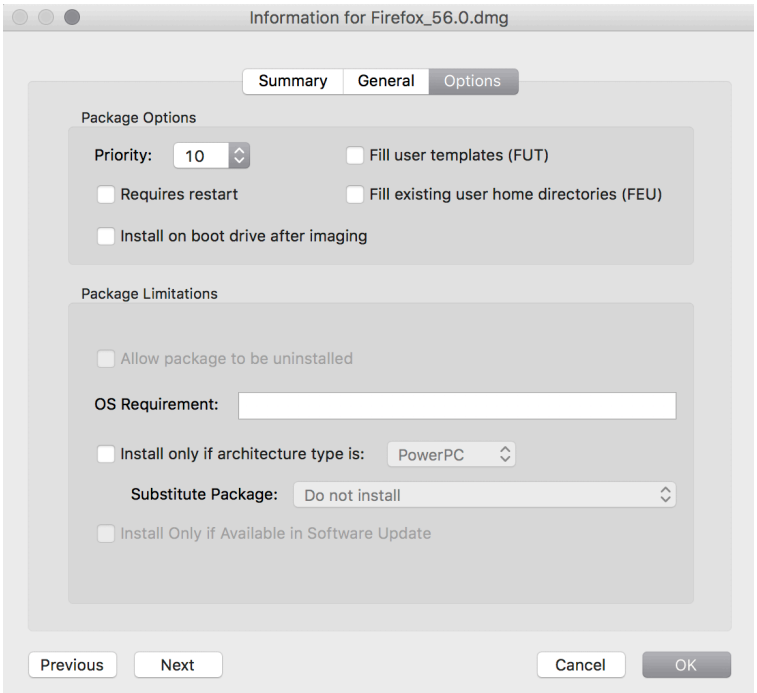
1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. Drag the package to the main repository in Jamf Admin.
   The package is displayed in blue text in the Unknown category until you add it to a category.
3. Double-click the package in the main repository.

4. Click the **General** tab and configure basic settings for the package, including the display name and category.



5. Click the **Options** tab and configure additional settings for the package, including the priority, and operating system and architecture type requirements.

> **Note:** Package Limitations options do not apply when installing a package during imaging.



6. Click **OK**.

Uploading a Package to Jamf Pro

If your principal distribution point is the cloud distribution point, you can upload the package directly to Jamf Pro. This adds the package to the principal distribution point and Jamf Pro.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Computer Management**.
4. In the "Computer Management" section, click **Packages**  .
5. Click **New**  .
6. Use the General pane to configure basic settings for the package, including the display name and category.

   Note: If you do not add the package to a category, Jamf Admin displays the package in blue text in the Unknown category.

7. Click **Upload Package** and upload the package.
8. (Optional) If you are uploading an enrollment package, you can upload a custom manifest file by clicking the **Upload Manifest File** button. You can remove the file by clicking the **Delete Manifest File** button.
9. Click the **Options** tab and configure additional settings for the package, including the priority. Packages with higher priority install first. Package priority defaults to "10". A package with a priority of "1" is deployed or uninstalled before other packages. Multiple packages with the same priority install in alphabetical order based on the package name.
10. (Optional) Click the Limitations tab and configure limitations for the package, including operating system and architecture type requirements.
11. Click **Save**  .

Manually Adding a Package to a Distribution Point and Jamf Pro

If your principal distribution point is a file share distribution point, you can manually copy a package to the distribution point and then enter information about the package in Jamf Pro.

1. Copy the package to the Packages folder at the root of the file share on the distribution point.
2. Log in to Jamf Pro.
3. In the top-right corner of the page, click **Settings**  .
4. Click **Computer Management**.

5. In the "Computer Management" section, click **Packages**  .
6. Click **New**  .
7. Use the General pane to configure basic settings for the package, including the display name, category, and filename.

   Note: If you do not add the package to a category, Jamf Admin displays the package in blue text in the Unknown category.

8. Click the **Options** tab and additional settings for the package, including the priority.
9. (Optional) Click the **Limitations** tab and configure limitations for the package, including operating system and architecture type requirements.
10. Click **Save**  .

Editing or Deleting a Package Using Jamf Admin

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. In the main repository, select the package you want to edit or delete.
3. Do one of the following:
   - To edit the package, double-click it and make changes as needed. Click **OK**. Then click **File** > **Save**.
   - To delete the package, click **Delete**  and then click **Delete** again to confirm.

   The edit or delete action is applied immediately on the principal distribution point. The action is applied to your other distribution points when replication occurs.

Indexing a Package

Indexing a package creates a log of all the files contained within the package. This allows you to uninstall the package and view the contents of the package from Jamf Pro.

Packages can be indexed using Jamf Admin only. The time it takes to index a package depends on the amount of data in the package.

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. In the main repository, select the package you want to index and click **Index** at the bottom of the pane.
3. If prompted, authenticate locally.
4. Save the changes by clicking **File** > **Save**.

   When the indexing process is complete, Jamf Admin defaults back to the main repository.

Viewing the Contents of an Indexed Package

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Computer Management**.
4. In the "Computer Management" section, click **Packages**  .
5. Click the package you want to view the contents of.
6. Click **Contents**.

   A table that contains the package contents is displayed.

Calculating a Checksum

The checksum is calculated when a package is uploaded to Jamf Pro. The checksum ensures authenticity when the package is downloaded.

The checksum can also be calculated manually using Jamf Admin:

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. In the main repository, select the package you want to calculate checksum for.
3. Control-click (or right-click) and select **Calculate Selected Package Checksum(s)**.

Related Information

For related information, see the following sections in this guide:

- Installing Packages
  Find out how to install packages using a policy or Jamf Remote.
- Caching Packages
  Find out how to cache packages using a policy or Jamf Remote.
- Installing Cached Packages
  Find out how to install packages that were cached using Jamf Pro.
- Uninstalling Packages
  Find out how to uninstall packages that were installed using Jamf Pro.

Managing macOS Installers

Adding a macOS Installer to Jamf Admin is the first step to installing a clean copy of macOS on computers.

Requirements

To manage macOS Installers, you need a distribution point set up in Jamf Pro. For more information, see About Distribution Points.

To add a macOS Installer to Jamf Admin, the installer must be a .app file from the Mac App Store or a DMG.

Adding a .app File for macOS to Jamf Admin

Adding a .app file for macOS to Jamf Admin adds it to the principal distribution point and Jamf Pro.

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. Drag the .app file to the main repository in Jamf Admin.
   The macOS installer file is displayed in blue text in the "Unknown" category until you add it to a category.

   Note: For installers with macOS 10.11.3 and earlier, Jamf Admin extracts the InstallESD.dmg file from the .app file, and then analyzes the contents of the InstallESD.dmg file. For installers with macOS 10.11.4 and later, Jamf Admin zips the installer.
3. Double-click the package in the main repository.
4. Click the **General** tab and choose a category for the package.
5. Click **OK**.

Adding a DMG of a macOS Installer to Jamf Admin

Adding a DMG of a macOS Installer to Jamf Admin adds it to the principal distribution point and Jamf Pro.

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. Drag the DMG to the main repository in Jamf Admin.
   The DMG is displayed in blue text in the Unknown category until you add it to a category.
3. Double-click the DMG in the main repository.

4. Click the **General** tab and configure basic settings for the DMG, including the display name and category.
   Be sure to select the **Item is a DMG with an OS X Installer, or Adobe Updater/Installer for CS3 or CS4** checkbox.
5. When prompted, click **OK** to continue.
   Jamf Admin analyzes the contents of the DMG.
6. When the Options pane appears, choose a default language for the installation from the **Language** pop-up menu.
7. Click **OK**.

Related Information

For related information, see the following technical papers:

Deploying macOS 10.7-10.12.6 with Jamf Pro
Get step-by-step instructions for deploying macOS 10.7-10.12.6.

Deploying macOS Upgrades and Updates with Jamf Pro
Get step-by-step instruction for deploying upgrades and updates for macOS 10.13.4 and later.

Installing Packages

When you install a package, you can do the following:

- Fill user templates.
- Fill existing user home directories.
- Add the package to Autorun data.
- Specify a distribution point for computers to download the package from.

There are two ways to install a package on computers: using a policy or using Jamf Remote.

Note: You can also install packages during imaging. For more information, see Configurations.

Requirements

To install a package on computers, the package must exist on the distribution point you plan to deploy it from and in Jamf Pro. For more information, see Managing Packages.

Installing a Package Using a Policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click **New**  .
5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the Packages payload and click **Configure**.
7. Click **Add** for the package you want to install.
8. Choose "Install" from the **Action** pop-up menu.
9. Configure the settings for the package.
   To add the package to each computer's Autorun data, select the **Update Autorun data** checkbox. For more information, see Autorun Imaging.
10. Specify a distribution point for computers to download the package from.
11. Use the Restart Options payload to configure settings for restarting computers.
    For more information, see Restart Options Payload.
12. Click the **Scope** tab and configure the scope of the policy.
    For more information, see Scope.

13. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
    For more information, see Items Available to Users in Jamf Self Service for macOS.

14. (Optional) Click the **User Interaction** tab and configure messaging and deferral options.
    For more information, see User Interaction with Policies.

15. Click **Save**.

    The policy runs on computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

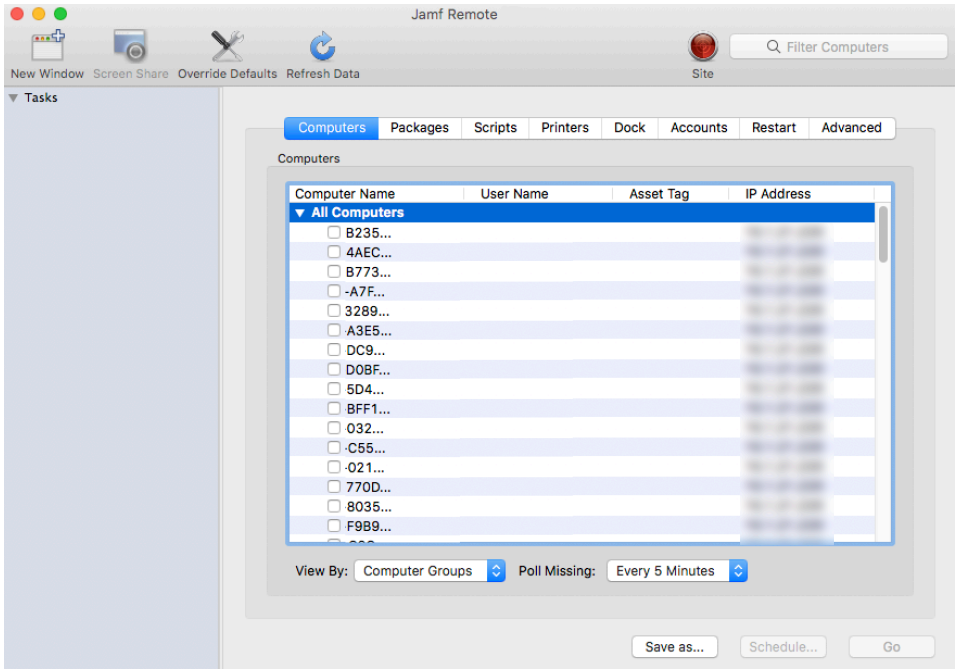
Installing a Package Using Jamf Remote

1. Open Jamf Remote and authenticate to the Jamf Pro server.

2. Click **Site** and choose a site.
   This determines which items are available in Jamf Remote.

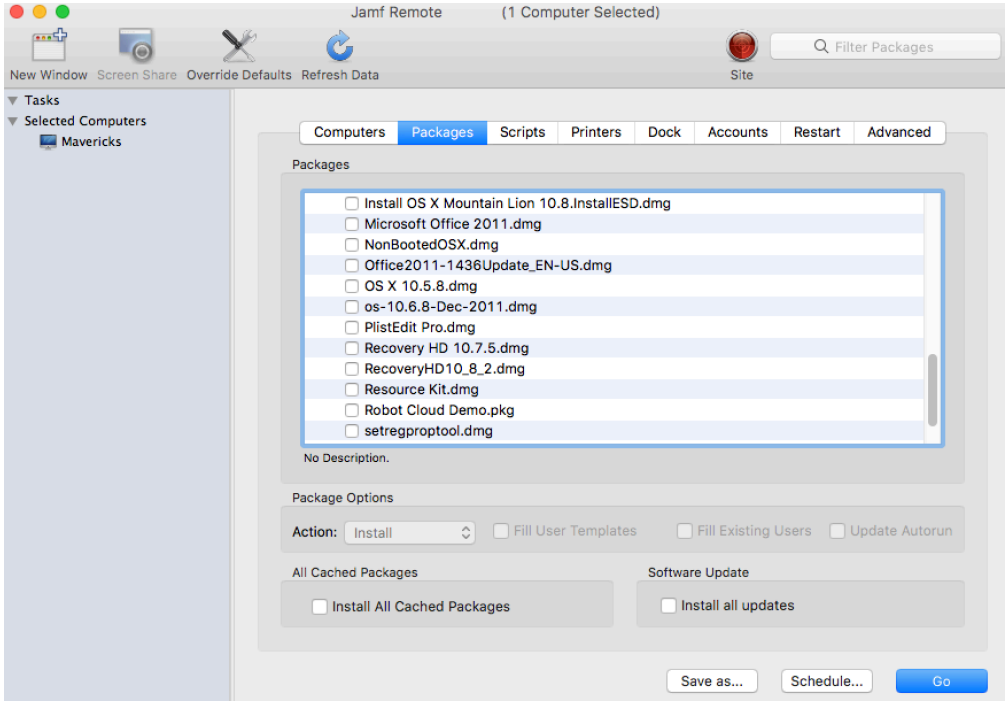
   Note: This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

3. In the list of computers, select the checkbox for each computer on which you want to install the package.

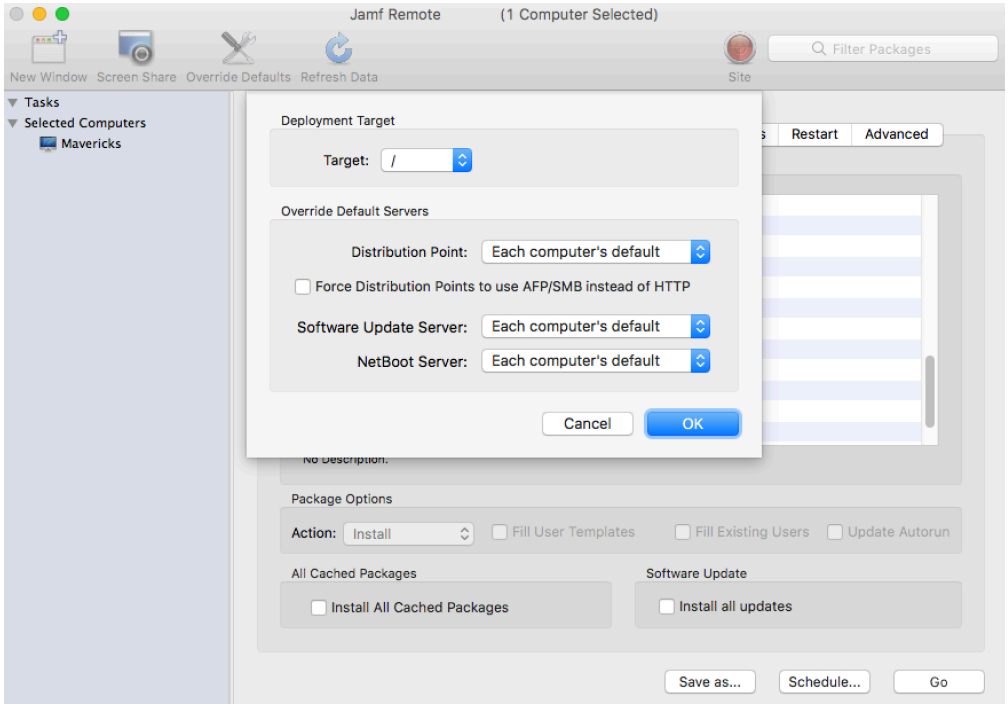


4. Click the **Packages** tab.

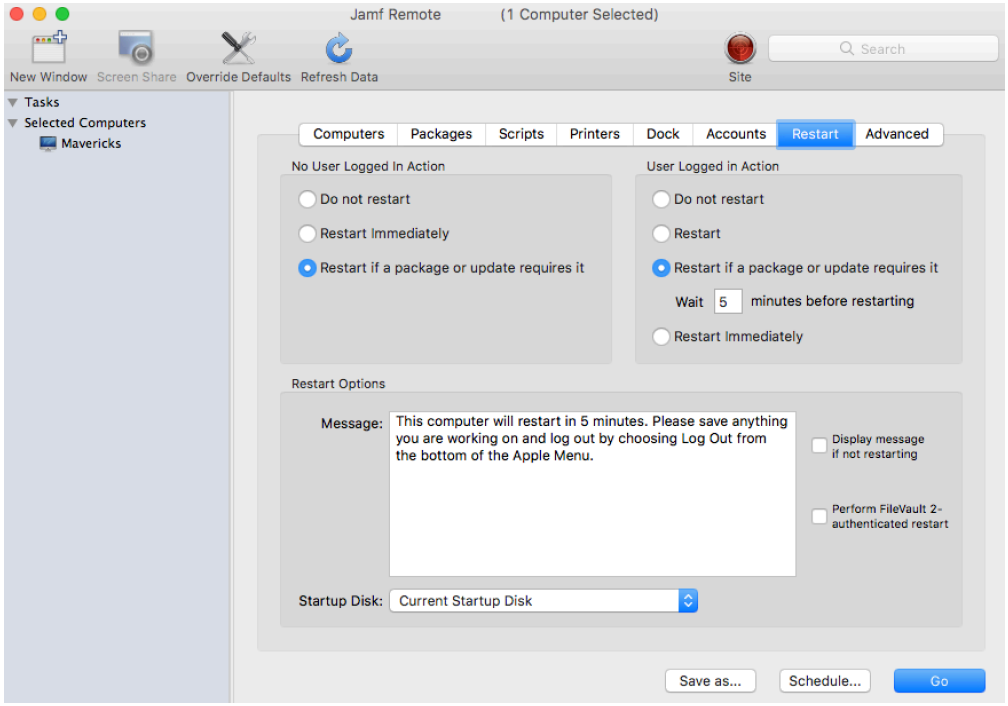
5. In the list of packages, select the checkbox for the package you want to install.



6. Choose "Install" from the **Action** pop-up menu.
7. Configure the settings for the package.
   To add the package to each computer's Autorun data, select the **Update Autorun data** checkbox. For more information, see Autorun Imaging.
8. If you want to change the distribution point that computers download packages from, click **Override Defaults** and choose a distribution point.



9. Click the **Restart** tab and configure settings for restarting computers.



10. Do one of the following:

- To immediately perform the tasks on the specified computers, click **Go** .
- To schedule the tasks to take place at a specific day and time, click **Schedule** and choose a day and time. Then click **Schedule** again.

Related Information

For related information, see the following sections in this guide:

- About Policies
  Learn the basics about policies.
- Policy Management
  Find out how to create policies, view the plan and status for a policy, and view and flush policy logs.
- Computer PreStage Enrollments
  Find out how to install packages on computers during enrollment with Jamf Pro using a PreStage enrollment.

Caching Packages

Caching packages allows you to download them on computers without installing them right away.

When you cache a package, you can specify a distribution point for computers to download the package from.

There are two ways to cache packages on computers: using a policy or using Jamf Remote.

Requirements

To cache a package on computers, the package must exist on the distribution point you plan to deploy it from and in Jamf Pro. For more information, see Managing Packages.

Caching a Package Using a Policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click **New**  .
5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the Packages payload and click **Configure**.
7. Click **Add** for the package you want to cache.
8. Choose "Cache" from the **Action** pop-up menu.
9. Configure the settings for the package.
   To add the package to each computer's Autorun data, select the **Add to Autorun data** checkbox. For more information, see Autorun Imaging.
10. Specify a server for computers to download the package from.
11. Use the Restart Options payload to configure settings for restarting computers.
    For more information, see Restart Options Payload.
12. Click the **Scope** tab and configure the scope of the policy.
    For more information, see Scope.
13. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
    For more information, see Items Available to Users in Jamf Self Service for macOS.
14. (Optional) Click the **User Interaction** tab and configure messaging and deferral options.
    For more information, see User Interaction with Policies.
15. Click **Save**  .

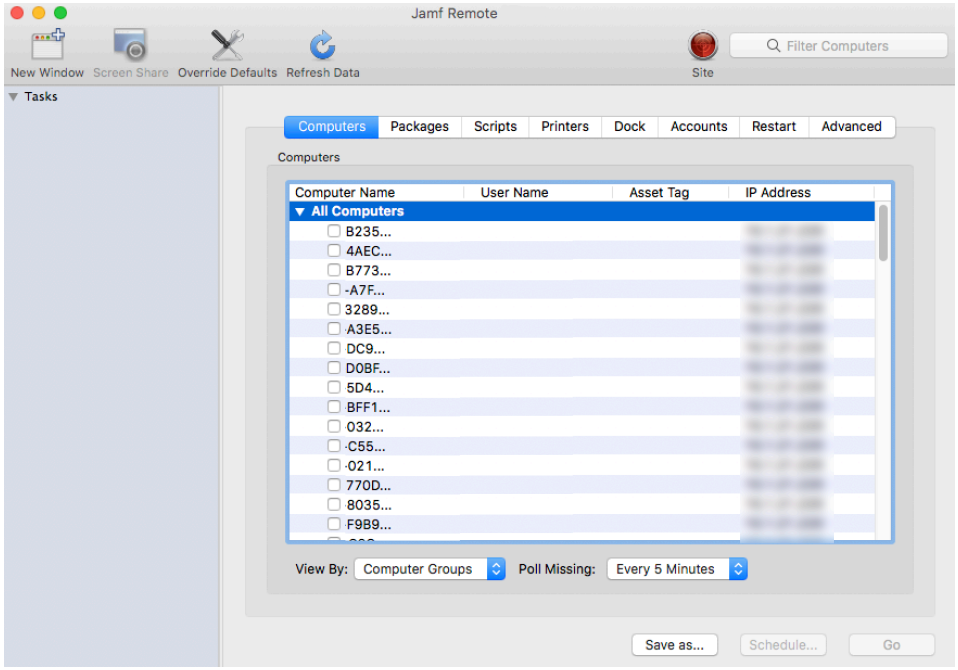
The policy runs on computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

Caching a Package Using Jamf Remote

1. Open Jamf Remote and authenticate to the Jamf Pro server.
2. Click **Site** and choose a site.
   This determines which items are available in Jamf Remote.

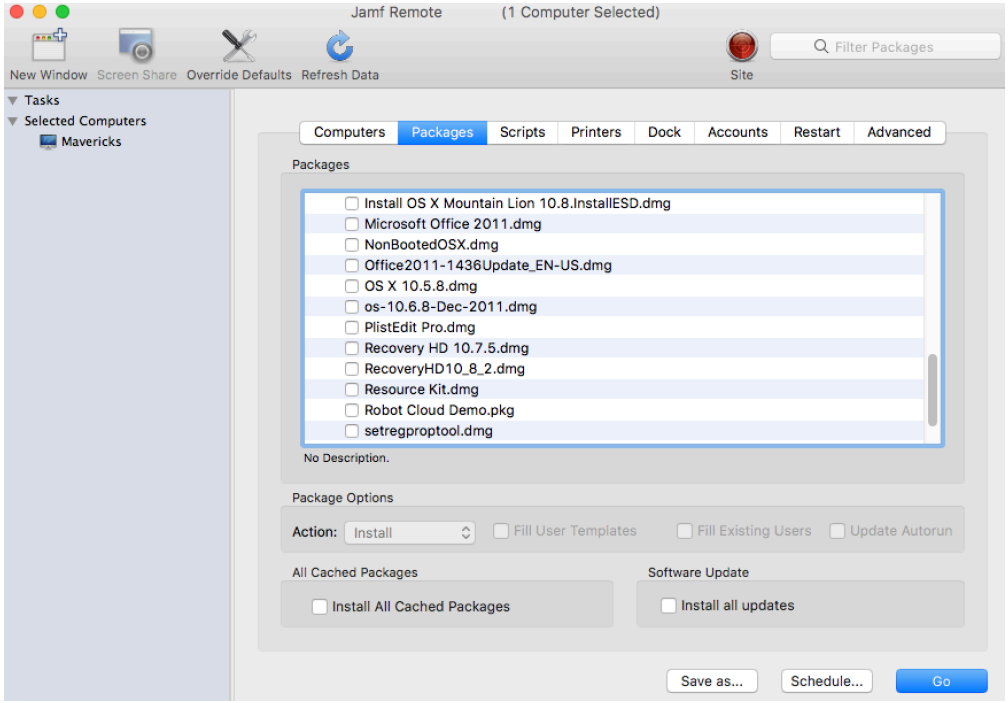
   Note: This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

3. In the list of computers, select the checkbox for each computer on which you want to cache the package.

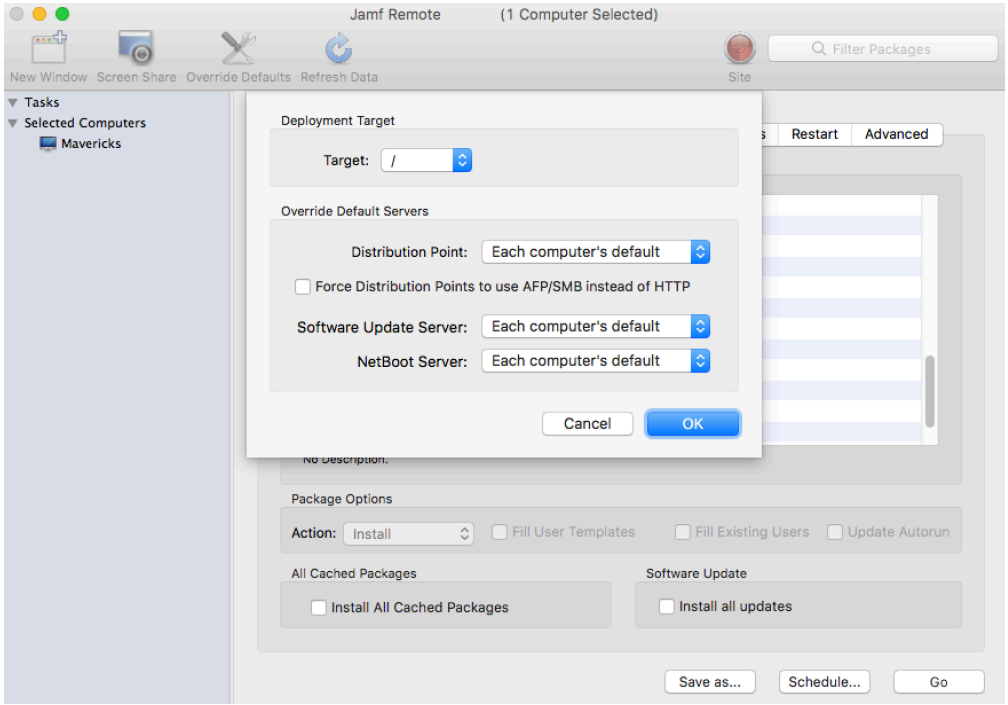


4. Click the **Packages** tab.

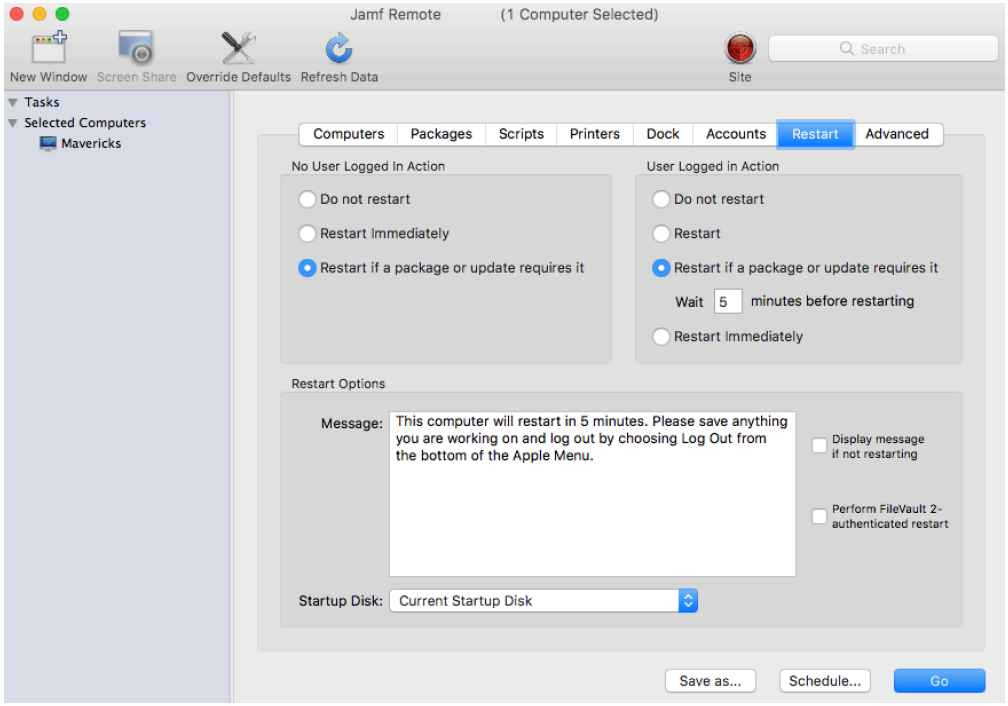
5. In the list of packages, select the checkbox for the package you want to cache.



6. Choose "Cache" from the **Action** pop-up menu.
7. Configure the settings for the package.
   To add the package to each computer's Autorun data, select the **Update Autorun data** checkbox. For more information, see Autorun Imaging.
8. If you want to change the distribution point that computers download packages from, click **Override Defaults** and choose a distribution point.



9. Click the **Restart** tab and configure settings for restarting computers.



10. Do one of the following:
    - To immediately perform the tasks on the specified computers, click **Go** .
    - To schedule the tasks to take place at a specific day and time, click **Schedule** and choose a day and time. Then click **Schedule** again.

Related Information

For related information, see the following sections in this guide:

- Smart Groups
  You can create smart computer groups based on cached packages.
- About Policies
  Learn the basics about policies.
- Policy Management
  Find out how to create policies, view the plan and status for a policy, and view and flush policy logs.
- Installing Cached Packages
  Find out how to install a cached package using a policy or Jamf Remote.

Installing Cached Packages

You can choose to install one or more specific cached packages, or all cached packages.

When you install one or more specific cached packages, you can do the following:

- Fill user templates.
- Fill existing user home directories.
- Add the package to Autorun data.

There are two ways to install packages that were cached using Jamf Pro: using a policy or using Jamf Remote.

Requirements

To install a specific cached package,the package must exist on the distribution point you plan to deploy it from and in Jamf Pro. For more information, see Managing Packages.

Installing a Cached Package Using a Policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click **New** 

.
5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the Packages payload.
7. Click **Configure**.
8. Click **Add** for the cached package you want to install.
9. Choose "Install Cached" from the **Action** pop-up menu.
10. Configure the settings for the package.
    To add the package to each computer's Autorun data, select the **Update Autorun data** checkbox. For more information on Autorun data and Autorun Imaging, see Autorun Imaging.
11. (Optional) Use the Restart Options payload to change the settings for restarting computers.
    For more information, see Restart Options Payload.
12. Click the **Scope** tab and configure the scope of the policy.
    For more information, see Scope.
13. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
    For more information, see Items Available to Users in Jamf Self Service for macOS.

14. (Optional) Click the **User Interaction** tab and configure messaging and deferral options.
For more information, see User Interaction with Policies.

15. Click **Save**.

The policy runs on computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

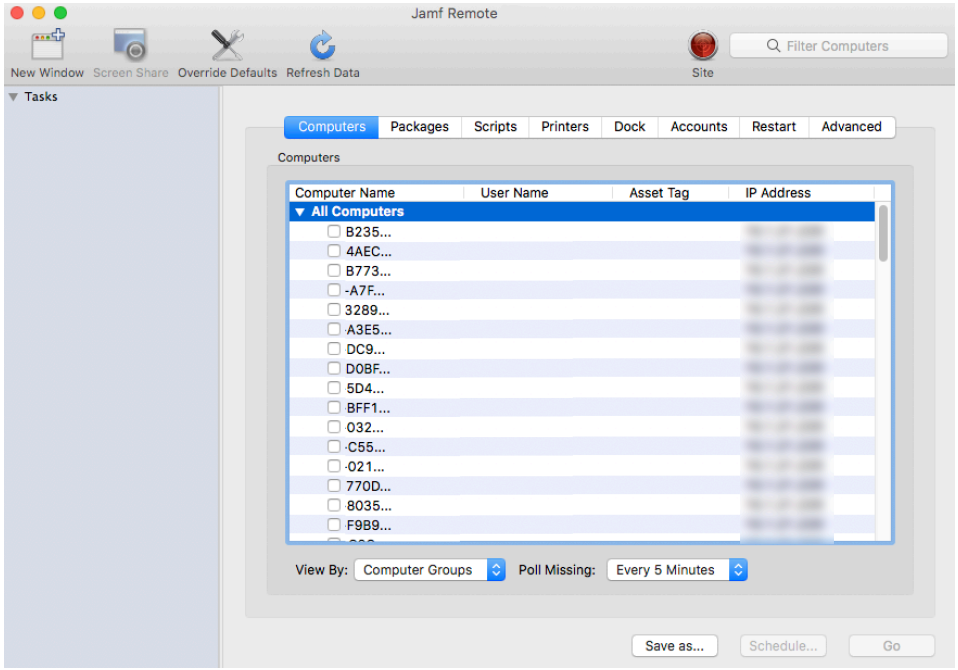
Installing a Cached Package Using Jamf Remote

1. Open Jamf Remote and authenticate to the Jamf Pro Server.

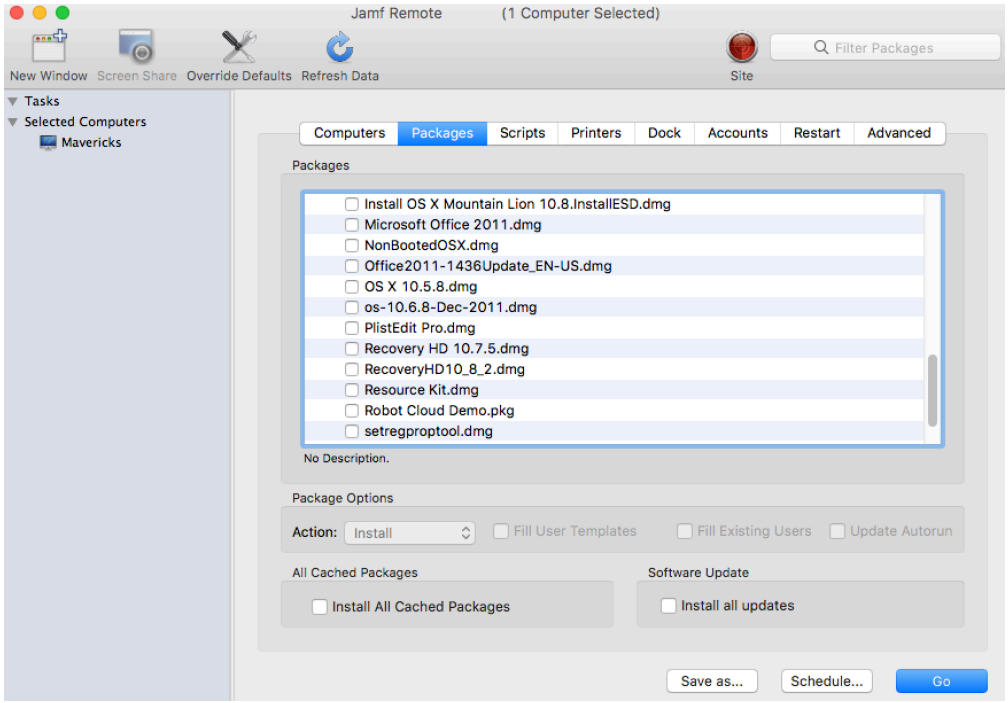
2. Click **Site** and choose a site.
This determines which items are available in Jamf Remote.

> **Note:** This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

3. In the list of computers, select the checkbox for each computer on which you want to install the cached package.

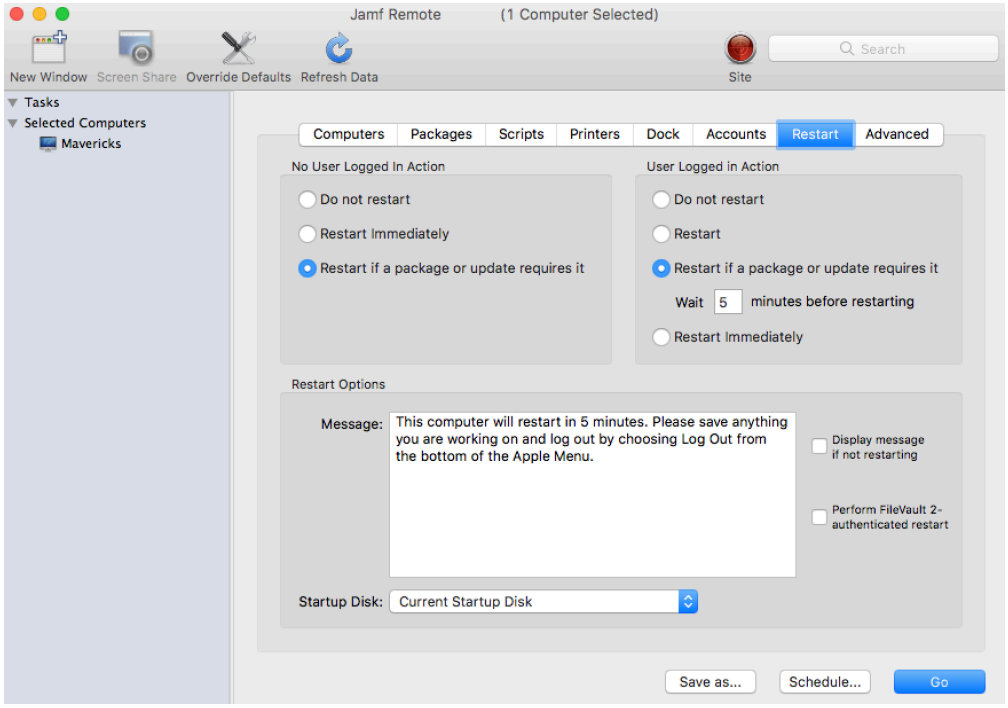


4. Click the **Packages** tab.
5. In the list of packages, select the checkbox for the cached package you want to install.



6. Choose "Install Cached" from the **Action** pop-up menu.
7. Configure the settings for the package.
   To add the package to each computer's Autorun data, select the **Update Autorun data** checkbox. For more information, see Autorun Imaging.

8. Click the **Restart** tab and configure settings for restarting computers.



9. Do one of the following:
   - To immediately perform the tasks on the specified computers, click **Go** .
   - To schedule the tasks to take place at a specific day and time, click **Schedule** and choose a day and time. Then click **Schedule** again.

Installing All Cached Packages Using a Policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click **New** + New .
5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the Maintenance payload and click **Configure**.
7. Select **Install Cached Packages**.
8. Use the Restart Options payload to configure settings for restarting computers.
   For more information, see Restart Options Payload.
9. Click the **Scope** tab and configure the scope of the policy.
   For more information, see Scope.

10. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
    For more information, see Items Available to Users in Jamf Self Service for macOS.

11. (Optional) Click the **User Interaction** tab and configure messaging and deferral options.
    For more information, see User Interaction with Policies.

12. Click **Save**.

    The policy runs on computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

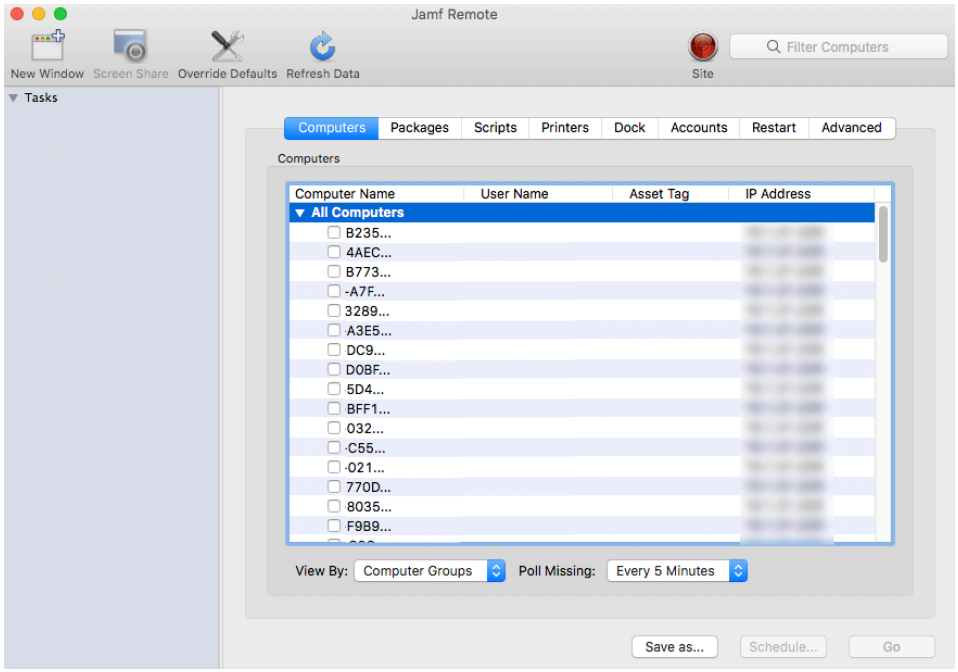
Installing All Cached Packages Using Jamf Remote

1. Open Jamf Remote and authenticate to the Jamf Pro server.

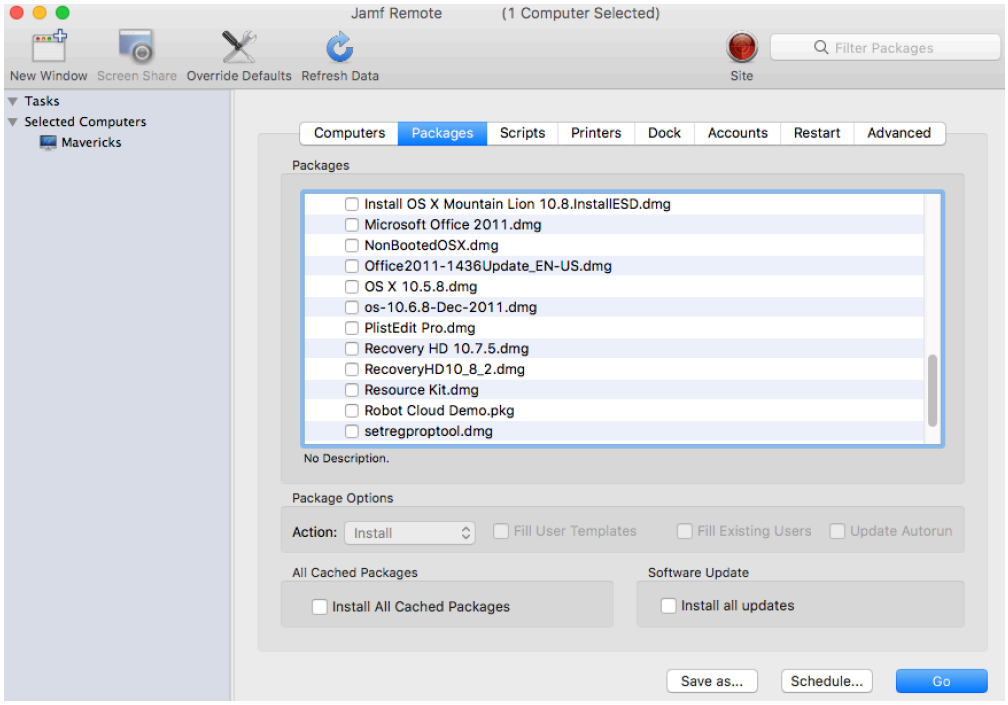
2. Click **Site** and choose a site.
   This determines which items are available in Jamf Remote.

   Note: This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

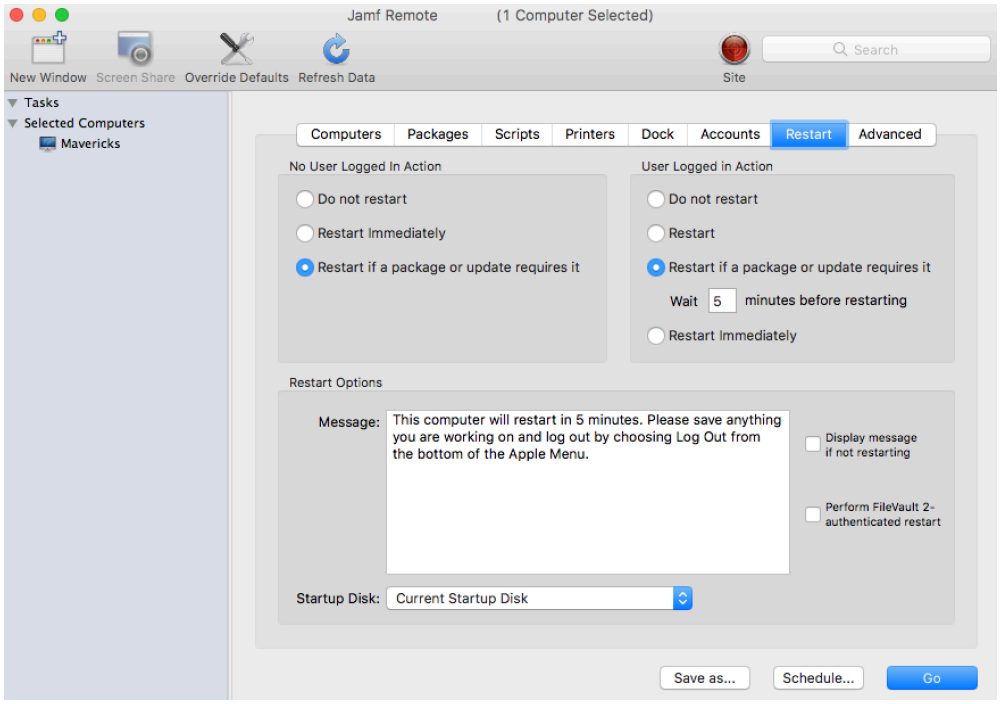
3. In the list of computers, select the checkbox for each computer on which you want to install all cached packages.



4. Click the **Packages** tab.
5. Select the **Install All Cached Packages** checkbox.



6. Click the **Restart** tab and configure settings for restarting computers.



7. Do one of the following:
   - To immediately perform the tasks on the specified computers, click **Go** .
   - To schedule the tasks to take place at a specific day and time, click **Schedule** and choose a day and time. Then click **Schedule** again.

Related Information

For related information, see the following sections in this guide:

- About Policies
  Learn the basics about policies.
- Policy Management
  Find out how to create policies, view the plan and status for a policy, and view and flush policy logs.

Uninstalling Packages

There are two ways to uninstall packages that were installed using Jamf Pro: using a policy or using Jamf Remote.

When you uninstall a package, you can remove the package from Autorun data.

Requirements

To uninstall a package from computers, you need:

- The package indexed in Jamf Admin (For more information, see Managing Packages.)
- The package configured so that it can be uninstalled (For more information, see Managing Packages.)

Note: If the package is an Adobe CS3/CS4 installation, it does not need to be indexed or configured so that it can be uninstalled.

Uninstalling a Package Using a Policy

1. Log in to Jamf Pro.
2. Click the **Computers** tab at the top of the page.
3. Click **Policies**.
4. Click **New** 

.
5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the Packages payload and click **Configure**.
7. Click **Add** for the package you want to uninstall.
8. Choose "Uninstall" from the **Action** pop-up menu.
9. Configure the settings for the package.
   To remove the package from each computer's Autorun data, select the Update Autorun data checkbox. For more information on Autorun data and Autorun Imaging, see Autorun Imaging.
10. Use the Restart Options payload to configure settings for restarting computers.
    For more information, see Restart Options Payload.
11. Click the Scope tab and configure the scope of the policy.
    For more information, see Scope.
12. (Optional) Click the Self Service tab and make the policy available in Self Service.
    For more information, see Items Available to Users in Jamf Self Service for macOS.

13. (Optional) Click the User Interaction tab and configure messaging and deferral options.
For more information, see User Interaction with Policies.

14. Click **Save**.

The policy runs on computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

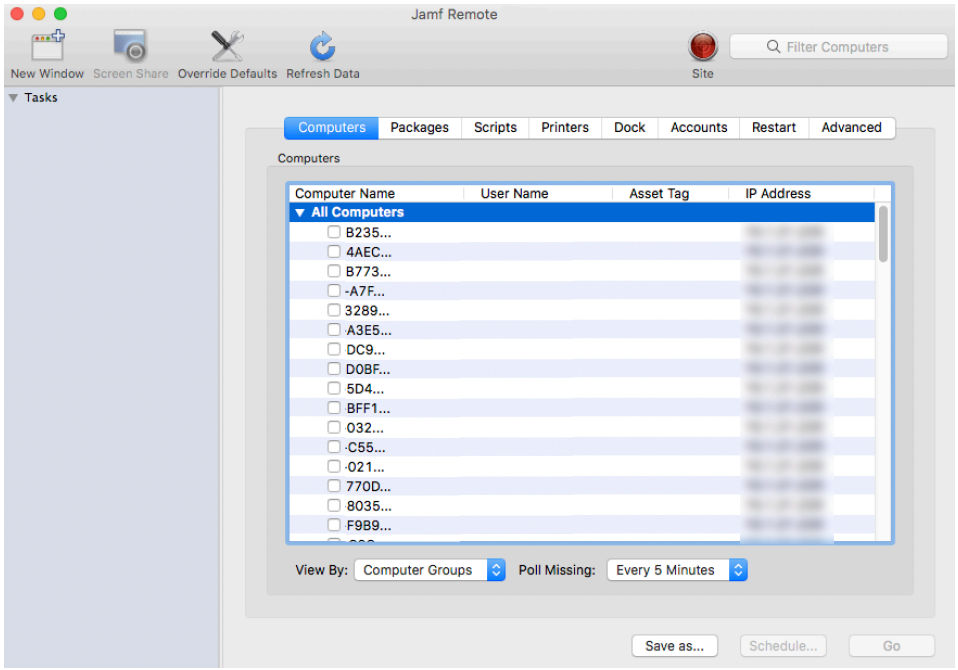
Uninstalling a Package Using Jamf Remote

1. Open Jamf Remote and authenticate to the Jamf Pro server.

2. Click **Site** and choose a site.
This determines which items are available in Jamf Remote.

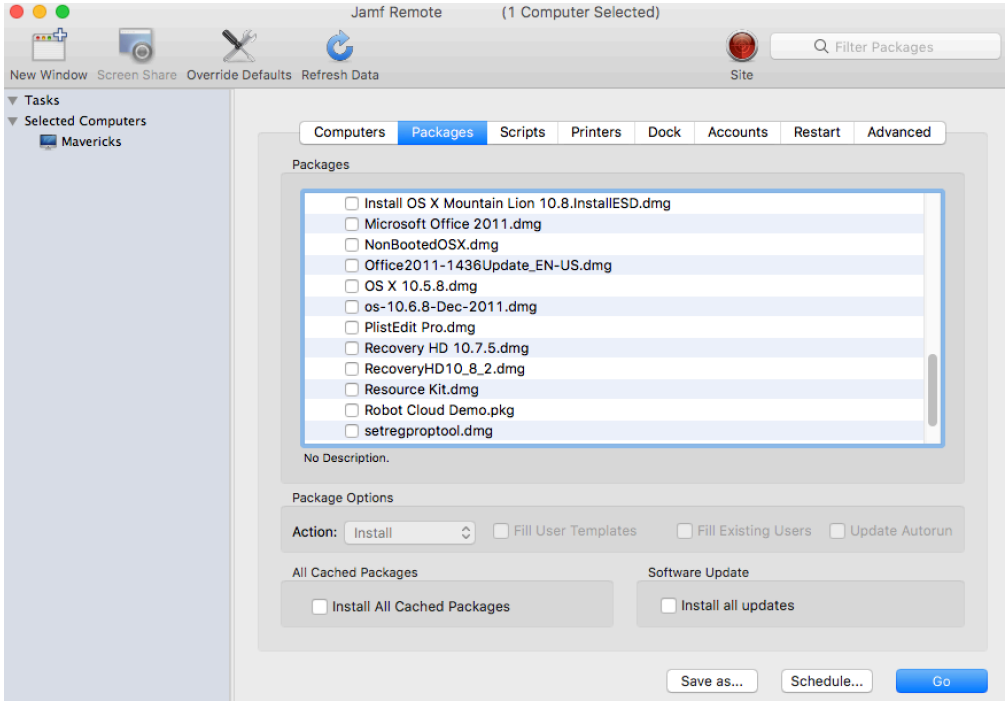
> **Note:** This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

3. In the list of computers, select the checkbox for each computer from which you want to uninstall the package.

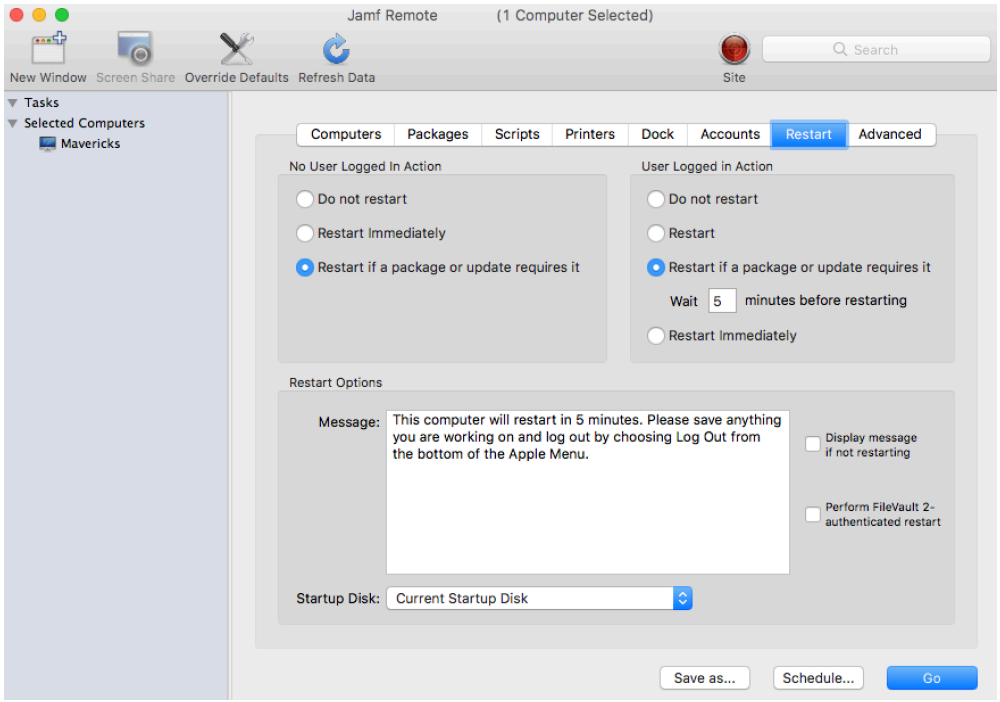


4. Click the **Packages** tab.

5. In the list of packages, select the checkbox for the package you want to uninstall.



6. Choose "Uninstall" from the **Action** pop-up menu.
7. Configure the settings for the package.
8. Click the **Restart** tab and configure settings for restarting computers.



9. Do one of the following:
   - To immediately perform the tasks on the specified computers, click **Go**.
   - To schedule the tasks to take place at a specific day and time, click **Schedule** and choose a day and time. Then click **Schedule** again.

Related Information

For related information, see the following sections in this guide:

- About Policies
  Learn the basics about policies.
- Policy Management
  Find out how to create policies, view the plan and status for a policy, and view and flush policy logs.

Patch Management

About Patch Management

You can manage the software updates in your environment using the built-in functionality in Jamf Pro. Managing software updates allows you to ensure that the software in your environment is up to date on target computers, and allows you to update the software if it is currently out of date.

You can manage both third-party macOS software updates and Apple Updates using the following methods available in Jamf Pro:

- **Patch Management**—You can use the Patch Management workflow and other technologies available with Jamf Pro to manage the third-party macOS software updates in your environment. This method offers the capabilities to view the software currently installed on the computers in your environment, to notify when new software is available, and to distribute the new software to target computers.
- **Software Update**—You can use Jamf Pro for Apple Updates by running Software Update on computers. This method allows you to install all updates available from Apple.

Related Information

For related information, see the following Jamf Knowledge Base video:

Patch Reporting & Patch Policies in Jamf Pro

For related information, see the following sections in this guide:

- Managing Packages
  You can add packages to a category.
- Installing Packages
  Find out how to install a QuickAdd package using a policy or Jamf Remote.
- Patch Sources
  Learn about Patch Sources and how to integrate Jamf Pro with a Patch External Source.
- Patch Management Software Titles
  Learn about the third-party macOS software titles in Jamf Pro that can be used for patch reporting and patch notifications.

- Email Notifications
  Learn how to configure patch notifications of third-party macOS software title updates that have been added to Jamf Pro.
- Patch Reporting
  Learn how to create a patch report for a third-party macOS software title.
- Patch Policies
  Learn how to create a patch policy to automate the distribution of a third-party macOS software update.

For related information, see the following:

- Composer User Guide
  Learn how to use the Composer application to build packages of software, applications, preference files, or documents.
- NetBoot/SUS Appliance
  Find out how to host an internal software update server on Linux.

For related information, see the following technical paper:

Deploying macOS Upgrades and Updates with Jamf Pro
Get step-by-step instruction for deploying upgrades and updates for macOS 10.13.4 and later.

Patch Sources

A Patch Source allows you to view the software currently installed on the computers in your environment, to notify when new software is available, and to distribute the new software to target computers. When software titles are configured and available, they are hosted on a Patch Source. This allows you to distribute the title to the computers in your environment. There are two types of Patch Sources:

- **Patch Internal Source**—The Patch Internal Source is configured for you by Jamf Pro and hosts the software title definitions that are provided by Jamf Pro. For the list of software titles provided by Jamf Pro, see the Patch Management Software Titles Knowledge Base article.
- **Patch External Source**—Jamf Pro provides a framework for integrating with a Patch External Source. You can use a server application in your environment or connect to a source hosted by the community. Integrating with a Patch External Source involves adding the server information (hostname or IP address for the server application) to Jamf Pro. You can add as many Patch External Sources that fit your environment.

You can use both Patch Sources to customize a solution for your specific environment.

Requirements

The server application you use for your Patch External Source must meet the requirements in the Jamf Pro External Patch Source Endpoints Knowledge Base article to enable Jamf Pro to properly generate a list of software titles hosted on the source, check for updates, and download the software title definition.

Adding a Patch External Source to Jamf Pro

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the "Computer Management" section, click **Patch Management** .
5. To add a Patch External Source, click **New**.

6. Configure the settings on the pane.
   Depending on your environment, the following settings may be applicable:
   - **Enabled**—This setting enables Jamf Pro to generate the list of software titles hosted on the Patch Source and allows the title to be automatically updated.
   - **Use SSL**—This setting must be enabled if your environment is configured with a TLS certificate and is sending traffic over HTTPS from your Patch External Source.
   - **Validate Software Title Definitions**—This setting ensures that software titles are signed by a publicly trusted certificate before they are downloaded from the server.

     Note: If this setting is enabled and a software title is not signed, Jamf Pro does not download the title.
7. Click **Save**.

   After the Patch External Source is added to Jamf Pro, Jamf Pro can download and display the software titles available on the source.

Testing a Patch External Source Connection

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**.
3. Click **Computer Management**.
4. In the "Computer Management" section, click **Patch Management**.
5. Click the Patch External Source you want to test the connection for, and then click **Test**.
6. Click **Test** again.

   Jamf Pro communicates with the server hosting the External Patch Server to return status information about the server and validate the connection to the server endpoints.

Related Information

For related information, see the following sections in this guide:

- Patch Management Software Titles
  Learn about the third-party macOS software titles in Jamf Pro that can be used for patch reporting and patch notifications.
- Email Notifications
  Learn how to configure patch notifications of third-party macOS software title updates that have been added to Jamf Pro.
- Patch Reporting
  Learn how to create a patch report for a third-party macOS software title.
- Patch Policies
  Learn how to create a patch policy to automate the distribution of a third-party macOS software update.

Patch Management Software Titles

Jamf Pro includes many third-party macOS software titles that can be used for patch reporting, patch notifications, and patch policies. These third-party software titles represent software that is not available in the App Store. In addition, Jamf Pro includes the macOS title. For the list of software titles provided in Jamf Pro, see the Patch Management Software Titles Knowledge Base article.

When you configure a patch management software title, you are able to receive a notification when an update has been released by the vendor and added to Jamf Pro. In addition, you can generate reports for the software titles in your environment which allows you to identify the titles that need to be patched.

Different software titles have different requirements for updating them. For example, some software titles must have additional apps installed for the title to be updated. Because these requirements are in Jamf Pro, you save time by not having to track down the required information.

Requirements

- To configure patch management software titles and enable them to automatically update, the Jamf Pro server must have outbound access to port 443 to access the patch server and the software title definitions which are hosted on Amazon CloudFront.
- To initially configure a software title that requires an extension attribute, you must use a Jamf Pro user account that has full access. A Jamf Pro user account with site access only will not be able to configure a software title that requires an extension attribute.

Configuring a Patch Management Software Title

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Patch Management**.
4. Click **New** 

.
5. Choose a software title.

   Note: You cannot configure a patch management software title if it uses an extension attribute that has the same name as an existing extension attribute. You must first rename the existing extension attribute so that you can save the new one.

6. Use the Software Title Settings tab to configure basic settings for the software title, including whether to receive a Jamf Pro notification or email when an updated software title is available.

   Note: This setting is then applied for this specific software title for all Jamf Pro users who configure their personal notification preferences. For more information, see Email Notifications.

7. If you are configuring a software title that uses an extension attribute, you must click the **Extension Attributes** tab and accept the terms.
8. (Optional) Click the **Definition** tab to review information about the supported software title versions and attributes about each version.
9. Click **Save**.

After a software title is configured, you can add packages to the title. Adding a package is a requirement for creating a patch policy.

Adding a Package to a Patch Management Software Title

To create a patch policy, you need a patch management software title version associated with a package.

> **Note:** The patch policy does not verify the package contents before distribution; ensure that the package contains the intended version of the software update. For more information, see Patch Policies.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Patch Management**.
4. Click the software title you want to add a package to.
5. Click **Edit**.
6. Click the **Definition** tab.
7. Click **Add** + Add next to the version you want to add a package to.
8. Click +.
9. Click **Save**.

Related Information

For related information, see the following sections in this guide:

- About Patch Management
  Learn about patch management for Apple Updates and for third-party updates.
- Patch Sources
  Learn about Patch Sources and how to integrate Jamf Pro with a Patch External Source.
- Patch Reporting
  Learn how to create a patch report for a macOS software title.
- Managing Packages
  You can add packages to a category.

For related information, see the following Knowledge Base articles:

- Jamf Process for Updating Patch Management Software Titles
  Learn about the contents of a software definition file in Jamf Pro and the process used by Jamf to add software title updates to Jamf Pro.
- Jamf Pro External Patch Source Endpoints
  Learn about the endpoints required by Jamf Pro to host an external patch source in your environment.

Patch Reporting

The patch reporting area of Jamf Pro can be used to easily configure third-party macOS software titles used in your environment. This provides you with a process to:

- Generate reports for third-party macOS software titles that you have configured in your environment
- Identify which third-party macOS software titles in your environment need to be updated
- Determine which computers have software titles that need to be updated

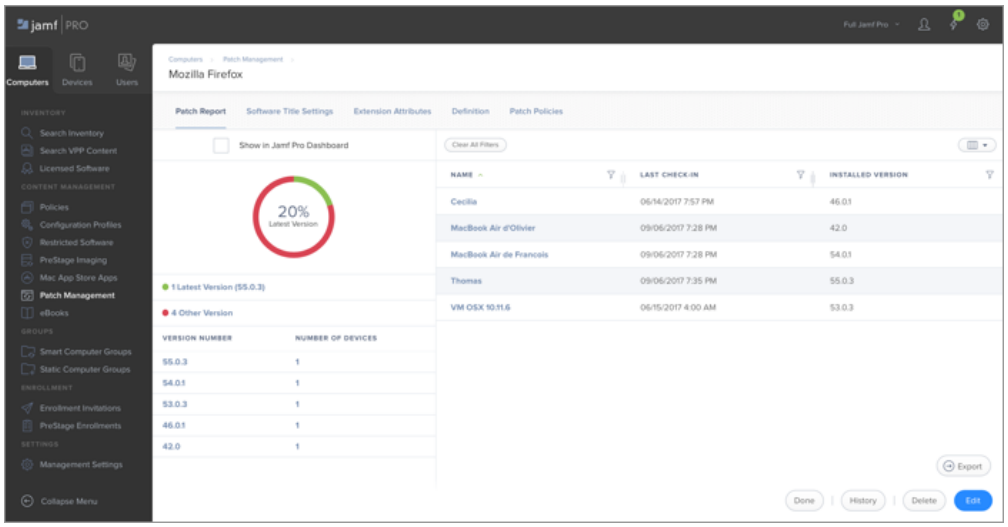
You can use the patch reporting features alone, or combine them with the following additional searching and reporting features in Jamf Pro based on your needs:

- **Advanced computer searches**—There are several benefits to using advanced computer searches to produce a list of computers in Jamf Pro:
  - The ability to display all application titles; the list is not limited to the third-party macOS software titles provided in the patch reporting area.
  - The ability to combine patch-related criteria with other criteria. Patch-related criteria includes features to report on Apple operating systems and third-party macOS software titles. When creating an advanced computer search and selecting Patch Reporting Software Title, you can use "greater than" and "less than" operators, and "Latest Version" as a value to ensure the search will remain current as new versions are released. For example, this criteria can be used to create a general compliance report that includes encryption, or whether computers are on a specific version of an operating system, etc.
    For more information on how to create and save an advanced computer search, see Advanced Computer Searches.
- **Smart computer groups**—Smart computer groups offer the same patch reporting functionality as advanced computer searches. In addition, you can view the status of smart groups on the Jamf Pro Dashboard. You can also get notifications when the membership of a smart group changes.
  For more information on how to create computer groups that are based on criteria and have dynamic memberships, see Smart Groups.

Patch Reports

For each software title, you can view the latest version number as well as the percentage of computers in your environment that are on the latest version. In addition, you can view the number of computers that are on the latest version and the number that are on another version.

From the report, you can view when each computer last checked in and the version of the software title installed on the computer.



The data displayed in a patch report can be exported from Jamf Pro to the following file formats:

- Comma-separated values file (.csv)
- Tab delimited text file (.txt)

Requirements

To configure third-party macOS software titles and enable them to automatically update, the Jamf Pro server must have outbound access to port 443 to access the patch server and the software title definitions which are hosted on Amazon CloudFront.

Creating a Patch Report for a macOS Software Title

For each macOS software title, you can view the number of computers on the latest version of the software title or on a different version of the software title.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Patch Management**.

4. A list of configured macOS software titles is displayed.
   - To view a list of computers that are on the latest version of a particular software title, click the number displayed in the On Latest Version column.
   - To view a list of computers that are on another version of a particular software title, click the number displayed in the On Other Version column.
     A report that shows additional details is displayed.

     Note: You can also access the report by choosing a specific software title.
5. At the bottom of the report, click **Export** and choose "Comma-Separated Values file (.csv)" or "Tab Delimited Text file (.txt)".

   Note: The data will be exported as it is currently filtered.

Related Information

For related information, see the following sections in this guide:

- About Patch Management
  Learn about patch management for Apple Updates and for third-party updates.
- Patch Sources
  Learn about Patch Sources and how to integrate Jamf Pro with a Patch External Source.
- Patch Management Software Titles
  Learn about the third-party macOS software titles in Jamf Pro that can be used for patch reporting and patch notifications.
- Email Notifications
  Learn how to configure patch notifications for third-party macOS software title updates that have been added to Jamf Pro.
- Patch Policies
  Learn how to create a patch policy to automate the distribution of a third-party macOS software update.

Patch Policies

Patch policies allow you to perform updates of previously installed third-party macOS software titles. After you have configured a patch management software title, you can create a patch policy to automate the distribution of software updates. For more information, see Patch Management Software Titles. You can configure the patch policy to be installed automatically or make the policy available in Self Service for users to run on their computers.

When you create a patch policy, you specify information that enables Jamf Pro to automatically generate a list of eligible computers that need the software update. Jamf Pro continuously keeps this list updated as computers meet or fail to meet the specified conditions. You can also specify the following information for user interaction:

- Whether to display notifications about the update (in Self Service, or in Self Service and Notification Center)
- Whether to send users reminders that a software update is available
- The amount of time to wait after the software title update is available before an update is automatically performed (called "update deadline")

After you create a patch policy, you can view the status and logs for the policy.

Variables for Grace Period Messages

There are several variables that you can use to populate the grace period message displayed to users before a software title is updated.

To use a grace period variable, enter the variable into the Message field on the User Interaction tab when creating a patch policy in Jamf Pro. When the patch policy is run on a computer, the variable is replaced with the value of the corresponding attribute in Jamf Pro.

Variable	Computer Information
$APP_NAMES	Name of the app that must quit before the software title can be updated.
$DELAY_MINUTES	Amount of time to wait before automatically quitting the app that cannot be open when a software title is updated.
$SOFTWARE_TITLE	Software Title Name

Requirements

To create a patch policy, you need a patch management software title version associated with a package. For more information, see Patch Management Software Titles.

Creating a Patch Policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Patch Management** and select the software title for which you want to create a patch policy.
4. Click the **Patch Policies** tab.
5. Click **New**  .
6. Use the General pane to configure basic settings for the patch policy, including the display name and whether to distribute the policy by installing it automatically or by making it available in Self Service.

   > **Note:** While users can search Self Service for items to install on their computers, patch policies will not be included in the search results.

   The following settings enable Jamf Pro to automatically generate the list of eligible computers:

   - **Target Version**—Choosing a target version of the software title allows Jamf Pro to add computers that have an earlier version of the targeted title installed to the list of eligible computers.
   - **Allow Downgrade**—This enables an earlier version of the software title to be installed on computers. Jamf Pro adds the computers with a later version of the targeted title installed to the list of eligible computers.
   - **Patch Unknown Versions**—This enables the targeted version of the software title to be installed on computers that have unknown versions of the title currently installed. Jamf Pro adds these computers to the list of eligible computers.
7. Click the **Scope** tab and configure the scope of the patch policy.
   You can view the list of computers that are eligible for the patch policy by clicking the **eligible computers** link. If you add a computer that is not in the list of eligible computers, it does not receive the policy until it meets the conditions defined on the General tab.

   > **Note:** For a computer to be eligible to receive a software title update, it must have the software title installed and meet the conditions on the General tab.

8. (Optional) Click the **User Interaction** tab to configure the amount of time to wait before quitting apps automatically, and enter messages to display to users.
   In addition, you can customize the text displayed in the description for the policy in Self Service by using Markdown in the **Description** field (requires Self Service 10.0.0 or later).
   For information about Markdown, see the Using Markdown to Format Text Knowledge Base article.
9. Click **Save**  .

Viewing the Status of a Patch Policy

For each patch policy, you can view a list that shows the number of computers for which the policy has completed, failed, and is still remaining.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Patch Management** and select the software title for which you want to see the patch policy status.
4. Click **Patch Policies**.

Viewing Logs for a Patch Policy

The logs for a patch policy include a list of computers in scope of the policy and the following information for each computer:

- The date/time that the log was created or updated
- The status of the patch policy
- The actions logged for the patch policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Patch Management** and select the software title for which you want to see the patch policy logs.
4. Click **Patch Policies** and select the policy you want to view logs for.
5. Click **Logs** .

Resetting the Retries Value

The Patch Management Retries setting allows you to customize the number of times Jamf Pro will try to deploy a patch policy if the initial attempt fails. The default value is "3" retries.

> **Note:** This setting does not apply to patch policies made available in Self Service.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the “Computer Management” section, click **Patch Management** .

5. Click **Edit** and make changes as needed.
6. Click **Save**.

Further Considerations

When a computer is in scope of multiple patch policies for the same software title, only one policy is run for a specific title based on the following priority:

- The policy with the latest software title version takes precedence.
- If multiple policies are associated with the same software title version, the policy with the greater ID number will take precedence.

For example, if a computer is in scope of both of the following, only the policy with "id=3" will run:
https://instancename.jamfcloud.com/patchDeployment.html?softwareTitleId=1&id=3&o=r
https://instancename.jamfcloud.com/patchDeployment.html?softwareTitleId=1&id=2&o=r

Related Information

For related information, see the following sections in this guide:

- About Patch Management
  Learn about patch management for Apple Updates and for third-party updates.
- Patch Sources
  Learn about Patch Sources and how to integrate Jamf Pro with a Patch External Source.
- Patch Management Software Titles
  Learn about the third-party macOS software titles in Jamf Pro that can be used for patch reporting and patch notifications.
- Email Notifications
  Learn how to configure patch notifications for third-party macOS software title updates that have been added to Jamf Pro.
- Items Available to Users in Jamf Self Service for macOS
  Learn about which items can be made available to users in Self Service for macOS.

Running Software Update

When you run Software Update on computers, you can choose whether updates are installed from Apple's Software Update server or an internal software update server.

There are two ways to run Software Update on computers: using a policy or using Jamf Remote.

Requirements

To have computers install updates from an internal software update server, the software update server must be in Jamf Pro. For more information, see Software Update Servers.

Running Software Update Using a Policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click **New**  .
5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the Software Updates payload and click **Configure**.
7. Specify a server for computers to install software updates from.
8. Use the Restart Options payload to configure settings for restarting computers.
   For more information, see Restart Options Payload.
9. Click the **Scope** tab and configure the scope of the policy.
   For more information, see Scope.
10. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
    For more information, see Items Available to Users in Jamf Self Service for macOS .
11. (Optional) Click the **User Interaction** tab and configure messaging and deferral options.
    For more information, see User Interaction with Policies.
12. Click **Save**.

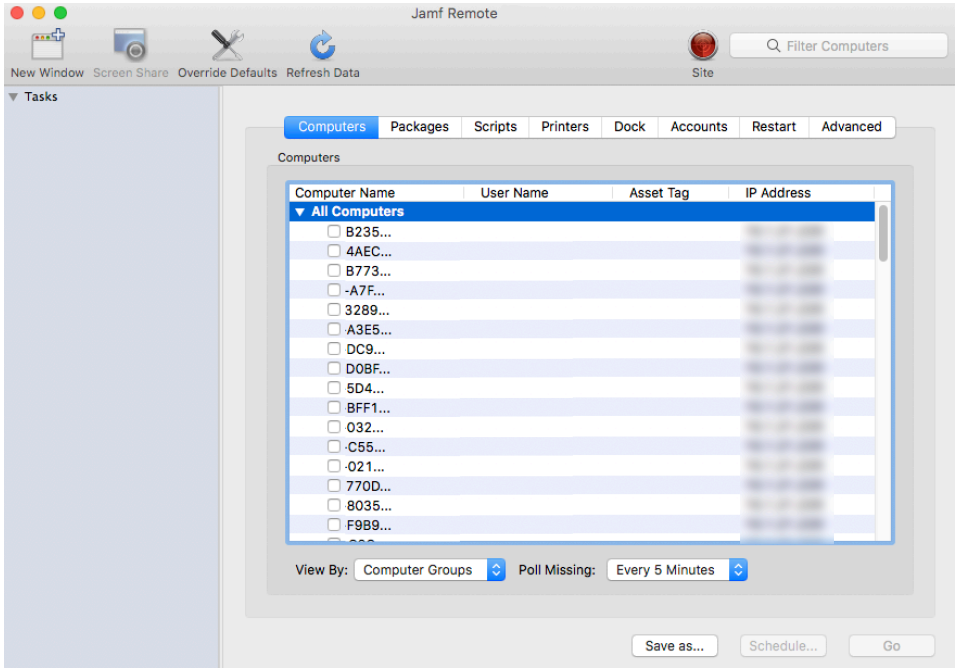
The policy runs on computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

Running Software Update Using Jamf Remote

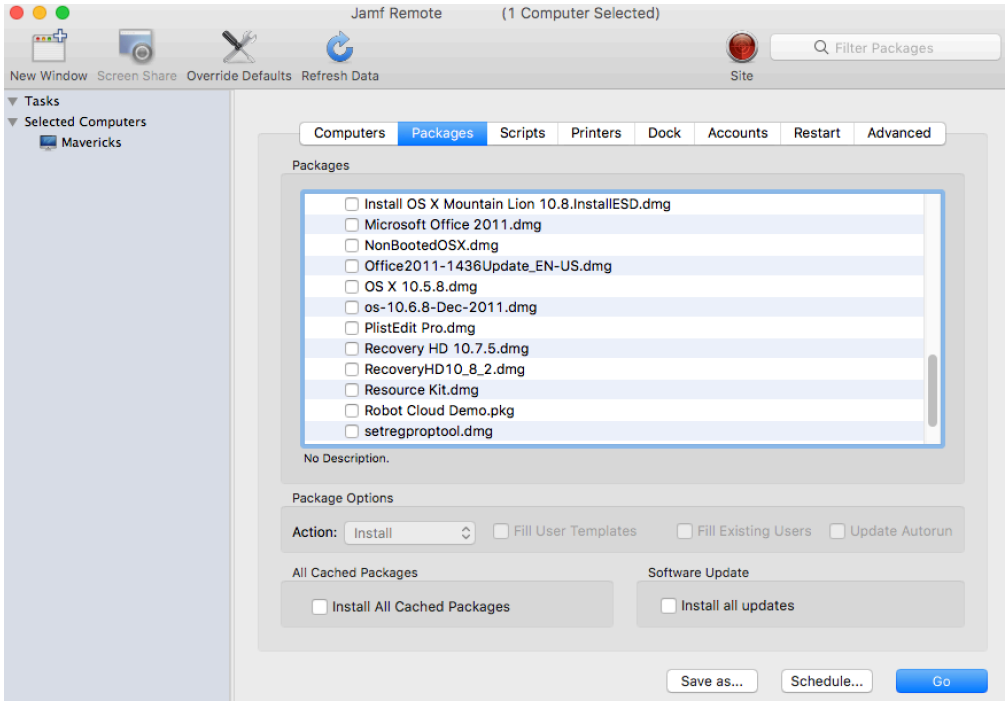
1. Open Jamf Remote and authenticate to the Jamf Pro server.
2. Click **Site** and choose a site.
   This determines which items are available in Jamf Remote.

   Note: This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

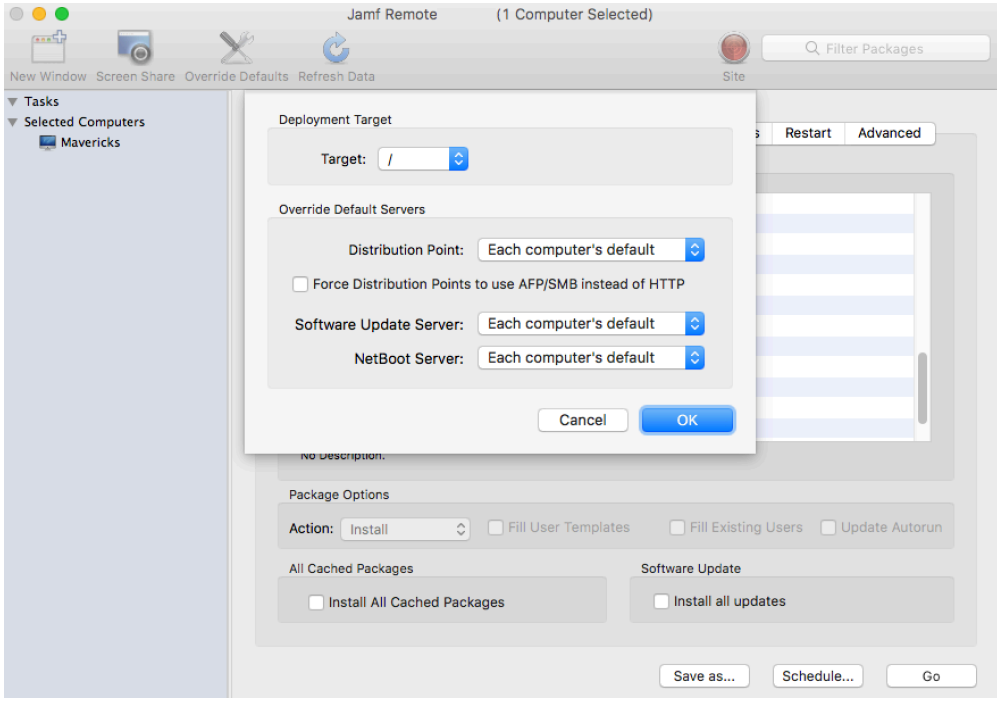
3. In the list of computers, select the checkbox for each computer on which you want to run Software Update.



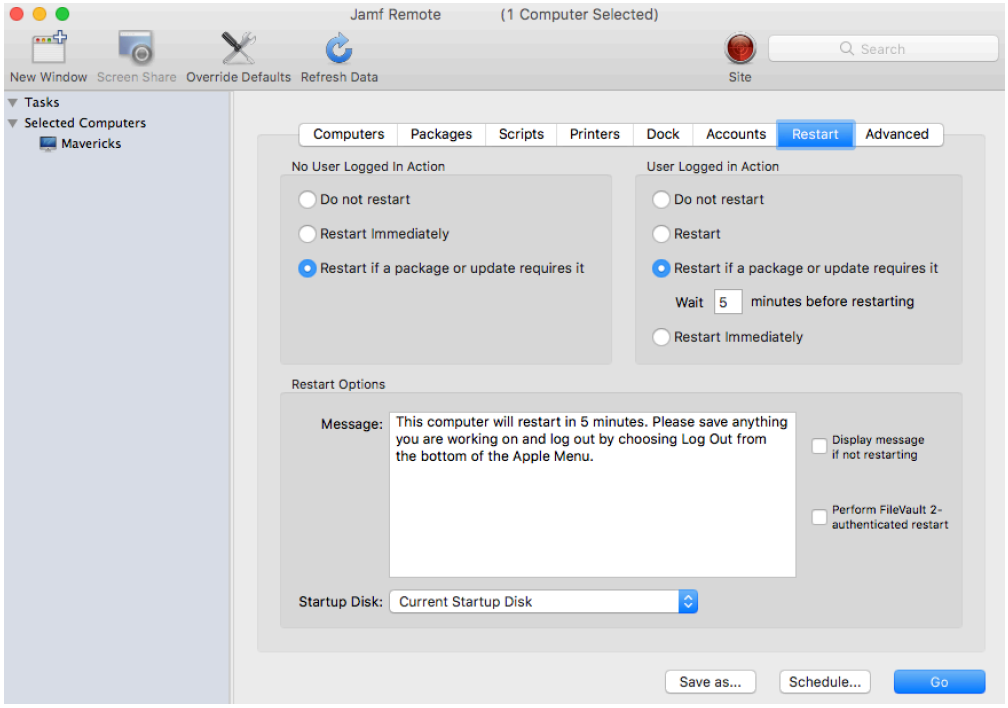
4. Click the **Packages** tab.
5. Select the **Install all updates** checkbox.



6. If you want to change the software update server that computers download software updates from, click **Override Defaults** and choose a software update server.



7. Click the **Restart** tab and configure settings for restarting computers.



8. Do one of the following:
   - To immediately perform the tasks on the specified computers, click **Go**.
   - To schedule the tasks to take place at a specific day and time, click **Schedule** and choose a day and time. Then click **Schedule** again.

Related Information

For related information, see the following sections in this guide:

- About Policies
  Learn the basics about policies.
- Policy Management
  Find out how to create policies, view the plan and status for a policy, and view and flush policy logs.

For related information, see the following *Best Practice Workflow for Jamf Pro*:

Updating macOS
Find out how to update macOS on computers by sending an MDM command to computers using a mass action.

Remote Control

Screen Sharing

Screen sharing allows you to remotely view and control the screen of another computer. You can allow the end user to see the screen sharing session, or you can hide the screen sharing session so that the user is not interrupted.

Requirements

To initiate screen sharing from Jamf Remote, you need to do the following:

- Enable remote management by having users select the **Screen Sharing** checkbox in System Preferences.

  Note: Because of increased user data protections with macOS 10.14 or later, you cannot enable remote management remotely using the SSH protocol.

- Ensure the computer running Jamf Remote and the computer being remotely managed are on the same network.

How Screen Sharing Works

Jamf Pro uses the management account to screen share with Jamf Remote. When a screen sharing session is initiated from Jamf Remote, the following steps are performed to start the screen sharing session:

1. Jamf Remote creates an SSH connection to the target computer.
2. Jamf Remote checks the target computer for the most current version of the jamf binary.
   If the jamf binary is out of date or missing, Jamf Remote installs the most current version over SCP or HTTP, depending on the way the Jamf Remote preferences are configured.
3. Jamf Remote checks the target computer for the following file and verifies that it contains the correct information:
   `/Library/Preferences/com.jamfsoftware.jss.plist`
   If the file does not exist or contains incorrect information, Jamf Remote automatically creates or overwrites the file.
4. The jamf binary checks if the Jamf Pro user who initiated the screen sharing session has the "Screen Share with Remote Computers" and "Screen Share with Remote Computers without Asking" privilege.
5. If the Jamf Pro user does not have the "Screen Share with Remote Computers without Asking" privilege, the end user is prompted to allow the screen sharing session to take place.

6. Jamf Pro logs the connection.
7. On the target computer, Jamf Remote starts the Screen Sharing service that is built into macOS.
8. On the target computer, Jamf Remote creates a temporary account with limited privileges and uses it for the screen sharing session.

   When the Screen Sharing window is closed, Jamf Remote deletes the temporary account, stops the Screen Sharing service, and logs out of the SSH connection. If the SSH connection is terminated unexpectedly, a launch daemon deletes the temporary account and stops the Screen Sharing service within 60 seconds of the SSH connection being terminated.

Requirements

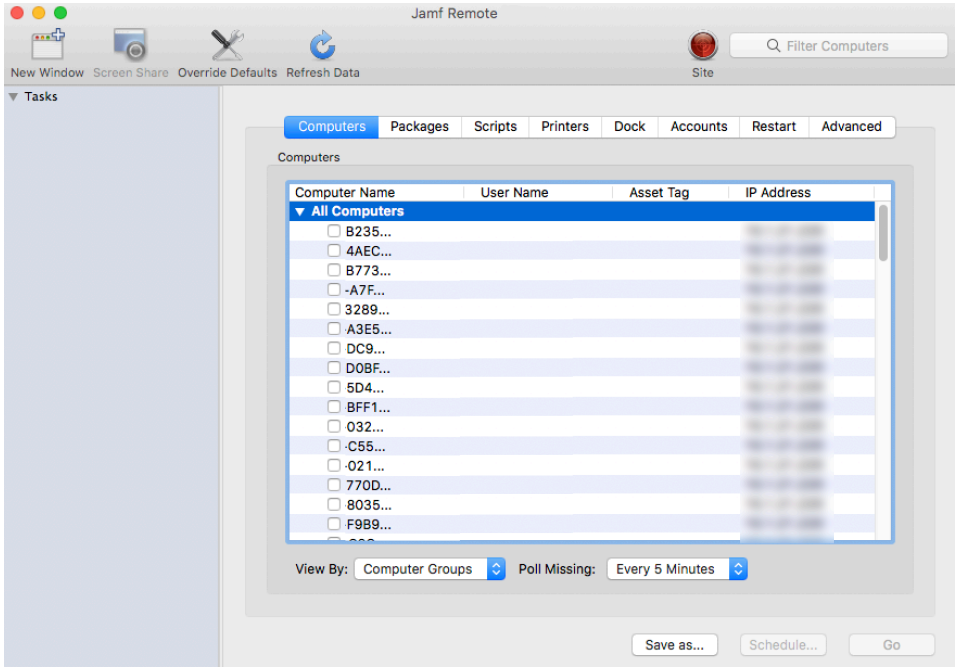
To share the screen of another computer, you need the following:

- A management account (For more information on the management account, see Computer Enrollment Methods.)
- SSH (Remote Login) enabled on the target computer
- (macOS 10.10 or later only) Screen Sharing enabled on the computer

Sharing the Screen of Another Computer

1. Open Jamf Remote and authenticate to the Jamf Pro server.
2. Click **Site** and choose a site.
   This determines which items are available in Jamf Remote.

   Note: This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.
3. In the list of computers, select the computer that you want to screen share with.



4. Click **Screen Share** .
5. When prompted, choose a screen sharing option:
   - To allow the end user to see the screen sharing session, choose "Share Display" (macOS 10.8 or later) or "Ask to share the display" (macOS 10.7).
   - To hide the screen sharing session, choose "Log In" (macOS 10.8 or later) or "Connect to a virtual display" (macOS 10.7).

   If you do not have the “Screen Share Remote Computers Without Asking” privilege, the end user is prompted to allow the screen sharing session to take place.

Settings and Security Management for Computers

Computer Configuration Profiles

Configuration profiles are XML files (.mobileconfig) that provide an easy way to define settings and restrictions for devices, computers, and users.

You can use Jamf Pro to create a configuration profile or you can upload a configuration profile that was created using third-party software, for example, Apple's Profile Manager or Apple Configurator.

Before creating a configuration profile, you should have basic knowledge of configuration profile payloads and settings. For more information, see the following Apple documentation:

- Mobile Device Management Settings
- Profile-Specific Payload Keys

Some configuration profile payloads and settings available in Jamf Pro may differ from their implementation in Apple's tools. For more information on these settings, see the Configuration Profile Payload Settings Specific to Jamf Pro Knowledge Base article.

When you create a computer configuration profile, you must specify the level at which to apply the profile—computer level or user level. Each level has a unique set of payloads and a few that are common to both.

There are two different ways to distribute a configuration profile: install it automatically (requires no interaction from the user) or make it available in Self Service. You can also specify the computers and users to which the profile should be applied (called "scope").

Note: Removing a computer from the scope of a computer-level profile prompts Jamf Pro to remove the settings applied by the profile the next time the computer checks in with Jamf Pro. Removing a computer from the scope of a user-level profile prompts Jamf Pro to remove the settings applied by the profile the next time the computer checks in with Jamf Pro while that user is logged in.

Payload Variables for Configuration Profiles

There are several payload variables that you can use to populate settings in a configuration profile with attribute values stored in Jamf Pro. This allows you to create payloads containing information about each mobile device, computer, and user to which you are distributing the profile.

To use a payload variable, enter the variable into any text field when creating a configuration profile in Jamf Pro. When the profile is installed, the variable is replaced with the value of the corresponding attribute in Jamf Pro.

Variable	Inventory Information
$COMPUTERNAME	Computer Name
$SITENAME	Site Name
$SITEID	Site ID
$UDID	UDID
$SERIALNUMBER	Serial Number
$USERNAME	Username associated with the computer in Jamf Pro (computer-level profiles only) Username of the user logging in to the computer (user-level profiles only)
$FULLNAME or $REALNAME	Full Name
$EMAIL	Email Address
$PHONE	Phone Number
$POSITION	Position
$DEPARTMENTNAME	Department Name
$DEPARTMENTID	Department ID
$BUILDINGNAME	Building Name
$BUILDINGID	Building ID
$ROOM	Room
$MACADDRESS	MAC Address
$JSSID	Jamf Pro ID
$PROFILEJSSID	Jamf Pro ID of the Configuration Profile
$EXTENSIONATTRIBUTE_#	Extension Attribute ID Number **Note:** The ID number is found in the extension attribute URL. In the example URL below, "id=2" indicates the extension attribute ID number: https://instancename.jamfcloud.com /computerExtensionAttributes.html?id=2&o=r For more information, see Computer Extension Attributes.

General Requirements

To install a configuration profile on a computer, you need:

- A push certificate in Jamf Pro. For more information, see Push Certificates.
- The **Enable certificate-based authentication** and **Enable push notifications** settings configured in Jamf Pro. For more information, see Security Settings.
- (User-level profiles only) Computers that are bound to a directory service or local user accounts that have been MDM-enabled. For information, see Binding to Directory Services and the Enabling MDM for Local User Accounts Knowledge Base article.

Manually Creating a Configuration Profile

You can create a configuration profile using Jamf Pro.

Beginning with Jamf Pro 10.17.0, you can configure some payloads using a redesigned flow. Use switches to include the settings that will be sent to deployment targets. In the summary view, only the included or configured settings are displayed in the Jamf Pro interface. The operating system manages settings on the computer level. Some enforced settings that do not change default values will not be visible on the computer. For more information on the default settings, see the Profile-Specific Payload Keys documentation from Apple.

> **Note:** When upgrading to Jamf Pro 10.17.0 or later, any previously configured payloads that have been redesigned are automatically migrated. Review the settings in the Jamf Pro user interface. The migrated payloads are not redeployed to deployment targets.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Configuration Profiles**.
4. Click **New** + New .
5. Use the General payload to configure basic settings, including the level at which to apply the profile and the distribution method.
   Only payloads and settings that apply to the selected level are displayed for the profile.
   To distribute the profile during enrollment using a computer PreStage enrollment, ensure you create a computer-level configuration profile. For more information about distributing configuration profiles during enrollment, see Computer PreStage Enrollments.
6. Use the rest of the payloads to configure the settings.
7. Click the **Scope** tab and configure the scope of the profile.
   For more information, see Scope.
   To distribute the profile during enrollment using a computer PreStage enrollment, ensure the scope of the profile contains the computers that are in the scope of the PreStage enrollment.

8. (Optional) If you chose to make the profile available in Self Service, click the **Self Service** tab to configure Self Service settings for the profile.
   For more information, see Items Available to Users in Jamf Self Service for macOS.
9. Click **Save**.

The profile is distributed to the deployment targets in the scope the next time they contact Jamf Pro.

Uploading a Configuration Profile

You can create a configuration profile by uploading a profile that was built using Apple's software, for example, Profile Manager or Apple Configurator .

> **Note:** Some payloads and settings configured with third-party software are not displayed in Jamf Pro. Although you cannot view or edit these payloads, they are still applied to the deployment targets.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Configuration Profiles**.
4. Click **Upload** and upload the configuration profile (.mobileconfig).
5. Use the General payload to change or configure basic settings for the profile, including a distribution method.
6. Use the rest of the payloads to configure or edit settings as needed.
7. Click the **Scope** tab and configure the scope of the profile.
   For more information, see Scope.
8. (Optional) If you chose to distribute the profile in Self Service, click the **Self Service** tab to configure Self Service settings for the profile.
9. Click **Save**.

Downloading a Configuration Profile

If you want to view the contents of a configuration profile for troubleshooting purposes, you can download the profile (.mobileconfig) from Jamf Pro.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Configuration Profiles**.
4. Click the configuration profile you want to download.
5. Click **Download**.

The profile downloads immediately.

Viewing the Status of a Configuration Profile

For each configuration profile, you can view the number of the deployment targets with a status of Complete, Remaining, or Failed for the profile installation.

> **Note:** Depending on your system configuration, status data may not be available for profiles installed using Jamf Pro 9.63 or earlier.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Configuration Profiles**.
   A list of configuration profiles is displayed.
   For each profile, you can view the number of the deployment targets for which the profile installation has a Completed, Remaining, or Failed status.

   > **Note:** If a computer becomes unmanaged after a profile is successfully distributed to it, the profile will continue to be displayed in the Completed column.

4. To view a list of deployment targets with a status of Complete, Remaining, or Failed for the profile installation, click the number displayed in the corresponding column. Then click **Back** ← in the top-left corner of the pane.
5. To view logs for a configuration profile, click **View** in the corresponding row. For a different date range, specify the starting and ending dates using the **Date Range** pop-up calendars.
6. Click **Back** ← in the top-left corner of the pane.

Related Information

For related information, see the following sections in this guide:

- Viewing the Pending Management Commands for a Computer
  Find out how to view and cancel pending computer configuration profile installations and removals for a computer.
- Viewing Management History for a Computer
  Find out how to view all completed, pending, and failed computer configuration profile installations and removals for a computer.
- Viewing Configuration Profiles for a Computer
  Find out how to view the computer configuration profiles in the scope for a computer.
- Items Available to Users in Jamf Self Service for macOS
  Learn about which items can be made available to users in Self Service for macOS.

For related information, see the following Knowledge Base article:

Deploying Custom Configuration Profiles using Jamf Pro
Learn how to upload custom computer configuration profiles to Jamf Pro.

For related information, see the following technical paper:

Enabling Jamf Pro as SCEP Proxy
Learn how to enable Jamf Pro as SCEP Proxy for distributing certificates via configuration profiles.

Remote Commands for Computers

The remote commands available in Jamf Pro allow you to remotely perform tasks on computers.

You can send a remote command to a single computer. Some commands can also be sent to multiple computers at once using mass actions. For more information, see Mass Actions for Computers.

Note: The remote commands available for a particular computer vary depending on the computer's OS version. For more information, see Computer Management Capabilities.

The following table describes the remote commands that you can send from Jamf Pro:

Remote Command	Description	Available as a Mass Action	Requirements
Lock Computer	Logs the user out of the computer, restarts the computer, and then locks the computer (Optional) Displays a message on the computer when it locks To unlock the computer, the user must enter the passcode that you specified when you sent the Lock Computer command.	✓	--
Remove MDM Profile	Removes the MDM profile from the computer, along with any configuration profiles that were distributed with Jamf Pro If the MDM profile is removed, you can no longer send remote commands or distribute configuration profiles to the computer. **Note:** Removing the MDM profile from a computer does not remove the computer from Jamf Pro or change its inventory information.		--

Remote Command	Description	Available as a Mass Action	Requirements
Renew MDM Profile	Renews the MDM profile on the computer, along with the device identity certificate. The device identity certificate has a default expiration period of two years. **Note:** The Renew MDM Profile remote command is automatically issued when the built-in CA is renewed. The MDM profile will be renewed during the next computer check-in. For more information, see "Renewing the Built-in CA" in PKI Certificates.	✓	--
Wipe Computer	Permanently erases all data on the computer **Note:** Wiping a computer does not remove the computer from Jamf Pro or change its inventory information. To restore the computer to the original factory settings, the user must enter the passcode that you specified when you sent the Wipe Computer command, and then reinstall the operating system. For detailed information on macOS Recovery, see the following article from Apple's support website: https://support.apple.com/kb/HT4718		--
Send Blank Push	Sends a blank push notification, prompting the computer to check in with Apple Push Notification service (APNs)		--

Remote Command	Description	Available as a Mass Action	Requirements
Download /Download and Install Updates	Updates the OS version and built-in apps on the computer You can choose to download the update for users to install, or to download and install the update and restart computers after installation. **Note:** When sending the command via a mass action, the **Update OS version and built-in apps** option must be selected.	✓	macOS 10.11 or later Enrolled via a PreStage enrollment
Unlock User	Unlocks a local user account that has been locked due to too many failed password attempts		macOS 10.13 or later Enrolled via a PreStage enrollment
Remove User	Removes a user that has an active account on the computer		macOS 10.13 or later Enrolled via a PreStage enrollment
Enable/Disable Bluetooth	Enables/disables Bluetooth on the computer **Note:** When sending the command via a mass action, the **Set Bluetooth** option must be selected.	✓	macOS 10.13.4 or later
Enable/Disable Remote Desktop	Enables/disables Remote Desktop on the computer **Note:** When sending the command via a mass action, the **Set Remote Desktop** option must be selected.	✓	macOS 10.14.4 or later

Remote Command	Description	Available as a Mass Action	Requirements
Set Activation Lock	Allow user to enable Activation Lock directly on the computer Disable and prevent Activation Lock For more information, see the Leveraging Apple's Activation Lock Feature with Jamf Pro Knowledge Base article.	✓	▪ Compatible computers with macOS 10.15 or later For more information on macOS compatibility, see Apple support documentation: https://support.apple.com/HT208987 ▪ In Apple School Manager or Apple Business Manager

Sending a Remote Command to a Computer

Requirements

- A push certificate in Jamf Pro (For more information, see Push Certificates.)
- The **Enable certificate-based authentication** and **Enable push notifications** settings configured (For more information, see Security Settings.)

Procedure

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to send the remote command to.

   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **Management** tab, and then click the button for the remote command that you want to send.

Note: To send the Unlock User or Remove User remote command, navigate to the Local User Accounts category in inventory information for the computer and click **Manage** for a user.

Depending on the command selected, additional options may be available.

The remote command runs on the computer the next time the computer checks in with Jamf Pro.

After the command is sent, you can do the following on the **History** tab:

- To view the status of a remote command, use the Management History pane to view completed, pending, or failed commands.
- To cancel a remote command, click **Pending Commands**. Find the command you want to cancel, and click **Cancel**.

Managing Scripts

The way you manage scripts depends on the way scripts are stored in your environment. There are two ways scripts can be stored:

- **As data in the jamfsoftware database**—Before you can run a script in this type of environment, the script must exist in the database. There are two ways to achieve this:
  - Add the script to Jamf Admin
  - Add the script to Jamf Pro using the script editor
- **As files on your distribution points**—Before you can run a script in this type of environment, the script must exist on the distribution point you plan to deploy it from and in Jamf Pro. You can add the script to the principal distribution point by adding it to Jamf Admin. Then you can add the script to other distribution points via replication.

Note: For more information on migrating the scripts on your principal distribution point, see the following Knowledge Base article:
Migrating Packages and Scripts

Each of these methods also involves configuring settings for the script. When you configure settings for a script, you can do the following:

- Add the script to a category. For more information, see Categories.
- Choose a priority for running the script during imaging.
- Enter parameter labels.
- Specify operating system requirements for running the script.

When you add, edit, or delete a script in Jamf Admin, the changes are reflected in Jamf Pro and vice versa.

Requirements

To add a script to Jamf Admin, the script file must be non-compiled and in one of the following formats:

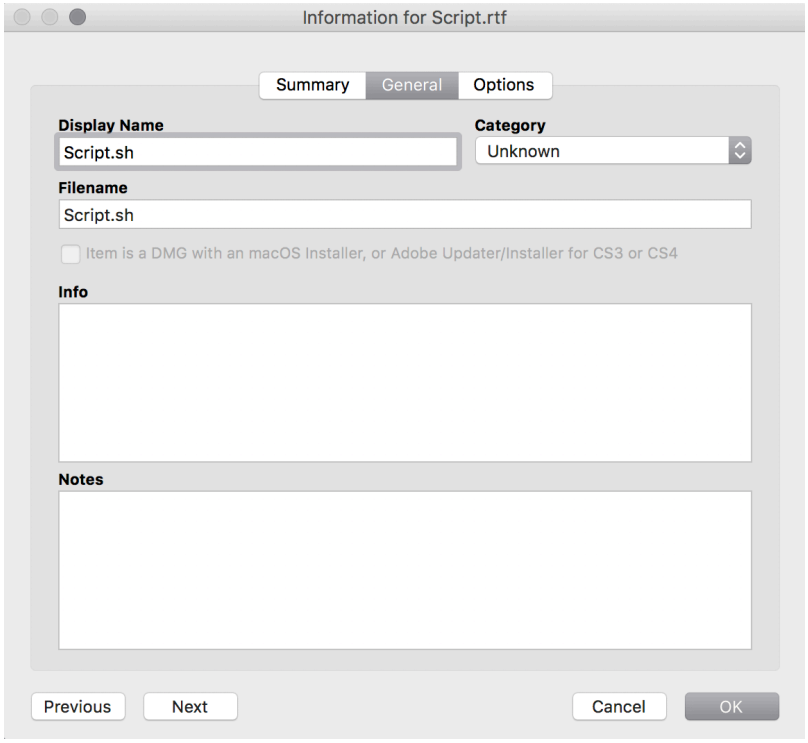
- Perl (.pl)
- Bash (.sh)
- Shell (.sh)
- Non-compiled AppleScript (.applescript)
- C Shell (.csh)
- Zsh (.zsh)
- Korn Shell (.ksh)
- Tool Command Language (.tcl)

- Hypertext Preprocessor (.php)
- Ruby (.rb)
- Python (.py)

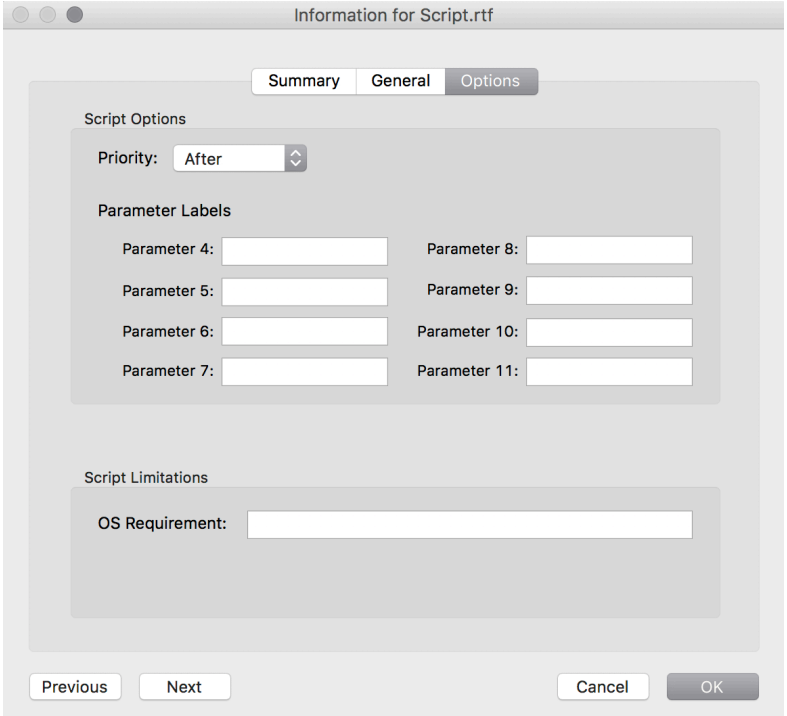
Adding a Script to Jamf Admin

Adding a script to Jamf Admin adds the script to the jamfsoftware database or the principal distribution point, and to Jamf Pro.

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. Drag the script to the main repository in Jamf Admin.
   The script is displayed in blue text in the Unknown category until you add it to a category.
3. Double-click the script in the main repository.
4. Click the **General** tab and configure basic settings for the script, including the display name and category.



5. Click the **Options** tab and configure additional settings for the script, including the priority and parameter labels.



6. Click **OK**.

Adding a Script to Jamf Pro

If your environment is one in which scripts are stored in the jamfsoftware database, you can add a script to Jamf Pro using the script editor.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the "Computer Management" section, click **Scripts** .
5. Click **New** .
6. Use the General pane to configure basic settings for the script, including the display name and category.

> **Note:** If you do not add the script to a category, Jamf Admin displays the script in blue text in the Unknown category.

7. Click the **Script** tab and enter the script contents in the script editor. You can use the settings on the tab to configure syntax highlighting and theme colors in the script editor.
8. Click the **Options** tab and configure additional settings for the script, including the priority.

9. (Optional) Click the **Limitations** tab and configure operating system requirements for the script.
10. Click **Save** .

Editing or Deleting a Script Using Jamf Admin

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. In the main repository, select the script you want to edit or delete.
3. Do one of the following:
   - To edit the script, double-click it and make changes as needed. Then click **OK**.
   - To delete the script, click **Delete** , and then click **Delete** again to confirm.

   If the script is stored in the jamfsoftware database, the edit or delete action is applied immediately.

   If the script is stored on your distribution points, the edit or delete action is applied immediately on the principal distribution point. The action is applied to your other distribution points when replication occurs.

Related Information

For related information, see the following section in this guide:

Running Scripts
Find out how to run scripts using a policy or Jamf Remote.

Running Scripts

When you run a script, you can choose a priority for running the script. You can also enter parameter values for the script.

There are two ways to run scripts on computers: using a policy or using Jamf Remote.

Note: When running a script that contains HTML tags in the output, the tags are not rendered in policy logs.

Requirements

To run a script on computers, the script must exist on the distribution point you plan to deploy it from and in Jamf Pro, or in the Jamf Pro database. For more information, see Managing Scripts.

Running a Script Using a Policy

1. Log in to Jamf Pro.
2. Click the **Computers** tab at the top of the page.
3. Click **Policies**.
4. Click **New** 

.
5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the Scripts payload and click **Configure**.
7. Click **Add** for the script you want to run.
8. Configure the settings for the script.
9. Use the Restart Options payload to configure settings for restarting computers.
   For more information, see Restart Options Payload.
10. Click the **Scope** tab and configure the scope of the policy.
    For more information, see Scope.
11. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
    For more information, see Items Available to Users in Jamf Self Service for macOS.
12. (Optional) Click the **User Interaction** tab and configure messaging and deferral options.
    For more information, see User Interaction with Policies.
13. Click **Save**  .

    The policy runs on computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

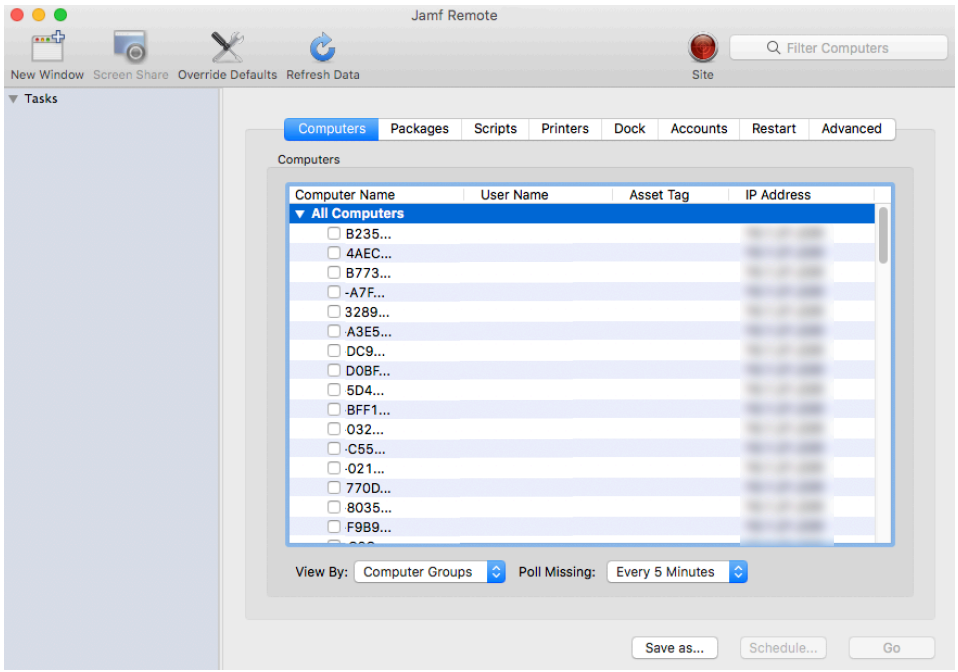
Running a Script Using Jamf Remote

1. Open Jamf Remote and authenticate to the Jamf Pro server.

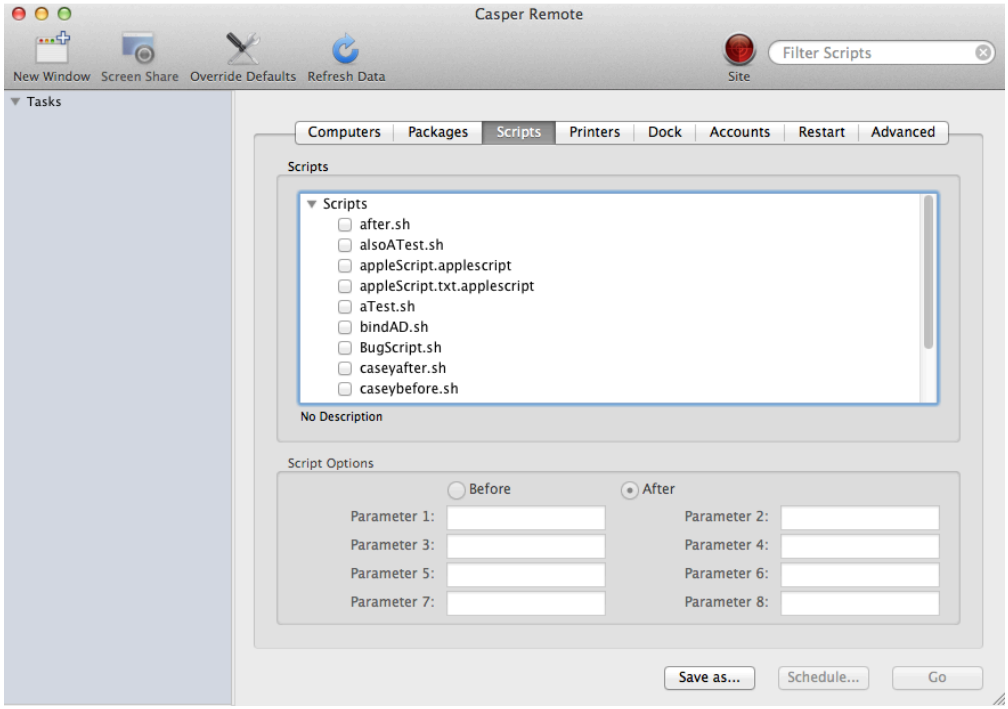
2. Click **Site** and choose a site.
   This determines which items are available in Jamf Remote.

   Note: This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

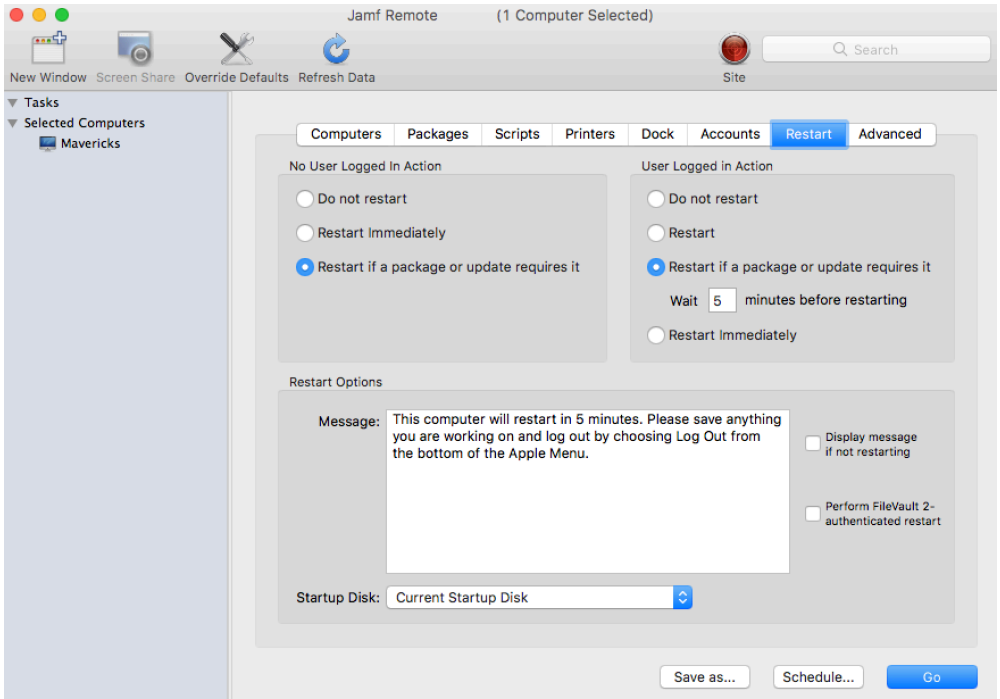
3. In the list of computers, select the checkbox for each computer on which you want to run the script.



4. Click the **Scripts** tab.
5. In the list of scripts, select the checkbox for the script you want to run.



6. Configure the settings for the script.
7. Click the **Restart** tab and configure settings for restarting computers.



8. Do one of the following:
   - To immediately perform the tasks on the specified computers, click **Go**.
   - To schedule the tasks to take place at a specific day and time, click **Schedule** and choose a day and time. Then click **Schedule** again.

Related Information

For related information, see the following sections in this guide:

- About Policies
  Learn the basics about policies.
- Policy Management
  Find out how to create policies, view the plan and status for a policy, and view and flush policy logs.

Managing Printers

Adding printers to Jamf Admin or Jamf Pro is the first step to administering printers on computers.

When you add a printer to Jamf Admin, you choose from a list of printers that are on the computer running Jamf Admin. When you add a printer to Jamf Pro, you manually specify information about the printer, such as the CUPS name and device URI.

When you add, edit, or delete a printer in Jamf Admin, the changes are reflected in Jamf Pro and vice versa.

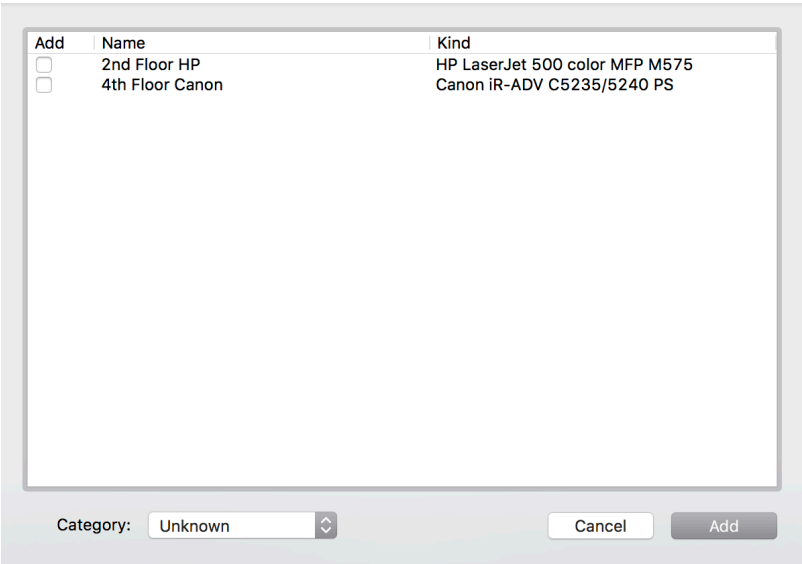
When you configure a printer, you can do the following:

- Add the printer to a category.
- Choose whether or not the printer is set as the default when mapped during imaging.
- Specify an operating system requirement for mapping the printer.

Adding a Printer to Jamf Admin

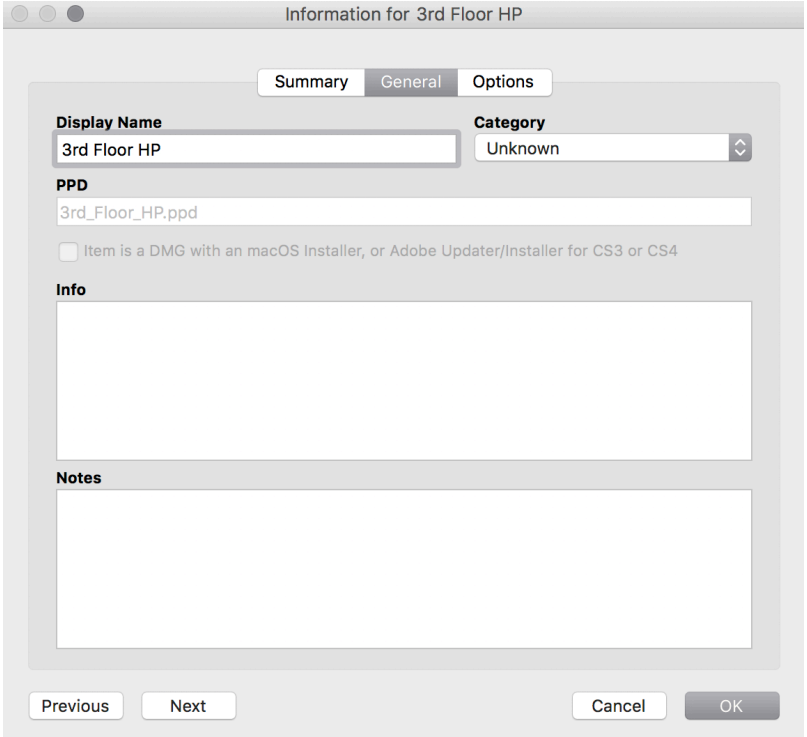
Several settings in Jamf Admin have tool tips. To read more about a specific setting, hover your mouse over it until a tool tip is displayed.

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. Click **Add Printers** .
3. If prompted, authenticate locally.
4. Select the checkbox next to each printer you want to add.

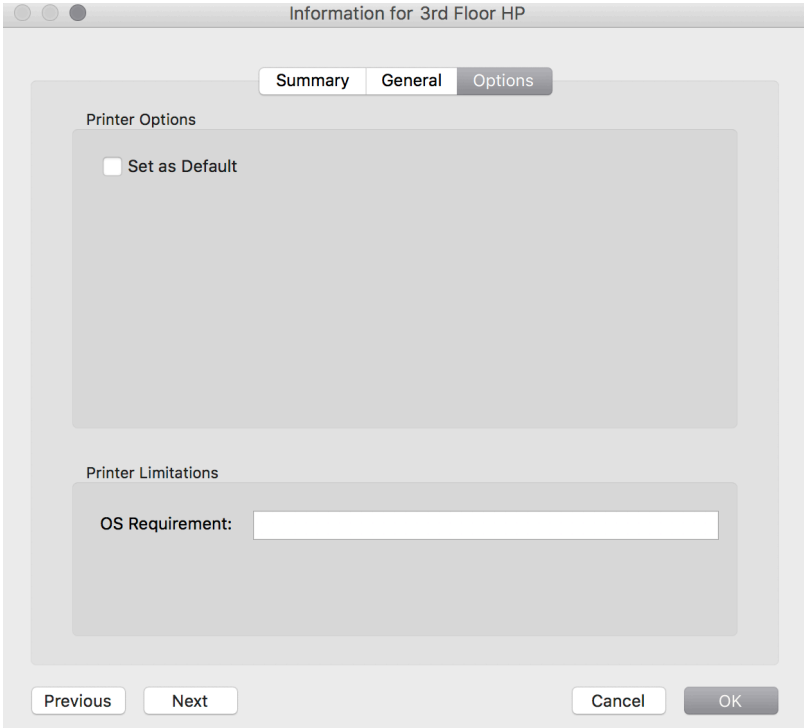


5. (Optional) Choose a category to add printers to.
6. Click **Add**.

7. Select the printer in the main repository and double-click it.
8. Click the **General** tab and configure basic settings for the printer, including the display name and category.



9. Click the **Options** tab.
10. Choose whether or not the printer is set as the default when mapped during imaging, and configure the operating system requirement.



11. Click **OK**.

Adding a Printer to Jamf Pro

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the "Computer Management" section, click **Printers** .
5. Click **New** .
6. Use the General pane to configure basic settings for the printer, including the display name and category.
7. Click the **Definition** tab and specify information about the printer, including the CUPS name and device URI.
8. (Optional) Click the **Limitations** tab and specify an operating system requirement.
9. Click **Save** .

Editing or Deleting a Printer in Jamf Admin

Several settings in Jamf Admin have tool tips. To read more about a specific setting, hover your mouse over it until a tool tip is displayed.

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. In the main repository, select the printer you want to edit or delete.
3. Do one of the following:
   - To edit the printer, double-click it and make changes as needed. Then click **OK**.
   - To delete the printer, click **Delete**  , and then click **Delete** again to confirm.

Related Information

For related information, see the following section in this guide:

Administering Printers
Find out how to map and unmap printers using a policy or Jamf Remote.

Administering Printers

There are two ways to map or unmap printers on computers: using a policy or using Jamf Remote.

Note: You can also map printers during imaging. For more information, see Configurations.

When you map a printer, you can choose whether or not to make the printer the default.

Requirements

To map or unmap a printer, the printer must be added to Jamf Admin or Jamf Pro. For more information, see Managing Printers.

Mapping or Unmapping a Printer Using a Policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click **New** + New .
5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the Printers payload and click **Configure**.
7. Click **Add** across from the printer you want to map or unmap.
8. Choose "Map" or "Unmap" from the **Action** pop-up menu.
9. (Optional) If you are mapping the printer, make it the default printer by selecting the **Set as Default** checkbox.
10. Use the Restart Options payload to configure settings for restarting computers.
    For more information, see Restart Options Payload.
11. Click the **Scope** tab and configure the scope of the policy.
    For more information, see Scope.
12. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
    For more information, see Items Available to Users in Jamf Self Service for macOS.

13. (Optional) Click the **User Interaction** tab and configure messaging and deferral options.
    For more information, see User Interaction with Policies.
14. Click **Save**.

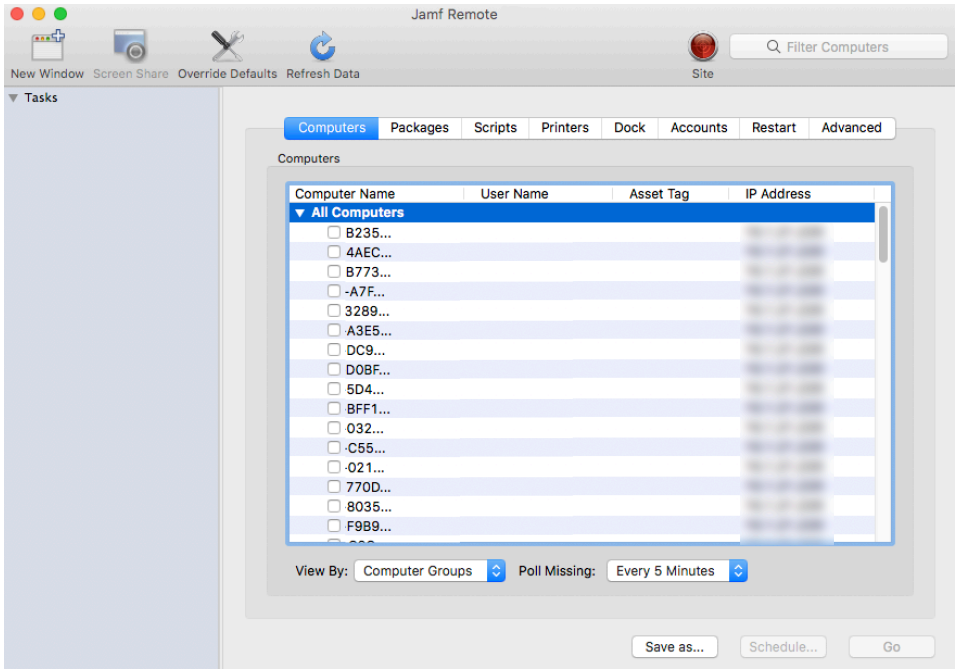
    The policy runs on computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

Mapping or Unmapping a Printer Using Jamf Remote

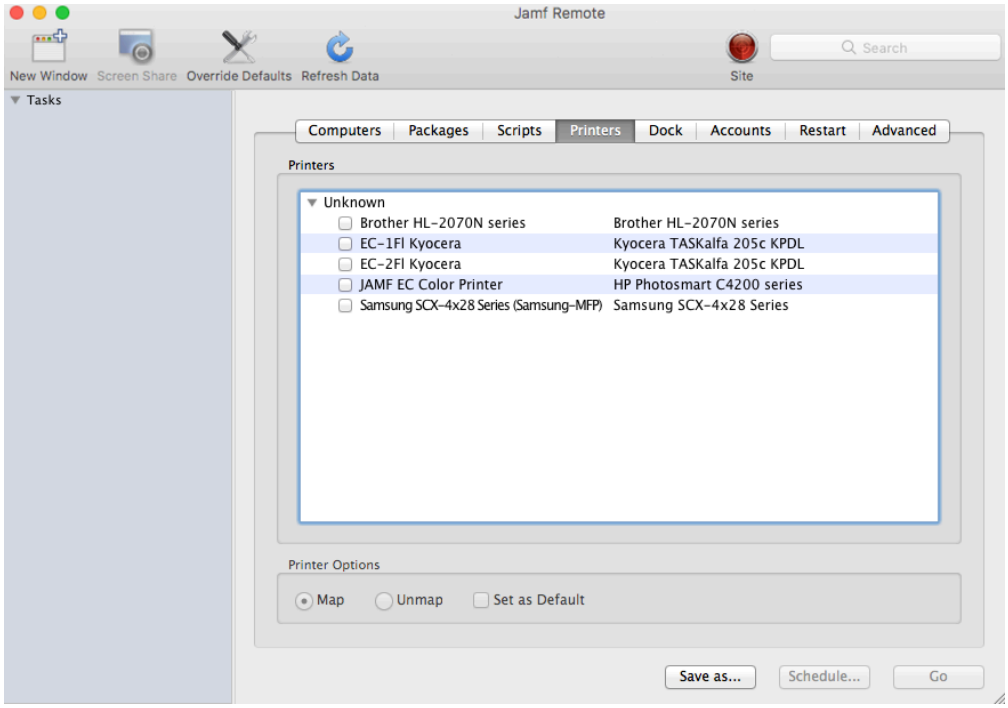
1. Open Jamf Remote and authenticate to the Jamf Pro server.
2. Click **Site** and choose a site.
   This determines which items are available in Jamf Remote.

   Note: This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

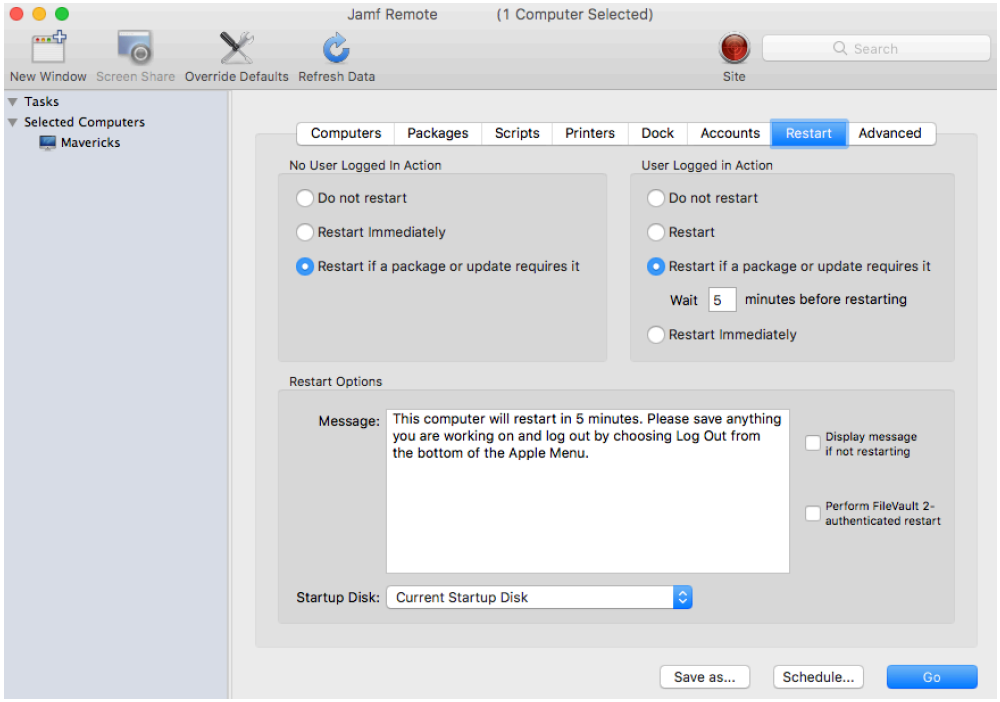
3. In the list of computers, select the checkbox for each computer on which you want to map or unmap the printer.



4. Click the **Printers** tab.
5. In the list of printers, select the checkbox for the printer you want to map or unmap.



6. Select the **Map** or **Unmap** option.
7. (Optional) Make the printer the default by selecting the **Set as Default** checkbox.
8. Click the **Restart** tab and configure settings for restarting computers.



9. Do one of the following:
   - To immediately perform the tasks on the specified computers, click **Go**.
   - To schedule the tasks to take place at a specific day and time, click **Schedule** and choose a day and time. Then click **Schedule** again.

Related Information

For related information, see the following sections in this guide:

- Smart Groups
  You can create smart computer groups based on mapped printers.
- About Policies
  Learn the basics about policies.
- Policy Management
  Find out how to create policies, view the plan and status of a policy, and view and flush policy logs.

Managing Dock Items

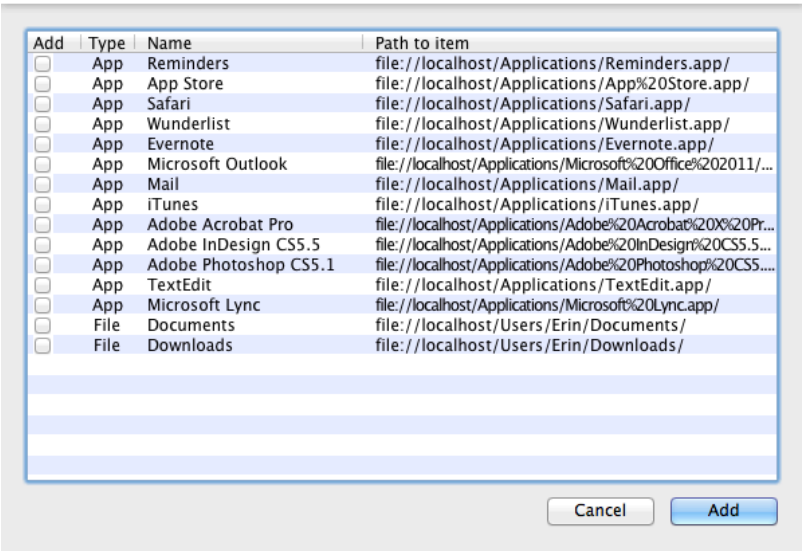
Adding Dock items to Jamf Admin or Jamf Pro is the first step to administering Dock items on computers.

When you add a Dock item to Jamf Admin, you choose from a list of Dock items that are on the computer running Jamf Admin. When you add a Dock item to Jamf Pro, you manually specify information about the Dock item.

When you add, edit, or delete a Dock item in Jamf Admin, the changes are reflected in Jamf Pro and vice versa.

Adding a Dock Item to Jamf Admin

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. Click **Add Dock Items** .
3. Select the checkbox next to each Dock item you want to add.



4. Click **Add**.

Adding a Dock Item to Jamf Pro

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the "Computer Management" section, click **Dock Items** .

5. Click **New**  .
6. Configure the Dock item using the settings on the pane.
7. Click **Save**  .

Deleting a Dock Item in Jamf Admin

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. In the main repository, select the Dock item you want to delete.
3. Click **Delete**  , and then click **Delete** again to confirm.

Related Information

For related information, see the following section in this guide:

Administering Dock Items
Find out how to add and remove Dock items using a policy or Jamf Remote.

Administering Dock Items

There are two ways to add or remove Dock items on computers: using a policy or using Jamf Remote.

When you add a Dock item on computers, you can choose whether to add it to the beginning or the end of the Dock.

Requirements

To add or remove a Dock item on computers, the Dock item must be added to Jamf Admin or Jamf Pro. For more information, see Managing Dock Items.

Adding or Removing a Dock Item Using a Policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click **New** 

.
5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the Dock Items payload and click **Configure**.
7. Click **Add** for the Dock item you want to add or remove.
8. Choose "Add to Beginning of Dock", "Add to End of Dock", or "Remove from Dock" from the **Action** pop-up menu.
9. Use the Restart Options payload to configure settings for restarting computers.
   For more information, see Restart Options Payload.
10. Click the **Scope** tab and configure the scope of the policy.
    For more information, see Scope.
11. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
    For more information, see Items Available to Users in Jamf Self Service for macOS.
12. (Optional) Click the **User Interaction** tab and configure messaging and deferral options.
    For more information, see User Interaction with Policies.
13. Click **Save**  .

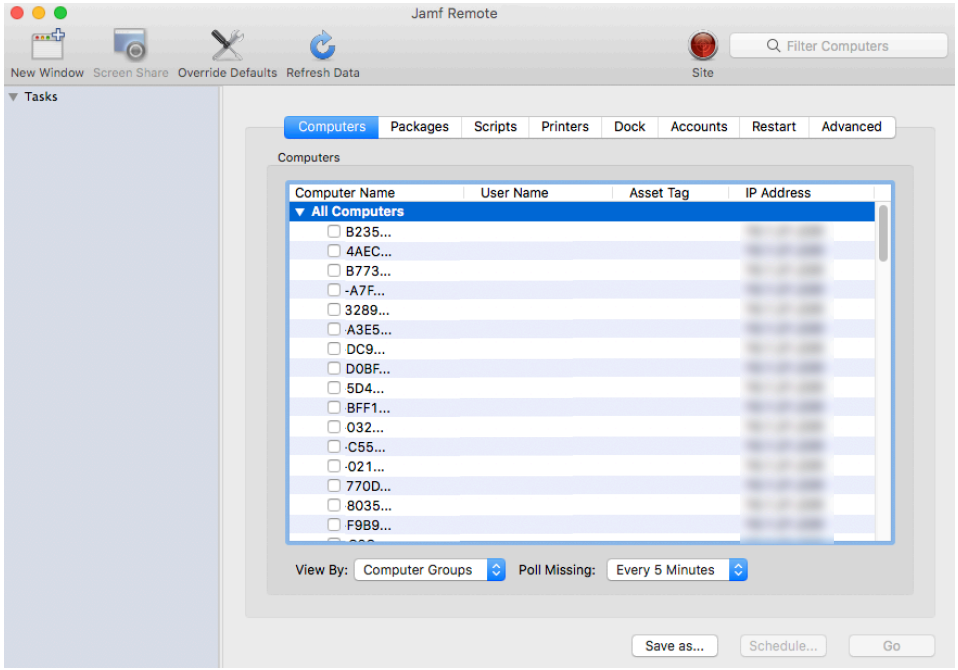
The policy runs on computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

Adding or Removing a Dock Item Using Jamf Remote

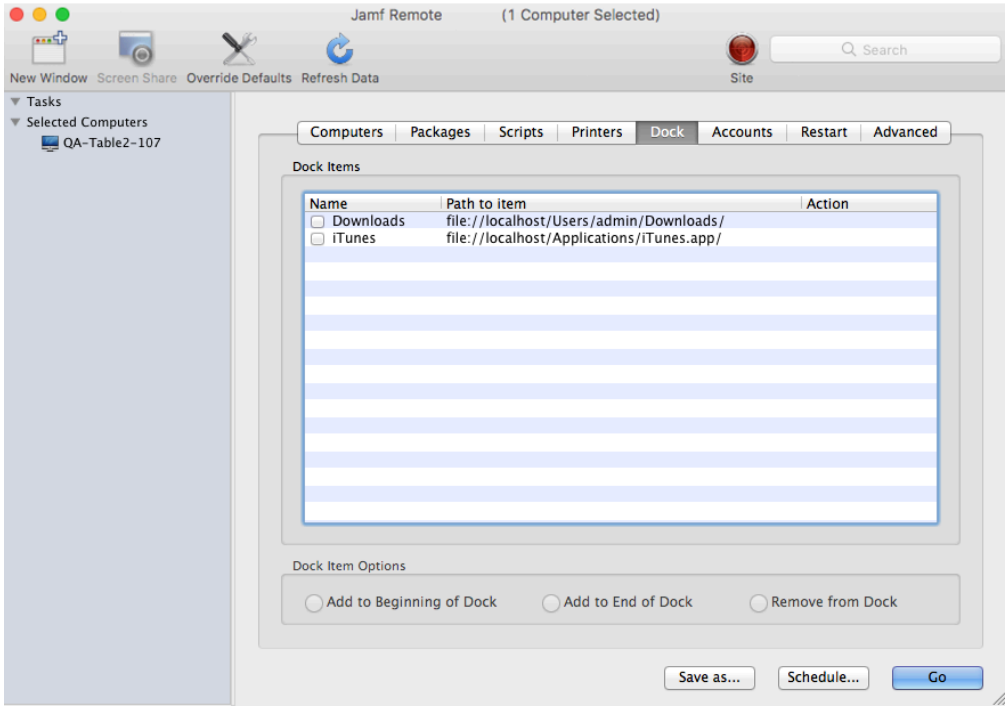
1. Open Jamf Remote and authenticate to the Jamf Pro server.
2. Click **Site** and choose a site.
   This determines which items are available in Jamf Remote.

   Note: This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

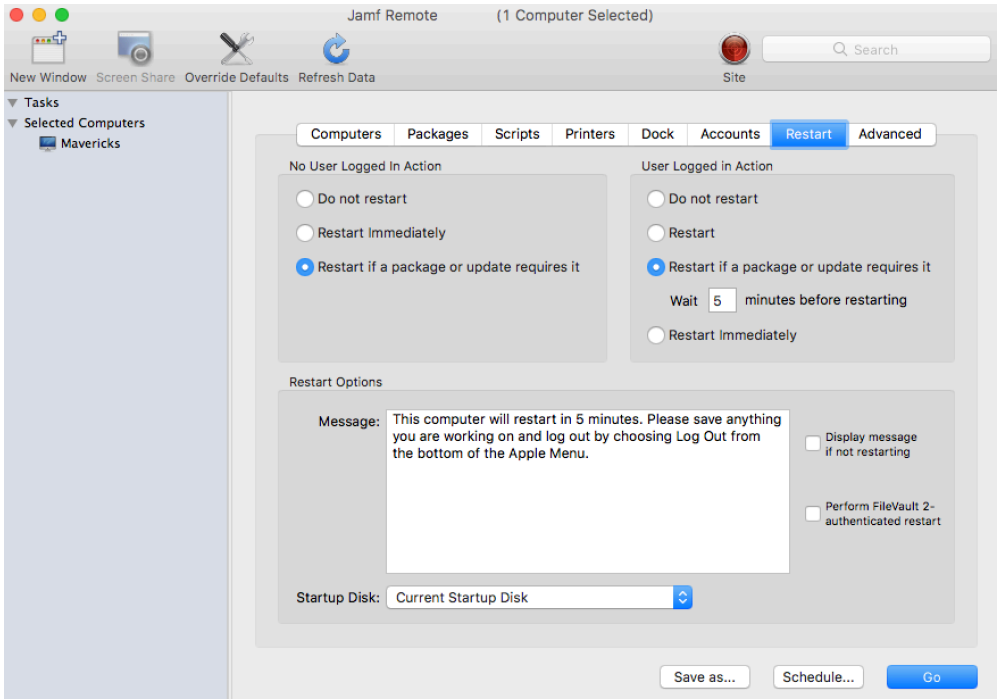
3. In the list of computers, select the checkbox for each computer on which you want to add or remove the Dock item.



4. Click the **Dock** tab.
5. In the list of Dock items, select the checkbox for the Dock item you want to add or remove.



6. Select the **Add to Beginning of Dock**, **Add to End of Dock**, or **Remove from Dock** option.
7. Click the **Restart** tab and configure settings for restarting computers.



8. Do one of the following:
   - To immediately perform the tasks on the specified computers, click **Go**.
   - To schedule the tasks to take place at a specific day and time, click **Schedule** and choose a day and time. Then click **Schedule** again.

Related Information

For related information, see the following sections in this guide:

- About Policies
  Learn the basics about policies.
- Policy Management
  Find out how to create policies, view the plan and status of a policy, and view and flush policy logs.

Administering Local Accounts

You can perform the following local account administration tasks using a policy or Jamf Remote:

- Create a new account.
- Delete an existing account.
- Reset the password for an existing account.
- (Policy only) Disable an existing account for FileVault 2.

When you create a new account, you can do the following:

- Specify the password and password hint.
- Specify a location for the home directory.
- Configure the account picture.
- Give the user administrator privileges to the computer.
- (Policy only) Enable the account for FileVault 2.

When you delete an existing account, you can permanently delete the home directory or specify an archive location.

Requirements

(macOS 10.14 or later only) To reset an existing account password, the SecureToken for the account must be disabled.

(macOS 10.13 or later only) To enable the account for FileVault 2, a valid management account with a SecureToken is required to add the new user.

For more information on SecureToken, see the following documentation from Apple: https://support.apple.com/guide/deployment-reference-macos/welcome/web

Administering Local Accounts Using a Policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click **New** 

.
5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the Local Accounts payload and click **Configure**.
7. Choose an action from the **Action** pop-up menu.
8. Configure the action using the options on the pane.

9. Use the Restart Options payload to configure settings for restarting computers.
   For more information, see Restart Options Payload.
10. Click the **Scope** tab and configure the scope of the policy.
    For more information, see Scope.
11. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
    For more information, see Items Available to Users in Jamf Self Service for macOS.
12. (Optional) Click the **User Interaction** tab and configure messaging and deferral options.
    For more information, see User Interaction with Policies.
13. Click **Save**.

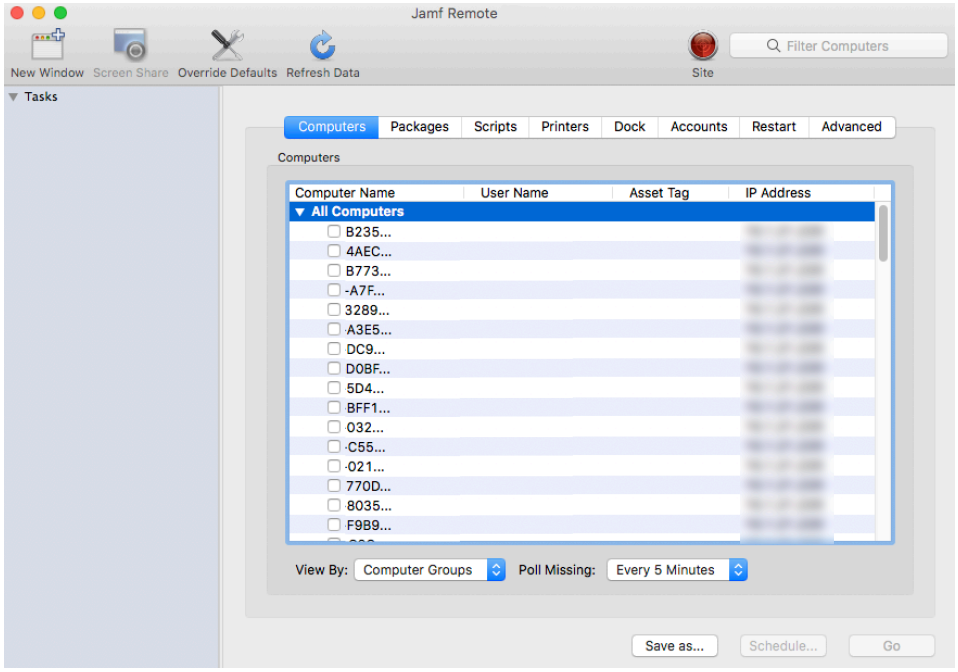
    The policy runs on computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

Administering Local Accounts Using Jamf Remote

1. Open Jamf Remote and authenticate to the Jamf Pro server.
2. Click **Site** and choose a site.
   This determines which items are available in Jamf Remote.

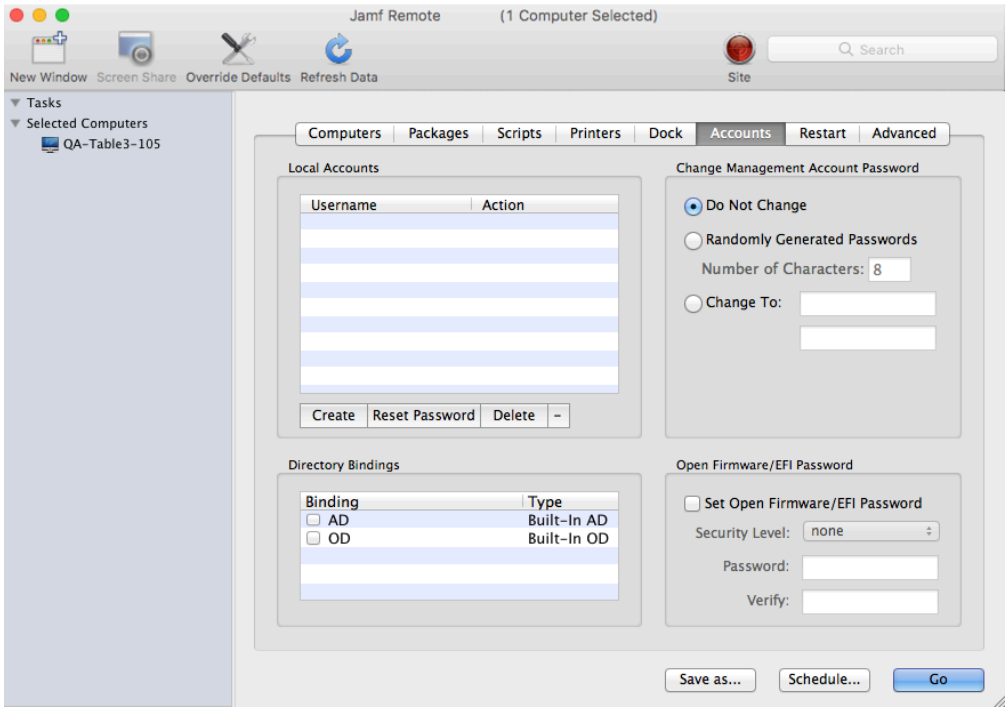
   Note: This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

3. In the list of computers, select the checkbox for each computer on which you want to administer local accounts.

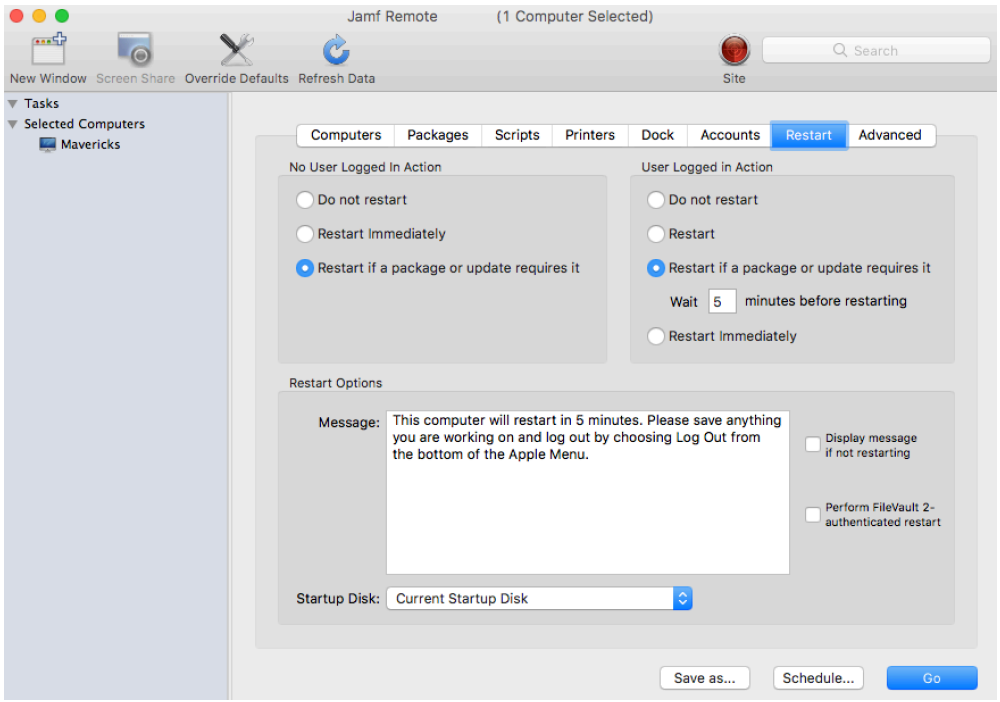


4. Click the **Accounts** tab.

5. Click **Create**, **Reset Password**, or **Delete**.



6. Configure the action using the options in the window that appears.
7. Click the **Restart** tab and configure settings for restarting computers.



8. Do one of the following:
   - To immediately perform the tasks on the specified computers, click **Go**.
   - To schedule the tasks to take place at a specific day and time, click **Schedule** and choose a day and time. Then click **Schedule** again.

Related Information

For related information, see the following sections in this guide:

- Smart Groups
  You can create smart computer groups based on local user accounts.
- About Policies
  Learn the basics about policies.
- Policy Management
  Find out how to create a policy, view the plan and status of a policy, and view and flush policy logs.
- Administering the Management Account
  Find out how to change or reset the management account password, and enable or disable the management account for FileVault 2.

Administering the Management Account

You can use a policy or Jamf Remote to administer the management account.

Using a policy to administer the management account allows you to do the following:

- **Change the account password**—This option changes the management account's password, as well as the account's password and FileVault 2 password. It is recommended that you use this option if the management account's login keychain password matches the account password stored in Jamf Pro.
- **Reset the account password**—This option only changes the management account's password. This option does not change the management account's login keychain password or FileVault 2 password. For computers with macOS 10.14 or later, you must disable the management account SecureToken to reset the password. For more information on SecureToken, see the following documentation from Apple: https://support.apple.com/guide/deployment-reference-macos/welcome/web

  Note: If the management account's login keychain password does not match the account password stored in Jamf Pro, you must use the **Reset Account Password** option when administering the management account using a policy or the policy will fail.

- **Enable the user for FileVault 2**

  Note: For computers with macOS 10.13 or later, the computer must have a valid individual recovery key that matches the recovery key escrowed in Jamf Pro.

- **Disable the user for FileVault 2**

Important: When configuring the management account password settings, it is recommended that you select the "Randomly generate new password" option for maximum security.

Using Jamf Remote to administer the management account allows you to reset the management account's password.

Administering the Management Account Using a Policy

You can change or reset the management account password using a policy. You can also enable or disable the management account for FileVault 2.

1. Log in to Jamf Pro.
2. Click the **Computers** tab at the top of the page.
3. Click **Policies**.
4. Click **New** + New .

5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the Management Account payload and select an action using the options on the pane.

   Important: When configuring the management account password settings, it is recommended that you select the "Randomly generate new password" option for maximum security.
7. Use the Restart Options payload to configure settings for restarting computers.
   For more information, see Restart Options Payload.
8. Click the **Scope** tab and configure the scope of the policy.
   For more information, see Scope.
9. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
   For more information, see Items Available to Users in Jamf Self Service for macOS.
10. (Optional) Click the **User Interaction** tab and configure messaging and deferral options.
    For more information, see User Interaction with Policies.
11. Click **Save**.

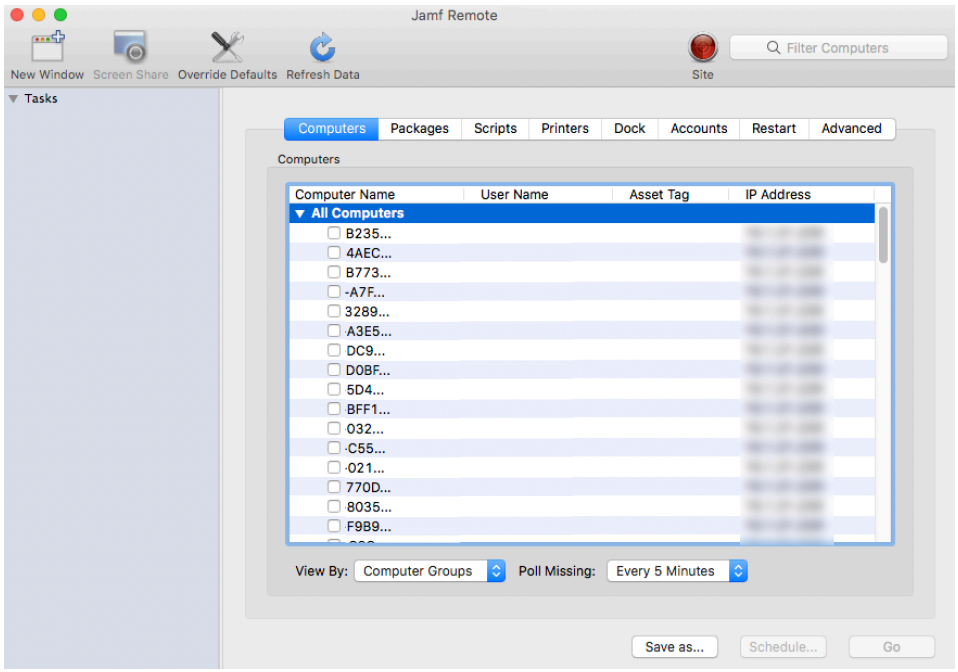
    The policy runs on computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

Resetting the Management Account Password Using Jamf Remote

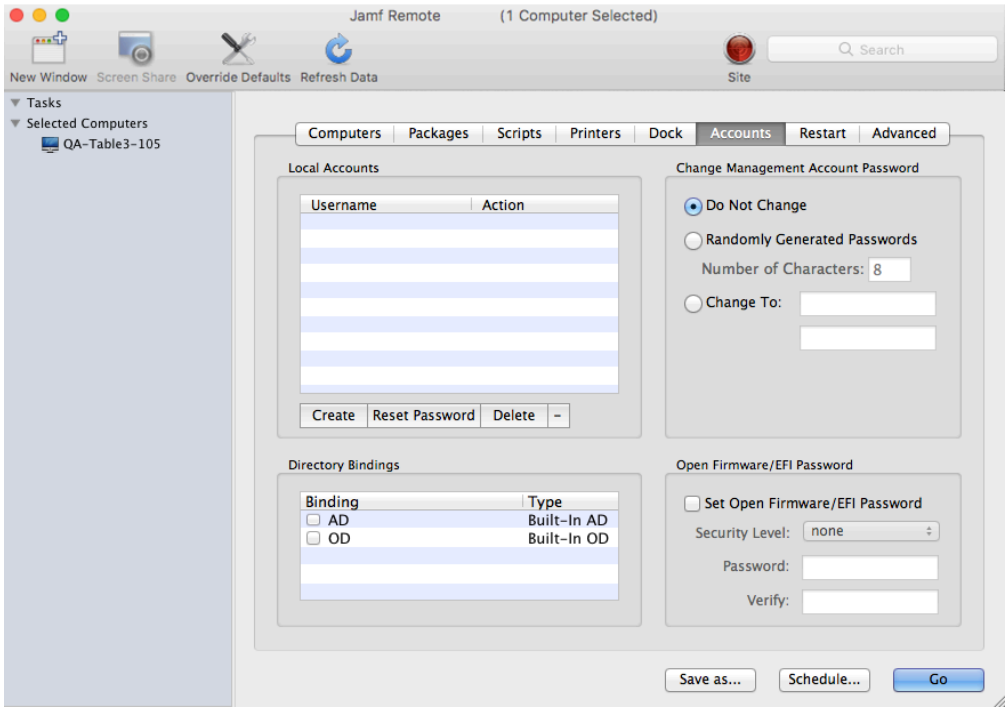
1. Open Jamf Remote and authenticate to the Jamf Pro server.
2. Click **Site** and select a site.
   This determines which items are available in Jamf Remote.

   Note: This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

3. In the list of computers, select the checkbox for each computer on which you want to administer local accounts.



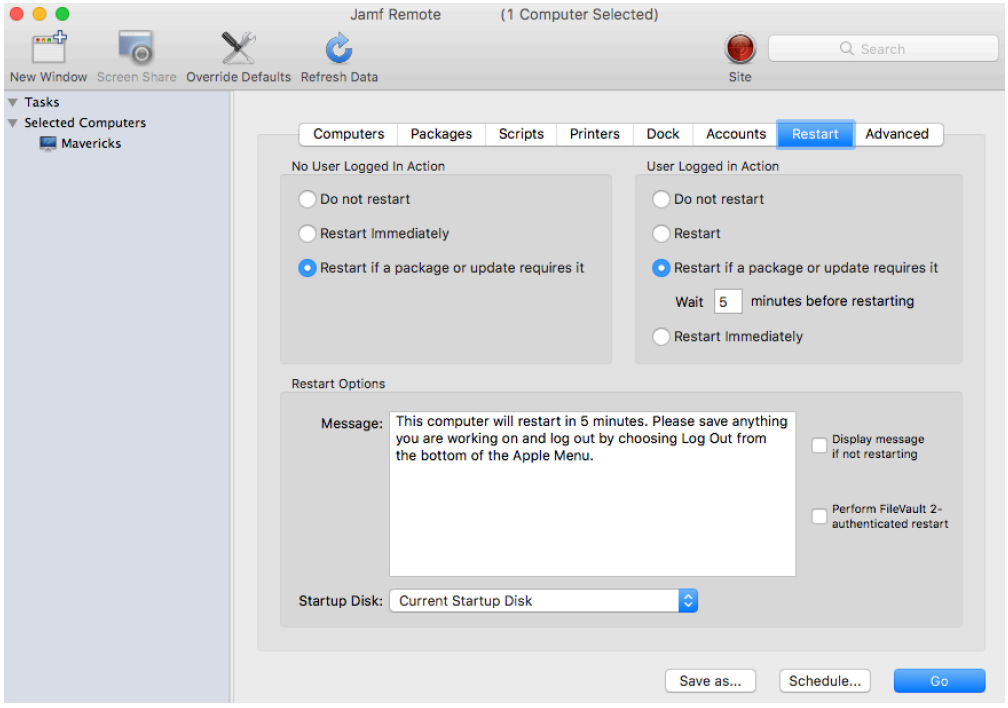
4. Click the **Accounts** tab.



5. Do one of the following:

   - To randomly generate new passwords, select **Randomly Generated Passwords** and enter the number of characters required.
   - To specify a new password, select **Change To** and enter the new password.

6. Click the **Restart** tab and configure settings for restarting computers.



7. Do one of the following:
   - To immediately perform the tasks on the specified computers, click **Go**.
   - To schedule the tasks to take place at a specific day and time, click **Schedule** and choose a day and time. Then click **Schedule** again.

Related Information

For related information, see the following sections in this guide:

- About Policies
  Learn the basics about policies.
- Policy Management
  Find out how to create a policy, view the plan and status of a policy, and view and flush policy logs.
- Computer Enrollment Methods
  Find out how to create the management account and what tasks the management account performs.

Managing Directory Bindings

Adding a directory binding to Jamf Pro is the first step to binding computers to a directory service.

You can add the following types of directory bindings to Jamf Pro:

- Microsoft's Active Directory
- Apple's Open Directory
- PowerBroker Identity Services (formerly called “Likewise”)
- ADmitMac
- Centrify

Adding a Directory Binding

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the “Computer Management” section, click **Directory Bindings** .
5. Click **New** .
6. Choose the type of directory binding you want to add and click **Next**.
7. Configure the directory binding using the tabs and options provided.
   The tabs and options provided match the ones in the third-party directory service software.
8. (Active Directory and ADmitMac only) To create an account for users to log into their computer when it is connected to another network, select the **Create mobile account at login** checkbox.

   Note: An account synchronization tool such as Jamf Connect Sync (formerly NoMAD Pro) or Apple’s Enterprise Connect can be used to sync computers with the directory.

9. Click **Save** .

Related Information

For related information, see the following section in this guide:

Binding to Directory Services
Find out how to bind computers to a directory service using a policy or Jamf Remote.

Binding to Directory Services

You can bind computers to a directory service using a policy, Jamf Remote, or a PreStage enrollment. For more information about how to bind a computer to a directory service using a PreStage enrollment, see Computer PreStage Enrollments.

Note: You can also bind to directory services during imaging. For more information, see Configurations.

Requirements

To bind computers to a directory service, you need a directory binding in Jamf Pro. For more information, see Managing Directory Bindings.

Binding to a Directory Service Using a Policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click **New**  .
5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the Directory Bindings payload and click **Configure**.
7. Click **Add** for the directory service you want to bind to.
8. Use the Restart Options payload to configure settings for restarting computers.
   For more information, see Restart Options Payload.
9. Click the **Scope** tab and configure the scope of the policy.
   For more information, see Scope.
10. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
    For more information, see Items Available to Users in Jamf Self Service for macOS.
11. (Optional) Click the **User Interaction** tab and configure messaging and deferral options.
    For more information, see User Interaction with Policies.
12. Click **Save**  .

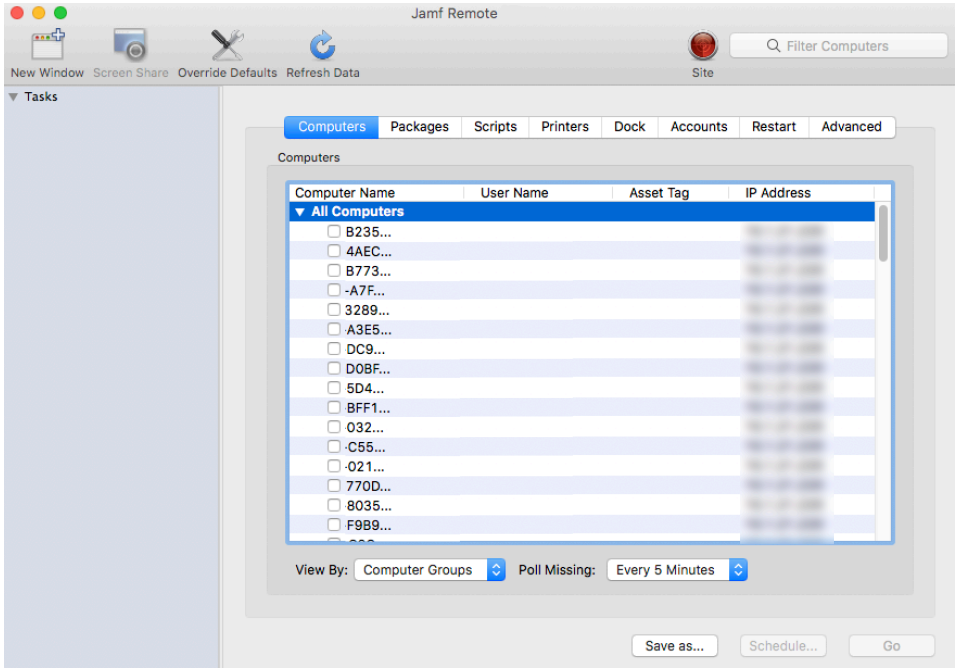
The policy runs on computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

Binding to a Directory Service Using Jamf Remote

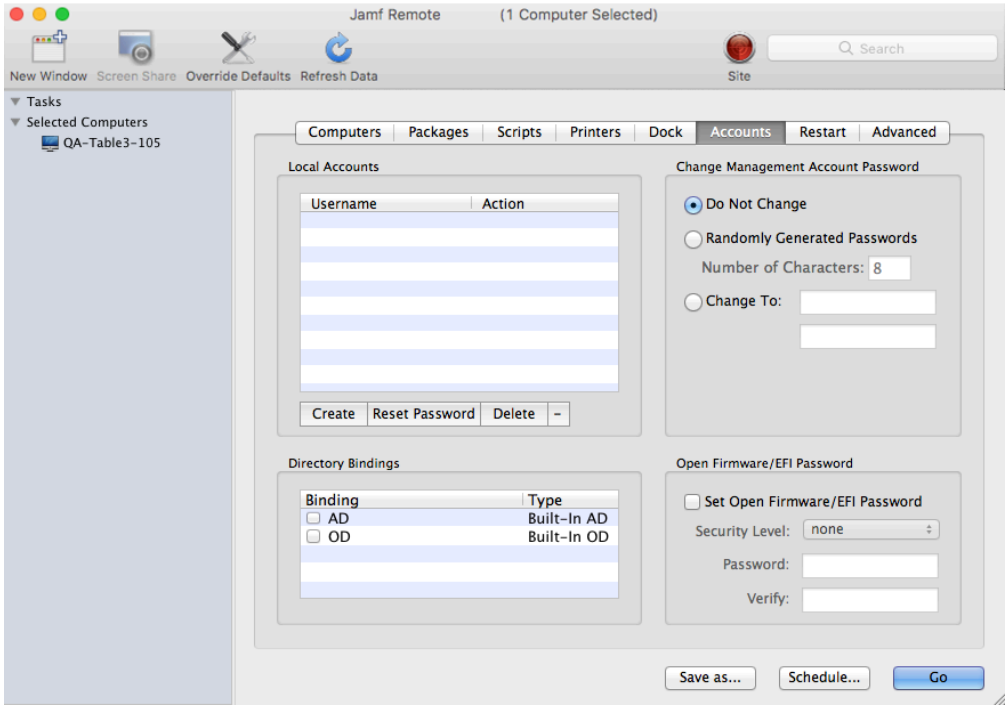
1. Open Jamf Remote and authenticate to the Jamf Pro server.
2. Click **Site** and choose a site.
   This determines which items are available in Jamf Remote.

   Note: This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

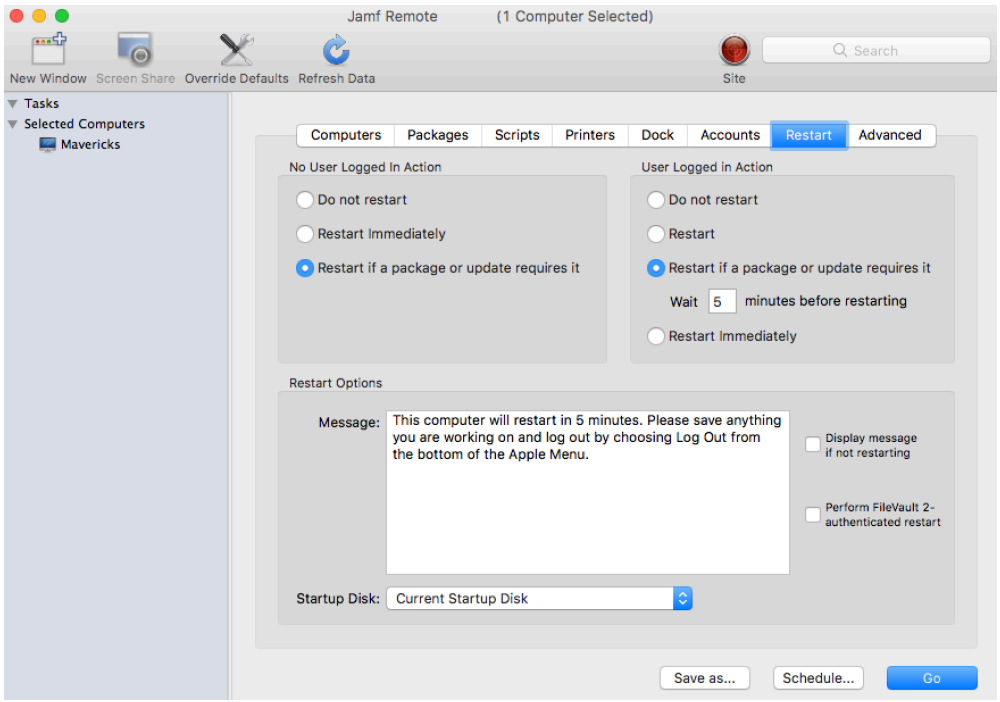
3. In the list of computers, select the checkbox for each computer you want to bind to the directory service.



4. Click the **Accounts** tab.
5. In the list of directory bindings, select the checkbox for the directory service that you want to bind to.



6. Click the **Restart** tab and configure settings for restarting computers.



7. Do one of the following:
   - To immediately perform the tasks on the specified computers, click **Go**.
   - To schedule the tasks to take place at a specific day and time, click **Schedule** and choose a day and time. Then click **Schedule** again.

Related Information

For related information, see the following sections in this guide.

- About Policies
  Learn the basics about policies.
- Policy Management
  Find out how to create a policy, view the plan and status of a policy, and view and flush policy logs.

Managing Disk Encryption Configurations

Creating a disk encryption configuration Jamf Pro is the first step to activating FileVault 2 on computers with macOS 10.8 or later.

When you create a disk encryption configuration, you specify the following information:

- The type of recovery key to use for recovering encrypted data. There are three recovery key options you can choose from:
  - **Individual (also known as "Personal")**—Uses a unique alphanumeric recovery key for each computer. The individual recovery key is generated on the computer and sent back to Jamf Pro to be escrowed when the encryption takes place.
  - **Institutional**—Uses a shared recovery key. This requires you to create the recovery key with Keychain Access and upload it to Jamf Pro for storage.
  - **Individual and Institutional**—Uses both types of recovery keys.
- The user for which to enable FileVault 2
  - **Management Account—**Makes the management account on the computer the enabled FileVault 2 user.

    Note: The management account cannot be used to enable FileVault 2 for computers with macOS 10.13 or later if the account was created with Jamf Pro due to the lack of a secure token.

    If you make the management account the enabled FileVault 2 user on computers with macOS 10.9–10.12.x, or macOS 10.14 or later, you will be able to issue a new recovery key to those computers later if necessary. For more information, see Issuing a New FileVault 2 Recovery Key.
  - **Current or Next User**—Makes the user that is logged in to the computer when the encryption takes place the enabled FileVault 2 user. If no user is logged in, the next user to log in becomes the enabled FileVault 2 user.

Requirements

To use either the "Institutional" recovery key or the "Individual and Institutional" recovery key options in the disk encryption configuration, you must first create and export a recovery key using Keychain Access. For more information, see the Creating and Exporting an Institutional Recovery Key Knowledge Base article.

Creating a Disk Encryption Configuration

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the "Computer Management" section, click **Disk Encryption Configurations** .

5. Click **New**  .
6. Configure the disk encryption configuration using the fields and options on the pane.
7. Click **Save**  .

Related Information

For related information, see the following sections in this guide:

Deploying Disk Encryption Configurations
Find out how to activate FileVault 2 by deploying a disk encryption configuration using a policy or Jamf Remote.

For related information, see the following technical paper:

Administering FileVault on macOS 10.14 or Later with Jamf Pro
Get step-by-step instructions for administering FileVault on macOS 10.14 or later, including how to activate FileVault disk encryption using a configuration profile.

Deploying Disk Encryption Configurations

Deploying disk encryption configurations allows you to activate FileVault 2 on computers with macOS 10.8 or later. There are two ways to deploy a disk encryption configuration: using a policy or using Jamf Remote.

The event that activates FileVault 2 depends on the enabled FileVault 2 user specified in the disk encryption configuration. If the enabled user is “Management Account”, FileVault 2 is activated on a computer the next time the computer restarts. If the enabled user is “Current or Next User”, FileVault 2 is activated on a computer the next time the current user logs out or the computer restarts. In addition, if you are deploying a disk encryption configuration using a policy, you can configure the policy to defer FileVault 2 enablement until after multiple user logins have occurred.

Requirements

To activate FileVault 2 on a computer, the computer must be running macOS 10.8 or later and have a “Recovery HD” partition.

Deploying a Disk Encryption Configuration Using a Policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click **New** 

.
5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the Disk Encryption payload and click **Configure**.
7. Choose "Apply Disk Encryption Configuration" from the **Action** pop-up menu.
8. Choose the disk encryption configuration you want to deploy from the **Disk Encryption Configuration** pop-up menu.

   Note: Options are only displayed in the Disk Encryption Configuration pop-up menu if one or more configurations are configured in Jamf Pro. For more information, see Managing Disk Encryption Configurations.
9. Choose an event from the **Require FileVault 2** pop-up menu to specify when users must enable disk encryption.
10. Use the Restart Options payload to configure settings for restarting computers.
    For more information, see Restart Options Payload.

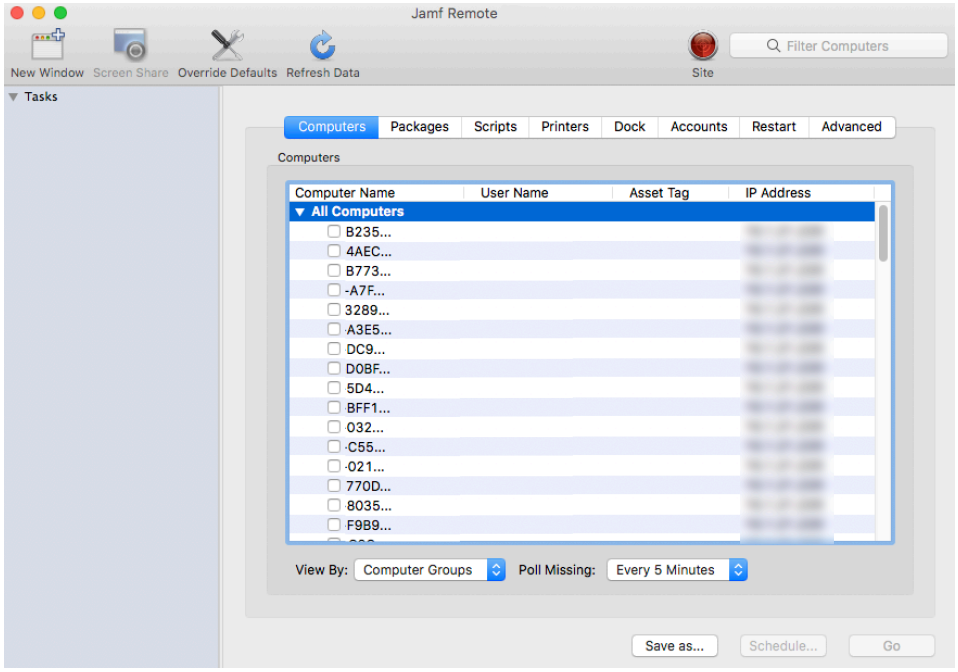
11. Click the **Scope** tab and configure the scope of the policy.
    For more information, see Scope.
12. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
    For more information, see Items Available to Users in Jamf Self Service for macOS.
13. (Optional) Click the **User Interaction** tab and configure messaging and deferral options.
    For more information, see User Interaction with Policies.
14. Click **Save**.

Deploying a Disk Encryption Configuration Using Jamf Remote

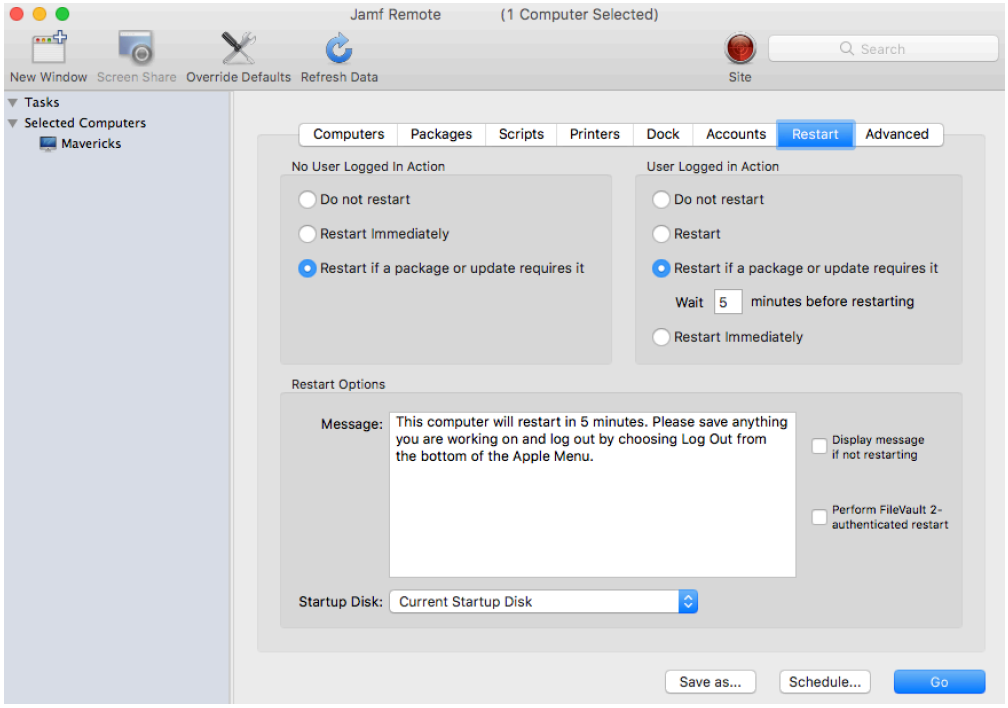
1. Open Jamf Remote and authenticate to the Jamf Pro server.
2. Click **Site** and choose a site.
   This determines which items are available in Jamf Remote.

   Note: This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

3. In the list of computers, select the checkbox for each computer to which you want to deploy the disk encryption configuration.

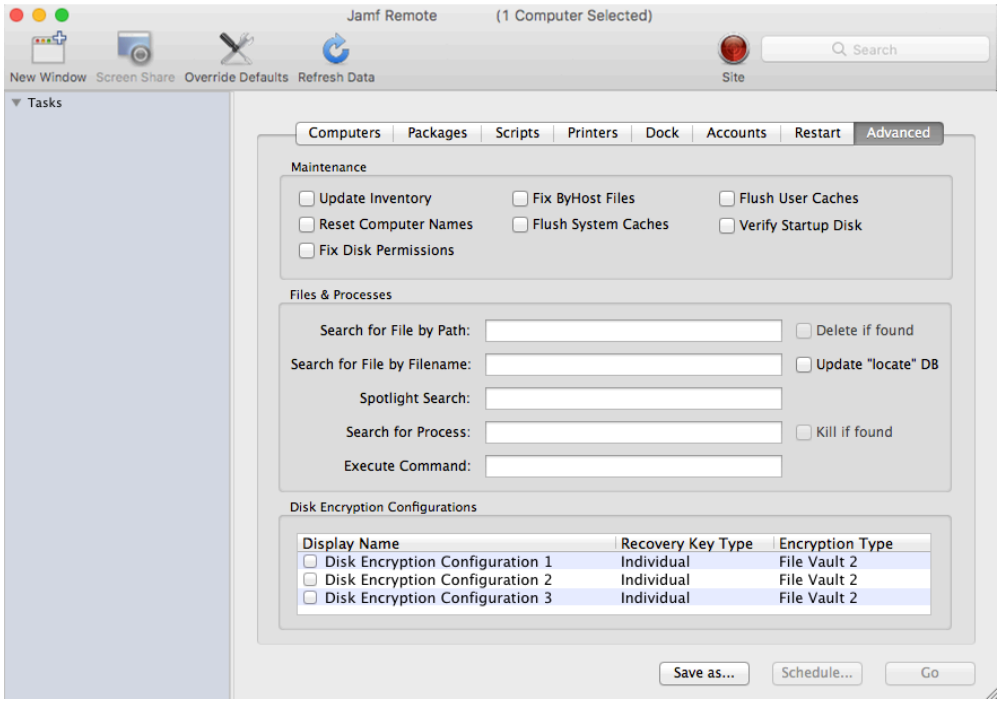


4. Click the Restart tab and configure settings for restarting computers.
   If you want to perform an authenticated restart on computers enabled with FileVault 2, select **Perform FileVault 2-authenticated restart**. This is applicable to computers with macOS 10.8.2 or later.



5. Click the **Advanced** tab.
6. In the list of disk encryption configurations, select the checkbox next to the configuration you want to deploy.

> **Note:** Disk encryption configurations are only displayed in the list if one or more disk encryption configurations are configured in Jamf Pro. For more information, see Managing Disk Encryption Configurations.



7. Do one of the following:
   - To immediately perform the tasks on the specified computers, click **Go**.
   - To schedule the tasks to take place at a specific day and time, click **Schedule** and choose a day and time. Then click **Schedule** again.

Related Information

For related information, see the following sections in this guide:

- Viewing the FileVault 2 Recovery Key for a Computer
  Find out how to view the FileVault 2 recovery keys for a computer.
- Smart Groups
  You can create smart computer groups based on criteria for FileVault 2.
- About Policies
  Learn the basics about policies.
- Policy Management
  Find out how to create a policy, view the plan and status of a policy, and view and flush policy logs.

For related information, see the following Knowledge Base article:

Smart Group and Advanced Search Criteria for FileVault 2 and Legacy FileVault
Learn about the smart computer group and advanced computer search criteria available for FileVault 2.

Issuing a New FileVault 2 Recovery Key

You can issue a new FileVault 2 recovery key to computers with macOS 10.9–10.12.x, or macOS 10.14 or later that have FileVault 2 activated. This allows you to do the following:

- Update the recovery key on computers on a regular schedule, without needing to decrypt and then re-encrypt the computers.
- Replace an individual recovery key that has been reported as invalid and does not match the recovery key escrowed in Jamf Pro.

Note: You can create a smart group to verify the recovery key on computers on a regular basis. For information on FileVault 2 smart group criteria, see the Smart Group and Advanced Search Criteria for FileVault 2 and Legacy File Vault Knowledge Base article.

You can issue a new FileVault 2 recovery key to computers using a policy.

Requirements

To issue a new individual recovery key to a computer, the computer must have:

- macOS 10.9–10.12.x, or macOS 10.14 or later
- A "Recovery HD" partition
- FileVault 2 activated
- One of the following two conditions met:
- The management account configured as the enabled FileVault 2 user
- An existing, valid individual recovery key that matches the key stored in Jamf Pro

To issue a new institutional recovery key to a computer, the computer must have:

- macOS 10.9–10.12.x
- A "Recovery HD" partition
- FileVault 2 activated
- The management account configured as the enabled FileVault 2 user

Issuing a New FileVault 2 Recovery Key

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click **New** + New .

5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the Disk Encryption payload and click **Configure**.
7. Choose "Issue New Recovery Key" from the **Action** pop-up menu.
8. Select the type of recovery key you want to issue:
   - **Individual**—A new individual recovery key is generated on each computer and then submitted to Jamf Pro for storage.
   - **Institutional**—A new institutional recovery key is deployed to computers and stored in Jamf Pro. To issue a new institutional recovery key, you must choose the disk encryption configuration that contains the institutional recovery key you want to use.
   - **Individual and Institutional**—Issues both types of recovery keys to computers.
9. Use the Restart Options payload to configure settings for restarting computers.
   For more information, see Restart Options Payload.
10. Click the **Scope** tab and configure the scope of the policy.
    For more information, see Scope.
11. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
    For more information, see Items Available to Users in Jamf Self Service for macOS.
12. (Optional) Click the **User Interaction** tab and configure messaging and deferral options.
    For more information, see User Interaction with Policies.
13. Click **Save**.

Related Information

For related information, see the following sections in this guide:

- Viewing the FileVault 2 Recovery Key for a Computer
  Find out how to view the FileVault 2 recovery keys for a computer.
- Smart Groups
  You can create smart computer groups based on criteria for FileVault 2.
- About Policies
  Learn the basics about policies.
- Policy Management
  Find out how to create a policy, view the plan and status of a policy, and view and flush policy logs.

For related information, see the following technical paper:

Administering FileVault on macOS 10.14 or Later with Jamf Pro
Get step-by-step instructions for administering FileVault on macOS 10.14 or later, including how to activate FileVault disk encryption using a configuration profile.

For related information, see the following Knowledge Base article:

Smart Group and Advanced Search Criteria for FileVault 2 and Legacy FileVault
Learn about the smart computer group and advanced computer search criteria available for FileVault 2.

Administering Open Firmware/EFI Passwords

You can administer Open Firmware or EFI passwords to ensure the security of managed computers.

There are two ways to set and remove an Open Firmware/EFI password: using a policy or using Jamf Remote.

Setting or Removing an Open Firmware/EFI Password Using a Policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click **New**  .
5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the EFI Password payload and click **Configure**.
7. Do one of the following:
   - To set an Open Firmware/EFI password, select **Set Password**, and then enter and verify the password.
   - To remove an Open Firmware/EFI password, select **Remove Password**, and then enter and verify the current password.
8. Use the Restart Options payload to configure settings for restarting computers.
   For more information, see Restart Options Payload.
9. Click the **Scope** tab and configure the scope of the policy.
   For more information, see Scope.
10. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
    For more information, see Items Available to Users in Jamf Self Service for macOS.
11. (Optional) Click the **User Interaction** tab and configure messaging and deferral options.
    For more information, see User Interaction with Policies.
12. Click **Save**.

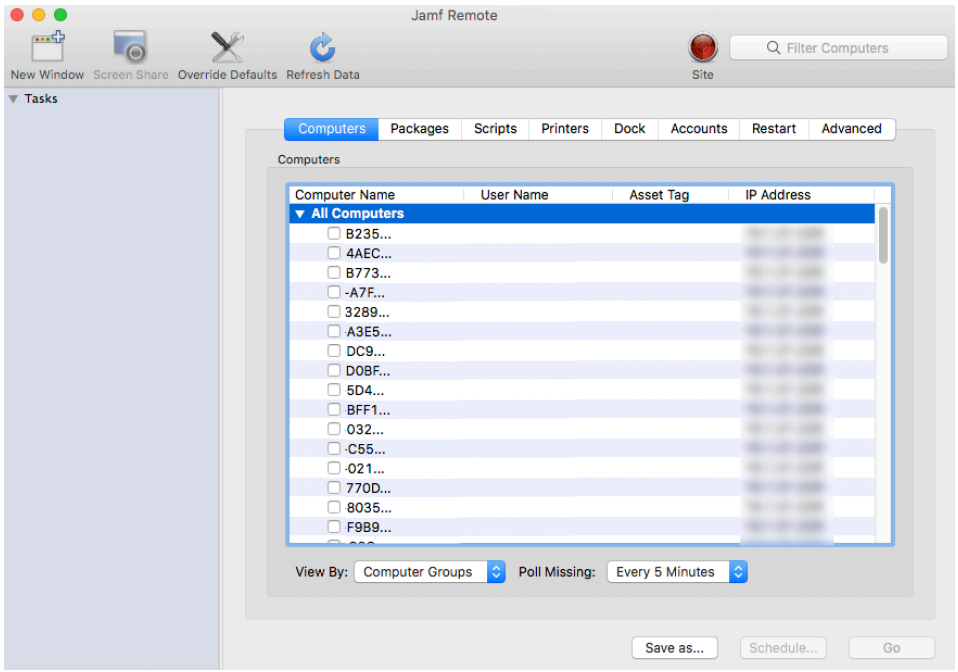
The policy runs on computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

Setting or Removing an Open Firmware/EFI Password Using Jamf Remote

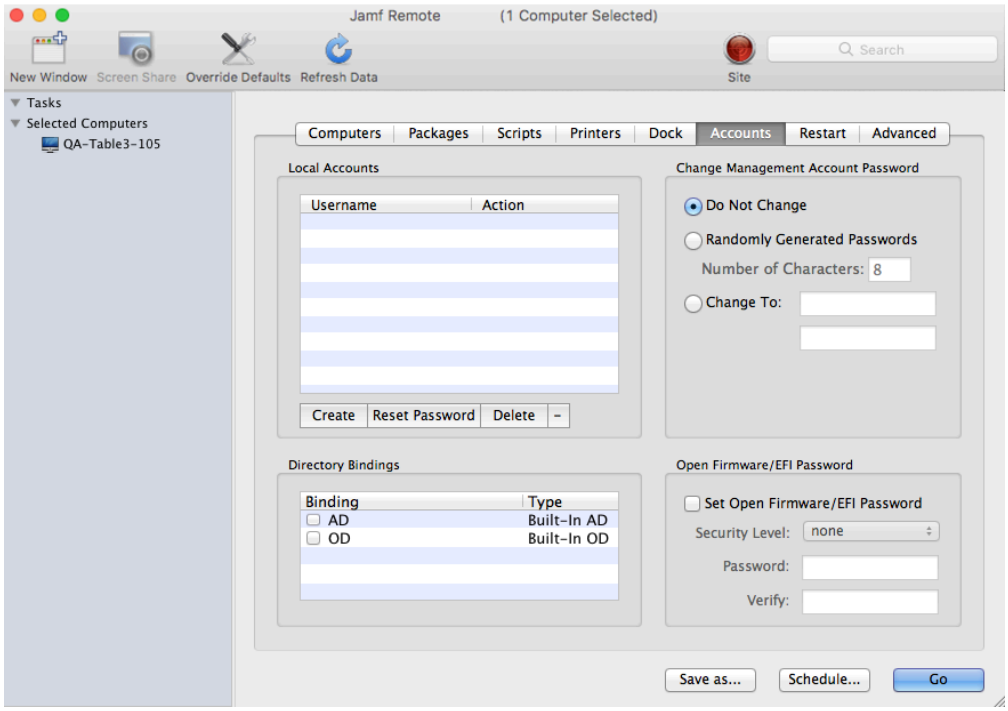
1. Open Jamf Remote and authenticate to the Jamf Pro server.
2. Click **Site** and choose a site.
   This determines which items are available in Jamf Remote.

   Note: This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

3. In the list of computers, select the checkbox for each computer on which you want to set or remove an Open Firmware/EFI password.

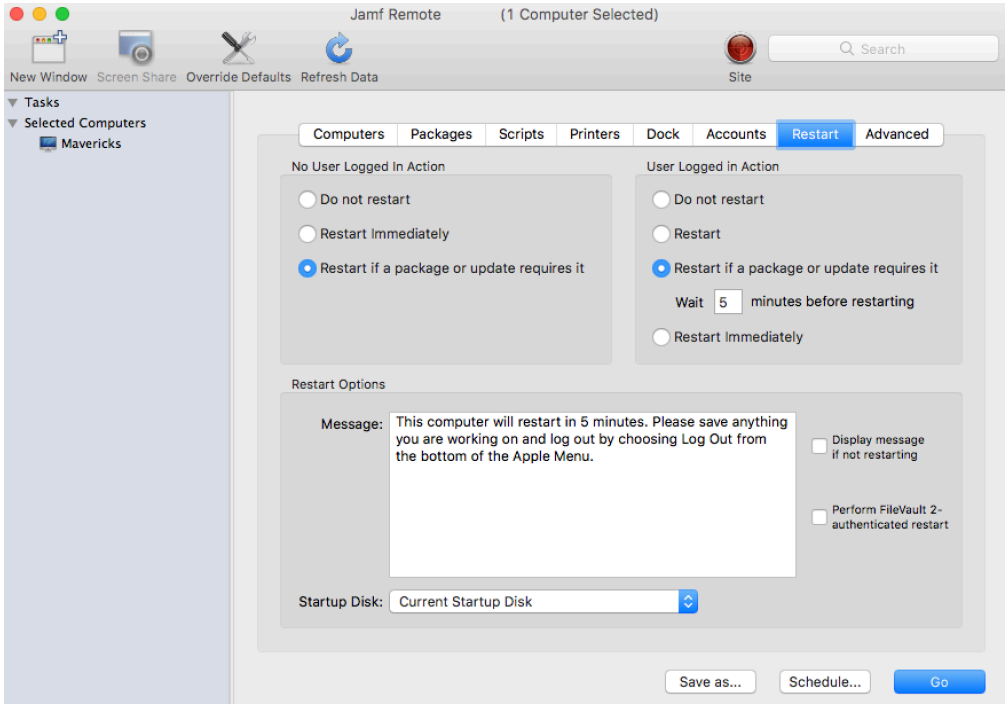


4. Click the **Accounts** tab.



5. Select the **Set Open Firmware/EFI Password** checkbox.
6. Do one of the following:
   - To set the password, choose "command" from the **Security Level** pop-up menu and enter and verify the password.
   - To remove the password, choose "none" from the **Security Level** pop-up menu.

7. Click the **Restart** tab and configure settings for restarting computers.



8. Do one of the following:

- To immediately perform the tasks on the specified computers, click **Go**.
- To schedule the tasks to take place at a specific day and time, click **Schedule** and choose a day and time. Then click **Schedule** again.

Related Information

For related information, see the following sections in this guide:

- About Policies
  Learn the basics about policies.
- Policy Management
  Find out how to create a policy, view the plan and status of a policy, and view and flush policy logs.

Imaging

About Imaging

Imaging computers with Jamf Pro involves booting computers to a startup disk other than the target drive and then using the Jamf Imaging application to deploy a configuration.

Some common startup disks used for imaging are USB or FireWire drives, Restore partitions, and NetBoot images.

Disclaimer: Apple does not recommend or support monolithic system imaging as an installation method because of recent improvements in macOS security, hardware, management, and deployment. Apple encourages IT administrators to convert from device imaging to Automated Device Enrollment (formerly DEP) workflows. For more information on supported methods of installing macOS, see APFS and imaging in Apple's *macOS Deployment Reference*. For more information about enrolling and deploying computers using Automated Device Enrollment and a PreStage enrollment configured in Jamf Pro, see Computer PreStage Enrollments.

There are four imaging methods:

- **Standard imaging**—Standard imaging allows you to configure the imaging settings for a computer at imaging time.
- **Autorun imaging**—Autorun imaging allows you to store imaging settings in Jamf Pro, so they don't have to be configured at imaging time. In addition, Autorun imaging can be completely automated to run on a schedule.
- **PreStage imaging**—PreStage imaging allows you to store imaging settings in Jamf Pro and use them to image new computers as you add them to the network. This reduces the amount of time and interaction it takes to prepare new computers for use.
- **Target Mode Imaging (TMI)**—Target Mode Imaging (TMI) allows you to image multiple computers subsequently by connecting them to a host computer using a FireWire, Thunderbolt, or USB-C cable. This can be ideal when using a network connection is not optimal or supported.

Related Information

For more information, see the following sections in this guide:

- Configurations
  Learn about configurations and find out how to create them.
- Standard Imaging
  Find out how to image computers using standard imaging.
- Autorun Imaging
  Find out how to image computers using Autorun imaging.

- PreStage Imaging
  Find out how to image computers using PreStage imaging.
- Target Mode Imaging
  Find out how to image computers using TMI.
- Event Logs
  Find out how to view event logs for Jamf Imaging events.

For related information, see the following Knowledge Base articles:

- Creating a NetBoot Image and Setting Up a NetBoot Server
- Imaging Computer Permissions Requirements

Configurations

Disclaimer: Apple does not recommend or support monolithic system imaging as an installation method because of recent improvements in macOS security, hardware, management, and deployment. Apple encourages IT administrators to convert from device imaging to Automated Device Enrollment (formerly DEP) workflows. For more information on supported methods of installing macOS, see APFS and imaging in Apple's *macOS Deployment Reference*. For more information about enrolling and deploying computers using Automated Device Enrollment and a PreStage enrollment configured in Jamf Pro, see Computer PreStage Enrollments.

Configurations are modular images that allow you to quickly specify what needs to be installed and configured on computers during imaging. Unlike standard images, you can easily make changes to configurations without rebuilding them.

You can include the following items in a configuration:

- Packages
- Scripts
- Printers
- Directory bindings
- Management account settings
- A homepage
- Partitions

You can manage configurations using Jamf Admin or Jamf Pro. When you create, edit, or delete a configuration in Jamf Admin, the changes are reflected in Jamf Pro, and vice versa.

Standard and Smart Configurations

There are two types of configurations: standard configurations and smart configurations.

Smart configurations inherit settings from another configuration (called a “parent configuration”). Making changes to the parent configuration automatically updates the smart configuration to reflect the changes. If there are settings in the parent configuration that you want to override, you can customize the packages, scripts, printers, or directory bindings in the smart configuration as needed.

Compiled Configurations

You can compile both standard and smart configurations. Compiling a configuration builds a single DMG, allowing you to block-copy the entire configuration during imaging and speed up the process. You can choose to make the DMG a compressed or uncompressed file.

Configurations can only be compiled using Jamf Admin. You can only compile configurations if your principal distribution point is a file share distribution point.

Configurations that include a macOS Installer must be compiled on a computer with the same OS version as the installer.

Configurations with Partitions

There are three ways to configure a partition in a configuration:

- Image the partition using another configuration
- Install a Winclone image on the partition
- Make the partition a Restore partition

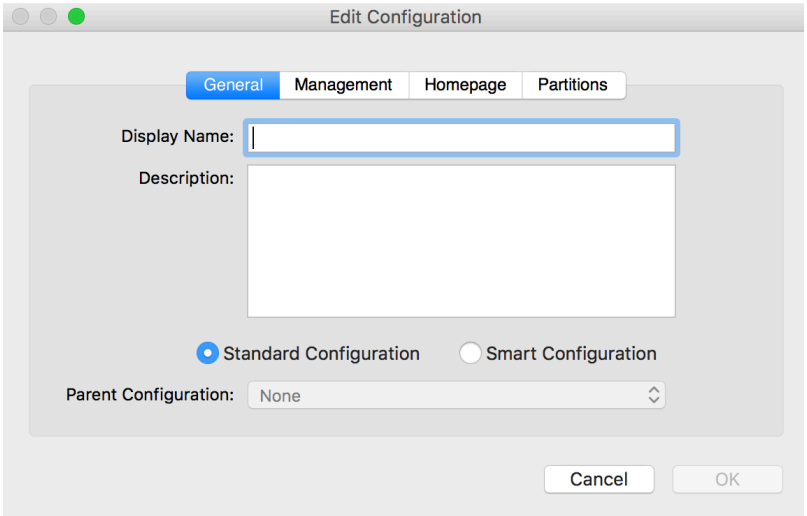
Restore partitions are hidden partitions that have only an OS package and Jamf Imaging installed. They allow you to re-image computers without using NetBoot or an external drive.

> **Note:** As a safety mechanism, drives that already have visible partitions cannot be re-partitioned using Jamf Pro.

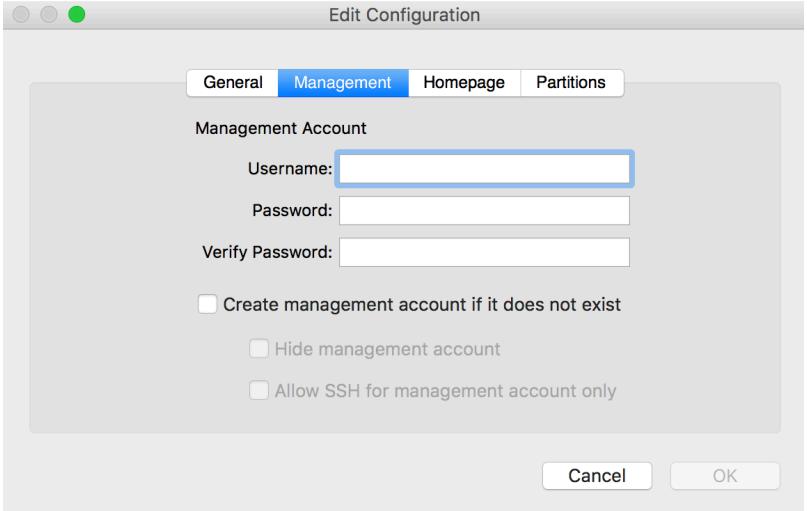
Creating a Configuration Using Jamf Admin

Several settings in Jamf Admin have tool tips. To read more about a specific setting, hover your mouse over it until a tool tip is displayed.

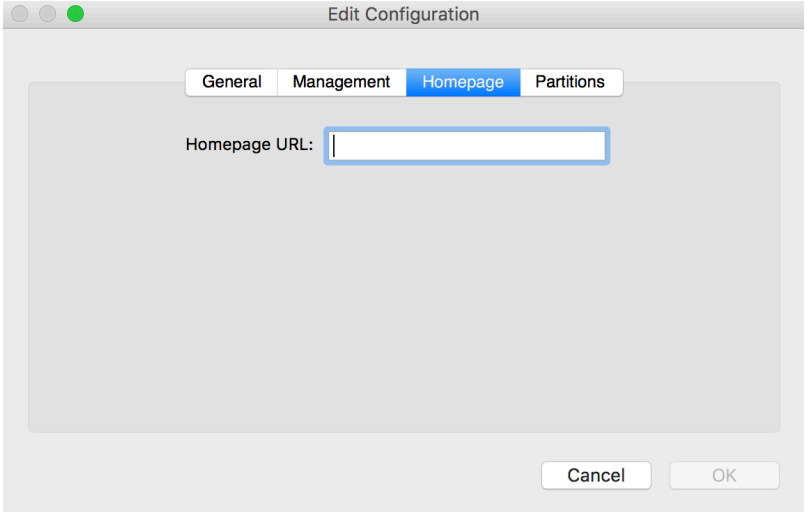
1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. Click **New Config** .
3. Use the General pane to configure basic settings for the configuration.
   To create a smart configuration, select the **Smart Configuration** option and choose a parent configuration.



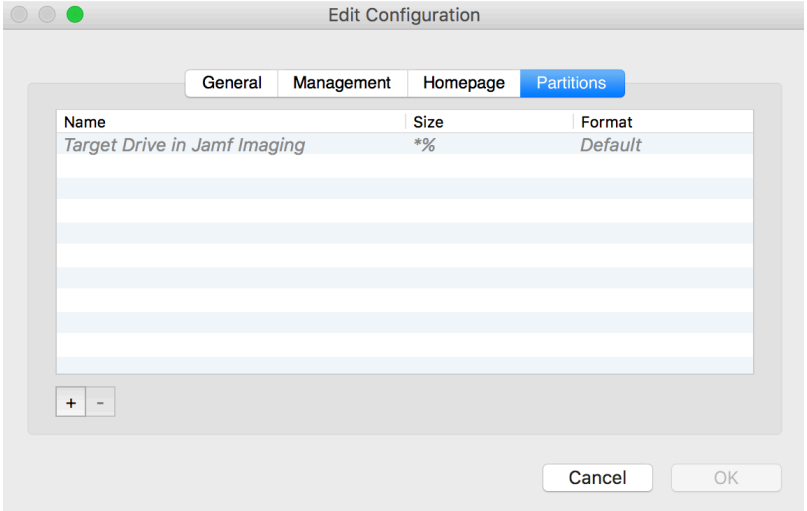
4. (Optional) Click the **Management** tab and set or create a management account. This ensures that computers imaged with the configuration are managed.



5. (Optional) Click the **Homepage** tab and enter a homepage URL.



6. (Optional) Click the **Partitions** tab and click **Add (+)** to set up a partition.



7. Click **OK**.
   The configuration is added to the list of configurations in the sidebar.
8. Add packages, scripts, printers, and directory bindings by dragging them from the main repository to the configuration in the sidebar.

Creating a Configuration Using Jamf Pro

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the "Computer Management" section, click **Configurations** .
5. Click **New** .
6. Use the General payload to configure basic settings for the configuration.
   To create a smart configuration, choose "Smart" from the **Type** pop-up menu and choose a parent configuration.
7. Use the Packages, Scripts, Printers, and Directory Bindings payloads to add items to the configuration.
8. (Optional) Use the Management payload to set or create a management account.
   This ensures that computers imaged with the configuration are managed.
9. (Optional) Use the Homepage payload to set the homepage.
10. (Optional) Use the Partitions payload to set up partitions.
11. Click **Save** .

Compiling a Configuration

The time it takes to compile a configuration depends on the amount of data in the configuration. For fastest results, use a wired connection.

Configurations that include a macOS Installer must be compiled on a computer with the same OS version as the installer.

You may be prompted to authenticate several times during the compilation process.

> **Note:** If you compile a configuration that includes a package with an architecture type requirement and a substitute package, the package substitution will not work.

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. In the sidebar, select the configuration and click **Compile**.
3. Choose to create a compressed or an uncompressed DMG.
4. Enter credentials for a local administrator account.
5. Click **OK**.

Editing or Deleting a Configuration Using Jamf Admin

Several settings in Jamf Admin have tool tips. To read more about a specific setting, hover your mouse over it until a tool tip is displayed.

1. Open Jamf Admin and authenticate to the Jamf Pro server.
2. In the sidebar, select the configuration you want to edit or delete.
3. Do one of the following:
   - To edit the configuration, double-click it and make changes as needed. Then click **OK**.
   - To delete the configuration, click **Delete** , and then click **Delete** again to confirm.

Related Information

For related information, see the following sections in this guide:

- Standard Imaging
  Find out how to image computers using a configuration and standard imaging.
- Autorun Imaging
  Find out how to image computers using a configuration and Autorun imaging.
- PreStage Imaging
  Find out how to image computers using a configuration and Imaging PreStage.
- Target Mode Imaging
  Find out how to image computers using a configuration and Target Mode Imaging.

For related information, see the following Knowledge Base article:

Creating Images with Winclone for Deployment with Jamf Imaging
Find out how to create a Winclone image that you can install on a partition during imaging.

Booting Computers to NetBoot Images

Disclaimer: Apple does not recommend or support monolithic system imaging as an installation method because of recent improvements in macOS security, hardware, management, and deployment. Apple encourages IT administrators to convert from device imaging to Automated Device Enrollment (formerly DEP) workflows. For more information on supported methods of installing macOS, see APFS and imaging in Apple's *macOS Deployment Reference*. For more information about enrolling and deploying computers using Automated Device Enrollment and a PreStage enrollment configured in Jamf Pro, see Computer PreStage Enrollments.

When you boot computers to a NetBoot image, you can choose which NetBoot server computers should use.

Note: If you are booting a computer with macOS 10.11 or later to a NetBoot image, the computer must first trust the NetBoot server. For more information, see the Booting a macOS 10.11 or Later Computer to a NetBoot Image Using a Policy or Jamf Remote Knowledge Base article.

There are two ways to boot computers to a NetBoot image: using a policy or using Jamf Remote.

Requirements

To boot computers to a NetBoot image, you need a NetBoot server in Jamf Pro. For more information, see NetBoot Servers.

Booting Computers to a NetBoot Image Using a Policy

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Policies**.
4. Click **New** 

.
5. Use the General payload to configure basic settings for the policy, including the trigger and execution frequency.
   For an overview of the settings in the General payload, see General Payload.
6. Select the Restart Options payload.
7. Choose "NetBoot" from the **Startup Disk** pop-up menu.
8. Choose the server that hosts the NetBoot image you want to boot computers to.
9. Configure the rest of the settings for restarting computers.
10. Click the **Scope** tab and configure the scope of the policy.
    For more information, see Scope.

11. (Optional) Click the **Self Service** tab and make the policy available in Self Service.
    For more information, see Items Available to Users in Jamf Self Service for macOS.

12. (Optional) Click the **User Interaction** tab and configure messaging and deferral options.
    For more information, see User Interaction with Policies.

13. Click **Save**.

    The policy runs on computers in the scope the next time they check in with Jamf Pro and meet the criteria in the General payload.

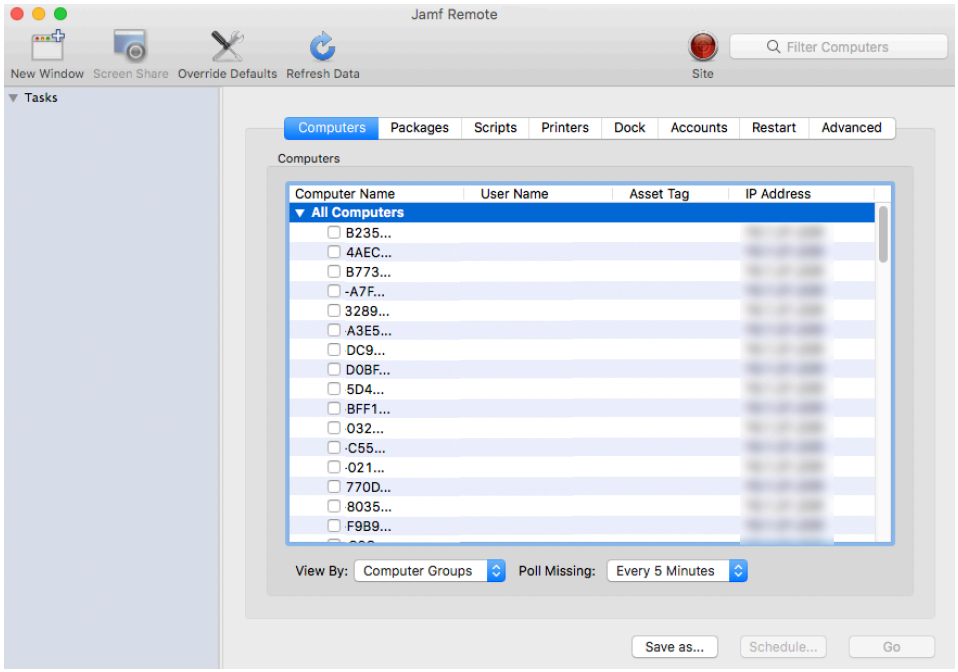
Booting Computers to a NetBoot Image Using Jamf Remote

1. Open Jamf Remote and authenticate to the Jamf Pro server.

2. Click **Site** and choose a site.
   This determines which items are available in Jamf Remote.

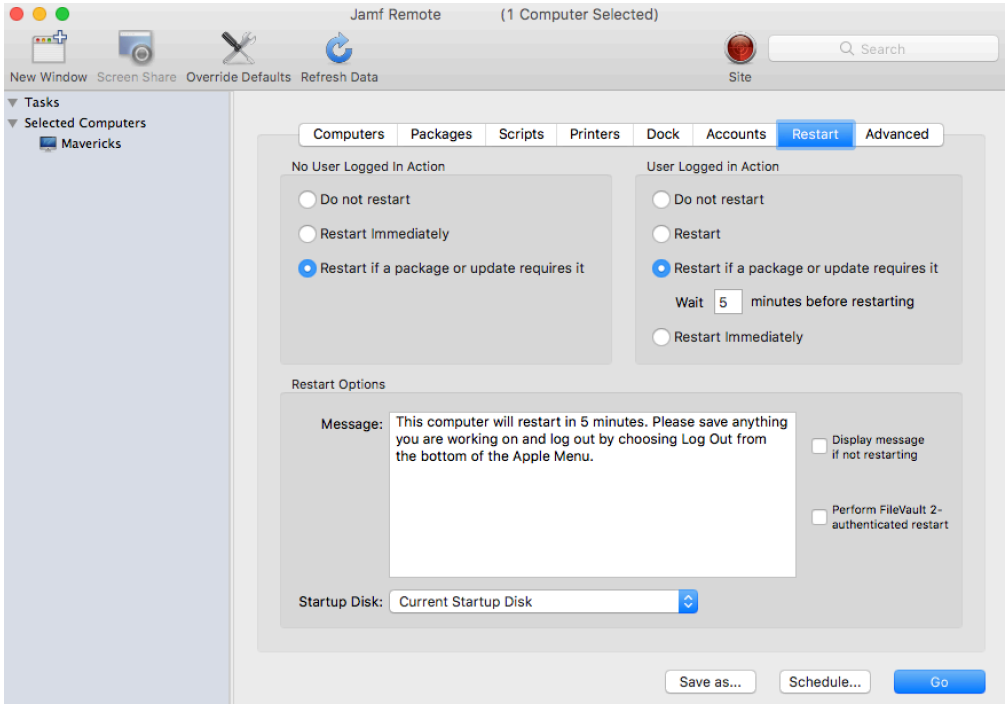
   Note: This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

3. In the list of computers, select the checkbox for each computer that you want to boot to the NetBoot image.

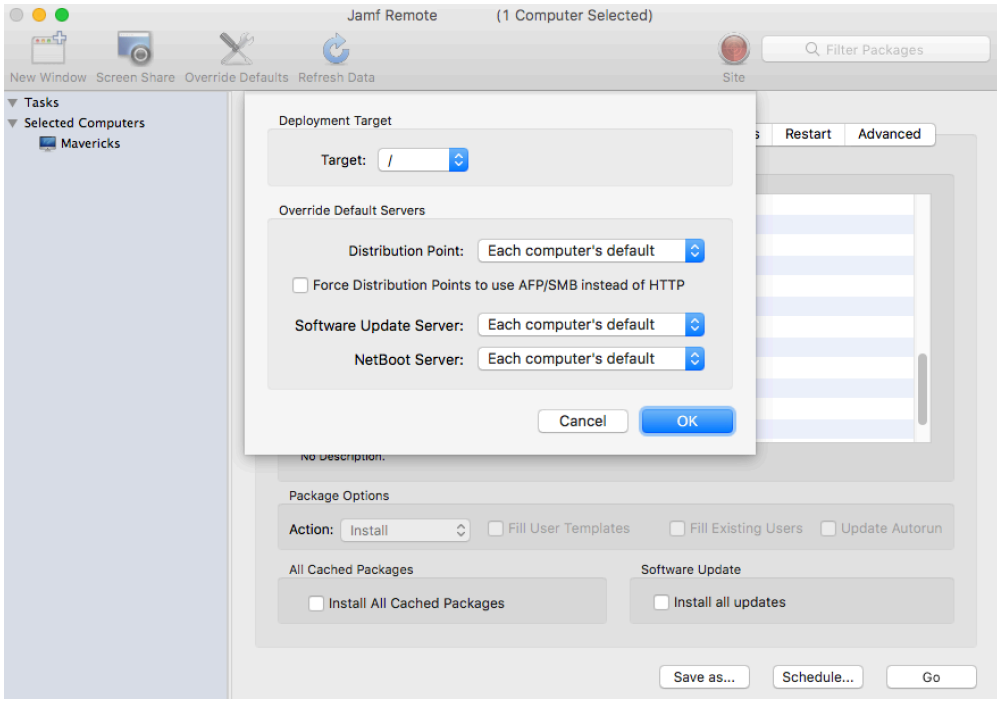


4. Click the **Restart** tab.

5. Choose "NetBoot" from the **Startup Disk** pop-up menu.



6. If you want to change the NetBoot server that computers use, click **Override Defaults** and choose a NetBoot server.



7. Configure the rest of the settings for restarting computers.
8. Do one of the following:
   - To immediately perform the tasks on the specified computers, click **Go** .
   - To schedule the tasks to take place at a specific day and time, click **Schedule** and choose a day and time. Then click **Schedule** again.

Related Information

For related information, see the following sections in this guide:

- About Policies
  Learn the basics about policies.
- Policy Management
  Find out how to create a policy, view the plan and status of a policy, and view and flush policy logs.

For related information, see the following Knowledge Base article:

Booting macOS 10.11 or Later Computers to a NetBoot Image Using a Policy or Jamf Remote
Find out how to add a trusted NetBoot server so that you can boot a macOS 10.11 or later computer to a NetBoot image using a policy or Jamf Remote.

Standard Imaging

Disclaimer: Apple does not recommend or support monolithic system imaging as an installation method because of recent improvements in macOS security, hardware, management, and deployment. Apple encourages IT administrators to convert from device imaging to Automated Device Enrollment (formerly DEP) workflows. For more information on supported methods of installing macOS, see APFS and imaging in Apple's *macOS Deployment Reference*. For more information about enrolling and deploying computers using Automated Device Enrollment and a PreStage enrollment configured in Jamf Pro, see Computer PreStage Enrollments.

Standard imaging allows you to configure the imaging settings for a computer at imaging time. These settings include:

- The target drive
- The configuration to image with
- The distribution point to download files from

Requirements

To use standard imaging, you need:

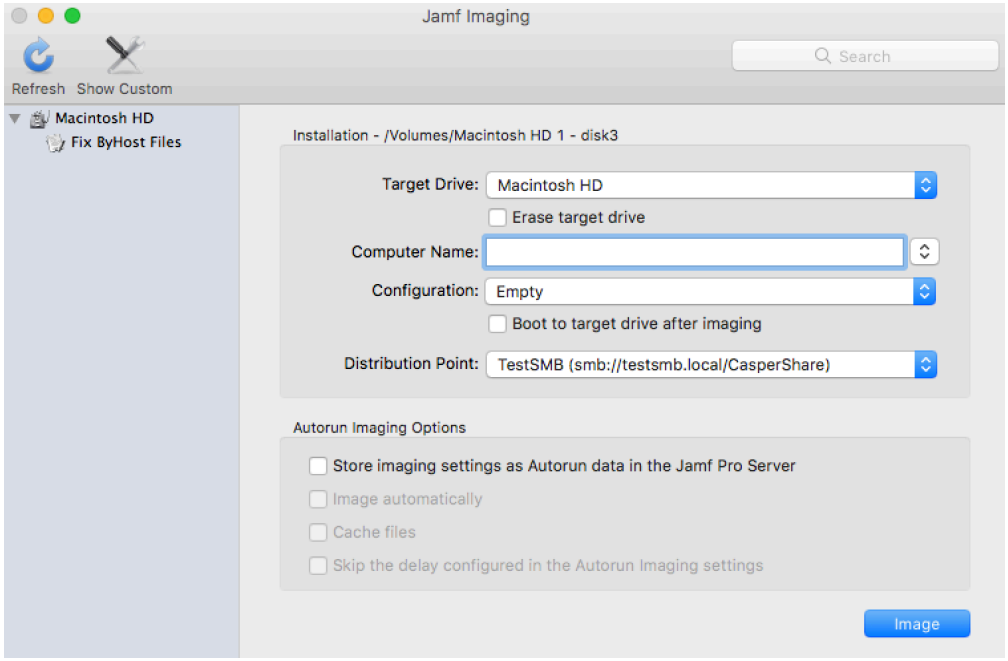
- A configuration (For more information, see Configurations.)
- A distribution point (For more information, see About Distribution Points.)
  Alternatively, you can use an external drive that is prepared for offline imaging. For more information, see the Offline Imaging Knowledge Base article.
- A startup disk other than the target drive that has Jamf Imaging installed (For more information, see About Imaging.)

Using Standard Imaging

1. On the target computer, boot to a startup disk other than the target drive.
2. Open Jamf Imaging and authenticate locally.
3. Authenticate to the Jamf Pro server when prompted.
4. To add the computer to a site, click **Site** and choose a site.

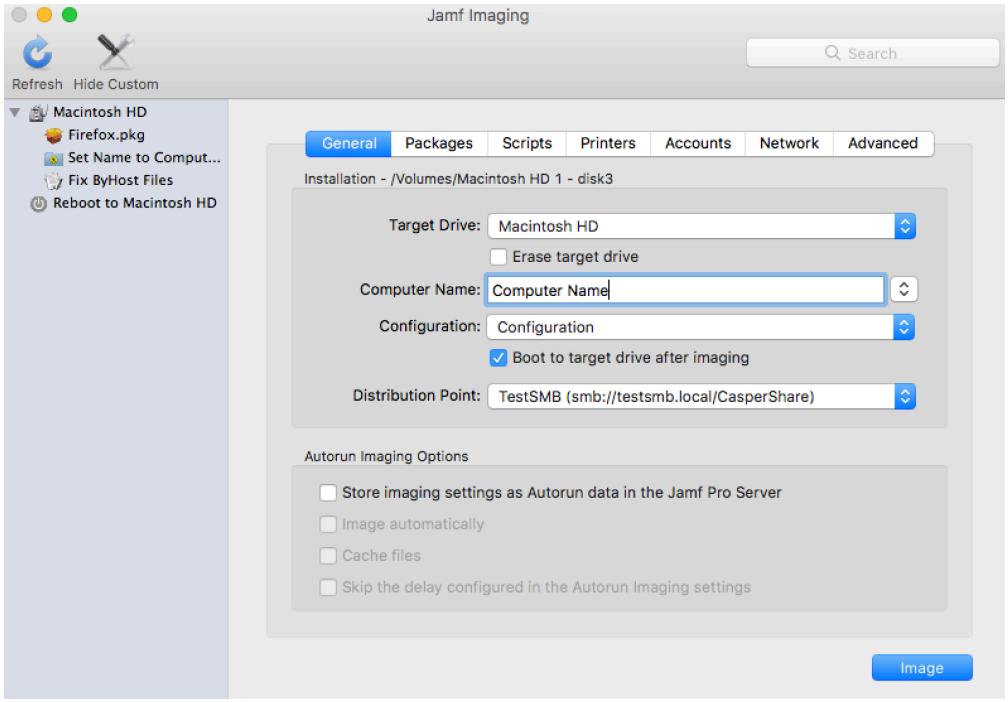
Note: This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

5. Choose a drive to image from the **Target Drive** pop-up menu.



6. To erase the target drive when the imaging process begins, select the **Erase target drive** checkbox.
7. Assign a name to the computer by entering a name in the **Computer Name** field.
   Alternatively, use the arrows to choose "Computer Name", MAC Address", or "Serial Number". The value for the option you choose populates in the field.
8. Choose a configuration from the **Configuration** pop-up menu.
9. To boot the computer to the target drive after imaging, select the **Boot to target drive after imaging** checkbox.
10. Choose a distribution point from the **Distribution Point** pop-up menu.
11. (Optional) Use the options in the Autorun Imaging Options group box to configure Autorun imaging options for the computer.
    For more information on Autorun imaging, see Autorun Imaging.

12. (Optional) Click **Show Custom** and use the tabs and options to customize the imaging process. For an overview of each pane, see Customizing the Imaging Process.



13. Click **Image**.

Related Information

For related information, see the following sections in this guide:

- Viewing Jamf Imaging Logs for a Computer
  Find out how to view Jamf Imaging logs for a computer.
- Event Logs
  Find out how to view event logs for Jamf Imaging events.

PreStage Imaging

Disclaimer: Apple does not recommend or support monolithic system imaging as an installation method because of recent improvements in macOS security, hardware, management, and deployment. Apple encourages IT administrators to convert from device imaging to Automated Device Enrollment (formerly DEP) workflows. For more information on supported methods of installing macOS, see APFS and imaging in Apple's *macOS Deployment Reference*. For more information about enrolling and deploying computers using Automated Device Enrollment and a PreStage enrollment configured in Jamf Pro, see Computer PreStage Enrollments.

PreStage imaging allows you to store imaging settings in Jamf Pro and use them to image new computers as you add them to the network. This reduces the amount of time and interaction it takes to prepare new computers for use. PreStage imaging also enrolls computers with Jamf Pro.

To use PreStage imaging, you need to create an Imaging PreStage in Jamf Pro, and then run Jamf Imaging on target computers to image them. Creating an Imaging PreStage allows you to configure the imaging settings and specify the computers that should be imaged with the Imaging PreStage (called "scope"). When you open Jamf Imaging on a computer in the scope, Jamf Imaging is populated with the settings in the Imaging PreStage.

You can configure an Imaging PreStage to start the imaging process automatically the first time Jamf Imaging is opened on a computer. Otherwise, you need to start the imaging process manually by clicking the Image button in Jamf Imaging.

You can also bypass PreStage imaging to prevent Jamf Imaging from being populated with the settings in the Imaging PreStage.

Requirements

To create an Imaging PreStage, you need:

- A configuration (For more information, see Configurations.)
- A distribution point (For more information, see About Distribution Points.)

To image a computer using an Imaging PreStage, you need a startup disk other than the target drive that has Jamf Imaging installed. For more information, see About Imaging.

Creating an Imaging PreStage

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **PreStage Imaging**.
4. Click **New**  .

5. Use the General payload to configure basic settings for the Imaging PreStage, including the activation and expiration date/time.
   To start the imaging process automatically when Jamf Imaging is opened on a computer in the scope, select the **Image Automatically** checkbox.
6. Select the Computer Names payload and choose a method for assigning names to computers. Computer names are assigned as computers in the scope are imaged.
7. (Optional) Use the Purchasing Information payload to specify purchasing information for computers. This information is stored in Jamf Pro for each computer imaged using the Imaging PreStage.
8. (Optional) Use the Attachments payload to upload attachments to store for computers. Attachments are stored in Jamf Pro for each computer imaged using the Imaging PreStage.
9. Select the Install payload and configure the basic imaging settings, including the target drive, the configuration to image with, and the distribution point to download files from.
10. Enter credentials for a local account to bypass the prompt when Jamf Imaging is opened on the computer.
11. To store the imaging settings as Autorun data for each computer, select the **Store PreStage settings as Autorun data** checkbox. Then configure additional options for Autorun imaging as needed.
    For more information on Autorun imaging, see Autorun Imaging.
12. (Optional) Use the rest of the payloads to customize the imaging process.
    For an overview of each payload, see Customizing the Imaging Process.
13. Click the **Scope** tab and configure the scope of the Imaging PreStage.
14. Click **Save**  .

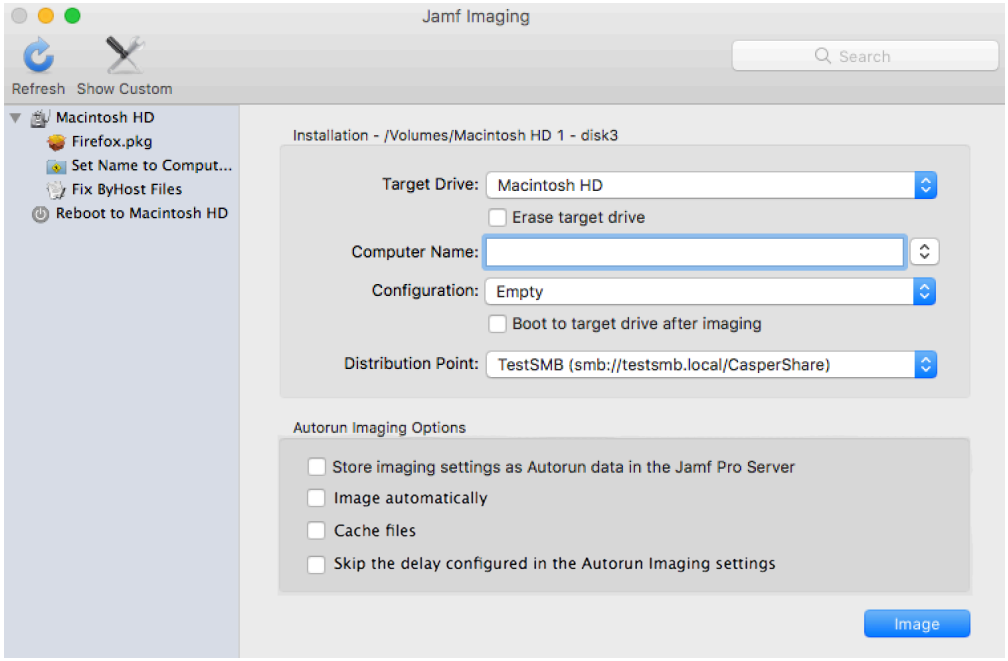
Imaging a Computer Using an Imaging PreStage

If you configured the Imaging PreStage to start the imaging process automatically, simply boot the target computer to a startup disk other than the target drive and open Jamf Imaging.

If you did not configure the Imaging PreStage to start the imaging process automatically, complete the following instructions:

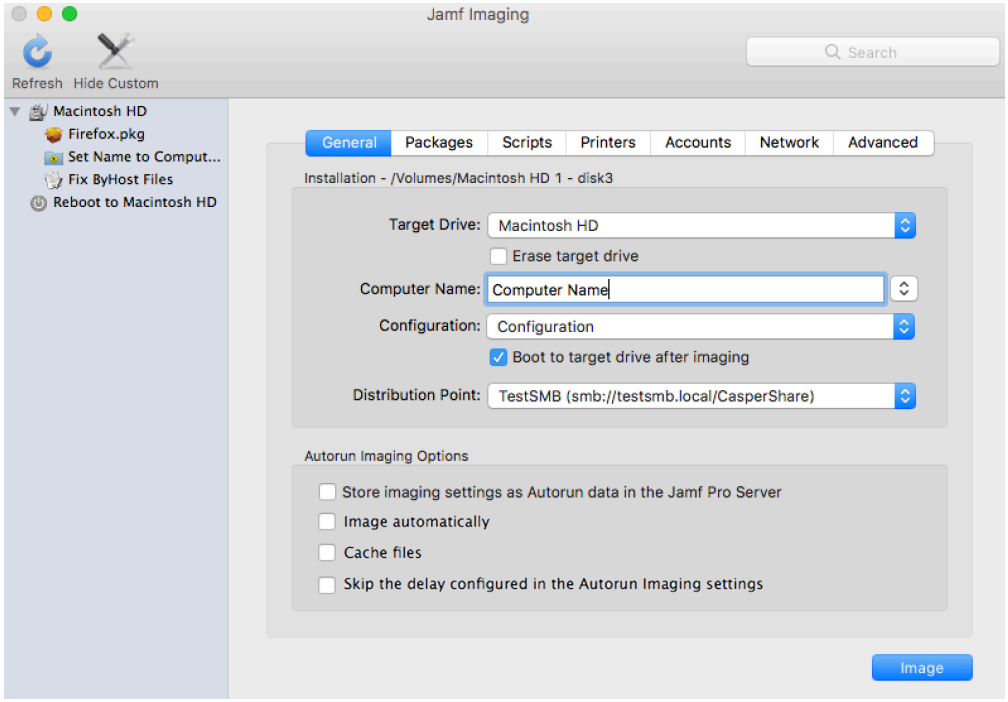
1. On a computer that is in the scope of the Imaging PreStage, boot to a startup disk other than the target drive and open Jamf Imaging.
2. If prompted, authenticate locally.

3. (Optional) Make changes to the basic imaging settings as needed, including the target drive, the configuration to image with, and the distribution point to download files from.



4. (Optional) Use the options in the Autorun Imaging Options group box to configure Autorun imaging options for the computer.
   For more information on Autorun imaging, see Autorun Imaging.

5. (Optional) Click **Show Custom** and use the tabs and options to customize the imaging process.
   For an overview of each pane, see Customizing the Imaging Process.



6. Click **Image**.

Bypassing PreStage Imaging

To bypass PreStage imaging, hold down the Shift key when opening Jamf Imaging.

Viewing Imaging PreStage Logs

Each Imaging PreStage log includes a list of computers that were imaged using the Imaging PreStage and a list of the following information for each computer:

- The date/time that the computer was imaged
- The status of the imaging event
- The actions that took place during the imaging event

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **PreStage Imaging**.
4. Click the Imaging PreStage you want to view logs for.
5. Click **Logs** .
   A list of computers imaged using the Imaging PreStage is displayed.
6. To view the list of actions that were performed when a computer was imaged, click **Show** for the computer.

Related Information

For related information, see the following section in this guide:

Event Logs
Find out how to view event logs for Jamf Imaging events.

Autorun Imaging Settings

Disclaimer: Apple does not recommend or support monolithic system imaging as an installation method because of recent improvements in macOS security, hardware, management, and deployment. Apple encourages IT administrators to convert from device imaging to Automated Device Enrollment (formerly DEP) workflows. For more information on supported methods of installing macOS, see APFS and imaging in Apple's *macOS Deployment Reference*. For more information about enrolling and deploying computers using Automated Device Enrollment and a PreStage enrollment configured in Jamf Pro, see Computer PreStage Enrollments.

The Autorun imaging settings in Jamf Pro allow you to configure the following settings for Autorun imaging:

- The delay before the imaging process starts automatically
  This only applies if a computer's Autorun data is configured to start the imaging process automatically. During the delay, a pane is displayed that allows you to cancel the imaging process.
- The amount of space to leave available when caching files
- The attribute to use for comparing cached files to files on a distribution point
  This ensures that the most up-to-date files are cached on the computer.

Configuring the Autorun Imaging Settings

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Computer Management**.
4. In the "Computer Management–Management Framework" section, click **Autorun Imaging** .
5. Click **Edit** .
6. Configure the settings on the pane.
7. Click **Save** .

Related Information

For related information, see the following section in this guide:

Autorun Imaging
Find out how to image computers using Autorun imaging.

Autorun Imaging

Disclaimer: Apple does not recommend or support monolithic system imaging as an installation method because of recent improvements in macOS security, hardware, management, and deployment. Apple encourages IT administrators to convert from device imaging to Automated Device Enrollment (formerly DEP) workflows. For more information on supported methods of installing macOS, see APFS and imaging in Apple's *macOS Deployment Reference*. For more information about enrolling and deploying computers using Automated Device Enrollment and a PreStage enrollment configured in Jamf Pro, see Computer PreStage Enrollments.

Autorun imaging allows you to store imaging settings in Jamf Pro so you don't have to configure them at imaging time. It also allows you to fully automate the imaging process. For more information, see the Automating the Imaging Process Knowledge Base article.

To use Autorun imaging, you need to create Autorun data for each target computer, and then run Jamf Imaging on the computers to image them. Creating Autorun data allows you to configure and store the imaging settings you want to use to image each computer. When you open Jamf Imaging on a target computer, Jamf Imaging is populated with the Autorun data.

You can configure Autorun data to start the imaging process automatically each time Jamf Imaging is opened on a computer. Otherwise, you need to start the imaging process manually by clicking the Image button in Jamf Imaging.

You can also bypass Autorun imaging to prevent Jamf Imaging from being populated with the Autorun data.

There are three ways to create Autorun data for a computer:

- Create the Autorun data using Jamf Pro
- Store Autorun data using Jamf Imaging
- Store Autorun data using an Imaging PreStage (For more information, see PreStage Imaging.)

Requirements

To create and manage Autorun data using Jamf Pro, you need:

- A configuration (For more information, see Configurations.)
- A distribution point (For more information, see About Distribution Points.)

To store Autorun data using Jamf Imaging, you need:

- A configuration (For more information, see Configurations.)
- A distribution point (For more information, see About Distribution Points.)
- Alternatively, you can use an external drive that is configured for offline imaging. (For more information, see the Offline Imaging Knowledge Base article.)
- A startup disk other than the target drive that has Jamf Imaging installed (For more information, see About Imaging.)

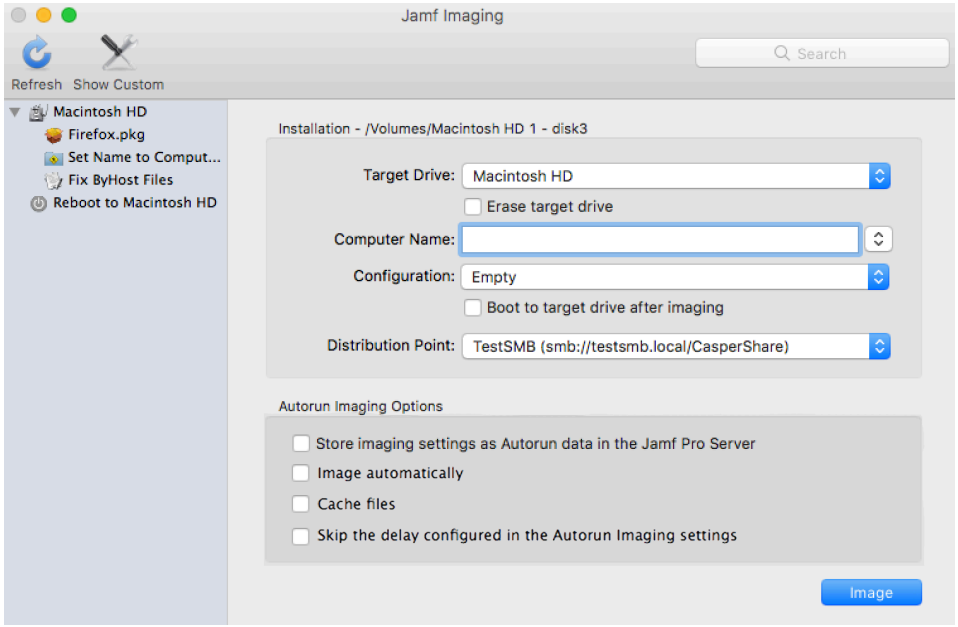
To image a computer using Autorun data, you need a startup disk other than the target drive that has Jamf Imaging installed. (For more information, see About Imaging.)

Creating Autorun Data Using Jamf Pro

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Search Inventory**.
4. Perform a simple or advanced computer search.
   For instructions, see Simple Computer Searches or Advanced Computer Searches .
5. Click the computer you want to create Autorun data for.
   If you performed a simple search for an item other than computers, you must click **Expand** next to an item name to view the computers related to that item.
6. Click **Autorun Data** .
7. Use the Install payload to configure basic imaging settings for the computer, including the target drive, the configuration to image with, and the distribution point to download files from.
8. Enter credentials for a local account to bypass the prompt when Jamf Imaging is opened on the computer.
   This is required if you plan to fully automate the imaging process.
9. To cache a copy of each file used for imaging, select the **Cache Files** checkbox.
10. To skip the delay that occurs before the imaging process starts automatically, select the **Skip the delay that occurs before imaging automatically** checkbox.
    You can change this delay by using the Autorun Imaging settings. For more information, see Autorun Imaging Settings.
11. (Optional) Use the rest of the payloads to customize the imaging process.
    For an overview of each payload, see Customizing the Imaging Process.
12. Click **Save** .

Storing or Editing Autorun Data Using Jamf Imaging

1. On the target computer, boot to a startup disk other than the target drive and open Jamf Imaging.
2. If prompted, authenticate locally.
3. (Optional) Configure or make changes to the basic imaging settings as needed, including the target drive, the configuration to image with, and the distribution point to download files from.



4. In the Autorun Imaging Options group box, select the **Store imaging settings as Autorun data** checkbox.
5. To start the imaging process automatically each time Jamf Imaging is opened on the computer, select the **Image Automatically** checkbox.
6. To cache a copy of each file used for imaging, select the **Cache Files** checkbox.
7. To skip the delay that occurs before the imaging process starts automatically, select the **Skip the delay that occurs before imaging automatically** checkbox.
   You can change this delay by using the Autorun Imaging settings in Jamf Pro. For more information, see Autorun Imaging Settings.
8. (Optional) Click **Show Custom** and use the tabs and options to customize the imaging process. For an overview of each pane, see Customizing the Imaging Process.
9. Click **Image**.

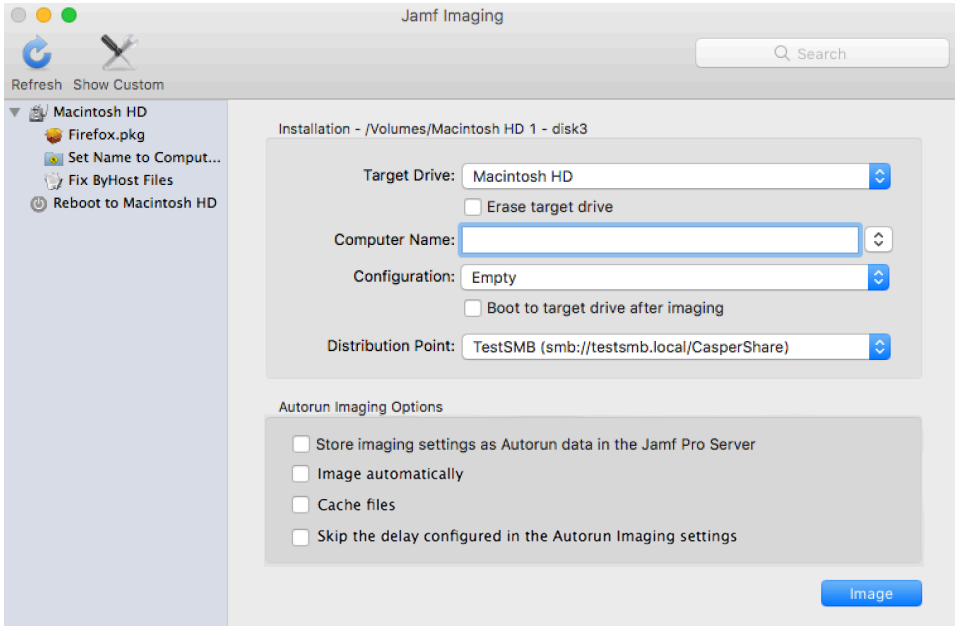
   The Autorun data is stored in Jamf Pro when the imaging process is complete.

Imaging a Computer Using Autorun Imaging

If you configured the Autorun data to start the imaging process automatically, simply boot the target computer to a startup disk other than the target drive and open Jamf Imaging. The imaging process begins after the specified delay.

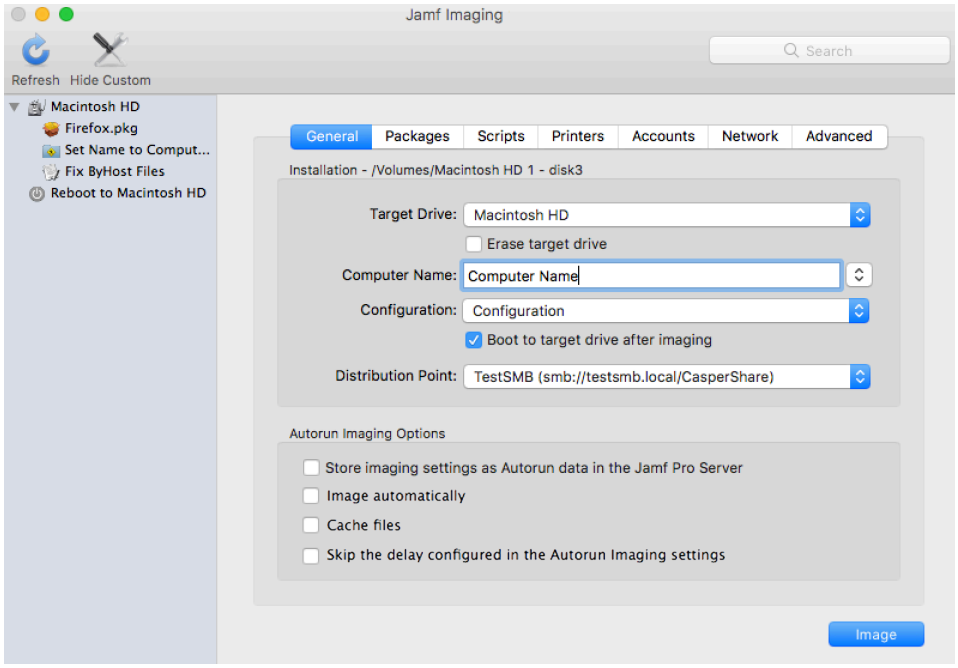
If you did not configure the Autorun data to start the imaging process automatically, complete the following instructions:

1. On the target computer, boot to a startup disk other than the target drive and open Jamf Imaging.
2. If prompted, authenticate locally.
3. (Optional) Make changes to the basic imaging settings as needed, including the target drive, the configuration to image with, and the distribution point to download files from.



4. (Optional) Use the options in the Autorun Imaging Options group box to change Autorun imaging options for the computer.

5. (Optional) Click **Show Custom** and use the tabs and options to customize the imaging process. For an overview of each pane, see Customizing the Imaging Process.



6. Click **Image**.

Bypassing Autorun Imaging

To bypass Autorun imaging when imaging a computer, hold down the Shift key when you open Jamf Imaging.

Viewing Autorun Logs

The Autorun logs for each computer allow you to view the following information for each imaging event:

- The date/time that the computer was imaged
- The status of the imaging event
- The actions that took place during the imaging event

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Search Inventory**.
4. Perform a simple or advanced computer search.
   For instructions, see Simple Computer Searches or Advanced Computer Searches .
5. Click the computer you want to view Autorun logs for.

   If you performed a simple search for an item other than computers, you must click **Expand** next to an item name to view the computers related to that item.

6. Click **Autorun Data**.
7. Click **Logs** .
   A list of imaging events is displayed.
8. To view the actions that took place during an imaging event, click **Show** for the event.

Related Information

For related information, see the following sections in this guide:

- Autorun Imaging Settings
  Find out to configure the settings for Autorun imaging.
- Installing Packages
  Find out how to add packages to a computer's Autorun data when installing packages.
- Caching Packages
  Find out how to add packages to a computer's Autorun data when caching packages.
- Installing Cached Packages
  Find out how to add packages to a computer's Autorun data when installing a cached package.
- Mass Actions for Computers
  Find out how to mass edit or delete Autorun data for computers.
- Event Logs
  Find out how to view event logs for Jamf Imaging events.

Target Mode Imaging

Disclaimer: Apple does not recommend or support monolithic system imaging as an installation method because of recent improvements in macOS security, hardware, management, and deployment. Apple encourages IT administrators to convert from device imaging to Automated Device Enrollment (formerly DEP) workflows. For more information on supported methods of installing macOS, see APFS and imaging in Apple's *macOS Deployment Reference*. For more information about enrolling and deploying computers using Automated Device Enrollment and a PreStage enrollment configured in Jamf Pro, see Computer PreStage Enrollments.

Target Mode Imaging (TMI) allows you to image multiple computers subsequently by connecting them to a host computer using a FireWire, Thunderbolt, or USB-C cable. This can be ideal when using a network connection is not optimal or supported.

To use TMI, you run Jamf Imaging on a host computer. Then, you boot the computers being imaged (target computers) to target disk mode and connect them to the host computer.

Requirements

To use TMI, you need:

- Target computers that support target disk mode
- A host computer with Jamf Imaging installed and a FireWire, Thunderbolt, or USB-C port

  Note: It is recommended that you use a dedicated host computer for TMI.

- A configuration with a base image and packages (For more information, see Configurations.)
- A distribution point (For more information, see About Distribution Points.)

  Note: While you can use a file share distribution point on the network, it is recommended that you use a local distribution point for optimal data transfer speeds. For more information, see the "Target Mode Imaging" section in the Imaging Mac Computers with Jamf Pro technical paper.

- A Thunderbolt to Thunderbolt cable, FireWire cable, or USB-C cable
- A naming scheme (For more information, see the "Target Mode Imaging" section in the Imaging Mac Computers with Jamf Pro technical paper.)

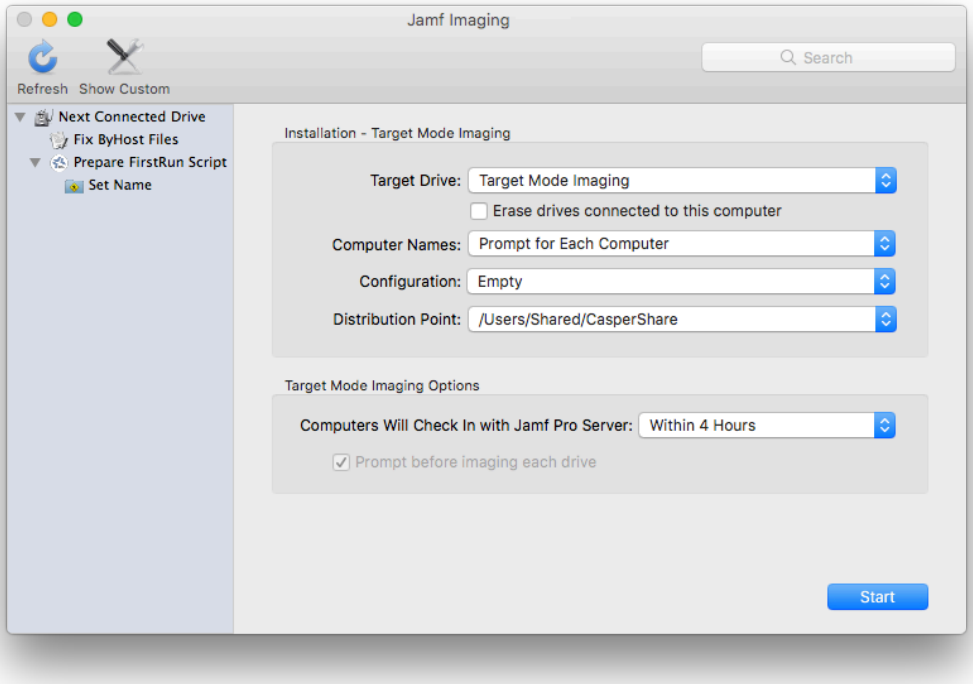
Using TMI

1. On the host computer, open Jamf Imaging and authenticate locally.
2. Authenticate to the Jamf Pro server when prompted.

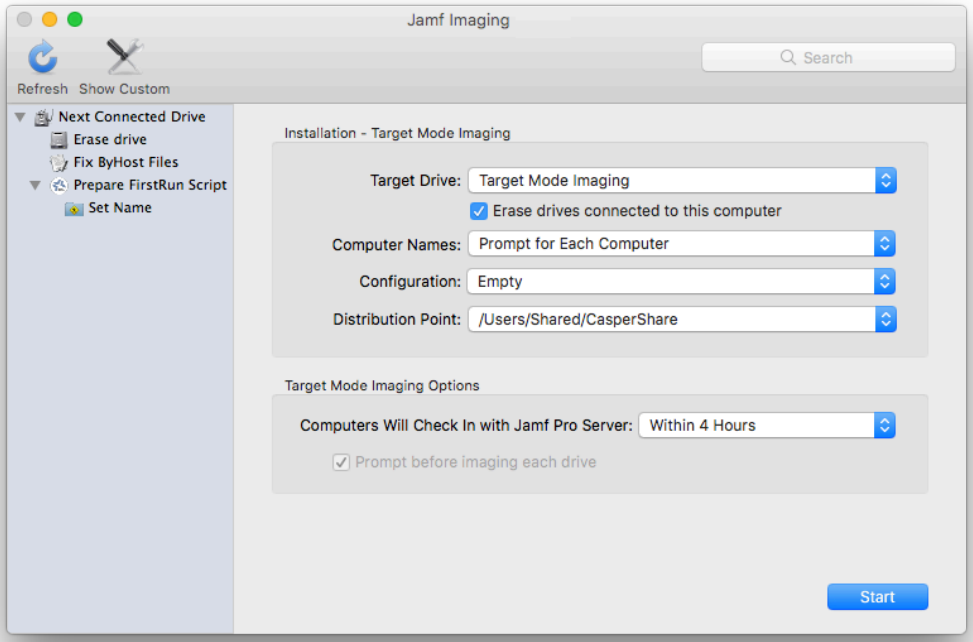
3. To add the computer to a site, click **Site** and choose a site.

> **Note:** This button is only displayed if you have a site configured in Jamf Pro and are logged in with a Jamf Pro user account that has full access or access to multiple sites.

4. Choose "Target Mode Imaging" from the **Target Drive** pop-up menu.



5. To erase each target drive before it is imaged, select the **Erase drives connected to this computer** checkbox.



6. From the **Computer Names** pop-up menu, choose how to assign names to target computers:
   - To be prompted to manually enter a name for each computer, choose "Prompt for Each Computer".
   - To automatically generate names in numerical order, choose "Use Numerical Order". Then enter a starting number, and a prefix and suffix as needed, and click **OK**.
   - To use each computer's MAC Address as the name, choose "Use MAC Address". Then enter a prefix and suffix for the MAC Address as needed and click **OK**.
   - To use each computer's serial number as the name, choose "Use Serial Number". Then enter a prefix and suffix for the serial number as needed and click **OK**.
   - To assign names based on the contents of a CSV file, choose "Upload CSV File" and upload the file.
   - For more information on using a CSV file to assign computer names, see the Creating a CSV file to Assign Computer Names During Target Mode Imaging Knowledge Base article.
7. Choose a configuration from the **Configuration** pop-up menu.
8. Choose a distribution point from the **Distribution Point** pop-up menu.
9. From **Computers Will Check In with Jamf Pro** pop-up menu, choose the approximate amount of time until computers will check in with Jamf Pro.

   Important: Computers that do not check in within the specified amount of time will not be enrolled with Jamf Pro.

10. To bypass the prompt displayed before imaging each computer, deselect the **Prompt before imaging each drive** checkbox.

11. (Optional) Click **Show Custom**  and use the tabs and options to customize the imaging process.
    For an overview of each pane, see Customizing the Imaging Process.
12. Click **Start**.
13. Boot a target computer to target disk mode.
    To do this, turn on the computer and immediately press and hold down the T key.
14. Use a FireWire or Thunderbolt cable to connect the target computer to the host computer, and then click **OK** if prompted.
    The imaging process starts immediately.
15. When the imaging process is complete, disconnect the target computer.
16. Repeat steps 13–15 for each target computer.

Related Information

For related information, see the following sections in this guide:

- Viewing Jamf Imaging Logs for a Computer
  Find out how to view Jamf Imaging logs for a computer.
- Event Logs
  Find out how to view event logs for Jamf Imaging events.

Customizing the Imaging Process

Disclaimer: Apple does not recommend or support monolithic system imaging as an installation method because of recent improvements in macOS security, hardware, management, and deployment. Apple encourages IT administrators to convert from device imaging to Automated Device Enrollment (formerly DEP) workflows. For more information on supported methods of installing macOS, see APFS and imaging in Apple's *macOS Deployment Reference*. For more information about enrolling and deploying computers using Automated Device Enrollment and a PreStage enrollment configured in Jamf Pro, see Computer PreStage Enrollments.

Although configurations let you specify most of the items you want to install and configure during imaging, you can further customize the imaging process by using Jamf Imaging or using Jamf Pro to configure an Imaging PreStage or Autorun data.

The items that you can add when customizing the imaging process are:

- Packages
- Scripts
- Printers
- Local accounts
- Directory bindings
- Open Firmware/EFI password
- Network settings
- Values for Apple Remote Desktop Info fields
- Post-imaging options, such as maintenance tasks and showing the Setup Assistant after restart

When using Jamf Imaging to customize the imaging process, you can also remove items that are in the selected configuration or items configured with an Imaging PreStage or Autorun data for the computer.

The interface you use to customize the imaging process depends on whether you are using Jamf Imaging or Jamf Pro. This section provides an overview of each pane displayed in Jamf Imaging, but the information also applies to the payload-based interface in Jamf Pro.

Packages

This pane allows you to specify which packages you want to install as part of the imaging process. To add or remove a package, select or deselect the checkbox for the package.

Note: In Jamf Imaging, packages that do not exist on the selected distribution point are displayed in red.

Scripts

This pane allows you to specify which scripts you want to run as part of the imaging process.

To add or remove a script from the imaging process using Jamf Imaging, select or deselect the checkbox for the script. Then specify parameter values as needed and choose a priority.

To add a script to the imaging process using Jamf Pro, click **Add** for the script you want to add, and then choose a priority and specify parameter values as needed. To remove a script, locate the script on the pane and click **Remove** .

Printers

This pane allows you to specify which printers you want to map as part of the imaging process. To add or remove a printer, select or deselect the checkbox for the printer.

> **Note:** In Jamf Imaging, printers that do not exist on the selected distribution point are displayed in red.

Accounts

This pane allows you to do the following as part of the imaging process:

- Create local accounts
- Bind computers to a directory service
- Set the Open Firmware/EFI password

> **Note:** In Jamf Pro, these are displayed in three separate payloads called Local Accounts, Directory Bindings, and EFI Password.

Local Accounts

To add a local account to the imaging process using Jamf Imaging, click **Add** (+) and specify information about the account using the tabs and options provided. Then click **OK**. To remove a local account, select an account and click **Remove** (-).

To add a local account to the imaging process using Jamf Pro, specify information about the account using the options provided. To remove an account, locate the account on the pane and click **Remove** .

Directory Bindings

To add or remove a directory binding from the imaging process, select or deselect the checkbox for the directory binding.

Open Firmware/EFI Password

To add an Open Firmware/EFI password to the imaging process using Jamf Imaging, select the **Set Open Firmware/EFI Password** checkbox, and then choose "Command" from the **Security Level** pop-up menu. Then enter a password and type the password again to verify it. To remove an Open Firmware/EFI password, choose "None" from the **Security Level** pop-up menu.

To add an Open Firmware/EFI password to the imaging process using Jamf Pro, select **Set Password**. Then enter a password and type the password again to verify it. To remove the password, select **Remove Password**, and then enter and verify the current password.

Network

This pane allows you to configure network settings as part of the imaging process.

To configure network settings, the network configuration (IPv4 connection method) must match the one built into the OS package you're installing or the one in System Preferences on the computer.

To add or remove network settings from the imaging process, configure the options on the pane.

If the network configuration in your OS package is different than the one you want to set on the computer, you must take two additional steps to ensure that the network configuration is set. For more information, see the Computer-Specific Network Settings Knowledge Base article.

Advanced

This pane allows you to configure the following items as part of the imaging process:

- Values for Apple Remote Desktop Info fields
- Post-imaging tasks, including:
  - Fix ByHost files
  - Fix disk permissions (macOS 10.11 or earlier)
  - Show Setup Assistant after restart

Apple Remote Desktop Info Fields

To add or remove values for the Apple Remote Desktop Info fields, enter or remove values from the fields displayed.

In Jamf Imaging, you can populate these fields with the values on the computer by clicking **Get Existing**.

Post-imaging Tasks

To add or remove a post-imaging task, select or deselect the checkbox for the task.

Removable MAC Addresses

Adding removable MAC addresses to Jamf Pro ensures that Jamf Pro ignores certain MAC addresses. For example, MAC addresses of USB Ethernet dongles are commonly added as removable MAC addresses to prevent Jamf Pro from using them as identifiers for computers.

Adding a Removable MAC Address

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Computer Management**.
4. In the "Computer Management–Management Framework" section, click **Removable MAC Addresses**  .
5. Click **New**  .
6. Enter the MAC address that you want Jamf Pro to ignore.
7. Click **Save**  .

License Management

About Licensed Software

Licensed software allows you to store and track licenses for the software in your environment so you can easily access license and purchasing information and monitor license compliance.

For each software product that you want to track licenses for, you must create a licensed software record in Jamf Pro. These records allow you to store information about the licenses owned and the software titles that count toward each license (called "software definitions").

Each time a computer submits inventory to Jamf Pro, the software on the computer is compared to the software definitions in the licensed software records. If they match, the computer counts toward the number of licenses in use.

After creating licensed software records, you can use Jamf Pro to evaluate and monitor license compliance, view and report on the licenses in use, and view Application Usage information for the software you're tracking licenses for.

Related Information

For related information, see the following sections in this guide:

- Licensed Software Records
  Find out how to create licensed software records to store and track license information.
- License Compliance
  Find out how to evaluate license compliance by viewing the licensed software records in Jamf Pro.
- Viewing License Usage
  Find out how to view the computers on which licenses are in use.
- Application Usage for Licensed Software
  Find out how frequently the licensed software in your environment is being used.

Licensed Software Records

For each software application you want to track licenses for, you must create a licensed software record in Jamf Pro. These records allow you to store the number of licenses owned and the software titles that count toward each license (called "software definitions"). They also allow you to store detailed license and purchasing information in Jamf Pro and determine whether a license supersedes or is superseded by another license in Jamf Pro.

Each time a computer submits inventory to Jamf Pro, the software titles on the computer are compared to the software definitions in each record. If they match, the computer counts toward the number of licenses in use.

To monitor license compliance on an ongoing basis, you can enable email notifications for a licensed software record. This allows email notifications to be sent to Jamf Pro users when the number of licenses in use exceeds the number of licenses owned. For information on setting up an SMTP server from which to send email notifications and enabling email notifications for a Jamf Pro user account, see Integrating with an SMTP Server and Email Notifications.

There are several ways to create a licensed software record in Jamf Pro. You can manually create the record, use a licensed software template available in Jamf Pro, or upload a licensed software template obtained from Jamf Nation. All licensed software templates have predefined software definitions.

Software definitions can be based on one of two items: the name and version number of each application, font, and plug-in, or the software identification (SWID) tags associated with each software title. For more information on SWID tags and how they are useful for tracking licensed software with Jamf Pro, see the Software Identification Tags and Tracking Licensed Software Knowledge Base article.

Requirements

To create a licensed software record based on SWID tags, the software you want to track must have a SWID tag associated with it and the SWID tag must be in Jamf Pro database.

Note: Jamf Pro collects SWID tags from a computer each time the computer submits inventory. SWID tags are not listed in a computer's inventory information in Jamf Pro, but they are stored in Jamf Pro database for use with licensed software.

Manually Creating a Licensed Software Record

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Licensed Software**.
4. Click **New** + New .
5. Use the General pane to configure basic settings for the licensed software record.
   To enable email notifications, select the **Send email notification on violation** checkbox.
6. Click the **Licenses** tab and add license and purchasing information:
   a. Click **Add** + Add .
   b. Specify information about the license, including the license type and license count.
   c. (Optional) Click the **Purchasing Information** tab and enter purchasing information.
   d. (Optional) Click the **Attachments** tab and click **Upload** to upload an attachment.
   e. Click **Save**.
   f. Repeat steps a through e to add more license and purchasing information as needed.
7. Click the **Software Definitions** tab.
8. To specify software definitions based on applications, fonts, and plug-ins, do the following:
   a. Choose "Applications, Fonts, and Plug-ins" from the **Software Definitions Type** pop-up menu.
   b. Click **Add** + Add for the item you want to add.
   c. Specify a name, connector ("is" or "like"), and version number using the fields and pop-up menu provided.
   d. Click **Save** .
   e. Repeat steps a through d to specify additional software definitions as needed.
   The items you added are displayed in a list.
9. To specify software definitions based on SWID tags, do the following:
   a. Choose "Software ID Tags" from the **Software Definitions Type** pop-up menu.
   b. Browse for and choose a reg ID.
   c. Add a SWID tag by clicking **Add** + Add . Then browse for and choose the SWID tag you want to add.
   d. Select the activation statuses you want to include in the software definitions.
10. Click **Save** .

Creating a Licensed Software Record From a Template

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Licensed Software**.
4. Click **New From Template**.
5. Click the licensed software template you want to use.
6. Use the General pane to change or configure basic settings for the licensed software record.
   To enable email notifications, select the **Send email notification on violation** checkbox.
7. Click the **Licenses** tab and add license and purchasing information:
   a. Click **Add** + Add .
   b. Enter information about the license, including the license type and license count.
   c. (Optional) Click the **Purchasing Information** tab and enter purchasing information.
   d. (Optional) Click the **Attachments** tab and click **Upload** to upload an attachment.
   e. Click **Save**.
   f. Repeat steps a through e to add more license and purchasing information as needed.
8. To view or edit software definitions, click the **Software Definitions** tab and make changes as needed.
9. Click **Save** .

Uploading a Licensed Software Template

You can create a licensed software record by uploading a licensed software template obtained from Jamf Nation. Licensed software templates are available in Jamf Nation at:

https://www.jamf.com/jamf-nation/third-party-products/files/licensed-software-templates

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Licensed Software**.
4. Click **Upload** and upload the licensed software template.
5. Use the General pane to change or configure basic settings for the licensed software record.
   To enable email notifications, select the **Send email notification on violation** checkbox.

6. Click the **Licenses** tab and add license and purchasing information:
    a. Click **Add** + Add .
    b. Enter information about the license, including the license type and license count.
    c. (Optional) Click the **Purchasing Information** tab and enter purchasing information.
    d. (Optional) Click the **Attachments** tab and click **Upload** to upload an attachment.
    e. Click **Save**.
    f. Repeat steps a through e to add more license and purchasing information as needed.
7. To view or edit software definitions, click the **Software Definitions** tab and make changes as needed.
8. Click **Save** .

Related Information

For related information, see the following sections in this guide:

- License Compliance
  Find out how to evaluate license compliance by viewing the licensed software records in Jamf Pro.
- Viewing License Usage
  Find out how to view the computers on which licenses are in use.
- Application Usage for Licensed Software
  Find out how frequently the licensed software in your environment is being used.
- Smart Groups
  You can create smart computer groups based on licensed software.

License Compliance

You can evaluate license compliance by viewing the licensed software records in Jamf Pro and comparing the number of licenses in use to the number of licenses owned.

You can also monitor software compliance by allowing email notifications to be sent to Jamf Pro users each time a license limit is exceeded. For more information see, Licensed Software Records.

Evaluating License Compliance

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Licensed Software**.

A list of licensed software records is displayed along with the number of licenses in use and the number of licenses owned for each record.

Viewing License Usage

If you are using licensed software records to track software licenses, you can view a list of computers with the licenses in use (called "license usage matches").

Viewing License Usage Matches

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Licensed Software**.
4. Click the licensed software record you want to view license usage matches for.
5. Click **View Matches**.

   Note: This button is only displayed if the licenses associated with the record are in use on managed computers.

   A list of license usage matches is displayed.

Related Information

For related information, see the following sections in this guide:

- Computer Reports
  Find out how to export the data in a list of license usage matches to different file formats.
- Mass Actions for Computers
  Find out how to perform mass actions for a list of license usage matches.
- Viewing and Editing Inventory Information for a Computer
  You can view the licensed software in use on a computer by viewing the computer's inventory information in Jamf Pro.

Application Usage for Licensed Software

You can find out how frequently licensed software is being used by viewing the Application Usage logs for a licensed software record. This allows you to view the amount of time that the software was open in the foreground on computers.

Requirements

To view Application Usage logs for a licensed software record, the Computer Inventory Collection settings must be configured to collect Application Usage information. For more information, see Computer Inventory Collection Settings.

Viewing Application Usage Logs for a Licensed Software Record

1. Log in to Jamf Pro
2. Click **Computers** at the top of the page.
3. Click **Licensed Software**.
4. Click the licensed software record you want to view Application Usage logs for.
5. Click **View Logs** .

> **Note:** This button is only displayed if the licenses associated with the record are in use on managed computers.

Application Usage logs for the record are displayed.

Usage Management

Application Usage

Application Usage logs allow you to monitor how frequently applications are used on computers and track usage behaviors. You can view the Application Usage logs for a computer or licensed software record.

Computers submit Application Usage information to Jamf Pro each time they submit inventory.

Requirements

To view Application Usage logs, the Computer Inventory Collection settings must be configured to collect Application Usage information. For more information, see Computer Inventory Collection Settings.

Viewing Application Usage Logs for a Computer

The Application Usage logs for a computer consist of a pie chart that shows the amount of time each application was in the foreground on the computer during a specified date range.

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches .
4. Click the computer you want to view Application Usage logs for.
   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **History** tab.
   Application Usage logs for the computer are displayed.
6. To view Application Usage logs for a different date range, specify the starting and ending dates using the **Date Range** pop-up menus. Then click **Update**.

Viewing Application Usage Logs for a Licensed Software Record

The Application Usage logs for a licensed software record allow you to view the amount of time that the software was open in the foreground on computers.

1. Log in to Jamf Pro.

2. Click **Computers** at the top of the page.
3. Click **Licensed Software**.
4. Click the licensed software record you want to view Application Usage logs for.
5. Click **View Logs** .

> **Note:** This button is only displayed if the licenses associated with the record are in use on managed computers.

Application Usage logs for the record are displayed.

Related Information

For related information, see the following sections in this guide:

- Flushing Logs
  Find out how to schedule automatic log flushing or manually flush logs.
- Simple Computer Searches
  You can quickly search the Application Usage information in Jamf Pro for a general range of results.

Computer Usage

Computer Usage logs allow you to monitor how frequently each computer is used and track usage behaviors. The following information is included in Computer Usage logs:

- Startup dates/times
- Login and logout dates/times
- Usernames used to log in and out of the computer

Requirements

To view Computer Usage logs, a startup script or login/logout hooks must be configured to log Computer Usage information. For more information, see Startup Script and Login and Logout Hooks.

Viewing Computer Usage Logs for a Computer

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Perform a simple or advanced computer search.
   For more information, see Simple Computer Searches or Advanced Computer Searches.
4. Click the computer you want to view Computer Usage logs for.
   If you performed a simple search for an item other than computers, you must click **Expand** next to an item to view the computers related to that item.
5. Click the **History** tab, and then click the **Computer Usage Logs** category.
   Computer Usage logs for the computer are displayed.

Related Information

For related information, see the following section in this guide:

Flushing Logs
Find out how to schedule automatic log flushing or manually flush logs.

Restricted Software

Restricted software allows you to prevent users or groups of users from accessing certain applications. For instance, you might want to prevent all users from accessing a peer-to-peer file sharing application, restrict everyone except the IT staff from accessing common administrative utilities, or restrict users from installing a software beta version.

For each application that you want to restrict, you must create a restricted software record. This allows you to specify the users to which the restriction applies and control what happens when the application is opened by those users. For instance, you can kill the restricted process, delete the application, and even display a message to the user.

If there is an SMTP server set up in Jamf Pro, you can enable email notifications for the restricted software record. This allows email notifications to be sent to Jamf Pro users each time a violation occurs. For information on setting up an SMTP server and enabling email notifications for Jamf Pro user accounts, see Integrating with an SMTP Server and Email Notifications.

Creating a Restricted Software Record

1. Log in to Jamf Pro.
2. Click **Computers** at the top of the page.
3. Click **Restricted Software**.
4. Click **New** 

.
5. Enter a display name in the **Display Name** field.
6. In the **Process Name** field, enter the exact name of the file you want to restrict.
   For more information, see the Finding the Name of Processes When Configuring Restricted Software Knowledge Base article.

   Note: It is recommended that you restrict the name of the application bundle when restricting a process in an application bundle. For example: "Chess.app".

7. Configure the restricted software record using the fields and options on the pane.
   To enable email notifications, select the **Send email notification on violation** checkbox.

   Note: For most environments, it is recommended to select the **Kill Process** checkbox at a minimum to ensure that the process is terminated when it is found.

8. Click the **Scope** tab and configure the scope of the restricted software record.
   For more information, see Scope.
9. Click **Save** 
.

The restriction is applied to computers in the scope the next time they check in with Jamf Pro.

Related Information

For related information, see the following section in this guide:

Viewing Restricted Software for a Computer
Find out how to view the restricted software for a computer.

For related information, see the following *Best Practice Workflow for Jamf Pro*:

Deferring a macOS Update
Find out how to defer a macOS update.

For related information, see the following Knowledge Base article:

Finding the Name of Processes When Configuring Restricted Software
Learn how to find the exact name of the process you want create restricted software for.

jamf | PRO

Managing Mobile Devices

Enrollment of Mobile Devices

Mobile Device Enrollment Methods

Enrollment is the process of adding iOS, iPadOS, and tvOS devices to Jamf Pro. Enrolling devices allows you to perform inventory, configuration, security management, and distribution tasks on the devices. When enrolled, inventory information for the devices is submitted to Jamf Pro.

The following explains the different types of enrollment methods:

- **Automated Device Enrollment—**Automated Device Enrollment allows organizations to configure and manage devices from the moment the devices are removed from the box (known as zero-touch deployment). These devices become supervised, and the MDM profile cannot be removed by the user. Automated Device Enrollment is designed for devices owned by the organization. For more information, see Information about Automated Device Enrollment into MDM from Apple's *Mobile Device Management Settings*.
- **Device Enrollment—**Device Enrollment allows organizations to manually enroll institutionally owned devices and manage many different aspects of device use, including the ability to erase the device. If a user removes the MDM profile, all settings and apps that are being managed by the MDM solution are removed. For more information, see Information about Device Enrollment into MDM from Apple's *Mobile Device Management Settings*.
- **User Enrollment—**User Enrollment is designed for BYOD—or Bring Your Own Device deployments—where the user, not the organization, owns the device. User Enrollment also requires Managed Apple IDs. For more information, see Information about User Enrollment into MDM from Apple's *Mobile Device Management Settings*.

Automated Device Enrollment for Mobile Devices

The only method you can use to enroll devices with Automated Device Enrollment and Jamf Pro is a PreStage enrollment. PreStage enrollments are a recommended method of enrollment. You can use a PreStage enrollment to configure basic device settings and customize the Setup Assistant experience. This reduces the amount of time and interaction it takes to enroll devices and prepare them for use. You can also use Apple Configurator 2 and a PreStage enrollment to enroll devices with Jamf Pro, supervise them, and configure device setup. For more information, see Mobile Device PreStage Enrollments.

Note: This enrollment method requires an Apple School Manager or Apple Business Manager account. For more information, see Integrating with Automated Device Enrollment.

Device Enrollment for Mobile Devices

There are several methods you can use to enroll mobile devices with Device Enrollment and Jamf Pro:

- **(Recommended)** User-initiated enrollment—You can use the User-Initiated Enrollment settings to customize the enrollment experience for users, including the messaging that displays for each step of the enrollment process. Users can then enroll their own devices by logging in to a web-based enrollment portal and following the onscreen instructions. You can provide this URL by sending it in an email or SMS invitation from Jamf Pro, or through any other means that fit your environment. User-initiated enrollment is the only method that can be used to enroll personally owned devices using Device Enrollment.
- Use an enrollment profile—You can create an enrollment profile using Jamf Pro and install it on devices by connecting them to a computer via USB. This enrollment method requires Apple Configurator 2.
- Use Apple Configurator enrollment—You can enroll devices with Jamf Pro by connecting them to a computer via USB and using an enrollment URL with Apple Configurator 2.

User Enrollment for Mobile Devices

The only method you can use to enroll iOS and iPadOS devices with User Enrollment and Jamf Pro is user-initiated enrollment. You can use the User-Initiated Enrollment settings to customize the enrollment experience for users, including the messaging that displays for each step of the enrollment process. Users can then enroll their own devices by logging in to a web-based enrollment portal and following the onscreen instructions. You can provide this URL by sending it in an email or SMS invitation from Jamf Pro, or through any other means that fit your environment. User-initiated enrollment is the only method that can be used to enroll personally owned devices using User Enrollment. For more information, see User Enrollment for Mobile Devices and the Building a BYOD Program with User Enrollment and Jamf Pro technical paper.

Related Information

For related information, see the following section in this guide:

Components Installed on Mobile Devices
Learn about the components installed on mobile devices during enrollment.

For related information, see the following technical papers:

Deploying iOS and tvOS Devices Using Apple Configurator 2 and Jamf Pro
Get step-by-step instructions on how to deploy iOS devices using Apple Configurator 2.

Building a BYOD Program with User Enrollment and Jamf Pro
Get step-by-step instructions on how to enroll personally owned mobile devices using User Enrollment.

Mobile Device PreStage Enrollments

A PreStage enrollment allows you to create enrollment configurations and sync them to Apple. This enables you to enroll new iOS, iPadOS, and tvOS devices with Jamf Pro, reducing the amount of time and interaction it takes to prepare mobile devices for use. For tvOS devices, this includes supervising devices, requiring users to apply the MDM profile for enrollment, and auto advancing through the Setup Assistant with optional settings to skip selected items during enrollment.

Before you can use a PreStage enrollment, you need to integrate Jamf Pro with Automated Device Enrollment (formerly DEP). This creates an Automated Device Enrollment instance in Jamf Pro. For more information, see Integrating with Automated Device Enrollment. Only devices associated with the Automated Device Enrollment instance can be enrolled with Jamf Pro using a PreStage enrollment.

After creating an Automated Device Enrollment instance, you need to create a PreStage enrollment in Jamf Pro for the mobile devices you want to enroll. Creating a PreStage enrollment allows you to configure the enrollment settings and customize the user experience of the Setup Assistant. You can also specify the devices that should be enrolled using the PreStage enrollment and automatically add devices newly associated with the Device Enrollment instance to the PreStage Enrollment.

Jamf Pro automatically refreshes information about the mobile devices in the PreStage enrollment. If there is updated information about the devices in Automated Device Enrollment (formerly DEP), this information is displayed in Jamf Pro. This information is automatically refreshed every two minutes.

Note: There can be up to a two minute delay on the information refresh which can result in outdated information displayed in Jamf Pro. In addition, environment-specific factors can affect the refresh of information.

Mobile Device PreStage Enrollment Settings

When you create a PreStage enrollment, you use a payload-based interface to configure settings to apply to devices during enrollment. The following table displays the enrollment settings available in a PreStage enrollment:

Payload	Description
General	This payload allows you to configure basic settings for the PreStage enrollment, specify authentication and management requirements, add an Enrollment Customization configuration, and customize the Setup Assistant experience.
Mobile Device Names	This payload allows you to choose a method for assigning names to mobile devices. This information is stored in Jamf Pro for each mobile device enrolled using a PreStage enrollment.
User and Location	You can use the User and Location payload to specify user and location information for the mobile devices. **Note**: Using Inventory Preload or authentication during enrollment can automatically populate this information for devices. This information is stored in Jamf Pro for each mobile device enrolled using a PreStage enrollment.
Purchasing	You can use the Purchasing payload to specify purchasing information for the mobile devices. This information is stored in Jamf Pro for each mobile device enrolled using a PreStage enrollment.
Attachments	You can use the Attachments payload to upload attachments to store for mobile devices. This information is stored in Jamf Pro for each mobile device enrolled using a PreStage enrollment.
Certificates	You can use the Certificates payload to establish trust during enrollment if your Jamf Pro instance uses an SSL certificate that is not natively trusted by Apple products. The device attempts a secure connection with Jamf Pro using only this certificate to enroll. For more information about the certificates that are trusted by Apple, see the following article from Apple's support website: https://support.apple.com/HT209143 **Note:** If your Jamf Pro instance uses an SSL certificate that was created by the Jamf Pro built-in CA, an anchor certificate for enrollment is automatically added to this payload. If your Jamf Pro server URL ends with "jamfcloud.com" you should not configure this payload.

Enrollment Experience Customization

You can customize the enrollment experience for the user with the following in the PreStage enrollment:

- **Enrollment Customization configurations**—You can use the General payload to add an Enrollment Customization configuration to the PreStage enrollment. For example, you can add an Enrollment Customization configuration to display an End User License Agreement (EULA) during enrollment or other custom messaging as the user advances through the Setup Assistant. For more information, see Enrollment Customization Settings.
  To add an Enrollment Customization configuration to the PreStage enrollment, you must have at least one configuration in the Enrollment Customization settings. Enrollment Customization configurations are applied to mobile devices with iOS 13 or later only.
- **Configuration profiles**—You can use the General payload to distribute configuration profiles that define settings and restrictions for mobile devices during enrollment. This allows the profiles to be installed on devices before the user completes the Setup Assistant, enabling the user to access resources on your network immediately after their mobile device is enrolled with Jamf Pro. For example, you can distribute a profile that enables a user to automatically join your network during enrollment.
  To distribute configuration profiles during enrollment, you must create the profile prior to configuring the PreStage enrollment. For more information, see Mobile Device Configuration Profiles. All configuration profiles that the device falls into the scope of will be distributed to the device during enrollment.

  Note: Configuration profiles that contain payload variables may not replaced with the attribute values for the variable. If you want to distribute profiles that contain payload variables, it is recommended that you distribute the profile after the device is enrolled with Jamf Pro.

- **Setup Assistant steps**—You can use the General payload to select Setup Assistant screens that you want the user to skip during enrollment (e.g., Apple ID login). When you select a step, that screen is not presented to the user during enrollment. For more information about the screens that can be skipped during enrollment, see the following article from Apple's support website: https://support.apple.com/guide/mdm/mdmc5a826c7/

Setup Assistant Steps

You can select Setup Assistant screens that you want the user to skip during enrollment. When you select a step, that screen is not presented to the user during enrollment.

When enrolling tvOS devices, you can also choose to automatically advance through the Setup Assistant. This option prevents the any of the Setup Assistant screens from being displayed to the user during enrollment. If you automatically advance through the Setup Assistant, you can configure the language and region so the locale on the device is automatically configured. These settings are designated by the International Organization fo Standardization (ISO). For more information, see the following websites:

- ISO 639 Language codes
  https://www.iso.org/iso-639-language-codes.html
- ISO 3166 Country Codes
  https://www.iso.org/iso-3166-country-codes.html

For more information about the screens that can be skipped during enrollment, see the following article from Apple's support website:
https://support.apple.com/guide/mdm/mdmc5a826c7/

Mobile Device Management Capability Settings

You can enable additional management capabilities. The following do not impact the user's enrollment experience, but do offer you additional remote management when applied:

- **User authentication**—To increase the security of sensitive user information, it is recommended that you require users to authenticate during mobile device setup using an LDAP directory account or a Jamf Pro user account. If users authenticate with an LDAP directory account, user and location information is submitted during enrollment. Authentication requires mobile devices with iOS 7.1 or later, or Apple TV devices with tvOS 10.2 or later.
  To require LDAP users or Jamf Pro users to authenticate during setup, you need an LDAP server set up in Jamf Pro. For more information, see Integrating with LDAP Directory Services.
  If you add an Enrollment Customization configuration to the PreStage, this setting is ignored for devices with iOS 13 or later, and iPadOS 13 or later.
- **MDM Profile**—The MDM Profile enables you to remotely manage mobile devices using Jamf Pro. Users are automatically required to apply the MDM profile on mobile devices with iOS 13 or later, or iPadOS 13 or later during enrollment with Jamf Pro.If the MDM profile is removed, you can no longer send remote commands or distribute configuration profiles to the mobile device. You can use Jamf Pro to prevent a user from removing this profile after enrollment.
- **Mobile device names**—You can enable Jamf Pro to take action on mobile device names during enrollment.

- **Device Supervision**—Choosing to supervise devices during enrollment offers you the following extended device management functionality:
  - **Pairing**—You can allow a mobile device to connect to Mac computers via USB
  - **Shared iPad settings**—You can allow devices with iPadOS 9.3 or later to be shared and configure additional functionality, such as the number of users or amount of storage to allocate to each user of the iPad.
  - **Activation Lock functionality**—You can enable Activation Lock for a device with iOS 12 or later without requiring user interaction. When the device is enrolled with Jamf Pro, Activation Lock is automatically enabled.
    You can also prevent a user from enabling Activation Lock for the mobile device during enrollment. When devices are enrolled with Jamf Pro, the user cannot enable Activation Lock on the device if they enable the Find My service.
    For more information about Activation Lock, see the following article from Apple's support website:
    https://support.apple.com/guide/mdm/apd593fdd1c9/

Mobile Device Names

You can use the Mobile Device Names payload to choose a method for assigning names to mobile devices. This information is stored in Jamf Pro for each mobile device enrolled using a PreStage enrollment.

This payload is not required to configure a PreStage enrollment; however, choosing to configure the payload enables Jamf Pro to take action on device names during enrollment. The following options are available to use as the method for naming devices during enrollment:

- **Default Names**—Depending on the enrollment status of the device, the following can happen when this option selected:
  - If the device is being re-enrolled with Jamf Pro, the value of the Mobile Device Name attribute field in the device's inventory information in Jamf Pro is assigned to the device at enrollment.
  - If the device is being enrolled for the first time with Jamf Pro, the current name of the device persists after enrollment.
- **Serial Numbers**—The serial number of the device becomes the device's name during enrollment. You can add a suffix or a prefix to the serial number.
- **List of Names**—You can enter names separated by a comma to assign to the devices during enrollment.
- **Single Names**—You can enter a single name that is assigned to all devices during enrollment.

If this payload is not configured, Jamf Pro does not take action on mobile device names during enrollment. The name of the device at the time of enrollment persists after enrollment.

Shared iPad Settings

You can use the General payload to enable Shared iPad and configure the following settings:

- **Number of Users**—You can enter the maximum number of users that can be stored with the iPad. You can specify up to 99 users. This limits the number of user accounts that can be stored locally on the iPad.
- **Storage Quota Size**—You can specify the maximum amount of storage (MB) allocated for each user on devices with iPadOS 13.4 or later. This overrides the maximum number of users. If the scope of the PreStage contains devices with iPadOS 13.3 or earlier, the device defaults to the maximum number of users.

If you add an Enrollment Customization configuration, the configuration is only applied once during the initial enrollment with Jamf Pro.

For more information about Shared iPad, see the following article from Apple's support website: https://support.apple.com/guide/mdm/cad7e2e0cf56/

Configuring a Mobile Device PreStage Enrollment

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **PreStage Enrollments**.
4. Click **New** 

.
5. Use the General payload to configure basic settings for the PreStage enrollment. In addition, you can do the following on the General pane:
   - To require that users authenticate with their username and password, select the **Require Credentials for Enrollment** checkbox.

     Note: The **Require Credentials for Enrollment** checkbox is only displayed if an LDAP server has been set up in Jamf Pro.

   - To enable Shared iPad during enrollment, select **Supervise Devices** and then select **Enable Shared iPad**. You must enter a maximum number of user accounts that can be stored with Shared iPad using the **Number of Users** text field. For devices with iPadOS 13.4 or later, you can use the storage quota size instead of the number of users.
   - To enable Activation Lock directly on a device without requiring end user interaction, select **Prevent user from enabling Activation Lock**, and then select **Enable Activation Lock on the device**.
   - To customize the user experience of the Setup Assistant, you can do the following:
     - Choose an Enrollment Customization configuration to apply to devices.
     - Select which steps you want to skip in the Setup Assistant. If you choose to skip steps, the user can enable these settings after the device is configured unless otherwise restricted. For Apple TV devices, Ethernet connection is required.
6. Use the rest of the payloads to configure the PreStage enrollment.

7. Click the **Scope** tab and configure the scope of the PreStage enrollment by selecting the checkbox next to each mobile device you want to add to the scope.
   The mobile devices listed on the Scope tab are the mobile devices that are associated with Automated Device Enrollment (formerly DEP) via the server token file (.p7m) you downloaded from Apple. If you clone a PreStage enrollment, mobile devices in the scope of the original PreStage enrollment are not included in the scope of the cloned PreStage enrollment.
   You can use the **Select All** button to add all associated devices to the scope. This adds all devices associated with Automated Device Enrollment via the server token file regardless of any results that have been filtered using the **Filter Results** search field. The **Deselect All** button removes all associated devices from the scope.

   > **Note:** If you want to add mobile devices to the scope automatically as the devices become associated with the Automated Device Enrollment instance, select the **Automatically assign new devices** checkbox in the General payload.

8. Click **Save**.

Related Information

For related information, see the following section in this guide:

Components Installed on Mobile Devices
Learn about the components installed on mobile devices during enrollment.

For related information, see the following Knowledge Base articles:

Leveraging Apple's Activation Lock Feature with Jamf Pro
Learn about how you can use Jamf Pro to leverage Activation Lock in your environment.

For related information, see the following technical paper:

Deploying iOS and tvOS Devices Using Apple Configurator 2 and Jamf Pro
Get step-by-step instructions on how to deploy iOS devices using Apple Configurator 2 and a PreStage enrollment.

User-Initiated Enrollment for Mobile Devices

You can allow users to enroll mobile devices by having them log in to an enrollment portal where they are prompted to install the MDM profile and certificates. You can either choose to provide users with an enrollment URL in the way that best fits your environment or send an enrollment invitation to users.

General Requirements

To allow mobile devices to be enrolled with user-initiated enrollment, you need:

- A push certificate in Jamf Pro (For more information, see Push Certificates.)
- User-initiated enrollment enabled (For more information, see User-Initiated Enrollment Settings.)
- (User Enrollment only) Mobile devices with iOS 13.1 or later, or iPadOS 13.1 or later
- (LDAP log in only) An LDAP server set up in Jamf Pro (For more information, see Integrating with LDAP Directory Services.)

Note: For mobile devices with iOS 10.3 or later, Apple has enabled an important security enhancement that requires untrusted root certificates installed manually on unsupervised iOS devices to be manually trusted in Certificate Trust Settings during user-initiated enrollment, or installation of the MDM profile will fail. For more information, see the Changes in User-Initiated Enrollment with Untrusted Certificate Authority (CA) Signed SSL Certificates in iOS 10.3 and Later Knowledge Base article.

Providing an Enrollment URL to Users

To direct users to the enrollment portal, you need to provide them with the enrollment URL. The enrollment URL is the full URL for the Jamf Pro server followed by "/enroll". For example:

- https://instancename.jamfcloud.com/enroll (hosted in Jamf Cloud)
- https://jamf.instancename.com:8443/enroll (hosted on-premise)

You can provide the enrollment URL to users in the way that best fits your environment.

Note: Users must use Safari to access the enrollment URL.

Users can log in to the enrollment portal using an LDAP directory account or a Jamf Pro user account. When a user logs in with an LDAP directory account, user and location information is submitted to Jamf Pro during enrollment. When a user logs in with a Jamf Pro user account, it allows an LDAP user to be assigned to the mobile device.

Sending a Mobile Device Enrollment Invitation for User-Initiated Enrollment

You can send an email or SMS invitation that contains the enrollment URL from Jamf Pro to one or more users enrolling institutionally owned mobile devices. Users tap the enrollment URL in the email or SMS message to access the enrollment portal. Enrollment invitations give you more control over user access to the enrollment portal by allowing you to do the following:

- Set an expiration date for the invitation
- Require users to log in to the portal
- Allow multiple uses of the invitation
- Add the mobile device to a site during enrollment
- View the status of the invitation

Before you configure the invitation, make sure you have the email addresses or phone numbers of the users you want to send the invitation to.

Note: You cannot enroll personally owned devices with an enrollment invitation. You must provide the enrollment URL to those users by some other means.

Requirements

To send an enrollment invitation to mobile devices, you need an SMTP server set up in Jamf Pro (For more information, see Integrating with an SMTP Server.).

Procedure

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Enrollment Invitations**.
4. Click **New** + New .
5. Select **User-Initiated Enrollment** as the enrollment method.
6. Follow the onscreen instructions to send the enrollment invitation.

An enrollment invitation is immediately sent to the email addresses or phone numbers you specified.

You can view the status of the enrollment invitation in the list of invitations.

Viewing Mobile Device Enrollment Invitation Usage

You can view a list of mobile devices that were enrolled with a specific enrollment invitation.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.

3. Click **Enrollment Invitations**.
4. Click the enrollment invitation you want to view usage for.
5. Click **View Enrolled Mobile Devices**  .

A list of mobile devices enrolled with the invitation is displayed.

Related Information

For related information, see the following sections in this guide:

- User-Initiated Enrollment Settings
  Learn about the settings you can configure for user-initiated enrollment.
- User-Initiated Enrollment Experience for Mobile Devices
  Learn about the steps users take to enroll mobile devices.
- Components Installed on Mobile Devices
  Learn about the components installed on mobile devices during enrollment.

For related information, see the following technical paper:

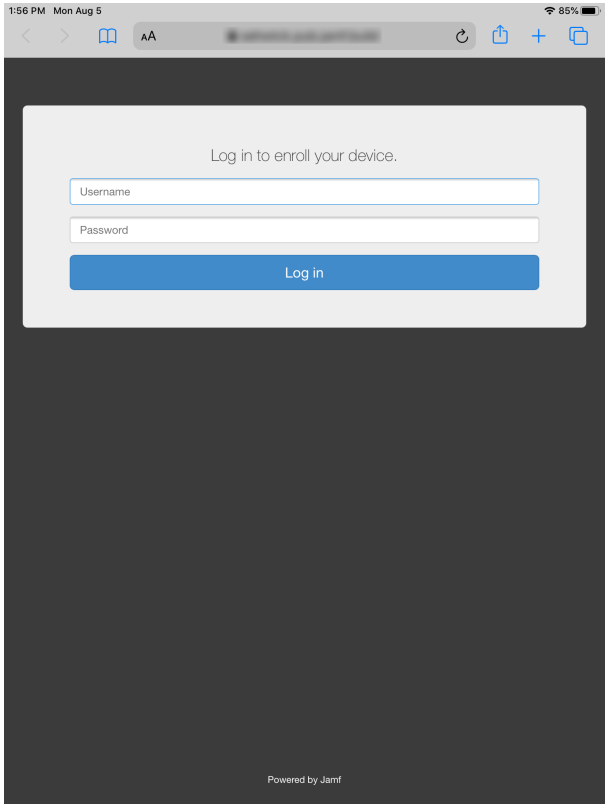
Building a BYOD Program with User Enrollment and Jamf Pro
Get step-by-step instructions on how to enroll personally owned mobile devices using User Enrollment.

User-Initiated Enrollment Experience for Mobile Devices

When a user accesses the enrollment URL from a mobile device using Safari, they are guided through a series of steps to enroll the device.

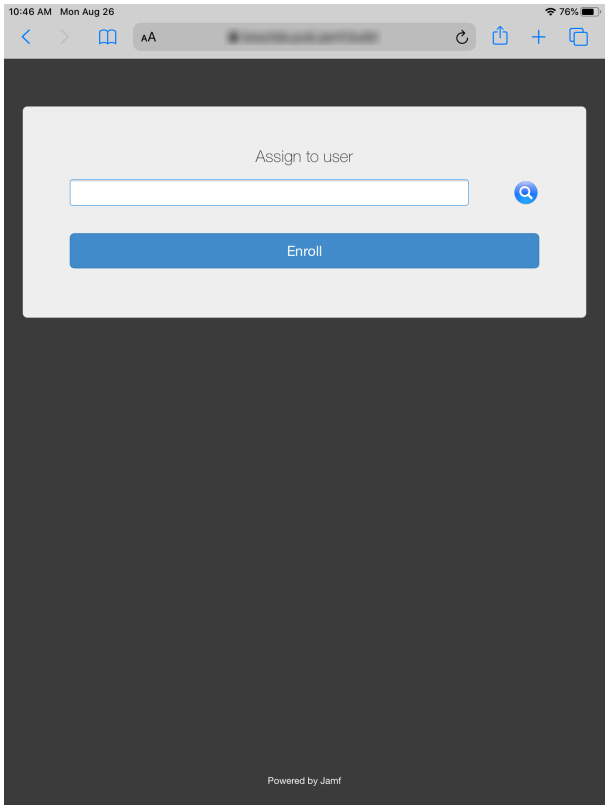
iOS and iPadOS devices can be enrolled as institutionally owned or personally owned devices. This workflow describes how user-initiated enrollment can be used to enroll personally owned devices with Personal Device Profiles and institutionally owned devices. For more information on Personal Device Profiles, see Personal Device Profiles. For more information on how to enroll personally owned devices with User Enrollment, see User Enrollment for Mobile Devices.

1. The user is prompted to enter credentials for an LDAP directory account, single sign-on (SSO) credentials, or Jamf Pro user account with user-initiated enrollment privileges, and then they must tap **Log in**.
   To allow users to use SSO credentials, you must integrate a third-party Identity Provider (IdP) and enable the **Enable Single Sign-On for User-Initiated Enrollment** setting. For more information, see Single Sign-On.

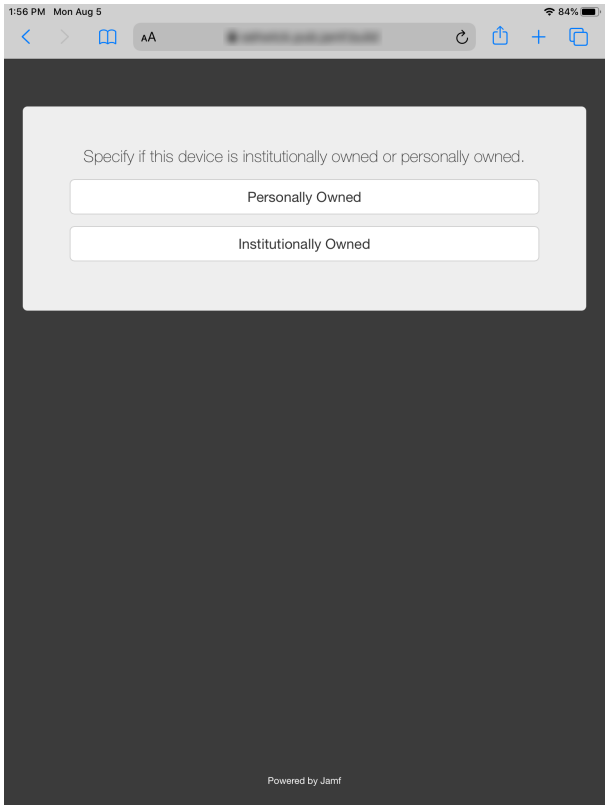


Note: If notified that the device cannot verify the identity of the Jamf Pro server when navigating to the enrollment URL, the user must proceed to the website to log in to the enrollment portal. This notification only appears if the Jamf Pro server uses an untrusted SSL certificate.

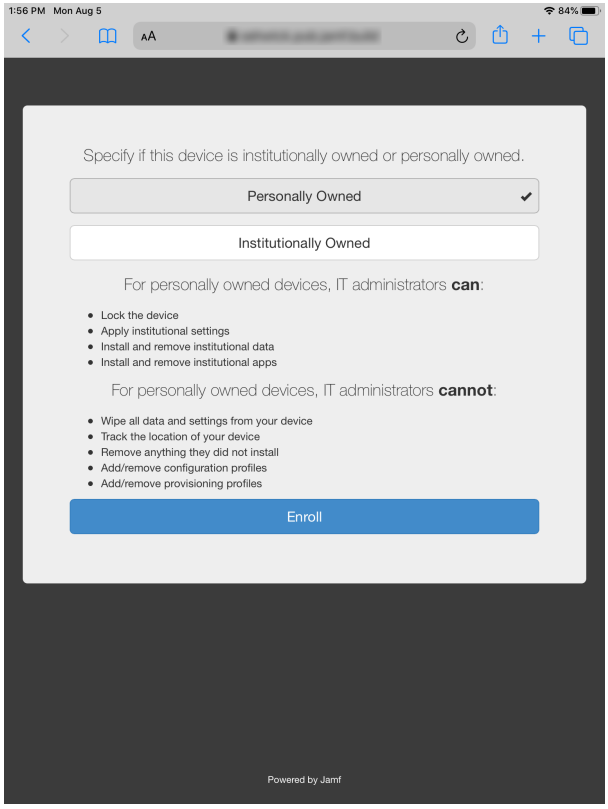
2. The user is prompted to enter credentials for an LDAP directory account or a Jamf Pro user account with user-initiated enrollment privileges, and then they must tap **Enroll**.
   The login prompt is not displayed if the enrollment portal was accessed via an enrollment invitation for which the "Require Login" option is disabled. For more information about enrollment invitations, see User-Initiated Enrollment for Mobile Devices.



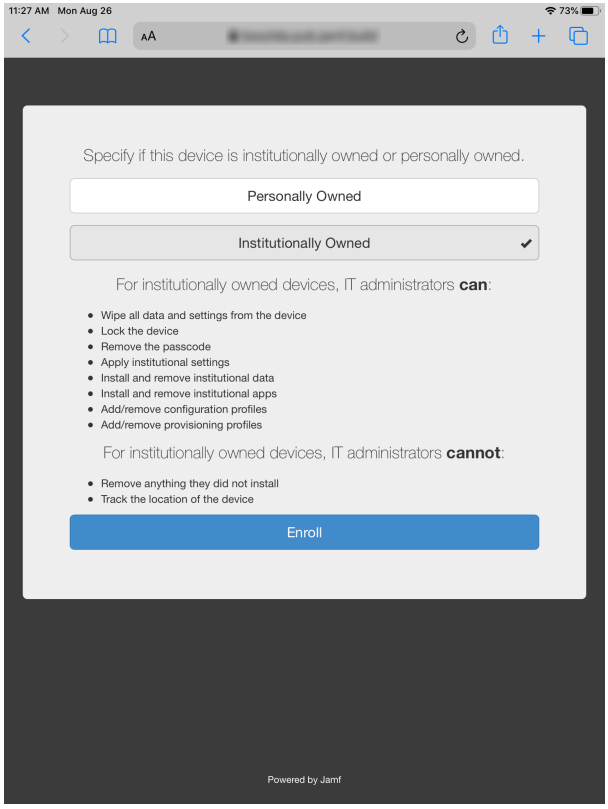
3. The user is prompted to enroll the device as a personally owned device or an institutionally owned device.
   This step is only displayed if both institutionally owned device enrollment and personally owned device enrollment are enabled in Jamf Pro.



You can display a description to users who enroll a personally owned device. (For more information, see User-Initiated Enrollment Settings.)

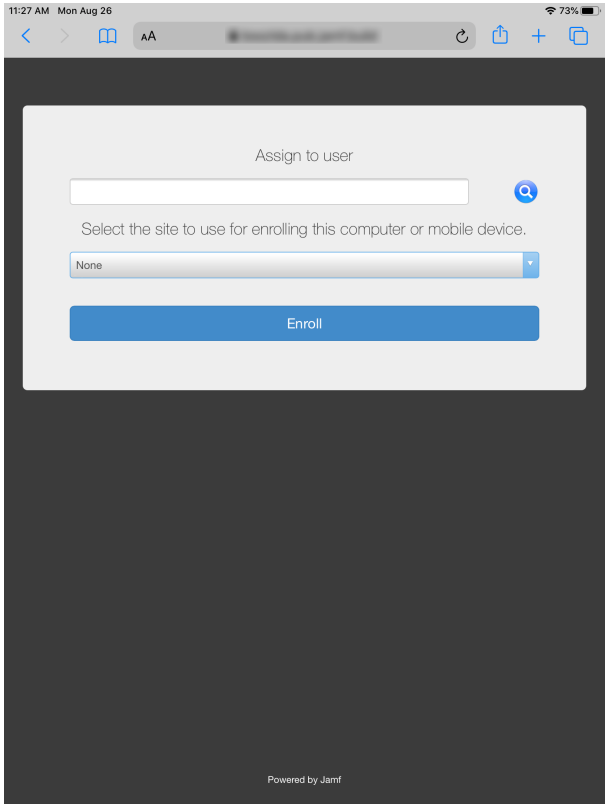


You can display a description to users who enroll an institutionally owned device. (For more information, see User-Initiated Enrollment Settings.)

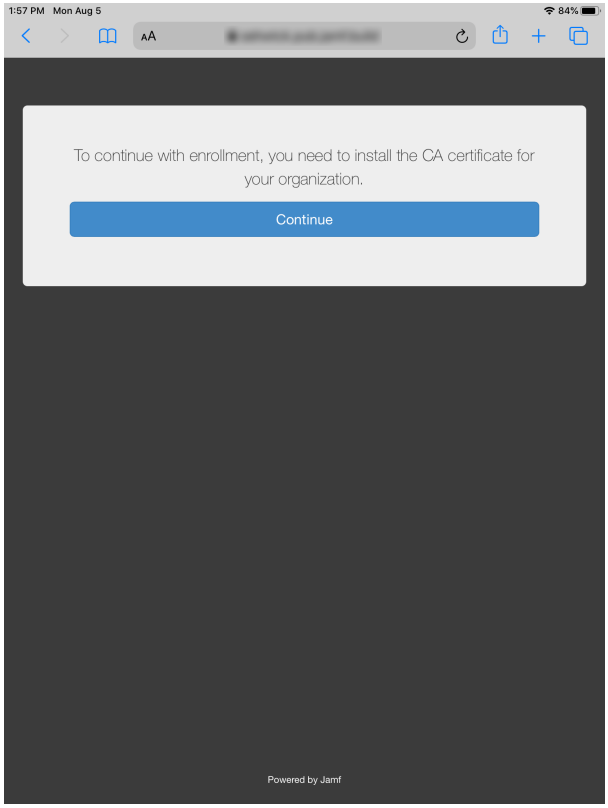


4. When prompted, the user must choose the site that they are associated with.
   If the user is associated with multiple sites, they must select the site that will assign the appropriate settings to the device.
   If the user signed in with a Jamf Pro user account, they can assign an LDAP user to the device at this time.

   Note: To assign a user to a device, the Jamf Pro user account must have the "Assign Users to Mobile Devices" privilege.

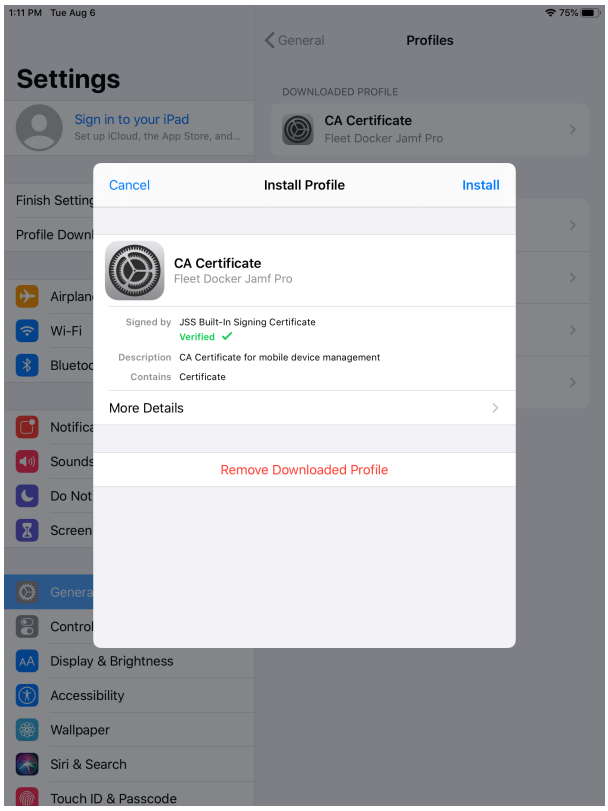


5. The user is prompted to continue to the CA certificate installation.

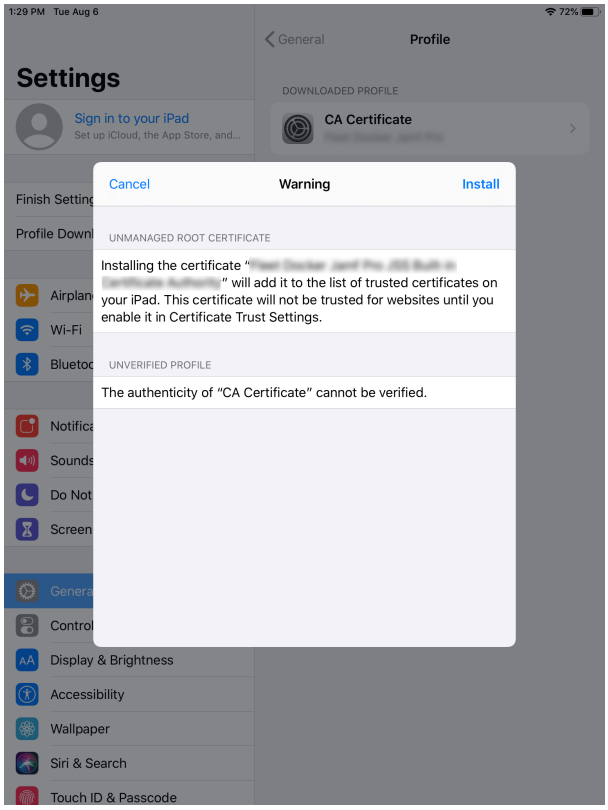


Note: For mobile devices with iOS 11 or later, a pop-up window will display the following message: “This website is trying to open Settings to show you a configuration profile. Do you want to allow this?” The user must tap **Allow**. For devices with iOS 12.2 or later, the following additional message is displayed: "Complete installation of this profile in the Settings app." The user must tap **Close**, and then navigate to the Settings app to complete the installation.

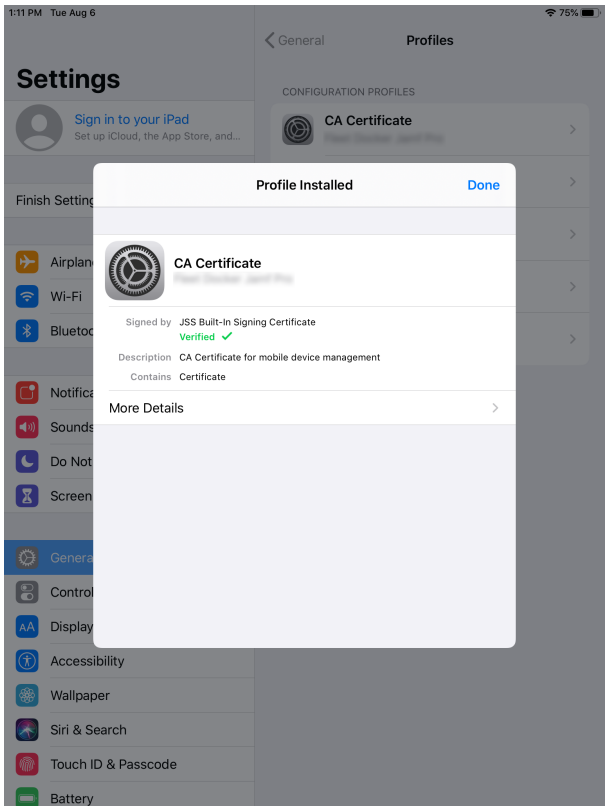
6. The user must tap **Install** to continue.



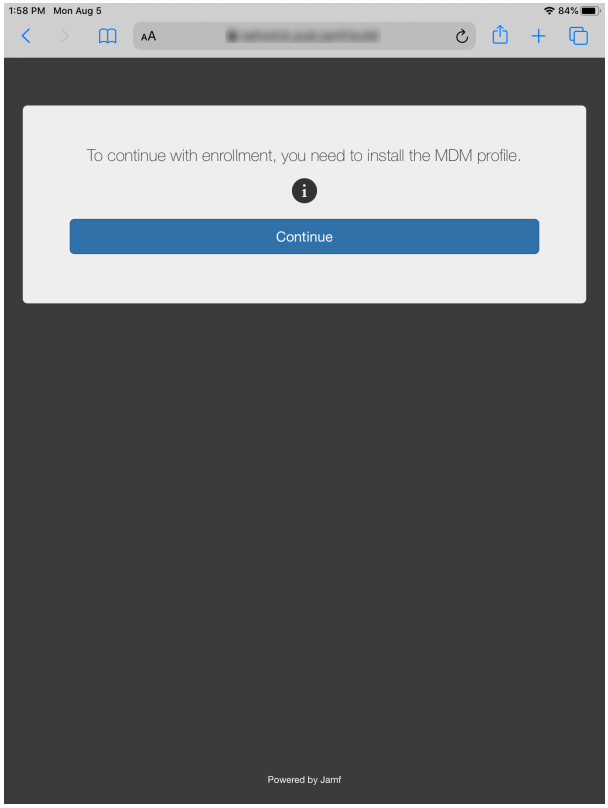
7. When notified that the profile will change settings on the device, the user must tap **Install**. If the device has a passcode, the user must enter the passcode.



8. To complete the installation, the user must tap **Done**.

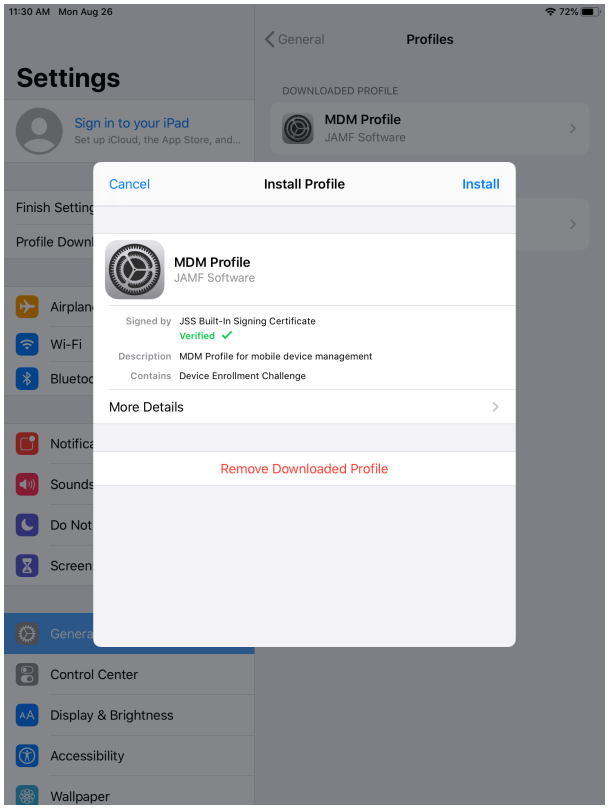


9. The user is prompted to continue to the MDM profile installation.
   Information about enrollment can be accessed by tapping the Information icon.

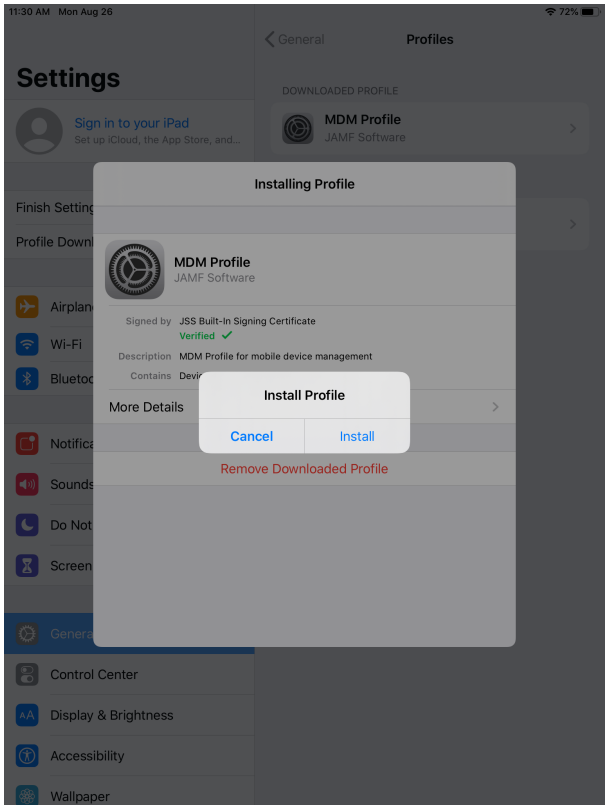


Note: For mobile devices with iOS 11 or later, a pop-up window will display the following message: “This website is trying to open Settings to show you a configuration profile. Do you want to allow this?” The user must tap **Allow**. For devices with iOS 12.2 or later, the following additional message is displayed: "Complete installation of this profile in the Settings app." The user must tap **Close**, and then navigate to the Settings app to complete the installation.

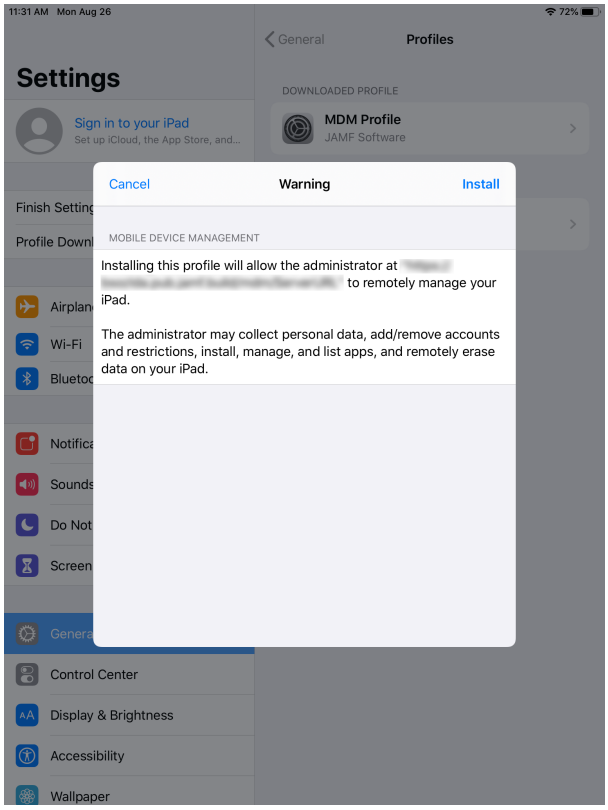
10. The user must tap **Install** to continue.



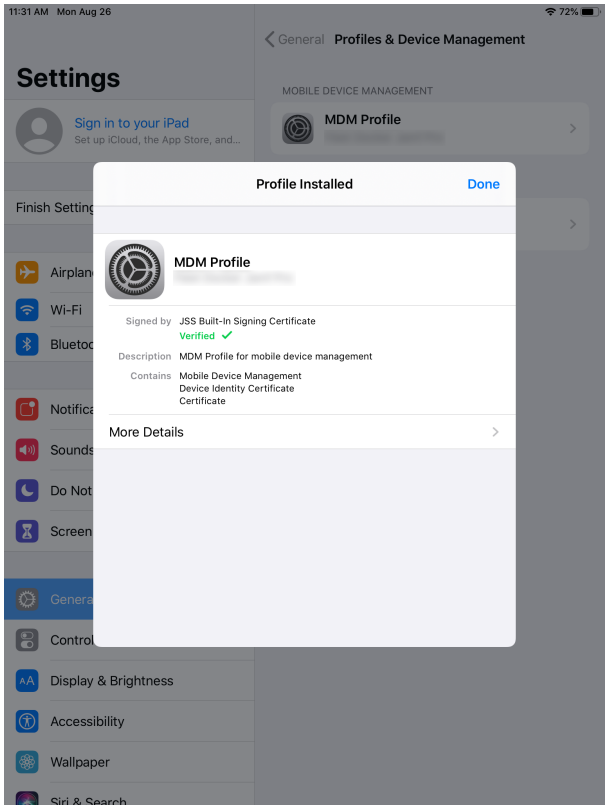
11. When notified that installing the profile will change settings on the device, the user must tap **Install**. If the device has a passcode, the user must enter the passcode.



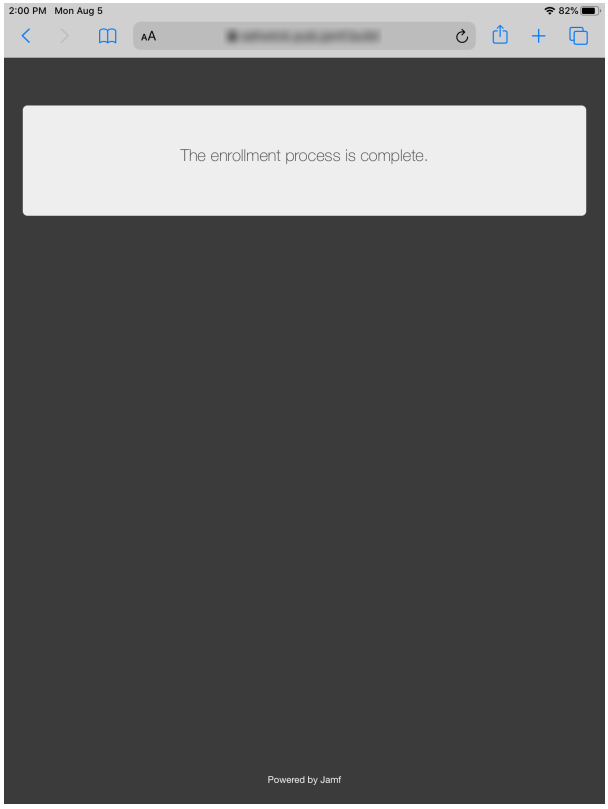
12. When notified that installing the profile will allow an administrator to remotely manage the device, the user must tap **Install**.



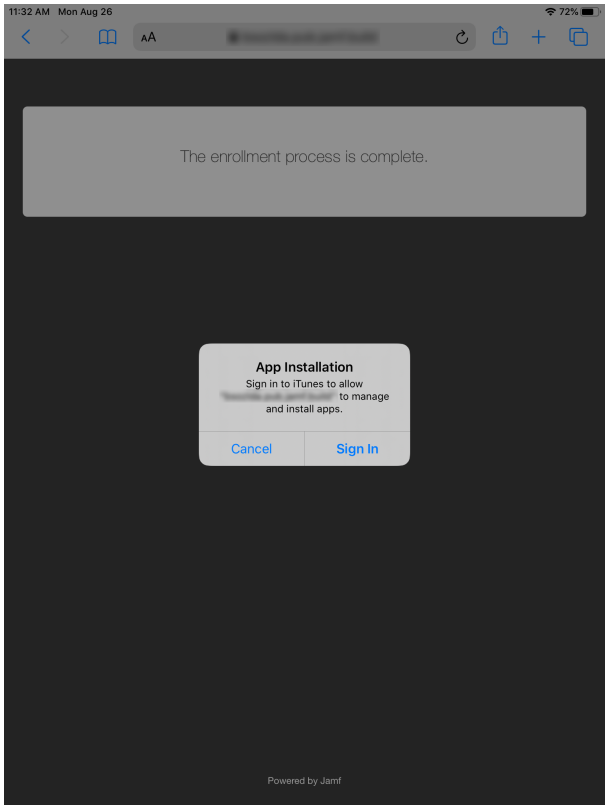
13. To complete the enrollment process, the user must tap **Done**.



14. When the enrollment is complete, the device is enrolled with Jamf Pro.



If you chose to install Self Service for iOS, users are prompted to install the app from the App Store. For more information, see Jamf Self Service for iOS.



Note: Apple has enabled an important security enhancement beginning with iOS 10.3. This security enhancement requires untrusted root certificates installed manually on unsupervised iOS devices to be manually trusted in Certificate Trust Settings during user-initiated enrollment, or installation of the MDM profile will fail. For more information, see the Changes in User-Initiated Enrollment with Untrusted Certificate Authority (CA) Signed SSL Certificates in iOS 10.3 and Later Knowledge Base article.

User Enrollment for Mobile Devices

You can allow users to enroll mobile devices by having them log in to an enrollment portal where they are prompted to install the MDM profile and certificates.

Providing an Enrollment URL to Users

You can provide the enrollment URL to users in the way that best fits your environment.

Requirements

To allow mobile devices to be enrolled with user-initiated enrollment, you need:

- A push certificate in Jamf Pro (For more information, see Push Certificates.)
- User-initiated enrollment enabled (For more information, see User-Initiated Enrollment Settings.)
- Mobile devices with iOS 13.1 or later, or iPadOS 13.1 or later
- (LDAP log in only) An LDAP server set up in Jamf Pro (For more information, see Integrating with LDAP Directory Services.)

Note: For mobile devices with iOS 10.3 or later, Apple has enabled an important security enhancement that requires untrusted root certificates installed manually on unsupervised iOS devices to be manually trusted in Certificate Trust Settings during user-initiated enrollment, or installation of the MDM profile will fail. For more information, see the Changes in User-Initiated Enrollment with Untrusted Certificate Authority (CA) Signed SSL Certificates in iOS 10.3 and Later Knowledge Base article.

Procedure

To direct users to the enrollment portal, you need to provide them with the enrollment URL. The enrollment URL is the full URL for the Jamf Pro server followed by "/enroll". For example:

- https://instancename.jamfcloud.com/enroll (hosted in Jamf Cloud)
- https://jamf.instancename.com:8443/enroll (hosted on-premise)

You can provide the enrollment URL to users in the way that best fits your environment.

Note: Users must use Safari to access the enrollment URL.

Users can log in to the enrollment portal using an LDAP directory account or a Jamf Pro user account. When a user logs in with an LDAP directory account, user and location information is submitted to Jamf Pro during enrollment. When a user logs in with a Jamf Pro user account, it allows an LDAP user to be assigned to the mobile device.

Related Information

For related information, see the following sections in this guide:

- User-Initiated Enrollment Settings
  Learn about the settings you can configure for User Enrollment.
- User Enrollment Experience for Mobile Devices
  Learn about the steps users take to enroll mobile devices using User Enrollment.
- Components Installed on Mobile Devices
  Learn about the components installed on mobile devices during enrollment.

For related information, see the following technical paper:

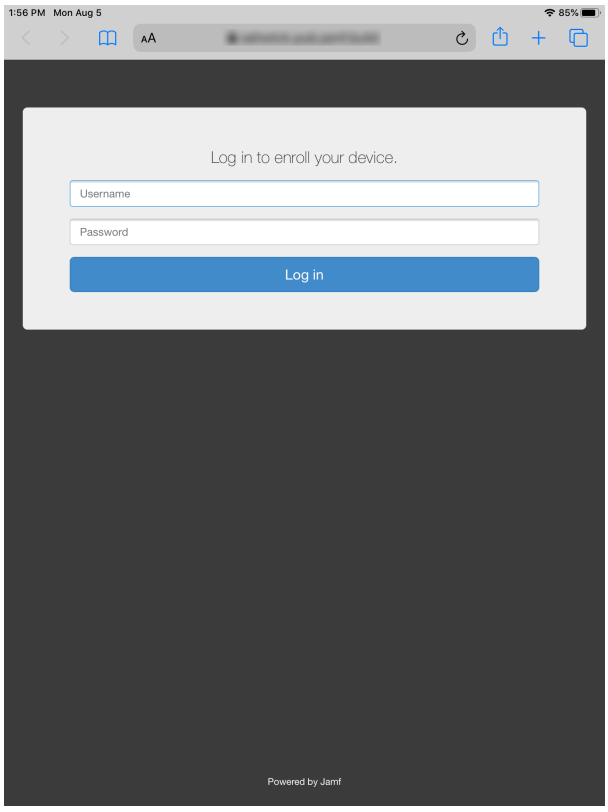
Building a BYOD Program with User Enrollment and Jamf Pro
Get step-by-step instructions on how to enroll personally owned mobile devices using User Enrollment.

User Enrollment Experience for Mobile Devices

When a user accesses the enrollment URL from a mobile device using Safari, they are guided through a series of steps to enroll the device. iOS and iPadOS devices can be enrolled using User Enrollment as personally owned devices.

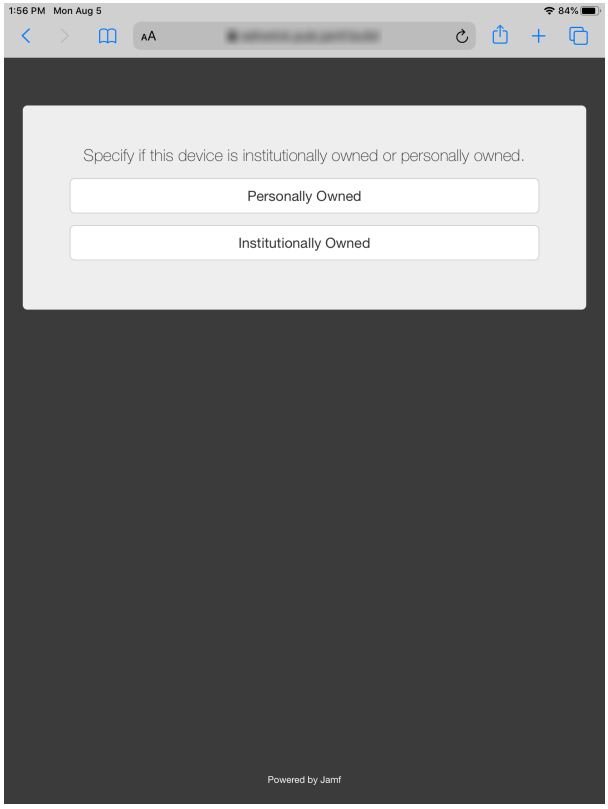
Note: If you are re-enrolling a device that was enrolled using a Personal Device Profile, it is recommended that you remove the device's previous record from Jamf Pro. For more information about how to re-enroll a device enrolled using a Personal Device Profile, see "Migrating Devices from Personal Device Profiles to User Enrollment" in the Building a BYOD Program with User Enrollment and Jamf Pro technical paper.

1. The user is prompted to enter credentials for an LDAP directory account, single sign-on (SSO) credentials, or Jamf Pro user account with user-initiated enrollment privileges, and then they must click **Log in**.
   To allow users to use SSO credentials, you must integrate a third-party Identity Provider (IdP) and enable the **Enable Single Sign-On for User-Initiated Enrollment** setting. For more information, see Single Sign-On.

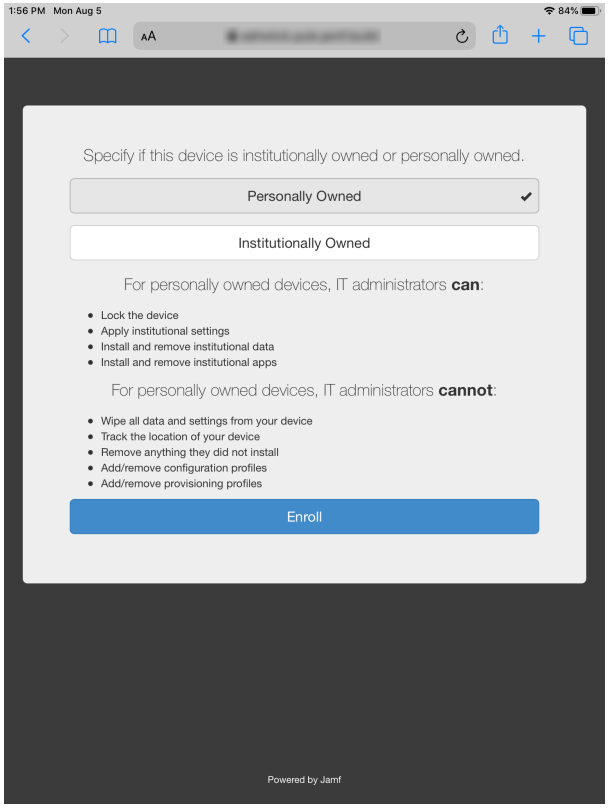


Note: If notified that the device cannot verify the identity of the Jamf Pro server when navigating to the enrollment URL, the user must proceed to the website to log in to the enrollment portal. This notification only appears if the Jamf Pro server uses an untrusted SSL certificate.

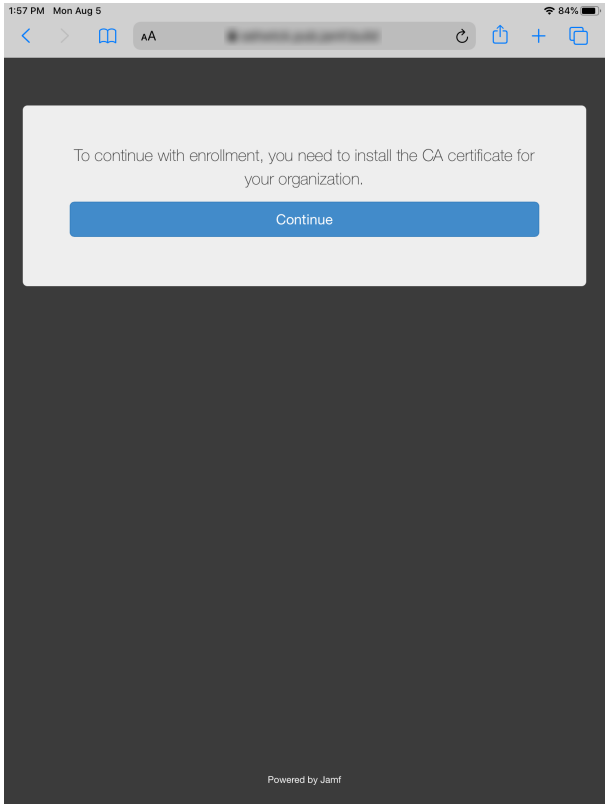
2. The user is prompted to enroll the device as a personally owned device or an institutionally owned device.
   This step is only displayed if both institutionally owned device enrollment and personally owned device enrollment are enabled in Jamf Pro.



You can display a description to users who enroll a personally owned device. (For more information, see User-Initiated Enrollment Settings.)

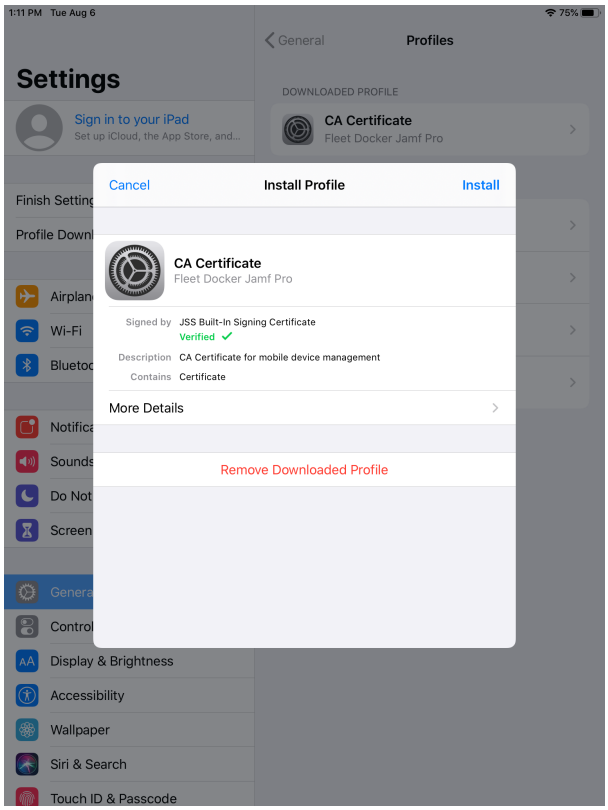


3. The user is prompted to continue to the CA certificate installation.

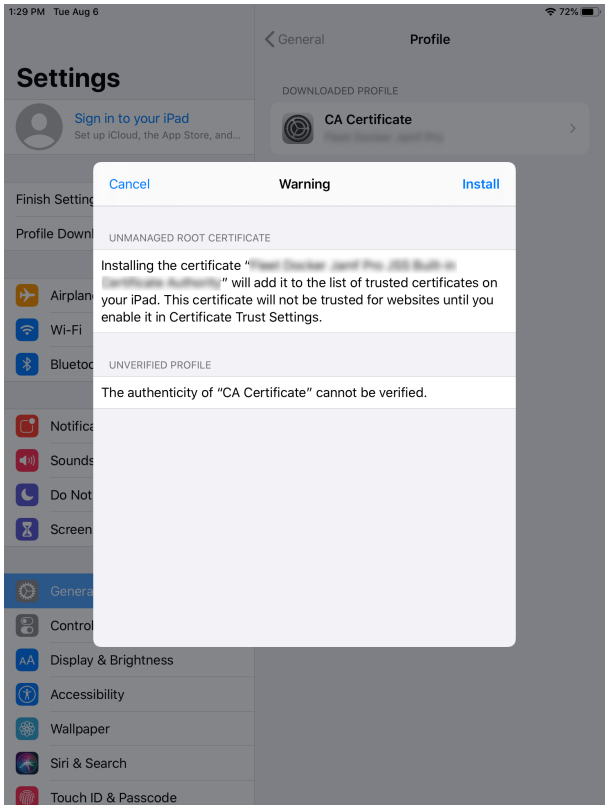


Note: For mobile devices with iOS 11 or later, a pop-up window will appear notifying users, “This website is trying to open Settings to show you a configuration profile. Do you want to allow this?” The user must tap **Allow**. For devices with iOS 12.2 or later, an additional message is displayed notifying users, "Complete installation of this profile in the Settings app." The user must tap **Close**, and then navigate to the Settings app to complete the installation.

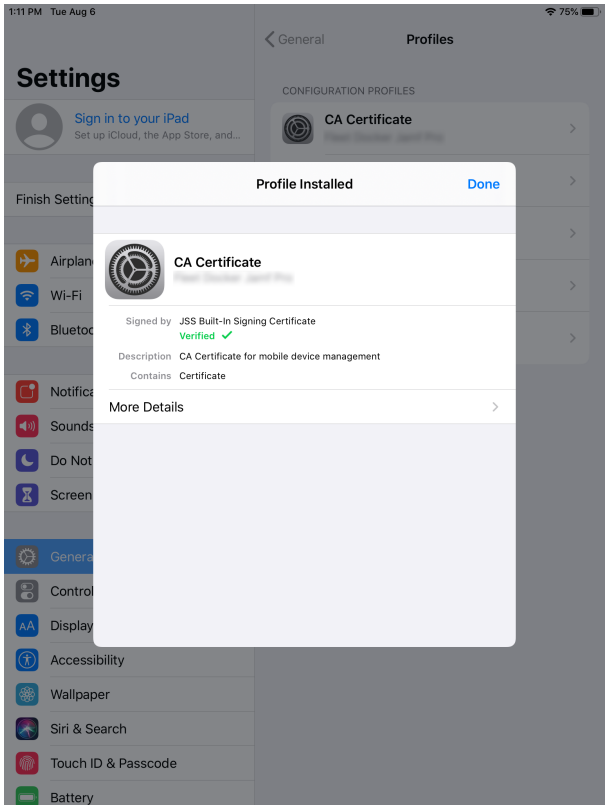
4. The user must tap **Install** to continue.



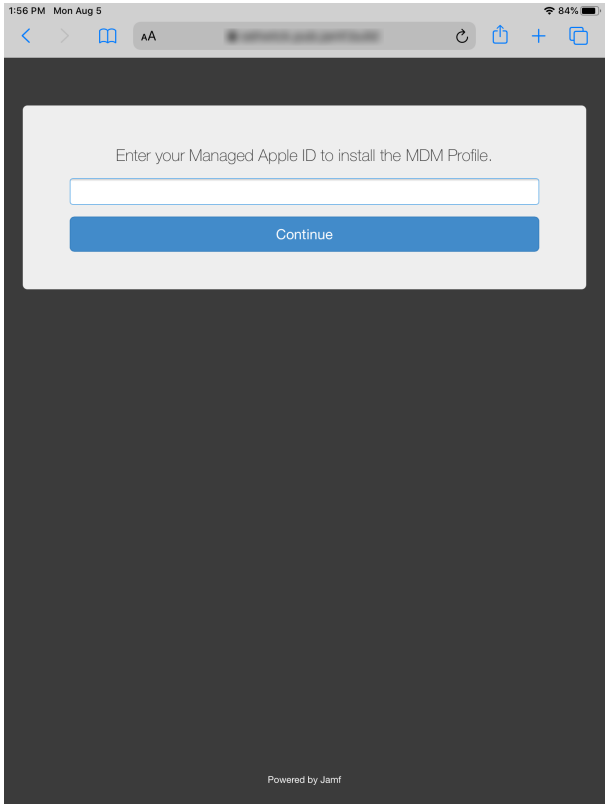
5. When notified that the profile will change settings on the device, the user must tap **Install**. If the device has a passcode, the user must enter the passcode.



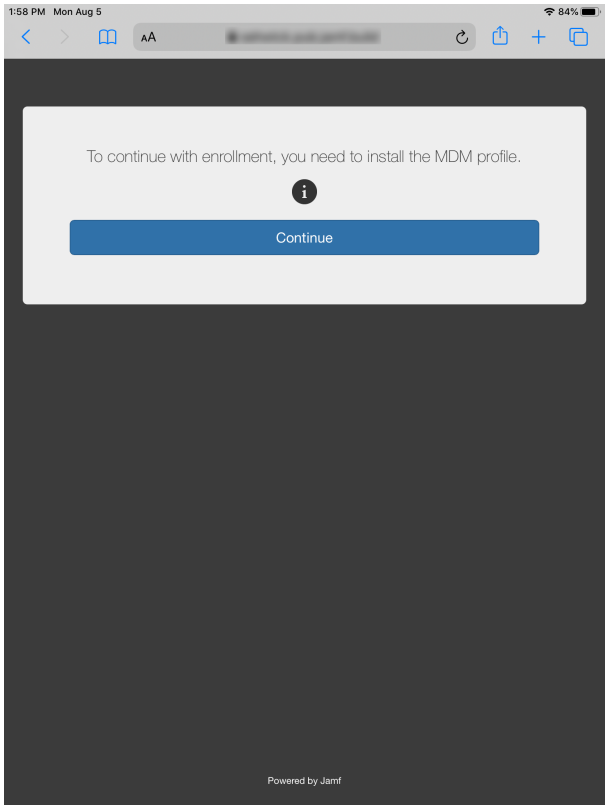
6. To complete the installation, the user must tap **Done**.



7. The user is prompted to enter their Managed Apple ID to install the MDM profile.

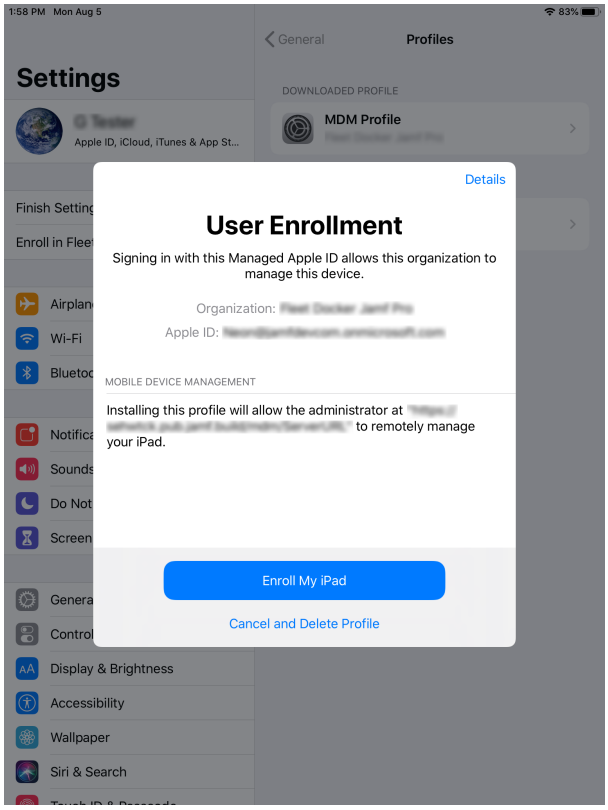


8. The user is prompted to continue to the MDM profile installation.
   Information about enrollment can be accessed by tapping the **Information** icon.

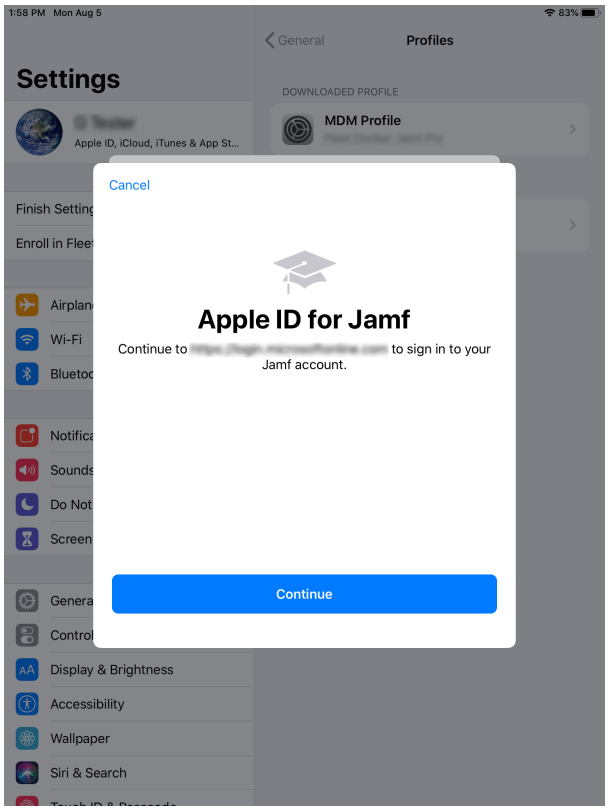


Note: For mobile devices with iOS 11 or later, a pop-up window will appear notifying users, “This website is trying to open Settings to show you a configuration profile. Do you want to allow this?” The user must tap **Allow**. For devices with iOS 12.2 or later, an additional message is displayed notifying users, "Complete installation of this profile in the Settings app." The user must tap **Close**, and then navigate to the Settings app to complete the installation.

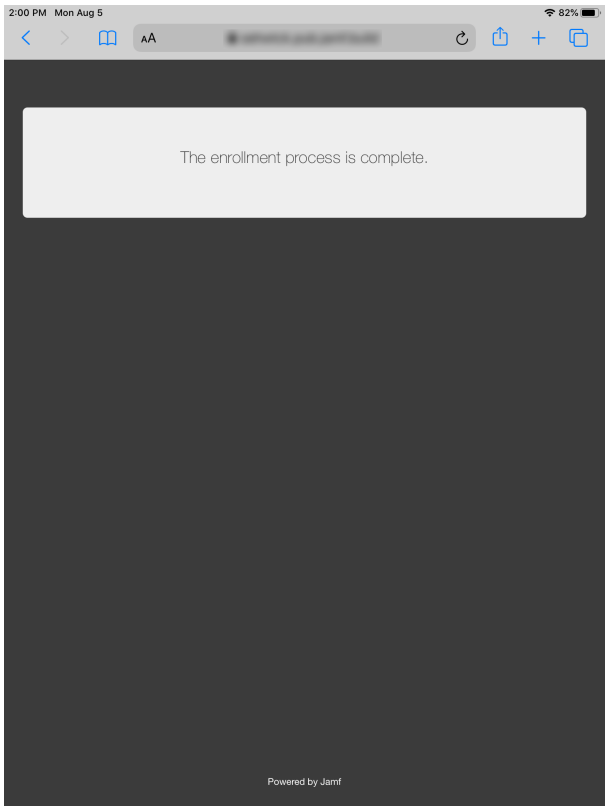
9. The user taps **Enroll My iPad** or **Enroll My iPhone** to continue.
   For more information on the sign-in process for User Enrollment, see User Enrollment into MDM in Apple's *Deployment Reference for iPhone and iPad*.



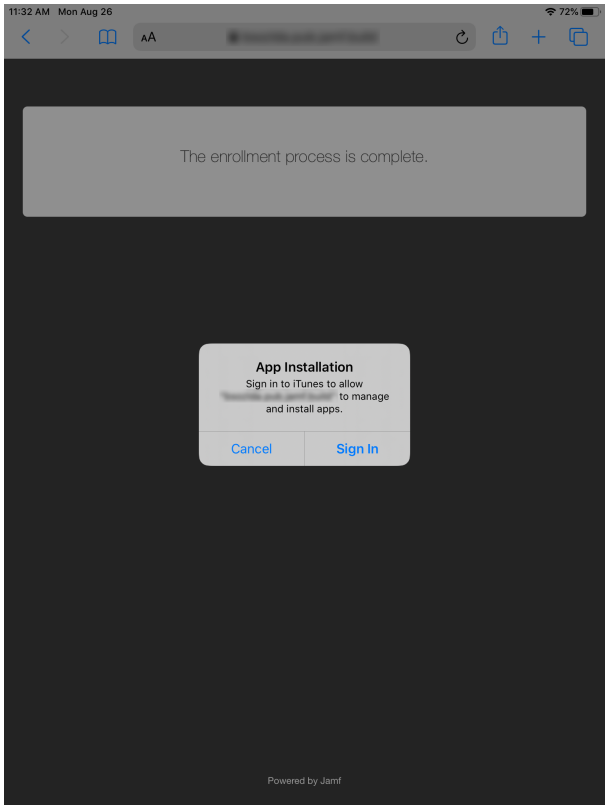
10. The user taps **Continue** to proceed to the Managed Apple ID sign in page. The user is then prompted to enter the password for their Managed Apple ID.



11. When the enrollment is complete, the device is enrolled with Jamf Pro.



If you chose to install Self Service for iOS, users are prompted to install the app from the App Store. For more information, see Jamf Self Service for iOS.



Note: Apple has enabled an important security enhancement beginning with iOS 10.3. This security enhancement requires untrusted root certificates installed manually on unsupervised iOS devices to be manually trusted in Certificate Trust Settings during user-initiated enrollment, or installation of the MDM profile will fail. For more information, see the Changes in User-Initiated Enrollment with Untrusted Certificate Authority (CA) Signed SSL Certificates in iOS 10.3 and Later Knowledge Base article.

Apple Configurator Enrollment Settings

The Apple Configurator Enrollment settings allow you to enroll mobile devices with Jamf Pro using Apple Configurator 2 and an enrollment URL. This involves enabling Apple Configurator enrollment in Jamf Pro, and then connecting devices to a computer via USB to enroll them using Apple Configurator 2 and an enrollment URL.

You can enable one or both of the following types of Apple Configurator enrollment URL:

- **Static URL –** Using a static URL allows you to manually provide the URL to the person that operates the Apple Configurator workstation in the way that best fits your environment. The static URL cannot expire and does not allow you to enroll devices into sites as a part of the enrollment process. The static enrollment URL for Jamf Pro is the URL for the Jamf Pro server followed by "/configuratorenroll". For example:
  - https://instancename.jamfcloud.com/configuratorenroll (hosted in Jamf Cloud)
  - https://jamf.instancename.com:8443/configuratorenroll (hosted on-premise)
- **Dynamic URL –** Using a dynamic URL allows you to view a randomly generated enrollment URL in Jamf Pro or send that URL to the person that operates the Apple Configurator workstation via an enrollment invitation, allowing for a more secure enrollment experience. When you view or send a dynamic URL via an enrollment invitation, you can set the expiration date for the URL and choose a site to add devices to during enrollment.

Requirements

Apple Configurator enrollment only applies to mobile devices with iOS 9 or later. In addition, you need Apple Configurator 2.0 or 2.1.

Enabling Apple Configurator Enrollment via Static URL

Before you can enroll mobile devices using Apple Configurator and a static URL, you must enable Apple Configurator enrollment in Jamf Pro.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Mobile Device Management**.
4. Click **Apple Configurator Enrollment** .
5. Click the **Enrollment** tab, and then click Edit.
6. Select **Enable Apple Configurator Enrollment via Static URL**.
7. Click **Save** .

You can now use the static URL with your Apple Configurator workstation.

Enabling Apple Configurator Enrollment via Dynamic URL

Before you can enroll mobile devices using Apple Configurator and a dynamic URL, you must enable Apple Configurator enrollment in Jamf Pro.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Mobile Device Management**.
4. Click **Apple Configurator Enrollment** .
5. Click the **Enrollment** tab, and then click **Edit**.
6. Select **Enable Apple Configurator Enrollment via Dynamic URL** .
7. Click **Save** .

Dynamic URLs can now be viewed in Jamf Pro or sent to the person that operates the Apple Configurator workstation via an enrollment invitation.

Viewing or Sending a Dynamic Apple Configurator Enrollment URL via a Mobile Device Enrollment Invitation

You can view the dynamic Apple Configurator enrollment URL or send an email or SMS invitation that contains the URL from Jamf Pro to the person that operates the Apple Configurator workstation. The enrollment URL is used with Apple Configurator to enroll mobile devices with Jamf Pro.

Before you configure the invitation, make sure you have the email address or phone number of the person you want to send the invitation to.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Enrollment Invitations**.
4. Click **New** .
5. Select **Apple Configurator Enrollment** as the enrollment method.
6. Follow the onscreen instructions to view or send the enrollment invitation.

If you chose to view the enrollment URL, it is displayed in Jamf Pro. If you chose to send the enrollment URL, an enrollment invitation containing the dynamic URL is sent to the email addresses or phone numbers you specified.

You can view the status of the enrollment invitation in the list of invitations.

Viewing Mobile Device Enrollment Invitation Usage

You can view a list of mobile devices that were enrolled with a specific enrollment invitation.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Enrollment Invitations**.
4. Click the enrollment invitation you want to view usage for.
5. Click **View Enrolled Mobile Devices** .

A list of mobile devices enrolled with the invitation is displayed.

Related Information

For related information, see the following section in this guide:

- Supervision Identities
  Find out how to create, upload, and download a supervision identity for use with Apple Configurator 2.
- Components Installed on Mobile Devices
  Learn about the components installed on mobile devices during enrollment.

For related information, see the following technical paper:

Deploying iOS and tvOS Devices Using Apple Configurator 2 and Jamf Pro
Get step-by-step instructions on how to deploy iOS devices using Apple Configurator 2 and an enrollment URL.

Supervision Identities

If you plan to supervise devices and deploy them using Apple Configurator 2 and Jamf Pro, you can use a supervision identity to pair supervised devices with multiple Apple Configurator 2 workstations that have the same supervision identity. A supervision identity can be applied to a device by pairing the device with an Apple Configurator 2 workstation or by enrolling the device with Jamf Pro using a PreStage enrollment configured with an Automated Device Enrollment (formerly DEP) instance that has a supervision identity.

A supervision identity certificate (.p12 file) can be created in Jamf Pro or created in Apple Configurator 2 and then uploaded to Jamf Pro. The identity can then be stored in Jamf Pro until you need to download it and add it to other Apple Configurator 2 workstations, or add it to an Automated Device Enrollment instance for use with a PreStage enrollment.

Note: To ensure devices are paired securely with each Apple Configurator 2 workstation, the workstations you are using must have matching supervision identities. If the wrong identity is applied to a device, the device must be wiped, re-supervised, and re-enrolled to change the identity.

For more information about supervision identities, see Apple's Configurator 2 Help documentation at: https://support.apple.com/guide/apple-configurator-2/welcome

For step-by-step instructions on how to use supervision identities while deploying mobile devices using Apple Configurator 2, see the Deploying iOS and tvOS Devices with Apple Configurator 2 and Jamf Pro technical paper.

Requirements

To use supervision identities, you need:

- Supervised devices with iOS 9 or later, or tvOS 10.2 or later
- Apple Configurator 2.0 or 2.1

Creating a Supervision Identity

You can create a supervision identity in Jamf Pro for use with Apple Configurator 2.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Mobile Device Management**.
4. Click **Apple Configurator Enrollment** .
5. Click the **Supervision Identities** tab, and then click **Edit**.
6. Click **New**.

7. Configure the supervision identity using the fields on the pane.
8. Click **Save**.

Uploading a Supervision Identity

If you created a supervision identity using Apple Configurator 2, you can upload that identity to Jamf Pro so it can be accessed from other Apple Configurator 2 workstations or added to a Device Enrollment instance.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**.
3. Click **Mobile Device Management**.
4. Click **Apple Configurator Enrollment**.
5. Click the **Supervision Identities** tab, and then click **Edit**.
6. Click **Upload**.
7. Click **Upload Supervision Identity** and upload the supervision identity (.p12).
8. Configure the supervision identity using the fields on the pane.
9. Click **Save**.

Downloading a Supervision Identity

You can download a supervision identity from Jamf Pro and add it to the Apple Configurator 2 workstations that you want your devices with the same supervision identity to trust.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**.
3. Click **Mobile Device Management**.
4. Click **Apple Configurator Enrollment**.
5. Click the **Supervision Identities** tab.
6. Click **View** next to the supervision identity you want to download.
7. Click **Download**.
8. Click **Done**.

Adding a Supervision Identity to an Automated Device Enrollment Instance

When you add a supervision identity to an Automated Device Enrollment (formerly DEP) instance, that identity is applied to all devices enrolled using a PreStage enrollment that is configured with the Device Enrollment instance.

> **Note:** Devices that are already enrolled with Jamf Pro and associated with an Automated Device Enrollment instance need to be re-enrolled to become associated with the supervision identity for that Automated Device Enrollment instance.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **Device Enrollment** .
5. Click the Automated Device Enrollment instance you want to add a supervision identity to.
6. Click **Edit** .
7. Select the supervision identity you want to add from the **Supervision Identity for Use with Apple Configurator** pop-up menu.
8. Click **Save** .

Related Information

For related information, see the following sections in this guide:

- Integrating with Automated Device Enrollment
  Find out how to configure an Automated Device Enrollment (formerly DEP) instance.
- Mobile Device PreStage Enrollments
  Find out how to enroll mobile devices using a PreStage Enrollment.

Enrollment Profiles

Enrollment profiles are .mobileconfig files that allow you to enroll mobile devices with Jamf Pro. This involves creating an enrollment profile, connecting the devices to a computer via USB, and installing the enrollment profile using Apple Configurator.

When you create an enrollment profile using Jamf Pro, you can specify user and location information, purchasing information, and a site for mobile devices enrolled using the profile. To enroll mobile devices using Apple Configurator, you must download both the enrollment profile and its Trust Profile from Jamf Pro and import both profiles to Apple Configurator.

For information on how to install enrollment profiles using Apple Configurator, see the Installing Enrollment Profiles Using Apple Configurator Knowledge Base article.

Note: You cannot distribute an updated MDM profile via the Self Service web clip to mobile devices enrolled using an enrollment profile. For information on updating an MDM profile, see the Distributing Updated MDM Profiles Knowledge Base article.

Creating an Enrollment Profile for Use with Apple Configurator

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Enrollment Profiles**.
4. Click **New** + New .
5. Use the General pane to configure basic settings for the enrollment profile.
6. (Optional) Click the **User and Location Information** tab and specify user and location information for the devices.
7. (Optional) Click the **Purchasing Information** tab and specify purchasing information for the devices.
8. (Optional) Click the **Attachments** tab and click **Upload** to upload an attachment.
9. Click **Save** .

Downloading an Enrollment Profile

You need to download the enrollment profile (.mobileconfig) from Jamf Pro before using it to enroll mobile devices using Apple Configurator.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Enrollment Profiles**.

4. Click the enrollment profile you want to download.
5. Click **Download** .
   On macOS 10.7 or later, you may be prompted to install the profile. Click **Cancel** to decline.

   The enrollment profile downloads immediately as a .mobileconfig file.

Downloading a Trust Profile

The Trust Profile contains the CA certificate that establishes trust between the certificate authority (CA) and mobile devices.

When you create an enrollment profile for use with Apple Configurator, Jamf Pro automatically creates an associated Trust Profile. You need to download the Trust Profile (`Trust Profile.mobileconfig`) from Jamf Pro so that you can import it to Apple Configurator along with the enrollment profile.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Enrollment Profiles**.
4. Click the enrollment profile for which you want to download a Trust Profile.
5. Click **Trust Profile** .
   On macOS 10.7 or later, you may be prompted to install the profile. Click **Cancel** to decline.

   The Trust Profile downloads immediately with the filename `Trust Profile.mobileconfig`.

   When the Trust Profile is imported to Apple Configurator, it displays in the Profiles list with a name that identifies it as the CA certificate profile.

Related Information

For related information, see the following Jamf Knowledge Base video:

Manually Enrolling iPads in Jamf Pro with Apple Configurator 2

For related information, see the following section in this guide:

Components Installed on Mobile Devices
Learn about the components installed on mobile devices during enrollment.

For related information, see the following technical paper:

Deploying iOS and tvOS Devices Using Apple Configurator 2 and Jamf Pro
Get step-by-step instructions on how to deploy iOS devices using Apple Configurator 2 and an enrollment profile.

Inventory for Mobile Devices

Mobile Device Inventory Collection Settings

The Mobile Device Inventory Collection settings allow you to do the following:

- Configure the frequency at which inventory is collected from mobile devices.
- Collect unmanaged apps (does not apply to personally owned devices).
- Collect user and location from an LDAP directory service (only available if an LDAP server is set up in Jamf Pro).
- Monitor iBeacon regions so that mobile devices with Jamf Self Service for iOS installed submit information to Jamf Pro when they enter or exit a region.

By default, mobile devices submit inventory to Jamf Pro once every day.

Configuring the Mobile Device Inventory Collection Settings

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Mobile Device Management**.
4. Click **Inventory Collection** .
5. Click **Edit** .
6. Configure the settings on the pane.
7. Click **Save** .

Related Information

For related information, see the following sections in this guide:

- Simple Mobile Device Searches
  Learn how to quickly search the items in your inventory for a general range of results.
- Advanced Mobile Device Searches
  Learn how to create and save an advanced mobile device search.
- Viewing and Editing Inventory Information for a Mobile Device
  Find out how to view and edit inventory information for a mobile device.
- iBeacon Regions
  Learn what iBeacon regions can be used for and how you can add them to Jamf Pro.

Mobile Device Extension Attributes

Mobile device extension attributes are custom fields that you can create to collect almost any type of data from a mobile device.

Note: Mobile device extension attributes do not apply to personally owned mobile devices.

When you create a mobile device extension attribute, you specify the following information:

- Type of data being collected, such as string, integer, or date
- Inventory category in which to display the extension attribute in Jamf Pro, such as Hardware or Purchasing
- Input type, which determines how the extension attribute is populated with data

Extension attributes can add time and network traffic to the inventory process depending on the type of data you choose to collect and the input type used to collect it.

Mobile Device Extension Attribute Input Types

You can choose to populate the value of a mobile device extension attribute using any of the following input types:

- **Text field—**This displays a text field in mobile device inventory information that you can enter a value into. Only extension attributes created manually can be populated using a text field.
- **Pop-up menu—**This displays a pop-up menu in mobile device inventory information from which you can choose a value. Only extension attributes created manually can be populated using a pop-up menu.
- **LDAP Attribute Mapping**—This populates the extension attribute with the value for an LDAP attribute. Beginning with Jamf Pro 10.14.0, extension attributes can be mapped to multiple-value attributes from the LDAP server, such as "memberOf". When the inventory collection settings are configured to collect user and location information from LDAP, these values will be displayed in the inventory information for a device.

  Important: To configure LDAP extension attributes, navigate to **Settings** > **Device Management** > **Inventory Collection** and make sure the **Collect user and location information from LDAP** checkbox is selected.

  The multiple values can later be used when creating smart groups and advanced searches with the extension attribute criteria and the “has" or "does not have” operators.
  Consider the following limitations when using LDAP multiple-value extension attributes:

  - When creating smart groups and advanced searches, the criteria value must accurately reflect the value returned in the device inventory. It is recommended that you copy the extension attribute inventory value and paste it in the criteria value field.
  - Multiple-value attribute mapping will not work with nested groups. Only the groups directly listed on the User record will be displayed in the mapped LDAP extension attribute.

- For the extension attributes to work correctly, values returned from the LDAP server cannot contain the sequence of repeating vertical-bar characters (ASCII code 124, HTML entity = |).

Creating a mobile device extension attribute generates a variable that can be used to populate configuration profile settings. The variable is $EXTENSIONATTRIBUTE_#, where # is the extension attribute ID. For extension attributes with the "Text field" or "Pop-up menu" input type, the ID number is found in the extension attribute URL. In the example URL below, "id=2" indicates the extension attribute ID number:

https://instancename.jamfcloud.com/mobileDeviceExtensionAttributes.html?id=2&o=r

For more information on payload variables for configuration profiles, see Mobile Device Configuration Profiles.

Requirements

To create a mobile device extension attribute with the “LDAP Attribute Mapping” input type, you need:

- An LDAP server set up in Jamf Pro (For more information, see Integrating with LDAP Directory Services.)
- The Mobile Device Inventory Collection settings configured to collect user and location information from LDAP (For more information, see Mobile Device Inventory Collection Settings.)

Creating a Mobile Device Extension Attribute

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings**  .
3. Click **Mobile Device Management**.
4. Click **Extension Attributes**  .
5. Click **New**  .
6. Configure the settings on the pane.
7. Click **Save**  .

If the extension attribute has the “LDAP Attribute Mapping” input type, the LDAP attribute variable is displayed on the pane.

Related Information

For related information, see the following sections in this guide:

- Mobile Device Inventory Display Settings
  You can display extension attributes in the results of a simple mobile device search.

- Viewing and Editing Inventory Information for a Mobile Device
  You can view the extension attributes collected from a mobile device and edit extension attribute values for that mobile device.
- Smart Groups
  You can create smart device groups based on extension attributes.

Mobile Device Inventory Display Settings

The Mobile Device Inventory Display settings allow each Jamf Pro user to choose which attribute fields to display in the results of a simple mobile device search.

Configuring the Mobile Device Inventory Display Settings

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Mobile Device Management**.
4. Click **Inventory Display** .
5. On each pane, select the checkbox for each attribute field you want to display.
6. Click **Save** .

Related Information

For related information, see the following section in this guide:

Simple Mobile Device Searches
Learn how to quickly search the items in your inventory for a general range of results.

Simple Mobile Device Searches

A simple mobile device search functions like a search engine, allowing you to quickly search the items in your inventory for a general range of results.

The following table shows the items that you can search by and the attributes on which you can base each search:

Inventory Item	Searchable Attributes
Mobile devices	Mobile device name Wi-Fi MAC address Bluetooth MAC address UDID Serial number Username Full name Email address Phone number Position Department Building Room
Mobile device apps	Application name

You can also create an advanced search using detailed search criteria. These types of searches give you more control over your search. For more information, see Advanced Mobile Device Searches.

Search Syntax

This section explains the syntax to use for search functions. In general, searches are not case-sensitive.

Note: The default search preference is "Exact Match". For most items, the option can be changed to either "Starts with" or "Contains". For more information about configuring account preferences, see Jamf Pro User Accounts and Groups.

The following table explains the syntax you can use for search functions:

Search Function	Usage	Example
Return all Results	Use an asterisk (*) without any other characters or terms, or perform a blank search.	Perform a search for "*" or leave the search field empty to return all results.
Perform Wildcard Searches	Use an asterisk after a search term to return all results with attributes that begin with that term.	Perform a search for "key*" to return all results with names that begin with "key".
	Use an asterisk before a search term to return all results with attributes that end with that term.	Perform a search for "*note" to return all results with names that end with "note".
	Use an asterisk before and after a search term to return all results that include that term.	Perform a search for "*ABC*" to return all results that includes "ABC".
Include Multiple Search Terms	Use multiple search terms separated by a comma (,) to return all results that include those search terms.	Perform a search for "key*, *note" to return all results that begins with "key" and ends with "note".
Exclude a Search Term	Use a hyphen (-) before a search term to exclude results that include the term.	Perform a search for "ABC*, -*note" to return all results with names that begin with "ABC" except for those that end with "note".

Performing a Simple Mobile Device Search

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Search Inventory**.
4. Choose an item from the **Search** pop-up menu.
5. Enter one or more search terms in the fields provided.
6. Press the Enter key.

The list of search results is displayed.

If you searched for an item other than mobile devices, you can view the devices associated with a result by clicking **Expand**  next to the result. You can also change the item on which the results are based by choosing an item from the pop-up menu at the top of the page.

Related Information

For related information, see the following sections in this guide:

- Viewing and Editing Inventory Information for a Mobile Device
  Find out how to view and edit inventory information for a mobile device.
- Mobile Device Reports
  Find out how to export the data in your search results to different file formats.
- Mass Actions for Mobile Devices
  Find out how to perform mass actions on the results of a mobile device search.
- Mobile Device Inventory Display Settings
  Find out how to change the attribute fields displayed in the results of a simple mobile device search.

Advanced Mobile Device Searches

Advanced mobile device searches allow you to use detailed search criteria to search for devices in Jamf Pro. These types of searches give you more control over your search by allowing you to do the following:

- Generate specific search results.
- Specify which attribute fields to display in the search results.
- Save the search.

Creating an Advanced Mobile Device Search

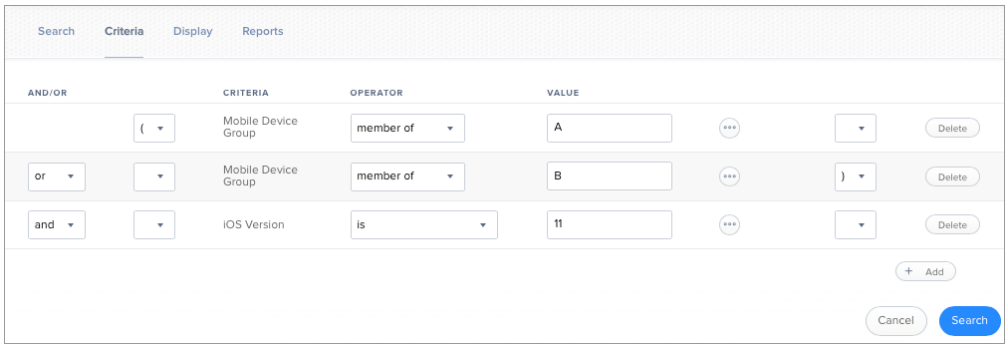
1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Search Inventory**.
4. Click **New** 

.
5. Use the Search pane to configure basic settings for the search.
   To save the search, select the **Save this Search** checkbox.
6. Click the **Criteria** tab and add criteria for the search:
   a. Click **Add**

.
   b. Click **Choose** for the criteria you want to add.

      Note: Only your 30 most frequently used criteria are listed. To display additional criteria, click **Show Advanced Criteria**.

   c. Choose an operator from the **Operator** pop-up menu.
   d. Enter a value in the **Value** field or browse for a value by clicking **Browse** 
.
   e. Repeat steps a through d to add criteria as needed.
7. Choose an operator from the **And/Or** pop-up menus to specify relationships between criteria.
8. To group criteria and join multiple operations, choose parentheses from the pop-up menus around the criteria you want to group.



Operations in the search take place in the order they are listed (top to bottom).

9. Click the **Display** tab and select the attribute fields you want to display in your search results.
10. Click **Save**.
11. To view search results, click **View**.
    The results of a saved search are updated each time mobile devices contact Jamf Pro and meet or fail to meet the specified search criteria.
12. (Optional) To export the search results, click **Export** and follow the on-screen instructions.

Related Information

For related information, see the following sections in this guide:

- Mobile Device Reports
  Find out how to export the data in your search results to different file formats.
- Mass Actions for Mobile Devices
  Find out how to perform mass actions on the results of a mobile device search.
- Viewing and Editing Inventory Information for a Mobile Device
  Find out how to view and edit inventory information for a mobile device.
- Simple Mobile Device Searches
  Learn how to quickly search the items in your inventory for a general range of results.

Mobile Device Reports

The data displayed in smart and static groups or mobile device search results can be downloaded from Jamf Pro. You can also email reports for advanced mobile device searches.

The following file formats are available for downloading or email reporting:

- Comma-separated values file (.csv)
- Tab-Separated Values (.tsv)
- XML file

You can organize the data by basing the report on any of the following inventory items:

- Mobile devices
- Device groups
- Apps
- Configuration profiles
- Certificates
- Provisioning profiles

The data is displayed in alphanumeric order by the selected inventory item.

Creating Reports for Smart and Static Groups or Simple Mobile Device Searches

Reports for smart and static groups or simple mobile device searches can be exported.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Do one of the following:
   - View mobile device group memberships. For more information, see Smart Groups or Static Groups.
   - View simple mobile device search results. For more information, see Simple Mobile Device Searches .

   Note: You can only create a report from a simple mobile device search if you searched by devices.
4. At the bottom of the list, click **Export**.
5. Follow the onscreen instructions to export the data. The report downloads immediately.

Creating Reports for Advanced Mobile Device Searches

You can download unsaved and saved advanced mobile device search reports. Advanced mobile device search reports can also be emailed instantly or on a defined schedule.

Note: SMTP must be configured before you can email saved advanced mobile device search reports. For more information, see Integrating with an SMTP Server.

Downloading an Advanced Mobile Device Search Report

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Do one of the following:
   - Select the saved advanced mobile device search for which you want to create a report and view the results.
   - Click **New** + New, and then use the Criteria and Display panes to configure your search.
4. Click the **Reports** tab.
5. Select a file format for the report.
6. Select the inventory item on which to base the report results.
7. Click **Download Report**. The report downloads immediately.

Emailing an Advanced Mobile Device Search Report

Note: To email reports from newly created advanced searches, you must select **Save this search** and complete the **Display Name** field in the Search pane.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Do one of the following:
   - Select the advanced mobile device search for which you want to create a report and view the results.
   - Click **New** + New, and then use the Search, Criteria, and Display panes to configure your search.
4. Click the **Reports** tab.
5. Select a file format.
6. Select the inventory item on which to base the report results.
7. In the Email Reporting section, enter email addresses, a subject for the email, and the body text for the email.

8. Click **Send Email Report**. The report is sent immediately.
9. To set up another email report, click the  button and repeat the process.

Scheduling Email Reports for Saved Advanced Mobile Device Searches

You can email saved advanced mobile device search reports according to a schedule that you define.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Select the advanced mobile device search for which you want to create a report, and view the results.
4. Click the **Reports** tab.
5. Select a file format for the report.
6. Select the inventory item on which to base the report results.
7. In the Email Reporting section, enter email addresses, a subject for the email, and the body text for the email.
8. Click **Schedule automatic email reports**.
9. Set the frequency and interval schedule that you want to email the report.
10. Click **Save**  . Reports will be emailed on the specified schedule.
11. To set up another email report, click the  button and repeat the process.

Related Information

For related information see the following sections of this guide:

- Advanced Mobile Device Searches
- Simple Mobile Device Searches

Mass Actions for Mobile Devices

Mass actions allow you to perform potentially tedious tasks for multiple mobile devices at the same time. Mass actions can be performed on static or smart group membership lists or mobile device search results. The following table explains the mass actions you can perform using Jamf Pro:

Mass Action	Description
Edit the building or department	Mass editing the building or department for mobile devices allows you to add the mobile devices to a building or department or change the building or department they belong to. This option is only displayed if there are one or more buildings or departments in Jamf Pro. For more information, see Buildings and Departments.
Edit the site	Mass editing the site for mobile devices allows you to add the devices to a site or change the site they belong to. When mobile devices are added to a site, any users assigned to those mobile devices are also added to that site. This option is only displayed if there are one or more sites in Jamf Pro. For more information, see Sites. **Note:** Changing the site that personally owned devices belong to automatically changes the Personal Device Profile that is used to perform management tasks on those devices. For more information, see Personal Device Profiles.
Look up and populate purchasing information from Apple's Global Service Exchange (GSX)	You can mass look up purchasing information from Apple's Global Service Exchange (GSX) and populate the information in Jamf Pro if desired. This requires a GSX connection set up in Jamf Pro. For more information, see GSX Connection. **Note:** GSX may not always return complete purchasing information. Only the information found in GSX is returned.
Send a mass email to users	You can send a mass email to users associated with the mobile devices in Jamf Pro. The email is sent to the email address associated with each device. This requires an SMTP server set up in Jamf Pro. For more information, see Integrating with an SMTP Server.
Send a mass notification to mobile devices with Jamf Self Service for iOS installed	You can send a mass notification to mobile devices. This requires mobile devices with Jamf Self Service for iOS installed. For more information, see Jamf Self Service for iOS.
Delete the mobile devices from Jamf Pro	You can mass delete mobile devices from Jamf Pro.

Mass Action	Description
Send remote commands	You can mass send remote commands to mobile devices from Jamf Pro. The remote commands available for a particular device vary depending on the device ownership type, device type, and OS version. For more information, see Remote Commands for Mobile Devices and Mobile Device Management Capabilities.
Cancel management commands	You can mass cancel all pending or all failed management commands on mobile devices from Jamf Pro.
Remove restrictions set by Jamf Parent	After enabling Jamf Parent to manage a group of student devices, you can remove app restrictions set by Jamf Parent on that group of devices. This option is only displayed if Jamf Parent is enabled on the devices in the search or group. To remove restrictions, you need a Jamf Pro user account with the "Remove restrictions set by Jamf Parent" privilege.
Remove Jamf Parent management capabilities	After enabling Jamf Parent to manage a group of student devices, you can remove Jamf Parent management capabilities and student device restrictions set by Jamf Parent on that group of devices. If management capabilities are removed, parents must rescan the QR code in Self Service to add the student device back to Jamf Parent. To remove management capabilities, you need a Jamf Pro user account with the "Remove Jamf Parent management capabilities" privilege.

Performing Mass Actions for Mobile Devices

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Do one of the following:
   - View device group memberships. For more information, see Smart Groups or Static Groups.
   - View simple or advanced mobile device search results. For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches.

     Note: You can only perform mass actions from a simple mobile device search if you searched by devices.
4. At the bottom of the list, click **Action**.
5. Select the mass action you want to perform from the list of mass actions.
6. Follow the onscreen instructions.

Related Information

For related information, see the following section in this guide:

Viewing and Editing Inventory Information for a Mobile Device
Find out how to view and edit inventory information for a single mobile device.

Viewing and Editing Inventory Information for a Mobile Device

Jamf Pro stores detailed inventory information for each managed mobile device. You can view and edit this information from Jamf Pro. For more information about the inventory information you can collect, see Mobile Device Inventory Collection Settings.

Note: The inventory information displayed for a particular device varies depending on the device ownership type, device type, and OS version. For more information, see Mobile Device Management Capabilities.

If a device is enrolled with Jamf Pro via a PreStage enrollment, you can use the PreStage Enrollment settings to specify the information that is submitted by the device and stored in Jamf Pro. For more information, see Mobile Device PreStage Enrollments.

Re-enrolling a device with Jamf Pro retains the inventory information that was collected for the device prior to re-enrollment. This information, however, can be cleared or changed depending on the Re-enrollment settings. For more information, see Re-enrollment Settings. In addition, if the device is re-enrolled via a PreStage enrollment, there are settings that can affect the user and location information for that device. For more information, see Mobile Device PreStage Enrollments.

The following table lists all possible information that you can view and edit for each mobile device.

Note: Extension attributes are displayed in mobile device inventory information in the category in which they are configured to display.

Field	Editable	Notes	Personally Owned iOS Device Support
General Category			
Mobile Device Name	✓ Editable for supervised devices with iOS 8 or later when Enforce Mobile Device Name is configured	When Enforce Mobile Device Name is configured, Jamf Pro enforces the name in one of two ways: ▪ If the enforced device name differs from the device name in the most recent inventory record for the device, Jamf Pro sends an MDM command that renames the device. ▪ If the end user changes the device name to something different than what Jamf Pro is set to enforce, the next time the device submits its inventory, Jamf Pro sends an MDM command to rename the device.	✓
Jamf Pro Mobile Device ID			✓
Asset Tag	✓		
Site	✓		✓
Last Inventory Update			✓
iOS Version		For Apple TV devices prior to tvOS 10.2, the iOS version is equivalent to the OS build version on which the Apple TV software is based. The Apple TV software version is not collected. For Apple TV devices with tvOS 10.2 or later, the tvOS version is displayed.	✓

Field	Editable	Notes	Personally Owned iOS Device Support
iOS Build			✓
IP Address			✓
Managed			✓
Supervised			
Shared iPad		Displays whether Shared iPad has been enabled on the iPad. (This only displays for supervised iPads with iOS 9.3 or later.)	
Diagnostics and Usage Reporting		Only displayed for iPads that have Shared iPad enabled.	
App Analytics		Only displayed for iPads that have Shared iPad enabled.	
Number of Users		Displays the number of user accounts cached on the device Only displayed for iPads that have Shared iPad enabled.	
Storage Quota Size		Only displayed for iPads that have Shared iPad enabled. A value is returned for iPads with iPadOS 13.4 or later.	
Maximum Shared iPad Users Stored		Displays the maximum number of user accounts that can be stored with Shared iPad	
Device Ownership Type			✓
Enrollment Method			✓
Last Enrollment			✓
MDM Profile Expiration Date		Displays the expiration date of the device identity certificate in the MDM profile. The device identity certificate has a default expiration period of two years.	✓

Field	Editable	Notes	Personally Owned iOS Device Support
Device Locator Service Enabled		Displays whether Find my iPhone /iPad has been enabled on the mobile device	
Do Not Disturb Enabled			
iCloud Backup			
Last iCloud Backup			
Bluetooth Low Energy Capability		To detect Bluetooth Low Energy capability, the mobile device must have Jamf Self Service for iOS installed. If Self Service has never been launched on the device, this value will be reported as “Not Capable/Unknown”.	✓
Location Services For Jamf Self Service		Displays whether Location Services has been enabled on the mobile device for the Jamf Self Service app To detect if Location Services has been enabled for Self Service, the device must have Jamf Self Service for iOS installed. If Self Service has never been launched on the device, or if Self Service has not been launched since the initial iBeacon region was added to Jamf Pro, this value will be reported as “Not Enabled/Unknown”.	✓
Logged in to App Store			✓
AirPlay Password	✓	Apple TV only	
Locales		Apple TV only	
Languages		Apple TV only	

Field	Editable	Notes	Personally Owned iOS Device Support
Hardware Category			
Capacity			✓
Available Space			✓
Used Space			✓
Internal Capacity			
Internal Available Space			
Internal Used Space			
External Capacity			
External Available Space			
External Used Space			
Battery Level			✓
Serial Number			✓ [1]
UDID			✓ [1]
Wi-Fi MAC Address			✓ [1]
Bluetooth MAC Address			✓ [1]
Modem Firmware Version			✓
Model			✓

Field	Editable	Notes	Personally Owned iOS Device Support
Model Identifier			✓
Model Number			✓
Manufacturer			
User and Location Category			
Username	✓		✓
Managed Apple ID	You can assign a user to the mobile device and populate user information from the **Users** tab. For more information, see User Assignments. **Note:** To assign a user to a device, the Jamf Pro user account must have the "Assign Users to Mobile Devices" privilege.		✓ **Note:** Only displays for devices enrolled using User Enrollment.
Full Name			
Email Address			
Phone Number			
Position			
Department			
Building			
Room			

Field	Editable	Notes	Personally Owned iOS Device Support
Shared iPad Users Category			
	✓ You can remove users from Shared iPad. The status of user removal is displayed in the list of pending management commands. For more information, see Viewing the Pending Management Commands for a Mobile Device.	Displays a list of the Managed Apple IDs of the users that logged in to the iPad. This category is only displayed for iPads that have Shared iPad enabled. For more information, see Mobile Device PreStage Enrollments.	
Purchasing Category			
Purchased or Leased	✓ You can look up and populate purchasing information from Apple's Global Service Exchange (GSX). (This requires a GSX connection set up in Jamf Pro. For more information, see GSX Connection.)		
PO Number			
PO Date			
Vendor			
Warranty Expiration			
AppleCare ID			
Lease Expiration			
Purchase Price			
Life Expectancy			
Purchasing Account			
Purchasing Contact			
Extension Attributes Category			
	✓	Displays a list of custom data fields collected using extension attributes	
Security Category			
Data Protection			✓

Field	Editable	Notes	Personally Owned iOS Device Support
Hardware Encryption			✓
Passcode Status			✓
Block Encryption Capability			✓
File Encryption Capability			✓
Passcode Compliance			✓
Passcode Compliance with Config Profile			✓
Activation Lock			✓
Jailbreak Detected		To detect jailbreak status, the mobile device must have Jamf Self Service for iOS installed. Jamf Pro will receive an updated Jailbreak Detected value each time Self Service is launched. If Self Service has never been launched on the device, this value will be reported as “Not Reported”.	✓
Lost Mode (supervised only)		Displays whether Lost Mode is enabled on the device You can play a sound on the device when Lost Mode is enabled by clicking the **Play Sound** button.	

Field	Editable	Notes	Personally Owned iOS Device Support
Always enforce Lost Mode		Displays whether the **Always enforce Lost Mode** setting is enabled on the device.	
Lost Mode Message			
Lost Mode Phone Number			
Lost Mode Footnote			
Last Location Update		Displays the last time Global Positioning System (GPS) data was collected for the device when Lost Mode is enabled	
Approximate Location	✓ You can collect updated location data for the device by clicking the **Update Location** button.	Displays coordinates for the approximate location of the device when Lost Mode is enabled To collect GPS data for a device, the device must have a network connection.	
Horizontal Accuracy			
Vertical Accuracy			
Altitude			
Speed			
Course			
Timestamp			
Personal Device Profile Status		Displays whether the most up-to-date profile has been installed on the mobile device	✓

Field	Editable	Notes	Personally Owned iOS Device Support
Apps Category			
		Displays a list of apps installed on the mobile device	✓ **Note:** Only managed apps are collected.
Managed eBooks Category			
		Displays a list of managed books installed on the mobile device	
Network Category			
Home Carrier Network			
Current Carrier Network			
Carrier Settings Version			
Cellular Technology			
Phone Number			
IMEI			
MEID			
ICCID			
Current Mobile Country Code			
Current Mobile Network Code			
Home Mobile Country Code			

Field	Editable	Notes	Personally Owned iOS Device Support
Home Mobile Network Code			
Voice Roaming			
Data Roaming Status			
Roaming Status			
Personal Hotspot Status			
iBeacon Regions Category			
		Displays a list of iBeacon regions that the mobile device is currently in. (This category is only displayed if the Mobile Device Inventory Collection settings are configured to monitor iBeacon regions. For more information, see Mobile Device Inventory Collection Settings .)	
Certificates Category			
		Displays a list of certificates installed on the mobile device	✓
Profiles Category			
		Displays a list of profiles installed on the mobile device	✓ 2
Provisioning Profiles Category			
		Displays a list of provisioning profiles installed on the mobile device	✓
Attachments Category			
	✓ You can upload and delete attachments.	Displays a list of files attached to the inventory record	

Notes:
1. Devices enrolled using User Enrollment do not report any persistent device identities.
2. Only personally owned devices enrolled using User Enrollment display a list of installed profiles.

Viewing Inventory Information for a Mobile Device

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Perform a simple or advanced mobile device search.
   For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches .
4. Click the mobile device you want to view information for.

   If you performed a simple search for an item other than mobile devices, you must click **Expand** next to an item to view the devices related to that item.
   The mobile device's inventory information is displayed.
5. Use the categories to view information for the mobile device.

Editing Inventory Information for a Mobile Device

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Perform a simple or advanced mobile device search.
   For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches .
4. Click the mobile device you want to edit information for.

   If you performed a simple search for an item other than mobile devices, you must click **Expand** next to an item to view the devices related to that item.
   The mobile device's inventory information is displayed.
5. Select the category that contains the information you want to edit and click **Edit**.
6. Make changes as needed.
   If you are editing user and location information, the changes are applied in the Users tab. This specified information is also applied in the inventory information for computers and other mobile devices that the user is assigned to. For information on assigning a user to a mobile device or removing a user assignment, see User Assignments.
7. (Optional) To rename a supervised device, click the **Enforce Mobile Device Name** checkbox, and then enter the new device name in the **Mobile Device Name** field.
8. (Optional) To populate device purchasing information from Apple's Global Service Exchange (GSX), click **Search** Search .
9. Click **Save** .

Viewing Management Information for a Mobile Device

Jamf Pro allows you to view the following management information for each mobile device:

- Pending management commands
- iOS configuration profiles
- Activation Lock bypass code
- Apps
- Books
- Group memberships

Note: The management information available for a particular device varies depending on the device ownership type, device type, and iOS version. For more information, see Mobile Device Management Capabilities.

Viewing the Pending Management Commands for a Mobile Device

When viewing management information for a mobile device, you can view a list of pending management commands for the mobile device. The list includes all pending actions related to the following:

- Sending remote commands
- Installing or removing iOS configuration profiles
- Installing or removing apps
- Installing or removing managed books
- Installing or removing provisioning profiles
- Updating inventory
- Performing other actions that are based on MDM commands (for example, removing a user from Shared iPad or updating location information for Lost Mode)
- Remote commands that are being sent to a mobile device automatically if your environment uses the Healthcare Listener

You can also cancel a pending management command.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Perform a simple or advanced mobile device search.
   For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches.
4. Click the mobile device you want to view pending management commands for.
   If you performed a simple search for an item other than mobile devices, you must click **Expand** next to an item to view the mobile devices related to that item.

5. Click the **Management** tab.
   A list of pending management commands for the mobile device is displayed.
6. To cancel a pending management command, click **Cancel** for the command.

> **Note:** If your environment uses the Healthcare Listener, "Healthcare Listener" is displayed as the value in the Username column for the remote command that is automatically sent to the mobile device. For more information about the Healthcare Listener, see Healthcare Listener.

Viewing Configuration Profiles for a Mobile Device

When viewing management information for a mobile device, you can view a list of iOS configuration profiles that have the mobile device in the scope.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Perform a simple or advanced mobile device search.
   For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches.
4. Click the mobile device you want to view configuration profiles for.
   If you performed a simple search for an item other than mobile devices, you must click **Expand** next to an item to view the mobile devices related to that item.
5. Click the **Management** tab, and then click the **Configuration Profiles** category.
   A list of configuration profiles for the mobile device is displayed.

Viewing the Activation Lock Bypass Code for a Mobile Device

When viewing management information for a mobile device, you can view the Activation Lock bypass code for the mobile device.

For information about what the Activation Lock bypass code can be used for, see the Leveraging Apple's Activation Lock Feature with Jamf Pro Knowledge Base article.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Perform a simple or advanced mobile device search.
   For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches.
4. Click the mobile device you want to view the Activation Lock bypass code for.
   If you performed a simple search for an item other than mobile devices, you must click **Expand** next to an item to view the mobile devices related to that item.
5. Click the **Management** tab, and then click the **Activation Lock Bypass** category.
6. Click **Get Activation Lock Bypass Code**.
   The Activation Lock bypass code is displayed on the pane.

Viewing Apps for a Mobile Device

When viewing management information for a mobile device, you can view a list of apps that have the mobile device in the scope.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Perform a simple or advanced mobile device search.
   For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches.
4. Click the mobile device you want to view apps for.
   If you performed a simple search for an item other than mobile devices, you must click **Expand** next to an item to view the mobile devices related to that item.
5. Click the **Management** tab, and then click the **Apps** category.
   A list of apps for the mobile device is displayed.

Viewing Books for a Mobile Device

When viewing management information for a mobile device, you can view a list of books that have the mobile device in the scope.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Perform a simple or advanced mobile device search.
   For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches.
4. Click the mobile device you want to view books for.
   If you performed a simple search for an item other than mobile devices, you must click **Expand** next to an item to view the mobile devices related to that item.
5. Click the **Management** tab, and then click the **eBooks** category.
   A list of books for the mobile device is displayed.

Viewing Group Memberships for a Mobile Device

When viewing management information for a mobile device, you can view the smart and static group memberships for the device.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Perform a simple or advanced mobile device search.
   For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches.

4. Click the mobile device you want to view group memberships for.

   If you performed a simple search for an item other than mobile devices, you must click **Expand**  next to an item to view the mobile devices related to that item.

5. Click the **Management** tab, and then click the **Mobile Device Groups** category.
   A list of smart device group memberships is displayed.

6. To view the static device group memberships, click **Static Groups**.
   A list of static device group memberships is displayed.

Related Information

For related information, see the following sections in this guide:

- Viewing Smart Device Group Memberships
  Find out how to view all group memberships for a smart group.
- Viewing Static Device Group Memberships
  Find out how to view all group memberships for a static group.

Viewing the History for a Mobile Device

Jamf Pro allows you to view the history for each mobile device. The information you can view includes:

- Management history (completed, pending, and failed management commands)
- Audit logs
- User and location history
- Completed, pending, and failed app installations
- Completed, pending, and failed managed book installations

Note: The management history available for a particular device varies depending on the device ownership type, device type, and iOS version. For more information, see Mobile Device Management Capabilities.

Viewing Management History for a Mobile Device

The management history for a mobile device allows you to view lists of completed, pending, and failed management commands for the mobile device. The lists include all actions related to the following:

- Sending iOS remote commands
- Installing or removing iOS configuration profiles
- Installing or removing apps
- Installing or removing managed books
- Installing or removing provisioning profiles
- Updating inventory

You can also cancel a pending management command.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Perform a simple or advanced mobile device search.
   For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches.
4. Click the mobile device you want to view management history for.

   If you performed a simple search for an item other than mobile devices, you must click **Expand** next to an item to view the mobile devices related to that item.
5. Click the **History** tab.
   A list of completed management commands for the mobile device is displayed.

6. To view a list of pending management commands, click **Pending Commands**.
   You can cancel a pending management command by clicking **Cancel** for the command.
7. To view a list of failed management commands, click **Failed Commands**.

Viewing Audit Logs for a Mobile Device

The audit logs allow you to view a list of the following events that occurred for a mobile device:

- The mobile device's Activation Lock bypass code has been viewed. For more information, see Viewing the Activation Lock Bypass Code for a Mobile Device.
- The following remote commands have been sent to the mobile device:
  - Wipe device
  - Unmanage device
  - Clear passcode
- Remote commands have been sent to an iPad automatically (only available if your environment uses the Healthcare Listener).

The date/time that the event occurred and the username of the administrator who initiated the event are included in the log.

> **Note:** If your environment uses the Healthcare Listener, "Healthcare Listener" is displayed as the value in the Username column for the remote command that is automatically sent to the mobile device. For more information, see Healthcare Listener.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Perform a simple or advanced mobile device search.
   For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches.
4. Click the mobile device you want to view audit logs for.

   If you performed a simple search for an item other than mobile devices, you must click **Expand** next to an item to view the mobile devices related to that item.
5. Click the **History** tab, and then click the **Audit Logs** category.
   Audit logs for the mobile device are displayed.

Viewing User and Location History for a Mobile Device

The user and location history for a mobile device allows you to view a list of the user and location information associated with the mobile device over time. A record of the current information is added to the list whenever changes are made to the User and Location category in the mobile device's inventory information.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.

3. Perform a simple or advanced mobile device search.
   For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches.
4. Click the mobile device you want to view user and location history for.

   If you performed a simple search for an item other than mobile devices, you must click **Expand** next to an item to view the mobile devices related to that item.
5. Click the **History** tab, and then click the **User and Location History** category.
   User and location history for the mobile device is displayed.

Viewing App Installations for a Mobile Device

You can view the completed, pending, and failed app installations for a mobile device. You can also cancel pending app installations.

> **Note:** For a personally owned iOS device, you can only view managed app installations.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Perform a simple or advanced mobile device search.
   For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches.
4. Click the mobile device you want to view app installation information for.

   If you performed a simple search for an item other than mobile devices, you must click **Expand** next to an item to view the mobile devices related to that item.
5. Click the **History** tab, and then click the **Apps** category.
   A list of apps installed on the mobile device is displayed.
6. To view a list of apps that are pending installation, click **Pending Apps**.
   You can cancel a pending installation by clicking **Cancel** for the app.
7. To view a list of apps that failed to install, click **Failed Apps**.

Viewing Managed Book Installations for a Mobile Device

You can view the completed, pending, and failed managed book installations for a mobile device. You can also cancel pending managed book installations.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Perform a simple or advanced mobile device search.
   For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches.
4. Click the mobile device you want to view managed book installation information for.

   If you performed a simple search for an item other than mobile devices, you must click **Expand** next to an item to view the mobile devices related to that item.

5. Click the **History** tab, and then click the **Managed eBooks** category.
   A list of managed books installed on the mobile device is displayed.
6. To view a list of managed books that are pending installation, click **Pending eBooks**.
   You can cancel a pending installation by clicking **Cancel** for the book.
7. To view a list of managed books that failed to install, click **Failed eBooks**.
   You can cancel a failed installation by clicking **Cancel** for the book.

Deleting a Mobile Device from Jamf Pro

You can remove a mobile device from your inventory by deleting it from Jamf Pro.

The components installed during enrollment are not removed from the mobile device when it is deleted from Jamf Pro. It is recommended that you unmanage the device before deleting it. For more information on unmanaging a mobile device, see Remote Commands for Mobile Devices.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Search Inventory**.
4. Perform a simple or advanced mobile device search.
   For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches .
5. Click the mobile device you want to delete.
   If you performed a simple search for mobile device applications, you must click **Expand** next to an item name to view the mobile devices related to that item.
6. Click **Delete** , and then click **Delete** again to confirm.

Related Information

For related information, see the following section in this guide:

Mass Deleting Mobile Devices
Find out how to mass delete mobile devices from Jamf Pro.

Volume Store Content Distribution for Mobile Devices

Managed Distribution for Mobile Devices

You can distribute App Store apps and apps (including custom apps) purchased in volume to mobile devices or users for managed distribution.

For more information about purchasing apps and books in volume, visit one of the following websites:

- Apple School Manager User Guide
- Apple Business Manager User Guide

Note: As an alternative to managed distribution, Jamf Pro also supports distributing App Store apps, and apps and books purchased in volume to mobile devices by associating redeemable VPP codes with the apps and books. For more information, see VPP Code Distribution for Mobile Devices.

Managed Distribution for Mobile Devices

Jamf Pro allows you to distribute App Store apps and apps purchased in volume directly to mobile devices for managed distribution. Because managed distribution for mobile devices is device-based, user registration with volume purchasing is not required and users do not need to provide an Apple ID.

Jamf Pro can be used to automatically update apps in Jamf Pro and on mobile devices on a schedule, and app updates can be forced at any time. Apps distributed directly to mobile devices do not appear in the user's own App Store purchase history and the apps cannot be updated by users.

Managed distribution for mobile devices requires devices with iOS 9 or later. To distribute App Store apps and apps purchased in volume to mobile devices using managed distribution, you need a volume purchasing location set up Jamf Pro. For more information, see Integrating with Volume Purchasing.

To distribute an App Store app or app purchased in volume directly to a mobile device, when configuring the app distribution settings, choose the location that purchased the app for managed distribution. For more information, see App Store Apps.

Note: If you have apps that were distributed with user-based volume assignments and the apps are device-assignable, you can move to device-based managed distribution for the apps. For more information, see the Moving from User- to Device-based Volume Purchasing Assignments Knowledge Base article.

Managed Distribution for Users

Jamf Pro also allows you to distribute App Store apps, and apps and books purchased in volume to users for managed distribution. Because managed distribution for users is user-based, it involves user registration and volume purchasing user assignments. For more information, see Volume Purchasing User Registration and User-Based Volume Assignments.

Managed distribution for users requires mobile devices with iOS 7 or later.

Related Information

For related information, see the following Jamf Knowledge Base video:

Deploying a Device-Based Volume Purchase Program (VPP) iOS Application with Jamf Pro

For related information, see the following sections in this guide:

- Simple Volume Purchasing Content Searches for Mobile Devices
  Find out how to search the volume purchasing content in Jamf Pro.
- Managed Distribution for Computers
  Find out how to assign content to computers for managed distribution.

VPP Code Distribution for Mobile Devices

Jamf Pro allows you to distribute App Store apps, and apps (including custom apps) and books purchased in volume to mobile devices by distributing redeemable VPP codes. When you distribute apps or books using VPP codes, you can track VPP code redemption.

To distribute an app or book to mobile devices using VPP codes, you need an Excel spreadsheet (.xls) that contains VPP codes for the app or book.

For more information on volume purchasing, visit one of the following websites:

- Apple School Manager User Guide
- Apple Business Manager User Guide

Note: As an alternative to VPP code distribution, Jamf Pro also supports device-based managed distribution for mobile devices and user-based managed distribution for users. For more information, see Managed Distribution for Mobile Devices and User-Based Volume Assignments.

For information on distributing App Store apps and apps purchased in volume to mobile devices using redeemable VPP codes, see App Store Apps.

For information on distributing books to mobile devices using redeemable VPP codes, see Books Available in the iBooks Store.

Simple Volume Purchasing Content Searches for Mobile Devices

A simple volume purchasing content search functions like a search engine, allowing you to quickly search the mobile device apps and books in Jamf Pro for a general range of results.

Volume purchasing content searches are based on the name of the app or book you are searching for and display the following information:

- Name of the app or book
- Location used to purchase the content
- Type of content
- Total content that has been purchased with the volume purchasing location
- Number of apps or books assigned to mobile devices, computers, or users
- Number of volume assignments that the content is associated with

Search Syntax

This section explains the syntax to use for search functions. In general, searches are not case-sensitive.

Note: The default search preference is "Exact Match". For most items, the option can be changed to either "Starts with" or "Contains". For more information about configuring account preferences, see Jamf Pro User Accounts and Groups.

The following table explains the syntax you can use for search functions:

Search Function	Usage	Example
Return all Results	Use an asterisk (*) without any other characters or terms, or perform a blank search.	Perform a search for "*" or leave the search field empty to return all results.
Perform Wildcard Searches	Use an asterisk after a search term to return all results with attributes that begin with that term.	Perform a search for "key*" to return all results with names that begin with "key".
	Use an asterisk before a search term to return all results with attributes that end with that term.	Perform a search for "*note" to return all results with names that end with "note".
	Use an asterisk before and after a search term to return all results that include that term.	Perform a search for "*ABC*" to return all results that includes "ABC".

Search Function	Usage	Example
Include Multiple Search Terms	Use multiple search terms separated by a comma (,) to return all results that include those search terms.	Perform a search for “key*, *note” to return all results that begins with “key” and ends with “note”.
Exclude a Search Term	Use a hyphen (-) before a search term to exclude results that include the term.	Perform a search for “ABC*, -*note” to return all results with names that begin with “ABC” except for those that end with “note”.

Performing a Simple Volume Purchasing Content Search

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Search Volume Content**.
4. Enter one or more search terms in the field provided.
5. Press the Enter key.
   The list of search results is displayed.

Viewing the Mobile Devices that Content is Assigned To

You can view the mobile devices that content is assigned to.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Search Volume Content**.
4. Enter one or more search terms in the field provided.
5. Press the Enter key.
   A list of content is displayed.
6. To view the mobile devices that the content is assigned to, click the number displayed in the In Use column.
   The mobile devices that have the content assigned to them are listed on the Mobile Devices pane.

Viewing the Volume Assignments that Content is Associated With

You can view the volume assignments that content is associated with.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Search Volume Content**.

4. Enter one or more search terms in the field provided.
5. Press the Enter key.
   A list of content is displayed.
6. To view the volume assignments that the content is associated with, click the number displayed in the Volume Assignments column.

Related Information

For related information, see the following sections in this guide:

- Advanced Volume Purchasing Content Searches for Mobile Devices
  Find out how to create and save an advanced volume purchasing content search.
- Volume Purchasing Content Reports for Mobile Devices
  Find out how to export the data in your search results to different file formats.
- Managed Distribution for Mobile Devices
  Find out how to assign apps to mobile devices for managed distribution.
- User-Based Volume Assignments
  Find out how to assign content to users for managed distribution.

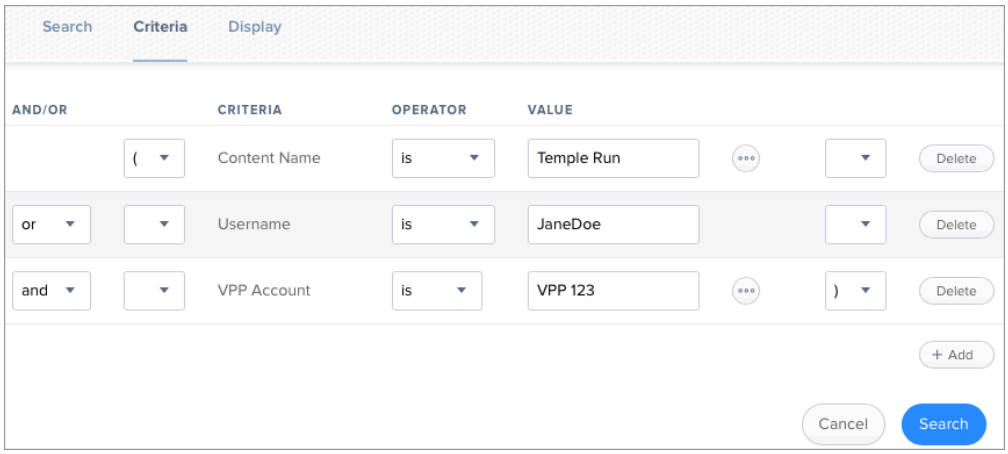
Advanced Volume Purchasing Content Searches for Mobile Devices

Advanced volume purchasing content searches allow you to use detailed search criteria to search mobile device apps and books in Jamf Pro. These types of searches give you more control over your search by allowing you to do the following:

- Generate specific search results.
- Specify which attribute fields to display in the search results.
- Save the search.

Creating an Advanced Volume Purchasing Content Search

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Search Volume Content**.
4. Click **New** + New .
5. Use the Search pane to configure basic settings for the search.
   To save the search, select the **Save this Search** checkbox.
6. Click the Criteria tab and add criteria for the search:
   a. Click **Add** + Add .
   b. Click **Choose** for the criteria you want to add.
   c. Choose an operator from the **Operator** pop-up menu.
   d. Enter a value in the **Value** field or browse for a value by clicking **Browse** ... .
   e. Repeat steps a through d to add criteria as needed.
7. Choose an operator from the **And/Or** pop-up menus to specify the relationships between criteria.
8. To group criteria and join multiple operations, choose parentheses from the pop-up menus around the criteria you want to group.



9. Click the **Display** tab and select the attribute fields you want to display in your search results.
10. Click **Save**.

Operations in the search take place in the order they are listed (top to bottom).

The results of a saved search are updated each time content is modified and meets or fails to meet the specified search criteria.

To view the search results, click **View**.

Viewing Advanced Volume Purchasing Content Search Results

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Search Volume Content**.
4. Click the advanced volume purchasing content search you want to view the results for.
5. Click **View**.

The list of search results is displayed.

Related Information

For related information, see the following sections in this guide:

- Simple Volume Purchasing Content Searches for Mobile Devices
  Learn how to quickly search volume purchasing content for a general range of results.
- Volume Purchasing Content Reports for Mobile Devices
  Find out how to export the data in your search results to different file formats.

Volume Purchasing Content Reports for Mobile Devices

The data displayed in volume purchasing content search results can be exported from Jamf Pro to the following file formats:

- Comma-separated values file (.csv)
- Tab delimited text file (.txt)
- XML file

Creating Volume Purchasing Content Reports

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Search Volume Content**.
4. View simple or advanced volume purchasing content search results.
   For more information, see Simple Volume Purchasing Content Searches for Mobile Devices or Advanced Volume Purchasing Content Searches for Mobile Devices.
5. At the bottom of the list, click **Export**.
6. Follow the onscreen instructions to export the data.

   The report downloads immediately.

App Distribution

Understanding Managed Apps

When an app is managed by Jamf Pro, you have more control over distribution and removal of the app, as well as the backup of app data and options for updating the app. The following table provides more detail:

	Unmanaged apps	Managed apps
Distribution Methods		
Make available in Jamf Self Service for iOS	✓	✓
Prompt users to install		✓
Removal Options		
Remove from Self Service	✓	✓
Remove from mobile devices		✓
Remove when MDM profile is removed		✓
Backup of App Data		
Prevent backup of app data		✓
App Update Options		
Schedule automatic app updates	✓	✓
Force an app update		✓
App Validation Options (in-house apps only)		
Schedule automatic app validation		✓
Force app validation		✓

Managed App Requirements

There are two factors that determine whether an app can be managed by Jamf Pro:

- Whether users have to pay for the app
  The app must be free or purchased in volume. For more information on volume purchasing, visit one of the following websites:
  - Apple School Manager User Guide
  - Apple Business Manager User Guide
- The mobile devices to which you distribute the app
  Mobile devices must have iOS 5 or later, or tvOS 10.2 or later and an MDM profile that supports managed apps.
  Mobile devices that have iOS 5 or later when they are enrolled with Jamf Pro automatically obtain an MDM profile that supports managed apps. For instructions on distributing an updated MDM profile that supports managed apps, see the Distributing Updated MDM Profiles Knowledge Base article.

If you try to make an app managed but these requirements are not met, the app behaves as unmanaged.

Understanding App Distribution Methods

Jamf Pro provides two app distribution methods for iOS devices: install the app automatically /prompt users to install the app, or make the app available in Jamf Self Service for iOS.

Install Automatically/Prompt Users to Install

When you distribute an app using this method, it is managed by Jamf Pro when possible. For more information, see Managed App Requirements.

To distribute an app using this method, the app must be free or paid for by the organization using volume purchasing.

Free App or User-Based Volume Assignment
For free apps or apps distributed via managed distribution by assigning the app to users (user-based volume assignment), the app is installed automatically if the following conditions are met:

- The device has iOS 7 or later.
- The device is supervised.
- The user is signed in to the App Store on the device.

Users are prompted to install the app if these conditions are not met.

Device-Based Volume Assignment
For apps distributed via managed distribution by assigning the app directly to mobile devices (device-based volume assignment), the app is installed automatically if the following conditions are met:

- The device has iOS 9 or later.
- The device is supervised.

Users are prompted to install the app if these conditions are not met.

Make Available in Jamf Self Service

When you distribute an app using this method, you can choose whether or not to make the app managed when possible. For more information, see Managed App Requirements.

Related Information

For related information, see the following sections in this guide:

- In-House Apps
  Find out how to distribute in-house apps.
- App Store Apps
  Find out how to distribute App Store apps.

- Understanding Managed Apps
  Learn about managed apps and their requirements.

For related information, see the following Knowledge Base articles:

- Distributing Apps to Mobile Devices with App Store Restrictions After Upgrading to Jamf Pro 9.5 or Later
  Learn about the steps necessary to redistribute iOS configuration profiles that contain App Store restrictions so that you can distribute apps to mobile devices with restrictions after upgrading from Jamf Pro 9.5 or earlier.
- Managing an App that is Currently Installed as an Unmanaged App
  Learn how to convert an app from an unmanaged state to a managed state after the app has been installed on a mobile device.

Provisioning Profiles

Provisioning profiles (.mobileprovision) authorize the use of in-house apps. For an in-house app to work, the provisioning profile that authorizes it must be installed on mobile devices.

If the provisioning profile that authorizes an in-house app is not bundled in the app archive (.ipa) file, you must upload the profile to Jamf Pro before distributing the app.

Uploading a Provisioning Profile

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Provisioning Profiles**.
4. Click **Upload** and upload the provisioning profile.
5. Enter a display name for the profile.
6. Click **Save** .

Further Considerations

- If a provisioning profile expires, you can edit the provisioning profile record in Jamf Pro and replace the existing profile with the new version.
- Deleting a provisioning profile removes it from mobile devices that have it installed.

Downloading a Provisioning Profile

If you no longer have access to the original .mobileprovision file for a provisioning profile in Jamf Pro, you can download it from Jamf Pro.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Provisioning Profiles**.
4. Click the provisioning profile you want to download.
5. Click **Download** .

The profile is downloaded immediately.

Related Information

For related information, see the following sections in this guide:

- In-House Apps
  Find out how to distribute an in-house app and its provisioning profile.
- Viewing and Editing Inventory Information for a Mobile Device
  You can view the provisioning profiles installed on a mobile device by viewing the device's inventory information in Jamf Pro.
- Viewing the Pending Management Commands for a Mobile Device
  Find out how to view and cancel pending provisioning profile installations and removals for a mobile device.
- Viewing Management History for a Mobile Device
  Find out how to view the completed, pending, and failed provisioning profile installations and removals for a mobile device.

In-House Apps

In-house apps are enterprise apps developed through the Apple Developer Enterprise Program. Jamf Pro allows you to distribute in-house apps to users, iOS devices, and Apple TV devices with tvOS 10.2 or later. After an app has been distributed, you can also use Jamf Pro to distribute an update or remove the app from mobile devices.

For more information on the Apple Developer Enterprise Program or to register, visit the following website:
https://developer.apple.com/programs/enterprise/

Before you distribute an in-house app, it is important to consider where the app will be hosted. There are three hosting locations you can use for in-house apps:

- **Distribution points**—If your principal distribution point is the cloud distribution point, you can use Jamf Pro to upload the app to the principal distribution point.

  Note: Apps cannot be replicated to file share distribution points.

- **jamfsoftware database**—If your principal distribution point is a file share distribution point, you can use Jamf Pro to upload the app and host it in the jamfsoftware database.
- **Web server**—To use this location, the app must be hosted on a web server before you distribute it. Then, when you distribute the app, you specify the URL where it is hosted.
  If your principal distribution point is a file share distribution point, it is recommended that you host large apps on a web server.

Jamf Pro also allows you to configure a JSON Web Token (JWT) to control the distribution of iOS and tvOS in-house apps from a web server. In-house apps downloaded from the Jamf Pro database are automatically secured with JWT. For more information, see the Configuring a JSON Web Token to Secure Downloads of iOS and tvOS In-House Apps and Books Knowledge Base article.

When you distribute an in-house app, you configure settings for the app, such as the hosting location, distribution method, and whether to make the app managed. (For more information, see Understanding App Distribution Methods and Understanding Managed Apps.) Then, you specify the users and mobile devices that should receive it (called "scope").

Managed in-house apps that have been distributed to mobile devices can be validated using the app validation settings. For more information, see In-House App Validation Settings.

Note: To specify managed in-house apps to distribute to or remove from personally owned iOS devices, you must use the Apps payload of the Personal Device Profile that is used to perform management tasks on the devices. For more information, see Personal Device Profiles.

Managed App Configuration

You can configure preferences and settings in Jamf Pro for a managed app before distributing it to mobile devices.

There are also several variables that you can use to populate settings in a managed app with attribute values stored in Jamf Pro. This allows you to create preferences containing information about each user and mobile device to which you are distributing the app.

When the app is installed on a mobile device, the variable is replaced with the value of the corresponding attribute in Jamf Pro.

Variable	Mobile Device Information
$DEVICENAME	Mobile Device Name
$SERIALNUMBER	Serial Number
$UDID	UDID
$USERNAME	Username
$FULLNAME or $REALNAME	Full Name
$EMAIL	Email Address
$PHONE	Phone Number
$ROOM	Room
$POSITION	Position
$MACADDRESS	MAC Address
$JSSID	Jamf Pro ID
$APPJSSID	Jamf Pro ID of the App
$SITEID	Site ID
$SITENAME	Site Name
$BUILDINGNAME	Building Name
$BUILDINGID	Building ID
$DEPARTMENTID	Department ID
$DEPARTMENTNAME	Department Name
$JPS_URL	Jamf Pro URL

Requirements

To distribute an in-house app, you need:

- The bundle identifier for the app (located in the PLIST file for the app)
- The archived app file (.ipa) or the URL where the app is hosted on a web server

> **Note:** If you are hosting the app from a web server, the MIME type for the archived app file must be "/application/octet-stream".

Managed App Configuration only applies to mobile devices with iOS 7 or later, or Apple TV devices with tvOS 10.2 or later.

Per-App VPN connections are only applied to mobile devices with iOS 7 or later.

Distributing an In-House App

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Mobile Device Apps**.
4. Click **New** 

.
5. Select **In-house app** and click **Next**.
6. Use the General pane to configure settings for the app, including the distribution method and hosting location.
   If you choose "Distribution Points" or "jamfsoftware database" from the **Hosting Location** pop-up menu, be sure to upload the archived app file.

   > **Note:** Beginning with iOS 10.3, you can require a mobile device to have a tethered network connection to download the app. A tethered network connection requires a computer with macOS 10.12.4 or later, and must be connected to the Internet via Ethernet and have Wi-Fi turned off. Portable computers must be plugged in to a power source because the tethered caching service prevents computers from going to sleep. Select the **Require tethered network connection for app installation** checkbox. This checkbox is only displayed if "Install Automatically/Prompt Users to Install" is chosen in the **Distribution Method** pop-up menu. App updates will not require tethering; this setting is for initial installations of an app only.

7. Click the **Scope** tab and configure the scope of the app.
   For more information, see Scope.

8. (Optional, iOS only) Click the **Self Service** tab and configure the way the app is displayed in Self Service. You can customize the text displayed in the description for the app in Self Service by using Markdown in the Description field.
   For information about Markdown, see the Using Markdown to Format Text Knowledge Base article.

   > **Note:** The **Self Service** tab is only displayed if "Make Available in Self Service" is chosen in the **Distribution Method** pop-up menu.

9. (Optional) Click the **App Configuration** tab and configure the preferences as needed.

   > **Note:** The **App Configuration** tab is only displayed if the **Make App Managed when possible** checkbox is selected.

   For help generating the preferences, click the **AppConfig Generator** link. The AppConfig Generator enables you to generate the PLIST file to enter in the **Preferences** field. For more information about AppConfig, see the AppConfig Community website:
   https://www.appconfig.org

10. Click **Save**.

    The app is distributed the next time mobile devices in the scope contact Jamf Pro. If users were added as targets to the scope, the app is distributed to the devices those users are assigned to the next time the devices contact Jamf Pro.

Distributing an In-House App Update

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Mobile Device Apps**.
4. Click the app you want to update.
5. Do one of the following:
   - To distribute an update for an in-house app that is hosted on a web server, upload the new archived app file to the web server and update app URL.
   - To distribute an update for an in-house app that is hosted on distribution points or in the jamfsoftware database, upload the new archived app file using Jamf Pro.
6. Enter the new version number for the app.

   Important: Do not change the bundle identifier. Jamf Pro uses the existing bundle identifier to distribute the update.

7. Click **Save**.

   The update is distributed the next time mobile devices in the scope contact Jamf Pro.

Removing an In-House App from Mobile Devices

To remove an in-house app from one or more devices, you remove the users or mobile devices from the scope.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Mobile Device Apps**.
4. Click the app you want to remove.
5. Click the **Scope** tab and remove users or mobile devices from the scope as needed.
   For more information, see Scope.
6. Click **Save**.

   The app is removed the next time the mobile devices contact Jamf Pro.

Related Information

For related information, see the following sections in this guide:

- App Store Apps
  Find out how to distribute, update, and remove App Store apps.
- Viewing Apps for a Mobile Device
  Find out how to view the apps in the scope of a mobile device.
- Viewing the Pending Management Commands for a Mobile Device
  Find out how to view and cancel pending app installations and removals for a mobile device.
- Viewing App Installations for a Mobile Device
  Find out how to view the completed, pending, and failed app installations for a mobile device. Also, find out how to cancel pending app installations.
- Mobile Device Configuration Profiles
  You can create a mobile device configuration profile with a Per-App VPN connection.

For related information, see the following *Best Practice Workflows for Jamf Pro*:

Controlling Distribution of iOS and tvOS Apps
Find out how to restrict iOS and tvOS apps using Jamf Pro.

For related information, see the following Knowledge Base article:

Hosting In-House Books and Apps on a Tomcat Instance
Find out how to host in-house apps on the Tomcat instance that hosts Jamf Pro.

In-House App Validation Settings

Jamf Pro allows you to configure settings to automatically validate all managed in-house apps on mobile devices. You can use the App Validation settings in Jamf Pro to do the following:

- **Enable Automatic App Validation**–You can enable automatic app validation for all managed in-house apps on mobile devices. This allows you to customize how frequently apps are validated.
- **Force App Validation**–You can force Jamf Pro to immediately send app validation commands to all managed in-house apps on mobile devices.

The validation status for a managed in-house app on a mobile device is collected each time inventory information for the device is reported to Jamf Pro, and is displayed in the inventory information for that device. If an app cannot be validated, the validation status is reported as "not validated", and the app will not open until a successful validation occurs. For information about the situations in which an app may be reported as "not validated", see the Cannot Validate a Managed In-House App Knowledge Base article.

Enabling Automatic App Validation

Enabling automatic app validation allows you to customize how frequently you want Jamf Pro to attempt to validate all managed in-house apps on mobile devices. You can choose to validate apps every week, every two weeks, every four weeks, or every eight weeks. The default validation frequency is "every week".

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Mobile Device Management**.
4. Click **App Maintenance** .
5. Click the **App Validation** tab, and then click **Edit** .
6. Select **Automatically validate all managed in-house apps.**
7. To specify how often Jamf Pro attempts to validate apps, use the **Validation Frequency** pop-up menu.
8. Click **Save** .

Managed in-house apps are validated on mobile devices according to the selected validation frequency based on the time of day and day of the week that the setting was saved.

Forcing App Validation

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Mobile Device Management**.
4. Click **App Maintenance** .
5. Click the **App Validation** tab, and then click **Edit**.
6. Click **Force Validation**.
7. Click **Save** .

   Jamf Pro immediately sends an app validation command to all managed in-house apps on mobile devices.

App Store Apps

Jamf Pro allows you to distribute App Store apps and apps purchased in volume (including custom apps) to users and mobile devices. After an app has been distributed, you can also use Jamf Pro to update the app or remove the app from mobile devices.

When you distribute an App Store app or app purchased in volume, you add it to Jamf Pro and configure settings for the app, such as the distribution method and whether to make the app managed. (For more information, see Understanding App Distribution Methods and Understanding Managed Apps.) Then, you specify the users and mobile devices that should receive it (called "scope").

Note: To specify managed App Store apps and apps purchased in volume to distribute to or remove from personally owned iOS devices, you must use the Apps (iOS only) payload of the Personal Device Profile that is used to perform management tasks on the devices. For more information, see Personal Device Profiles.

App Store apps and apps purchased in volume can be distributed to mobile devices or users with managed distribution. For more information, see Managed Distribution for Mobile Devices and User-Based Volume Assignments.

As an alternative to managed distribution, Jamf Pro also supports distributing App Store apps and apps purchased in volume using redeemable VPP codes. For more information, see VPP Code Distribution for Mobile Devices.

Managed App Configuration

You can configure preferences and settings in Jamf Pro for a managed app before distributing it to mobile devices.

There are also several variables that you can use to populate settings in a managed app with attribute values stored in Jamf Pro. This allows you to create preferences containing information about each user and mobile device to which you are distributing the app.

When the app is installed on a mobile device, the variable is replaced with the value of the corresponding attribute in Jamf Pro.

Variable	Mobile Device Information
$DEVICENAME	Mobile Device Name
$SERIALNUMBER	Serial Number
$UDID	UDID
$USERNAME	Username
$FULLNAME or $REALNAME	Full Name
$EMAIL	Email Address
$PHONE	Phone Number
$ROOM	Room
$POSITION	Position
$MACADDRESS	MAC Address
$JSSID	Jamf Pro ID
$APPJSSID	Jamf Pro ID of the App
$SITEID	Site ID
$SITENAME	Site Name
$BUILDINGNAME	Building Name
$BUILDINGID	Building ID
$DEPARTMENTID	Department ID
$DEPARTMENTNAME	Department Name
$JPS_URL	Jamf Pro URL

Note: An $EXTENSIONATTRIBUTE_<#> variable is generated each time you create a mobile device extension attribute. For more information, see Mobile Device Extension Attribute Input Types.

Requirements

To install an App Store app, an app purchased in volume, or an update, users may be prompted to enter an Apple ID.

To distribute apps directly to mobile devices via managed distribution, you need mobile devices with iOS 9 or later.

To associate VPP codes with an App Store app or app purchased in volume, you need an Excel spreadsheet (.xls) that contains VPP codes for the app.

Managed App Configuration only applies to mobile devices with iOS 7 or later.

Per-App VPN connections are only applied to mobile devices with iOS 7 or later.

Distributing an App Store App or App Purchased in Volume

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Mobile Device Apps**.
4. Click **New**  .
5. Select **App Store app or apps purchased in volume** and click **Next**.
6. Do one of the following:
   - To add the app by browsing the App Store or apps purchased in volume, enter the name of the app, choose an App Store country and click **Next**. Then click **Add** for the app you want to add.
   - To add the app by uploading a VPP code spreadsheet, click **Choose File** and upload the Excel spreadsheet (.xls) that contains VPP codes for the app.
   - To add the app by manually entering information about it, click **Enter Manually**.
7. Use the General pane to configure settings for the app, including the distribution method and whether to make the app managed. You can also enable automatic app updates for the app. For information, see Enabling Automatic App Updates.

   Note: Beginning with iOS 10.3, you can require a mobile device to have a tethered network connection to download the app. A tethered network connection requires a computer with macOS 10.12.4 or later, and must be connected to the Internet via Ethernet and have Wi-Fi turned off. Portable computers must be plugged in to a power source because the tethered caching service prevents computers from going to sleep. Select the **Require tethered network connection for app installation** checkbox. This checkbox is only displayed if "Install Automatically/Prompt Users to Install" is chosen in the **Distribution Method** pop-up menu. App updates will not require tethering; this setting is for initial installations of an app only.

8. Click the **Scope** tab and configure the scope of the app.
   For more information, see Scope.

9. (Optional) Click the **Self Service** tab and configure the way the app is displayed in Self Service. You can customize the text displayed in the description for the app in Self Service by using Markdown in the Description field.
   For information about Markdown, see the Using Markdown to Format Text Knowledge Base article.

   Note: The **Self Service** tab is only displayed if "Make Available in Self Service" is chosen in the **Distribution Method** pop-up menu.

10. (Optional) If you want to distribute the app directly to mobile devices via managed distribution, do the following:
    a. Click the **Managed Distribution** tab, and then click the **Device Assignments** tab.
    b. Select the **Assign Content Purchased in Volume** checkbox.
    c. Choose the location that has purchased the app to distribute to mobile devices.
11. (Optional) If you want to associate VPP codes with the app and have not already uploaded a VPP code spreadsheet, do the following:
    a. Click the **Managed Distribution** tab, and then click the **VPP Codes** tab.
    b. Upload the Excel spreadsheet (.xls) that contains VPP codes for the app.
12. (Optional) Click the **App Configuration** tab and configure the preferences as needed.

    Note: The **App Configuration** tab is only displayed if the **Make App Managed when possible** checkbox is selected.

    For help generating the preferences, click the **AppConfig Generator** link. The AppConfig Generator enables you to generate the PLIST file to enter in the **Preferences** field. For more information about AppConfig, see the AppConfig Community website:
    https://www.appconfig.org
13. Click **Save**.

    The app is distributed the next time mobile devices in the scope contact Jamf Pro. If users were added as targets to the scope, the app is distributed to the devices those users are assigned to the next time the devices contact Jamf Pro.

Updating an App Store App or Apps Purchased in Volume

Jamf Pro allows you to update an individual App Store app or apps purchased in volume in the following ways:

- **Schedule automatic app updates**—This automatically updates the app description, icon, and version in Jamf Pro and on mobile devices. This update happens once a day depending on the time of day you specify.
- **Automatically force apps to update**—You can automatically force an App Store app or apps purchased in volume to update on mobile devices. This update happens automatically every time devices check in with Jamf Pro.

- **Manually force an app to update**—You can force an app to update immediately on mobile devices if there are updates available in Jamf Pro. This update only applies to managed apps. For more information, see Understanding Managed Apps.
- **Distribute an app update**—You can distribute an update for an App Store app by manually updating the version number and URL for the app in Jamf Pro. The update is distributed to mobile devices the next time they contact Jamf Pro.

Note: Jamf Pro also allows you to enable automatic updates for all App Store apps or apps purchased in volume, or force all App Store apps and apps purchased in volume to update immediately. For more information, see App Store App Update Settings.

Scheduling Automatic App Updates

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Mobile Device Apps**.
4. Click the app for which you want to enable automatic app updates.
5. Click **Edit**.
6. Select **Schedule Jamf Pro to automatically check the App Store for app updates**.
7. Choose a country or region to use when syncing apps with the App Store from the **App Store Country or Region** pop-up menu.
8. Set the time of day to sync apps with the App Store with the **App Store Sync Time** pop-up menus.
9. Click **Save**.

The app is updated in Jamf Pro and on mobile devices in the scope based on the time you configure the app to sync with the App Store.

Automatically Forcing an App Update

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Mobile Device Apps**.
4. Click the app you want to update.
5. Click **Edit**.
6. Select **Automatically Force App Updates**.
7. Click **Save**.

The app is updated automatically on mobile devices in the scope each time devices check in with in Jamf Pro.

Manually Forcing an App Update

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Mobile Device Apps**.
4. Click the app you want to update.
5. Click **Edit** .
6. Click **Force Update**.
7. Click **Save** .

The app is updated immediately on mobile devices in the scope if there is an update available in Jamf Pro.

Updating an App Store App or Apps Purchased in Volume

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Mobile Device Apps**.
4. Click the app you want to update.
5. Click **Edit** .
6. Enter the new version number and URL.
   Important: Do not change the bundle identifier. Jamf Pro uses the existing bundle identifier to distribute the update.
7. Click **Save** .

The update is distributed the next time mobile devices in the scope contact Jamf Pro.

Removing an App Store App or Apps Purchased in Volume from Mobile Devices

To remove an App Store app or app purchased in volume from one or more devices, you remove the users or mobile devices from the scope.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Mobile Device Apps**.
4. Click the app you want to remove.
5. Click the **Scope** tab and remove users or mobile devices from the scope as needed.
   For more information, see Scope.

6. Click **Save**.

The app is removed the next time the mobile devices contact Jamf Pro.

Further Considerations

Apps are enabled by default when added to Jamf Pro. This means you can edit the app details and assign licenses, and the app will be installed on devices or displayed in Self Service based on the selected distribution method. You can disable an app by deselecting the **Enable** checkbox. This stops the app's subsequent installations and it is not displayed in Self Service. You cannot edit app details if it is disabled.

An App Store app will be automatically disabled in Jamf Pro if it is a managed distribution item that has been removed from the App Store. You will not be able to assign licenses, and the installation commands will not be sent. The app will not be displayed in Self Service. An automatically disabled managed distribution item will not be removed from mobile devices that already have this item installed.

Related Information

For related information, see the following sections in this guide:

- In-House Apps
  Find out how to distribute, update, and remove in-house apps.
- Viewing and Editing Inventory Information for a Mobile Device
  You can view the apps installed on a mobile device by viewing the device's inventory information in Jamf Pro.
- Viewing Apps for a Mobile Device
  Find out how to view the apps in the scope of a mobile device.
- Viewing the Pending Management Commands for a Mobile Device
  Find out how to view and cancel pending app installations and removals for a mobile device.
- Viewing App Installations for a Mobile Device
  Find out how to view the completed, pending, and failed app installations for a mobile device. Also, find out how to cancel pending app installations.
- Mobile Device Configuration Profiles
  You can create an iOS configuration profile with a Per-App VPN connection.

For related information, see the following *Best Practice Workflows for Jamf Pro*:

Controlling Distribution of iOS and tvOS Apps
Find out how to restrict iOS and tvOS apps using Jamf Pro.

For related information, see the following Knowledge Base article:

Managing an App that is Currently Installed as an Unmanaged App
Learn how to convert an app from an unmanaged state to a managed state after the app has been installed on a mobile device.

App Store App Update Settings

Jamf Pro allows you to configure settings to update all App Store apps and apps purchased in volume (including custom apps) in Jamf Pro and on mobile devices. You can use the App Updates settings in Jamf Pro to do the following:

- **Schedule automatic app updates**—You can schedule automatic app updates for all App Store apps and apps purchased in volume. This automatically updates app descriptions, icons, and versions in Jamf Pro. This update happens once a day depending on the time of day you specify.
- **Automatically force apps to update**—You can automatically force all App Store apps and apps purchased in volume to update on mobile devices. This update happens automatically every time devices check in with Jamf Pro.
- **Manually force apps to update**—You can manually force all App Store apps and apps purchased in volume to update immediately on mobile devices if there are updates available in Jamf Pro. This update only applies to managed apps. For more information, see Understanding Managed Apps.

Note: Jamf Pro also allows you to enable an automatic app update and force an update for an individual App Store app or apps purchased in volume. For more information, see App Store Apps.

Scheduling Automatic App Updates

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Mobile Device Management**.
4. Click **App Maintenance** .
5. On the App Updates pane, click **Edit**.
6. Select **Schedule Jamf Pro to automatically check the App Store for app updates**.
7. Choose a country or region to use when syncing apps with the App Store from the **App Store Country or Region** pop-up menu.
8. Set the time of day to sync apps with the App Store with the **App Store Sync Time** pop-up menus.
9. Click **Save** .

App Store apps and apps purchased in volume are updated in Jamf Pro based on the time you configure apps to sync with the App Store.

Automatically Forcing App Updates

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Mobile Device Management**.
4. Click **App Maintenance** .
5. On the App Updates pane, click **Edit**.
6. Select **Automatically Force App Updates**.
7. Click **Save** .

Managed App Store apps and apps purchased in volume are updated automatically on mobile devices each time devices check in with Jamf Pro.

Manually Forcing App Updates

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Mobile Device Management**.
4. Click **App Maintenance** .
5. On the App Updates pane, click **Edit**.
6. Click **Force Updates**.
7. Click **Save** .

Managed App Store apps and apps purchased in volume are updated immediately on mobile devices if there are updates available in Jamf Pro.

Settings and Security Management for Mobile Devices

Mobile Device Configuration Profiles

Configuration profiles are XML files (.mobileconfig) that provide an easy way to define settings and restrictions for devices, computers, and users.

You can use Jamf Pro to create a configuration profile or you can upload a configuration profile that was created using third-party software, for example, Apple's Profile Manager or Apple Configurator.

Before creating a configuration profile, you should have basic knowledge of configuration profile payloads and settings. For more information, see the following Apple documentation:

- Mobile Device Management Settings
- Profile-Specific Payload Keys

Some configuration profile payloads and settings available in Jamf Pro may differ from their implementation in Apple's tools. For more information on these settings, see the Configuration Profile Payload Settings Specific to Jamf Pro Knowledge Base article.

There are two different ways to distribute a configuration profile to an iOS device—install it automatically (requires no interaction from the user) or make it available in Jamf Self Service. For tvOS devices, configuration profiles must be distributed by installing automatically. You can also specify the mobile devices and users to which the profile should be applied (called "scope").

Note: Removing a device from the scope of the profile also removes the settings applied by the profile the next time the device checks in with Jamf Pro.

A configuration profile will deploy containing both the iOS and tvOS selected options to all devices in scope. Devices will ignore the options that do not pertain to their device type.

Note: Mobile device configuration profiles cannot be distributed to personally owned mobile devices enrolled using a Personal Device Profile.

Payload Variables for Configuration Profiles

There are several payload variables that you can use to populate settings in a configuration profile with attribute values stored in Jamf Pro. This allows you to create payloads containing information about each mobile device, computer, and user to which you are distributing the profile.

To use a payload variable, enter the variable into any text field when creating a profile in Jamf Pro. When the profile is installed, the variable is replaced with the value of the corresponding attribute in Jamf Pro.

Variable	Inventory Information
$DEVICENAME	Mobile Device Name
$ASSET_TAG	Asset Tag
$SITENAME	Site Name
$SITEID	Site ID
$SERIALNUMBER	Serial Number
$UDID	UDID
$USERNAME	Username
$FULLNAME or $REALNAME	Full Name
$EMAIL	Email Address
$PHONE	Phone Number
$ROOM	Room
$POSITION	Position
$DEPARTMENTNAME	Department Name
$DEPARTMENTID	Department ID
$BUILDINGNAME	Building Name
$BUILDINGID	Building ID
$MACADDRESS	MAC Address
$JSSID	Jamf Pro ID
$PROFILEJSSID	Jamf Pro ID of the Configuration Profile
$EXTENSIONATTRIBUTE_#	Extension Attribute ID Number **Note:** The ID number is found in the extension attribute URL. In the example URL below, "id=2" indicates the extension attribute ID number: https://instancename.jamfcloud.com /mobileDeviceExtensionAttributes.html?id=2&o=r For more information, see Mobile Device Extension Attributes.

General Requirements

To install a configuration profile on a device, you need a push certificate in Jamf Pro. For more information, see Push Certificates.

Manually Creating a Configuration Profile

You can create a configuration profile using Jamf Pro.

Beginning with Jamf Pro 10.13.0, you can configure some payloads using a redesigned flow. Use switches to include the settings that will be sent to deployment targets. In the summary view, only the included or configured settings are displayed in the Jamf Pro interface. The operating system manages settings on the device level. Some enforced settings that do not change default values will not be visible on the device. For more information on the default settings, see the Profile-Specific Payload Keys documentation from Apple.

> **Note:** When upgrading to Jamf Pro 10.13.0 or later, any previously configured payloads that have been redesigned are automatically migrated. Review the settings in the Jamf Pro user interface. The migrated payloads are not redeployed to deployment targets.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Configuration Profiles**.
4. Click **New** + New .
5. Use the General payload to configure basic settings for the profile, including a distribution method. If you chose to make the profile available in Jamf Self Service, choose a **Security** setting.
6. Use the rest of the payloads to configure the settings.
7. Click the **Scope** tab and configure the scope of the profile.
   For more information, see Scope.

   > **Note:** For limitations or exclusions to be based on LDAP users or LDAP user groups, the Username field must be populated in the mobile device's inventory.
8. (Optional) If you chose to make the profile available in Self Service, click the **Self Service** tab to configure Self Service settings for the profile.
9. Click **Save** .

The profile is distributed to deployment targets in the scope the next time they contact Jamf Pro.

Uploading a Configuration Profile

You can create a configuration profile by uploading a profile that was built using Apple's software, for example, Profile Manager or Apple Configurator .

> **Note:** Some payloads and settings configured with third-party software are not displayed in Jamf Pro. Although you cannot view or edit these payloads, they are still applied to the deployment targets.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Configuration Profiles**.
4. Click **Upload** and upload the configuration profile (.mobileconfig).
5. Use the General payload to configure basic settings for the profile, including a distribution method. If you chose to make the profile available in Jamf Self Service, choose a **Security** setting.
6. Use the rest of the payloads to configure or edit settings as needed.
7. Click the **Scope** tab and configure the scope of the profile.
   For more information, see Scope.

   > **Note:** For limitations or exclusions to be based on LDAP users or LDAP user groups, the Username field must be populated in the mobile device's inventory.
8. (Optional) If you chose to distribute the profile in Self Service, click the **Self Service** tab to configure Self Service settings for the profile.
9. Click **Save** .

   The profile is distributed to deployment targets in the scope the next time they contact Jamf Pro.

Downloading a Configuration Profile

If you want to view the contents of a configuration profile for troubleshooting purposes, you can download the profile (.mobileconfig) from Jamf Pro.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Configuration Profiles**.
4. Click the configuration profile you want to download.
5. Click **Download** .

   The profile downloads immediately.

Viewing the Status of a Configuration Profile

For each configuration profile, you can view the number of the deployments targets with a status of Complete, Remaining, or Failed for the profile installation.

> **Note:** Depending on your system configuration, status data may not be available for profiles installed using Jamf Pro 9.63 or earlier.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Configuration Profiles**.
   A list of configuration profiles is displayed.
   For each profile, you can view the number of the deployment targets for which the profile installation has a Completed, Remaining, or Failed status.

   > **Note:** If a device becomes unmanaged after a profile is successfully distributed to it, the profile will continue to be displayed in the Completed column.

4. To view a list of deployment targets with a status of Complete, Remaining, or Failed for the profile installation, click the number displayed in the corresponding column. Then click **Back** ← in the top-left corner of the pane.
5. To view logs for a configuration profile, click **View** in the corresponding row. For a different date range, specify the starting and ending dates using the **Date Range** pop-up calendars.
6. Click **Back** ← in the top-left corner of the pane.

Related Information

For related information, see the following sections in this guide:

- Viewing the Pending Management Commands for a Mobile Device
  Find out how to view and cancel pending mobile device configuration profile installations and removals for a mobile device.
- Viewing Configuration Profiles for a Mobile Device
  Find out how to view the mobile device configuration profiles in the scope for a mobile device.
- Viewing Management History for a Mobile Device
  Find out how to view all completed, pending, and failed mobile device configuration profile installations and removals for a mobile device.

For related information, see the following Knowledge Base article:

Distributing Apps to Mobile Devices with App Store Restrictions After Upgrading to Jamf Pro 9.5 or Later
Learn about the steps necessary to redistribute mobile device configuration profiles that contain App Store restrictions so that you can distribute apps to mobile devices with restrictions after upgrading from Jamf Pro 9.4 or earlier.

For related information, see the following technical paper:

Enabling Jamf Pro as SCEP Proxy
Learn how to enable Jamf Pro as SCEP Proxy for distributing certificates via configuration profiles.

Personal Device Profiles

Disclaimer: User Enrollment will be replacing Personal Device Profiles as the Apple-preferred method for enrolling personally owned devices in a Bring Your Own Device (BYOD) program. Personal Device Profiles will be deprecated in a future release. While you can continue to manage devices enrolled using a Personal Device Profile, any personal devices not yet enrolled in Jamf Pro should be enrolled using User Enrollment. For more information on how to migrate from Personal Device Profiles to User Enrollment, see the Building a BYOD Program with User Enrollment and Jamf Pro technical paper.

Personal Device Profiles are used to enroll personally owned iOS devices with Jamf Pro via user-initiated enrollment. Personal Device Profiles are also used to perform management tasks on personally owned iOS devices, including defining settings and distributing managed apps.

You can create one Personal Device Profile for each site in Jamf Pro, and one profile for the full Jamf Pro. A Personal Device Profile is only used to enroll and manage devices if the profile is enabled in the General payload.

The Personal Device Profile used to enroll and manage a device is based on the site that the mobile device user has access to. Site access is determined by the LDAP directory account or Jamf Pro user account credentials entered during user-initiated enrollment. For information on specifying the sites that LDAP user groups have access to during enrollment, see User-Initiated Enrollment Settings.

If a profile has been enabled for the site, that profile is used to enroll the device and add the device to the site. If a profile has not been enabled for the site, or if sites have not been added to Jamf Pro, the profile for the full Jamf Pro is used if it is enabled.

Note: Changing the site that a personal device belongs to automatically changes the profile that is used to perform management tasks on the device. If a profile has not been enabled for the new site, the device will continue to be managed by Jamf Pro, but all settings and apps that were previously defined by the old profile are removed.

Personal Device Profile Payloads

The payloads and settings that you can configure using a Personal Device Profile represent a subset of the iOS configuration profile payloads and settings available for institutionally owned mobile devices.

Before creating a Personal Device Profile, you should have basic knowledge of configuration profile payloads and settings, and how they affect mobile devices. For detailed information about each payload and setting, see Apple's iOS Deployment reference at:

https://support.apple.com/guide/deployment-reference-ios/welcome/web

Managed App Distribution to Personal iOS Devices

When creating or editing a Personal Device Profile, you can specify managed in-house apps and App Store apps to distribute to personal iOS devices. Available apps include all managed apps that have been added to the site that the profile is assigned to and all managed apps that have been added to the full Jamf Pro.

When a managed app is distributed to personal iOS devices, the Personal Device Profile automatically applies settings to do the following:

- Distribute the app using the Install Automatically/Prompt Users to Install distribution method
- Remove the app when the MDM profile is removed
- Prevent backup of app data
- Prevent opening documents from managed apps in unmanaged apps

When selecting managed apps to distribute, you have the option to clone an unmanaged app and make it managed. This adds a managed version of the app to Jamf Pro and leaves the original app unmanaged.

Note: Not all apps can be managed by Jamf Pro. For information on the factors that determine whether an app can be managed, see Understanding Managed Apps.

Personal Device Enrollment

Personally owned devices can only be enrolled via user-initiated enrollment. To direct users to the enrollment portal for user-initiated enrollment, provide the enrollment URL to users in the way that best fits your environment. The enrollment URL is the full URL for the Jamf Pro server followed by "/enroll".

Note: Mobile device enrollment invitations cannot be sent to personally owned devices. You must provide the enrollment URL to those users by some other means.

Requirements

To create Personal Device Profiles, the User-Initiated Enrollment settings must be configured to allow user-initiated enrollment for personally owned iOS devices. For more information, see User-Initiated Enrollment Settings.

To enroll and manage personal iOS devices, you need a push certificate in Jamf Pro. For more information, see Push Certificates.

Note: To distribute managed apps to personal iOS devices, the devices must have an MDM profile that supports managed apps. For more information, see Managed App Requirements.

Creating a Personal Device Profile

You can only create a Personal Device Profile if there is an available site (or the full Jamf Pro) that does not have a profile assigned to it.

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Click **Personal Device Profiles**.
4. Click **New** + New .

   Note: Only one Personal Device Profile can be created per site in Jamf Pro. If all sites (or the full Jamf Pro) already have an assigned Personal Device Profile, you will not be able to create a new one.

5. Use the General payload to configure basic settings for the profile, including the display name and the site to assign the profile to.

   Note: If you have site access only, the profile is assigned to the applicable site automatically and the **Site** pop-up menu is not displayed.

   To enable this Personal Device Profile, select the **Enable personal device profile** checkbox.
6. (Optional) Use the Passcode payload to configure passcode policies.
7. (Optional) Use the WI-FI payload to configure how devices connect to your wireless network, including the necessary authentication information.
   For more information about how to configure the WI-FI payload, see the Configuring Wi-Fi for iOS Devices and Configuring Wi-Fi for tvOS Devices *Best Practice Workflows for Jamf Pro.*
8. (Optional) Use the VPN payload to configure how devices connect to your wireless network via VPN, including the necessary authentication information.
9. (Optional) Use the Exchange ActiveSync payload to define settings for connecting to your Exchange server.
10. (Optional) Use the Mail payload to define settings for connecting to POP or IMAP accounts.
11. (Optional) Use the Calendar payload to define settings for configuration access to CalDAV servers.
12. (Optional) Use the Contacts payload to define settings for configuration access to CardDAV servers.
13. (Optional) Use the Subscribed Calendars payload to define settings for calendar subscriptions.
14. (Optional) Use the Certificate payload to specify the X.509 certificates (.cer, .p12, etc.) you want to install on devices to authenticate the device access to your network.
15. (Optional) Select the Apps payload and then do any of the following:
    - To distribute a managed app to personal iOS devices added to the site (or the full Jamf Pro) that the profile is assigned to, click **Install** next to the app name. (To distribute all managed apps, click **Install All**.)

- To remove a previously distributed managed app from devices, click **Remove** next to the app name. (To remove all managed apps previously distributed with this profile, click **Remove All**.)
- To clone an unmanaged app to add a managed version of the app to Jamf Pro, click the unmanaged app name, and then click **Clone App and Make Managed**. A managed version of the app is added to Jamf Pro and is made available for installation.

16. (Optional) To add messaging that displays during user-initiated enrollment if the user belongs to multiple LDAP user groups with access to multiple sites, do the following:
    a. Click the **Messaging** tab, and then click **Add** + Add .
    b. Choose a language from the **Language** pop-up menu.
    c. Use the settings on the pane to specify the site/profile display name, as well as the text to describe the settings included with the profile. In the description for iOS devices, you can also list any managed apps that will be included with the profile.
    d. Click **Done**.
    e. Repeat this process as needed for other languages.
17. Click **Save** .

If the profile is enabled in the General payload, it will be used to enroll personal devices with Jamf Pro when users enter credentials for an LDAP directory account or a Jamf Pro user account that has access to the site (or to the full Jamf Pro).

Cloning, Editing, or Deleting a Personal Device Profile

Consider the following when cloning, editing, or deleting a Personal Device Profile:

- **Cloning**—You can only clone a Personal Device Profile if there is an available site (or the full Jamf Pro) that does not have a profile assigned to it.
- **Editing**—When a Personal Device Profile is edited and saved, it is automatically redistributed to personal devices belonging to the site (or the full Jamf Pro) that the profile is assigned to. When editing an enabled profile, if you deselect the Enable personal device profile checkbox in the profile's General payload, all personal devices belonging to the site that the profile is assigned to will continue to be managed by Jamf Pro, but all settings and apps that were previously defined by the profile are removed.
- **Deleting**—When a Personal Device Profile is deleted, all personal devices belonging to the site that the profile is assigned to will automatically be changed to use the profile assigned to the full Jamf Pro if a profile for the full Jamf Pro is enabled. If an enabled profile for the full Jamf Pro does not exist, or if you are deleting the profile assigned to the full Jamf Pro, then the applicable devices will continue to be managed by Jamf Pro, but all settings and apps that were previously defined by the profile are removed.

> **Note:** A Personal Device Profile is automatically deleted if the site it is assigned to is deleted from Jamf Pro.

Related Information

For related information, see the following sections in this guide:

- Sites
  Learn about sites and how to add them to Jamf Pro.
- User-Initiated Enrollment Settings
  Learn about the settings you can configure for user-initiated enrollment.
- User-Initiated Enrollment for Mobile Devices
  Find out how to allow users to enroll mobile devices by having them log in to an enrollment portal.
- User-Initiated Enrollment Experience for Mobile Devices
  Learn about the steps users take to enroll mobile devices.
- Mobile Device Management Capabilities
  Learn about the management capabilities available for personally owned mobile devices.

Remote Commands for Mobile Devices

The remote commands available in Jamf Pro allow you to remotely perform tasks on a mobile device.

You can send a remote command to a single mobile device. Some commands can also be sent to multiple devices at once using mass actions. For more information, see Mass Actions for Mobile Devices.

Note: The remote commands available for a particular device vary depending on the device ownership type, device platform, device type, and OS version. For more information, see Mobile Device Management Capabilities.

The following table describes the remote commands that you can send from Jamf Pro:

Remote Command	Description	Available as a Mass Action	iOS Device Requirements	Personally Owned iOS Device Support
Update Inventory	Prompts the mobile device to contact Jamf Pro and update its inventory	✓	--	✓
Lock Device	Locks the mobile device If the mobile device has a passcode, the user must enter it to unlock the device. (Optional) Displays a message on the mobile device when it locks. This message is only sent if the mobile device has a passcode. (Optional) Displays a phone number on the mobile device when it locks. The phone number is only displayed if the mobile device has a passcode.	✓	--	✓

Remote Command	Description	Available as a Mass Action	iOS Device Requirements	Personally Owned iOS Device Support
Clear Passcode	Removes the passcode from the mobile device If a configuration profile with a Passcode payload is installed on the device, the user is prompted to create a new passcode. **Important:** If a device in Lost Mode shuts down or restarts and the passcode is not cleared, you must put the device in DFU mode to disable Lost Mode.	✓	--	--
Clear Screen Time Passcode (This command was previously called **Clear Restrictions**.)	Removes the Screen Time passcode from a device		▪ iOS 8 or later ▪ Supervised	✓
Update Passcode Lock Grace Period	Sets the amount of time that a device's screen can be locked before requiring a passcode to unlock it	✓	▪ iOS 9.3 or later ▪ Enrolled via a PreStage enrollment with Shared iPad enabled	--

Remote Command	Description	Available as a Mass Action	iOS Device Requirements	Personally Owned iOS Device Support
Unmanage Device	Stops communication between the mobile device and the Jamf Pro server, which means you can no longer perform management tasks on the device When you unmanage a device, the following items are removed from the device: ▪ MDM profile ▪ Device certificate ▪ Self Service ▪ Any configuration profiles that were distributed with Jamf Pro ▪ Any managed apps that were distributed with the **Remove app when MDM profile is removed** checkbox selected **Note:** Although an unmanaged device will no longer submit inventory, its inventory record remains in Jamf Pro.	✓	--	-- **Note:** Only personally owned mobile devices enrolled using User Enrollment can execute the Unmanage Device command.

Remote Command	Description	Available as a Mass Action	iOS Device Requirements	Personally Owned iOS Device Support
Wipe Device	Permanently erases all data on the device and deactivates the device. This command is available for both iOS and Apple TV devices (tvOS 10.2 or later). Optionally, you can: ▪ Clear Activation Lock on the device ▪ Retain cellular data plans (iOS 11 or later) ▪ Suppress Proximity Setup on the device (iOS 11.3 or later) **Note:** Wiping a device does not remove the device from Jamf Pro or change its inventory information. To restore the device to the original factory settings, you must manually reactivate the device.	✓	--	--
Set Storage Quota Size	Sets the storage quota size (MB) that is allocated to each user All users must be logged out and removed from the device before this command can be sent. **Note**: If devices are upgraded to iPadOS 13.4 or later, it is recommended that the device is wiped before setting the storage quota size.	✓	▪ iPadOS 13.4 or later ▪ Supervised ▪ Enrolled via a PreStage enrollment with Shared iPad enabled	--

Remote Command	Description	Available as a Mass Action	iOS Device Requirements	Personally Owned iOS Device Support
Restart Device	Restarts a device. This command is available for both iOS and Apple TV devices (tvOS 10.2 or later). (Optional) Clears the passcode on the device. If this option is chosen, the Clear Passcode command is sent to the device before the device is restarted. **Important:** If a device in Lost Mode shuts down or restarts and the passcode is not cleared using the Clear Passcode command, you must put the device in DFU mode to disable Lost Mode.	✓	▪ iOS 10.3 or later ▪ Supervised	--
Send Blank Push	Sends a blank push notification, prompting the device to check in with Apple Push Notification service (APNs)		--	✓
Set Wallpaper	Sets an image or photo as wallpaper for the Lock screen, Home screen, or both screens on a supervised device You can upload an image file or choose an existing image file.	✓	▪ iOS 7 or later ▪ Supervised	--

Remote Command	Description	Available as a Mass Action	iOS Device Requirements	Personally Owned iOS Device Support
Enable/Disable Voice Roaming **Enable/Disable Data Roaming**	Enables/disables voice or data roaming on the device **Note:** Disabling voice roaming automatically disables data roaming.		▪ iOS 5 or later ▪ Cellular capability	--

Remote Command	Description	Available as a Mass Action	iOS Device Requirements	Personally Owned iOS Device Support
Update OS Version	Updates the OS version on supervised devices You can update the OS version for iOS or tvOS devices using the following options: ▪ **Target Version**—You can choose to update the OS version to the latest version based on device eligibility or you can update to a specific version. **Note**: Updating to a specific OS version requires iOS 12 or later and tvOS 12.2 or later. ▪ **iOS Update Action**—You can choose to download the update for users to install, or to download and install the update and restart devices after installation. **Note**: This option applies to iOS devices only. This command is only available as a mass action. For more information, see Mass Actions for Mobile Devices. For more information, see the Updating iOS *Best Practice Workflow for Jamf Pro*.	✓	▪ iOS 9 or later ▪ tvOS 12 or later ▪ Supervised ▪ Enrolled via a PreStage enrollment (devices with iOS 9-10.2) ▪ No set passcode	--

Remote Command	Description	Available as a Mass Action	iOS Device Requirements	Personally Owned iOS Device Support
Log Out User	Logs out the currently logged in user for Shared iPad only		▪ iOS 9.3 or later ▪ Supervised ▪ Enrolled via a PreStage enrollment with Shared iPad enabled	--
Enable/Disable Lost Mode	Enables/disables Lost Mode on the device Lost Mode locks the device and displays your custom messaging on the device's Lock screen. Global Positioning System (GPS) coordinates for the device's approximate location are also displayed in the inventory information for the device. **Important:** If a device in Lost Mode shuts down or restarts and the passcode is not cleared using the Clear Passcode command, you must put the device in DFU mode to disable Lost Mode.		▪ iOS 9.3 or later ▪ Supervised	--

Remote Command	Description	Available as a Mass Action	iOS Device Requirements	Personally Owned iOS Device Support
	(Optional) Always enforces Lost Mode on the device. This option ensures Lost Mode is enabled after an enrollment event has completed. When selected, Lost Mode can be only disabled in Jamf Pro. (Optional) Plays a sound on the lost device. **Important:** If a device in Lost Mode shuts down or restarts and the passcode is not cleared using the Clear Passcode command, you must put the device in DFU mode to disable Lost Mode.		▪ iOS 10.3 or later ▪ Supervised ▪ Lost Mode enabled	--
Update Location	Updates the GPS coordinates collected for a mobile device in Lost Mode		▪ iOS 9.3 or later ▪ Supervised ▪ Lost Mode enabled	--

Remote Command	Description	Available as a Mass Action	iOS Device Requirements	Personally Owned iOS Device Support
Enable/Disable Diagnostic and Usage Reporting **Enable/Disable App Analytics**	Enables/disables the sending of diagnostic and usage data to Apple Enables/disables the sending of app analytics data to Apple **Note:** Disabling diagnostic and usage reporting automatically disables app analytics.	✓	▪ iOS 9.3 or later ▪ Supervised ▪ Enrolled via a PreStage enrollment with Shared iPad enabled	--
Shut Down Device	Shuts down the device (Optional) Clears the passcode on the device. If this option is chosen, the Clear Passcode command is sent to the device before the device is shutdown. **Important:** If a device in Lost Mode shuts down or restarts and the passcode is not cleared using the Clear Passcode command, you must put the device in DFU mode to disable Lost Mode.	✓	▪ iOS 10.3 or later ▪ Supervised	--
Enable/Disable Bluetooth	Enables/disables Bluetooth on the device	✓	▪ iOS 11.3 or later ▪ Supervised	--

Remote Command	Description	Available as a Mass Action	iOS Device Requirements	Personally Owned iOS Device Support
Set Activation Lock	Enable Activation Lock directly on a device Allow user to enable Activation Lock on the device **Note**: If Activation Lock is enabled on the device when this command is sent, Jamf Pro automatically clears the Activation Lock before allowing the user to re-enable it. Disable and prevent Activation Lock For more information, see the Leveraging Apple's Activation Lock Feature with Jamf Pro Knowledge Base article.		▪ Supervised ▪ In Apple School Manager or Apple Business Manager	--

Remote Command	Description	Available as a Mass Action	iOS Device Requirements	Personally Owned iOS Device Support
Manage Jamf Parent	Allows you to remove app restrictions set by Jamf Parent on students' school-issued devices or remove Jamf Parent management capabilities. Removing Jamf Parent management capabilities prevents Jamf Parent from managing the student device until the parent scans the QR code again. To remove Jamf Parent restrictions on student devices, you need a Jamf Pro user account with the "Remove restrictions set by Jamf Parent" privilege. For more information, see Integrating Jamf Parent with Jamf Pro. **Note**: This remote command is available as the following separate mass actions: ▪ Remove restrictions set by Jamf Parent ▪ Remove Jamf Parent management capabilities	✓	Supervised	--

Remote Command	Description	Available as a Mass Action	iOS Device Requirements	Personally Owned iOS Device Support
Refresh Cellular Plans	Refreshes a device's cellular plan by querying a carrier URL for active eSIM cellular plan profiles **Note**: The device and carrier must support eSIM. For more information, see the following article from Apple's support website: https://support.apple.com/HT209096		iOS 13 or later	--
Renew MDM Profile	Renews the MDM profile on the mobile device, along with the device identity certificate. The device identity certificate has a default expiration period of two years. **Note:** The Renew MDM Profile remote command is automatically issued when the built-in CA is renewed. The MDM profile will be renewed during the next mobile device check-in. For more information, see "Renewing the Built-in CA" in PKI Certificates.	✓	--	✓

Remote Command	Description	Available as a Mass Action	iOS Device Requirements	Personally Owned iOS Device Support
Personally Owned Devices Only				
Wipe Institutional Data	Permanently erases institutional data and settings on the device On a personal mobile device, the following items are removed: ▪ MDM profile ▪ Personal Device Profile, including any institutional settings and managed apps ▪ Device certificate On personal mobile devices, the Wipe Institutional Data command makes the device unmanaged. This stops communication between the device and the Jamf Pro server, which means you can no longer perform management tasks on the device. **Note:** Although an unmanaged device will no longer submit inventory, its inventory record remains in Jamf Pro.		--	✓ **Note:** Only personally owned mobile devices enrolled using Personal Device Profiles can run the Wipe Institutional Data command.

Sending a Remote Command to a Mobile Device

1. Log in to Jamf Pro.
2. Click **Devices** at the top of the page.
3. Perform a simple or advanced mobile device search.
   For more information, see Simple Mobile Device Searches or Advanced Mobile Device Searches.

4. Click the mobile device you want to send the remote command to.

   If you performed a simple search for an item other than mobile devices, you must click **Expand** next to an item to view the devices related to that item.

5. Click the **Management** tab, and then click the button for the remote command that you want to send. Depending on the command selected, additional options may be available.

   The remote command runs on the mobile device the next time the device contacts Jamf Pro.

   After the command is sent, you can do the following on the **History** tab:

   - To view the status of a remote command, use the Management history pane to view completed, pending, or failed commands.
   - To cancel a remote command, click **Pending Commands**. Find the command you want to cancel, and click **Cancel** across from it.

Integrating Jamf Parent with Jamf Pro

Jamf Parent is a free app parents can download from the App Store on their iOS devices. If parents have an Apple Watch paired with their iPhone, the Jamf Parent app installs on their Apple Watch as well. When integrated with Jamf Pro, Jamf Parent allows parents to have limited management of their children's school-issued devices. Using Jamf Parent, parents can restrict and allow apps and apply Device Rules on their children's devices. Parents can add their children's devices to Jamf Parent by scanning the QR code in Jamf Self Service for iOS on their child's device. You can limit management by Jamf Parent by configuring days and times to restrict Jamf Parent usage. Parents can only manage their children's devices with Jamf Parent during the time periods specified in Jamf Pro. If a Jamf Pro administrator and Jamf Parent both set restrictions on the same student's device, the student's device will accept the most restrictive settings. Restrictions are set via mobile device configuration profiles created in Jamf Pro. For more information, see Mobile Device Configuration Profiles.

You can also remove restrictions set by Jamf Parent and Jamf Parent management capabilities from student devices by using a mass action or remote command. For more information, see Remote Commands for Mobile Devices and Mass Actions for Mobile Devices.

Requirements

To integrate Jamf Parent with Jamf Pro, you need the following:

- A Jamf Pro user account with read and update privileges for Jamf Parent and read privileges for smart device groups and static device groups
- (On-premise only) A valid SSL certificate obtained from a third-party vendor (For more information, see SSL Certificate.)
- (On-premise only) Allow secure inbound connections from "student-api.services.jamfcloud.com"
- Supervised student devices with Jamf Self Service for iOS 10.9.0 or later

To use Jamf Parent, parents need their own mobile device with iOS 10.2 or later with the Jamf Parent app installed on it.

Integrating Jamf Parent with Jamf Pro

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Device Management**.
4. Click **Jamf Parent** .
5. Click **Edit** .
6. Select **Allow limited management of students' devices by Jamf Parent**.

7. From the **Student Device Group** pop-up menu, choose the smart or static device group of student devices you want Jamf Parent to manage. For more information about creating smart and static device groups, see Smart Groups and Static Groups.
   The devices in the selected device group will display a QR code in Self Service that will be used to add the student device to Jamf Parent.
8. Choose days and times to restrict Jamf Parent app usage from the **Jamf Parent Restrictions** pop-up menus.
9. Choose the time zone to use for the Jamf Parent time restrictions from the **Time Zone** pop-up menu.
10. Click **Save**.

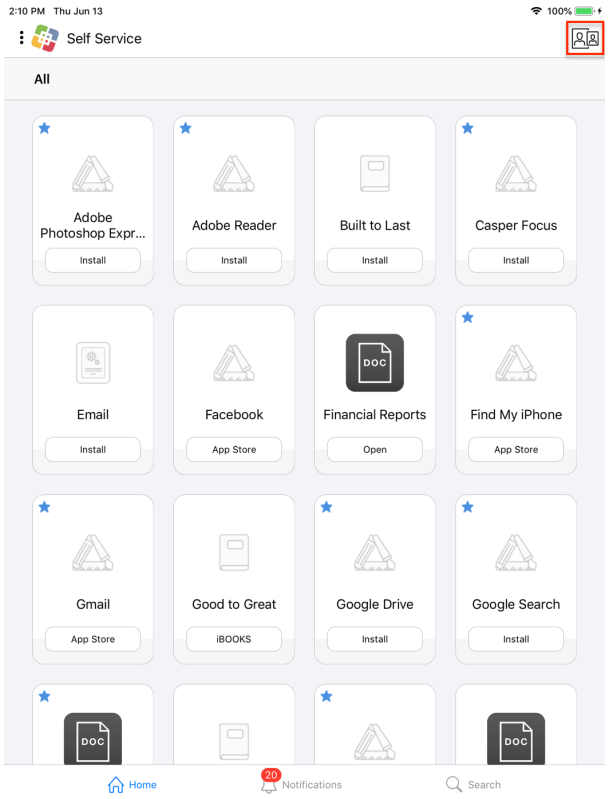
    The QR code is made available in Self Service to devices in the selected student device group.

Jamf Parent Experience

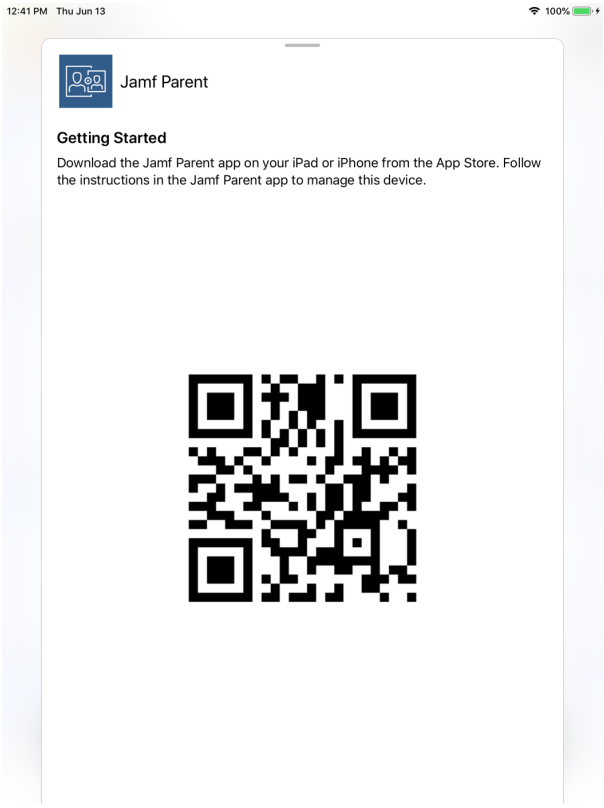
Parents use instructions provided by the school to open Self Service on the student's school-issued device. Then, they add the devices to Jamf Parent by scanning the QR code in Self Service using a device with iOS 10.2 or later with the Jamf Parent app installed on it.

You can provide parents with the following guide on how to get started with Jamf Parent:
https://www.jamf.com/resources/product-documentation/jamf-parent-guide-for-jamf-pro-parents/

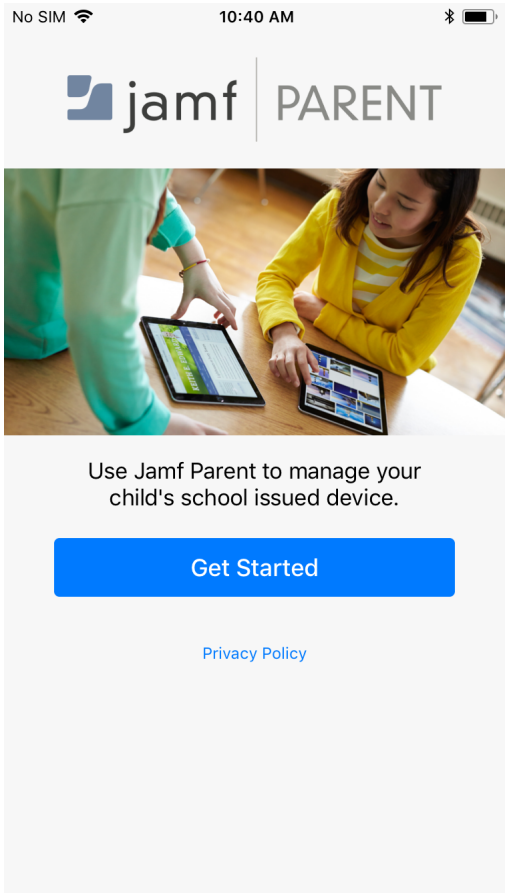
1. The parent opens Self Service on the student's device, and then taps the Jamf Parent icon in the top-right corner of the page.



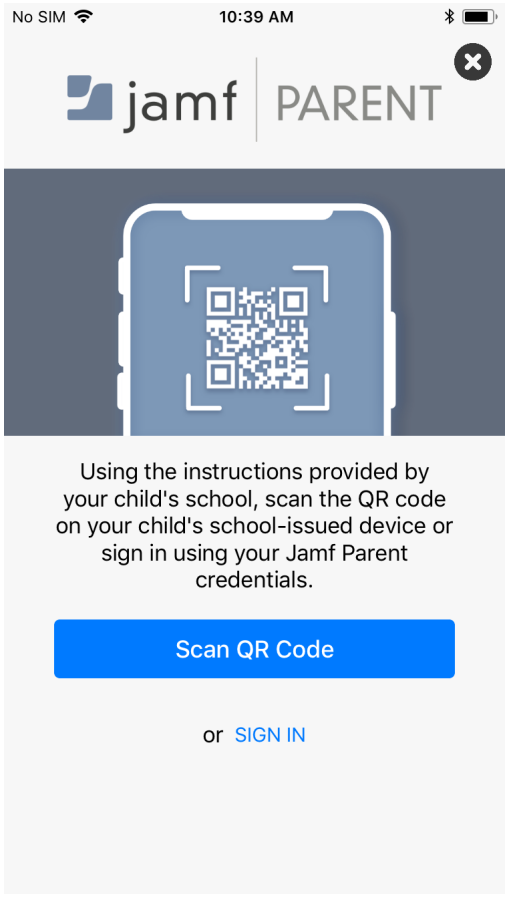
2. The parent downloads Jamf Parent from the App Store on their own iOS device.



3. The parent opens Jamf Parent, and then taps **Get Started**.



4. The parent taps **Scan QR Code** to scan the QR code in Self Service, and then taps **Confirm** to add the student's device to Jamf Parent.



Note: Only parents with children in schools that use Jamf School can use credentials to sign in to Jamf Parent.

The student device is paired with Jamf Parent. Parents can repeat this process for any other student devices they want to manage with Jamf Parent. To view the number of devices with Jamf Parent that are managing a student device, you can use the "Jamf Parent Pairings" smart device group criteria.

If two or more parents want to manage the same child's device with Jamf Parent, they must close and reopen the QR code in Self Service before scanning the QR code on the second device with Jamf Parent.

To prevent students from managing other students' school-issued devices with Jamf Parent, you can distribute a configuration profile that restricts the Jamf Parent app on student devices. For more information, see the Restricting iOS Apps *Best Practice Workflow for Jamf Pro*. It is also recommended that you use a configuration profile to enforce passcodes on student devices.

Related Information

For related information, see the following section in the *Jamf Parent Guide for Parents*:

Getting Started with Jamf Parent
Provides information for parents on how to use features in Jamf Parent.

Note: The location feature is not currently supported in Jamf Parent for schools that use Jamf Pro.

jamf | PRO

Managing Users

About User Management

User management with Jamf Pro allows you to distribute the following items to users:

- Mac App Store apps
- In-house apps
- App Store apps
- In-house books
- iBooks Store books
- iOS configuration profiles
- macOS configuration profiles
- Policies

Inventory for Users

User Assignments

Jamf Pro allows you to assign LDAP users to computers and mobile devices. Assigning a user to a device in Jamf Pro creates a user assignment that can be added as a target user to the scope of remote management tasks. For example, if you assign the user "samantha.johnson" to a device, you can then add that user to the scope of a configuration profile. All devices assigned to "samantha.johnson" install the profile. Assigning a user to a device also allows the user to receive email or SMS messages on the device to which they are assigned.

There are two ways to assign a user to a computer or mobile device:

- Manually (Requires the device to be enrolled with Jamf Pro)
- During user-initiated enrollment (LDAP users only)

In addition, Jamf Pro allows you to remove user assignments.

This section explains how to manually assign a user to a device, and how to remove a user assignment.

Requirements

To assign a user to a mobile device, you need a Jamf Pro user account with the "Assign Users to Mobile Devices" privilege.

To assign an LDAP user to a device, you must have an LDAP server set up in Jamf Pro. For more information, see Integrating with LDAP Directory Services.

Manually Assigning a User to a Computer or Mobile Device

1. Log in to Jamf Pro.
2. Click **Computers** or **Devices** at the top of the page.
3. Perform a simple or advanced search.
   For more information on computer searches, see Simple Computer Searches or Advanced Computer Searches.
   For more information on mobile device searches, see Simple Mobile Device Searches or Advanced Mobile Device Searches.
4. Click the computer or mobile device you want to assign a user to.

5. Select the **User and Location** category and click **Edit**.
6. Do one of the following:
   - To assign an existing user, enter the user's partial or full username in the **Username** field and click the **Search** button. Click **Choose** across from the user you want to assign, and then click **Save**. The **Full Name**, **Email Address**, **Phone Number**, and **Position** fields are populated automatically.
   - To assign and create a new user, enter information about the user and click **Save**.

Removing a User Assignment from a Computer or Mobile Device

1. Log in to Jamf Pro.
2. Click **Computers** or **Devices** at the top of the page.
3. Perform a simple or advanced search.
   For more information on computer searches, see Simple Computer Searches or Advanced Computer Searches.
   For more information on mobile device searches, see Simple Mobile Device Searches or Advanced Mobile Device Searches.
4. Click the computer or mobile device you want to remove a user assignment from.
5. Select the **User and Location** category and click **Edit**.
6. Remove the username from the **Username** field and click **Save**.
   The information in the **Full Name**, **Email Address**, **Phone Number**, and **Position** fields is removed automatically.

Related Information

For related information, see the following Knowledge Base article:

Migrating Users
If you have upgraded from Jamf Pro 9.2x or earlier and have not migrated users in Jamf Pro, you must complete the migration process to create user inventory from existing user information in computer and mobile device inventory.

User Extension Attributes

User extension attributes are custom fields that you can create to collect almost any type of data about a user.

When you create a user extension attribute, you specify the following information:

- Type of data being collected, such as string, integer, or date
- Input type, which determines how the extension attribute is populated with data

Note: Extension attributes are displayed in the General category of user inventory information.

Extension attributes can add time and network traffic to the inventory process depending on the type of data you choose to collect and the input type used to collect it.

User Extension Attribute Input Types

You can choose to populate the value of a user extension attribute using any of the following input types:

- **Text field**—This displays a text field in user inventory information. You can enter a value in the field at any time using Jamf Pro.
- **Pop-up menu**—This displays a pop-up menu in user inventory information. You can enter a value in the field at any time using Jamf Pro.

Creating a User Extension Attribute

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **User Management**.
4. Click **Extension Attributes** .
5. Click **New** .
6. Configure the settings on the pane.
7. Click **Save** .

Related Information

For related information, see the following sections in this guide:

- Viewing and Editing Inventory Information for a User
  You can view the extension attributes collected from a user and edit extension attribute values for that user.
- Smart Groups
  You can create smart user groups based on extension attributes.

Simple User Searches

A simple user search functions like a search engine, allowing you to quickly search the users in your inventory for a general range of results.

You can base searches on any of the following attributes:

- Username
- Full name
- Email address

You can also create an advanced search using detailed search criteria. These types of searches give you more control over your search. For more information, see Advanced User Searches.

Search Syntax

This section explains the syntax to use for search functions. In general, searches are not case-sensitive.

Note: The default search preference is "Exact Match". For most items, the option can be changed to either "Starts with" or "Contains". For more information about configuring account preferences, see Jamf Pro User Accounts and Groups.

The following table explains the syntax you can use for search functions:

Search Function	Usage	Example
Return all Results	Use an asterisk (*) without any other characters or terms, or perform a blank search.	Perform a search for "*" or leave the search field empty to return all results.
Perform Wildcard Searches	Use an asterisk after a search term to return all results with attributes that begin with that term.	Perform a search for "key*" to return all results with names that begin with "key".
	Use an asterisk before a search term to return all results with attributes that end with that term.	Perform a search for "*note" to return all results with names that end with "note".
	Use an asterisk before and after a search term to return all results that include that term.	Perform a search for "*ABC*" to return all results that includes "ABC".
Include Multiple Search Terms	Use multiple search terms separated by a comma (,) to return all results that include those search terms.	Perform a search for "key*, *note" to return all results that begins with "key" and ends with "note".

Search Function	Usage	Example
Exclude a Search Term	Use a hyphen (-) before a search term to exclude results that include the term.	Perform a search for “ABC*, -*note” to return all results with names that begin with “ABC” except for those that end with “note”.

Performing a Simple User Search

1. Log in to Jamf Pro
2. Click **Users** at the top of the page.
3. Click **Search Users**.
4. Enter one or more search terms in the field provided.
5. Press the Enter key.

   The list of search results is displayed.

Related Information

For related information, see the following section in this guide:

- Viewing and Editing Inventory Information for a User
  Find out how to view and edit inventory information for a user.

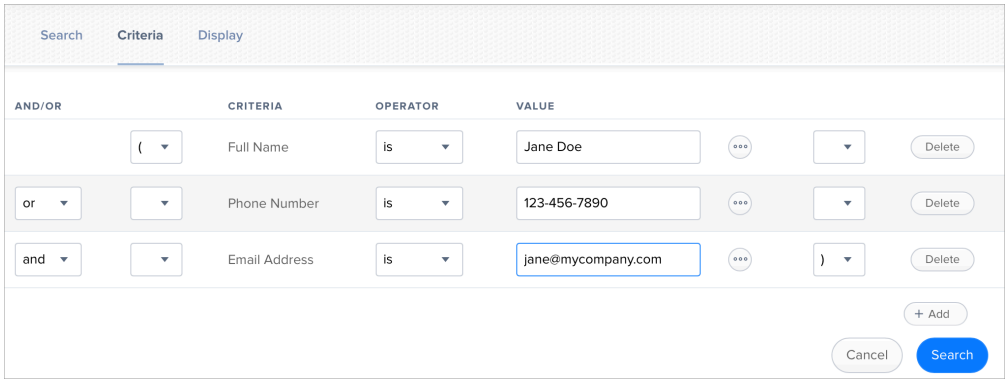
Advanced User Searches

Advanced user searches allow you to use detailed search criteria to search for users in Jamf Pro. These types of searches give you more control over your search by allowing you to do the following:

- Generate specific search results.
- Specify which attribute fields to display in the search results.
- Save the search.

Creating an Advanced User Search

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Search Users**.
4. Click **New** + New .
5. Use the Search pane to configure basic settings for the search.
   To save the search, select the **Save this Search** checkbox.
6. Click the **Criteria** tab and add criteria for the search:
   a. Click **Add** + Add .
   b. Click **Choose** for the criteria you want to add.
   c. Choose an operator from the **Operator** pop-up menu.
   d. Enter a value in the **Value** field or browse for a value by clicking **Browse** .
   e. Repeat steps a through d to add criteria as needed.
7. Choose an operator from the **And/Or** pop-up menus to specify the relationships between criteria.
8. To group criteria and join multiple operations, choose parentheses from the pop-up menus around the criteria you want to group.



Operations in the search take place in the order they are listed (top to bottom).

9. Click the **Display** tab and select the attribute fields you want to display in your search results.

   Note: Some criteria cannot be viewed in advanced search results in Jamf Pro. These criteria can be selected for export from the Export Only pane.

10. Click **Save**.

11. To view the search results, click **View**.
    The results of a saved search are updated each time user information is modified and users meet or fail to meet the specified search criteria.

12. (Optional) To export the search results, click **Export** and follow the on-screen instructions.

Related Information

For related information, see the following sections in this guide:

- Viewing and Editing Inventory Information for a User
  Find out how to view and edit inventory information for a user.
- Simple User Searches
  Learn how to quickly search users in Jamf Pro for a general range of results.

User Reports

The data displayed in smart or static group membership lists or user search results can be exported from Jamf Pro to the following file formats:

- Comma-separated values file (.csv)
- Tab delimited text file (.txt)
- XML file

Creating User Reports

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Do one of the following:
   - View user group memberships. For more information, see Smart Groups or Static Groups.
   - View simple or advanced user search results. For more information, see Simple User Searches or Advanced User Searches.
4. At the bottom of the list, click **Export**.
5. Follow the onscreen instructions to export the data.

   The report downloads immediately.

Performing Mass Actions for Users

Mass actions allow you to perform potentially tedious tasks for multiple users at the same time. You can use Jamf Pro to perform the following mass actions:

- Add users to a site.
- Delete users from Jamf Pro.

Mass actions can be performed on static or smart group membership lists or user search results.

Adding Multiple Users to a Site

You can use Jamf Pro to add multiple users to a site from static or smart group membership lists or user search results. When you add multiple users to a site, those users retain previous site memberships.

You can only add multiple users to a site if there are one or more sites in Jamf Pro. (For more information, see Sites.)

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Do one of the following:
   - View user group memberships. (For more information, see Smart Groups or Static Groups.)
   - View simple or advanced user search results. (For more information, see Simple User Searches or Advanced User Searches.)
4. At the bottom of the list, click **Action**.
5. Select **Add Users to a Site**.
6. Follow the onscreen instructions to add users to a site.

Mass Deleting Users

You can mass delete users from Jamf Pro.

If you have site access only and you mass delete users that belong to the site, the users are deleted from the full Jamf Pro (not just the site).

A user cannot be deleted from Jamf Pro if there are dependencies for the user. For example, a user cannot be deleted if the user is assigned to a mobile device.

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.

3. Do one of the following:
   - View user group memberships. (For more information, see Smart Groups or Static Groups.)
   - View simple or advanced user search results. (For more information, see Simple User Searches or Advanced User Searches.)
4. At the bottom of the list, click **Action** .
5. Select **Delete Users**.
   A list of dependencies is displayed if you cannot delete users. The number of users is displayed next to the dependency.
6. Follow the onscreen instructions to delete users.

Related Information

For related information, see the following section in this guide:

Viewing and Editing Inventory Information for a User
Find out how to edit the site for a single user.

Viewing and Editing Inventory Information for a User

Jamf Pro stores detailed inventory information for each user. You can view and edit this information from Jamf Pro.

The following table lists the information that you can view and edit for each user.

Note: Extension attributes are displayed in the General category of user inventory information.

Field	Editable	Notes
General Category		
User Image	✓ You can edit the URL for the user image by selecting the **Custom Image URL** checkbox. This allows you to overwrite the existing distribution point URL for a single user image.	Displays a user image when user images are enabled and the requirements for enabling Apple Education Support are met Shared iPad only
Username	✓	
Full Name	✓	
Email Address	✓	
Phone Number	✓	
Position	✓	
Extension Attributes	✓	
Site	✓	
Roster Category		
Last Sync		Field is not displayed if your environment is not integrated with Apple School Manager.
Status		Field is not displayed if your environment is not integrated with Apple School Manager.
User Number		Field is not displayed if your environment is not integrated with Apple School Manager.

Field	Editable	Notes
Full Name from Roster		Field is not displayed if your environment is not integrated with Apple School Manager.
First Name		Field is not displayed if your environment is not integrated with Apple School Manager.
Middle Name		Field is not displayed if your environment is not integrated with Apple School Manager.
Last Name		Field is not displayed if your environment is not integrated with Apple School Manager.
Managed Apple ID		Field is not displayed if your environment is not integrated with Apple School Manager.
Managed Apple ID uses federated authentication		This field displays whether or not a user's Managed Apple ID uses federated authentication. This enables Microsoft Azure Active Directory (AD) credentials to be leveraged as the user's Managed Apple ID. For more information about federated authentication, see the following article from Apple's support website: https://support.apple.com/guide/apple-school-manager/intro-to-federated-authentication-apdb19317543/web Field is not displayed if your identity provider (Microsoft Azure AD) has not been connected to Apple School Manager.
Grade		Field is not displayed if your environment is not integrated with Apple School Manager.
Password Policy		The following options are available for the Password Policy: ▪ 4-Digit ▪ 6-Digit ▪ Standard (8 or more numbers and letters) Shared iPad only Field is not displayed if your environment is not integrated with Apple School Manager.
Mobile Devices Category		
		Displays a list of mobile devices that the user is assigned to
Computers Category		
		Displays a list of computers that the user is assigned to

Field	Editable	Notes
eBooks Category		
		Displays a list of books distributed to the user
Volume Assignments Category		
		Displays a list of content assigned to the user via volume assignments
VPP Codes Category		
		Displays a list of VPP codes redeemed by the user

Viewing Inventory Information from the Users Tab

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Perform a simple or advanced user search.
   For more information, see Simple User Searches or Advanced User Searches .
4. Click the user you want to view information for.
   The user's inventory information is displayed.
5. Use the categories to view information for the user.

Editing Inventory Information from the Users Tab

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Perform a simple or advanced user search.
   For more information, see Simple User Searches or Advanced User Searches.
4. Click the user you want to edit information for.
   The user's inventory information is displayed.
5. Click **Edit**.
6. Make changes as needed.
7. Click **Save**.

Changes to a user's site are only applied in the Users tab. All other changes to a user's inventory information are applied in the Users tab and also in the inventory information for computers, and mobile devices that the user is assigned to. For more information on making changes to a user's site, see Sites.

Note: Removing a user from a site will remove the user assignment from all computers and mobile devices that belong to that site.

Related Information

For related information, see the following sections in this guide:

- Viewing and Editing Inventory Information for a Computer
  Find out how to view and edit user inventory information from the inventory information for a computer that the user is assigned to.
- Viewing and Editing Inventory Information for a Mobile Device
  Find out how to view and edit user inventory information from the inventory information for a mobile device that the user is assigned to.
- Apple Education Support Settings
  Find out how to enable user images as a part of Apple Education Support.

For related information, see the following Knowledge Base article:

Redoing Volume Purchasing User Registration for an Unintended Apple ID
Find out how to redo the registration for a user that registered with volume purchasing using an unintended Apple ID.

Manually Adding a User to Jamf Pro

You can manually add a user to Jamf Pro.

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Search Users**.
4. Leave the search field blank and press the Enter key.
5. Click **New** 

.
6. Enter information about the user.
7. Click **Save**  .

Related Information

For related information, see the following sections in this guide:

- User Assignments
  Find out how to assign a user to a computer or mobile device in inventory.
- Importing Users to Jamf Pro from Apple School Manager
  Find out how to create or update users in Jamf Pro by importing users from Apple School Manager.

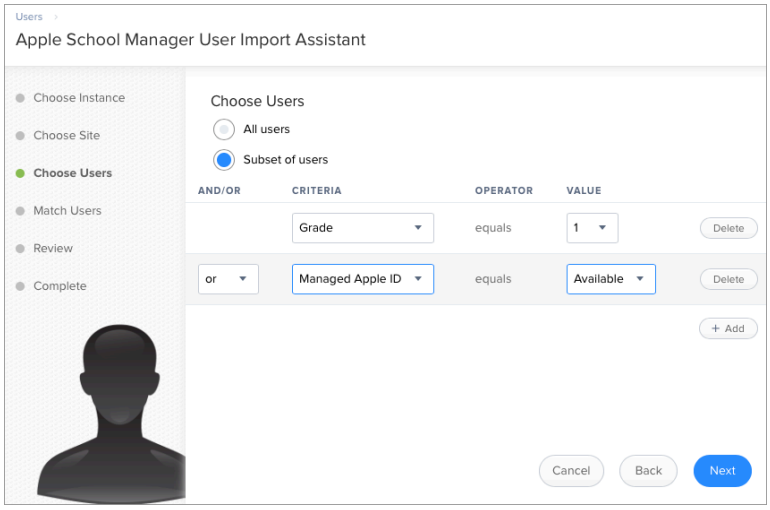
Importing Users to Jamf Pro from Apple School Manager

You can import users to Jamf Pro from Apple School Manager. This allows you to automatically create new users in Jamf Pro from the users in Apple School Manager or append information to existing users in Jamf Pro.

When you import users from Apple School Manager, the following fields are populated in the Roster category of the user's inventory information:

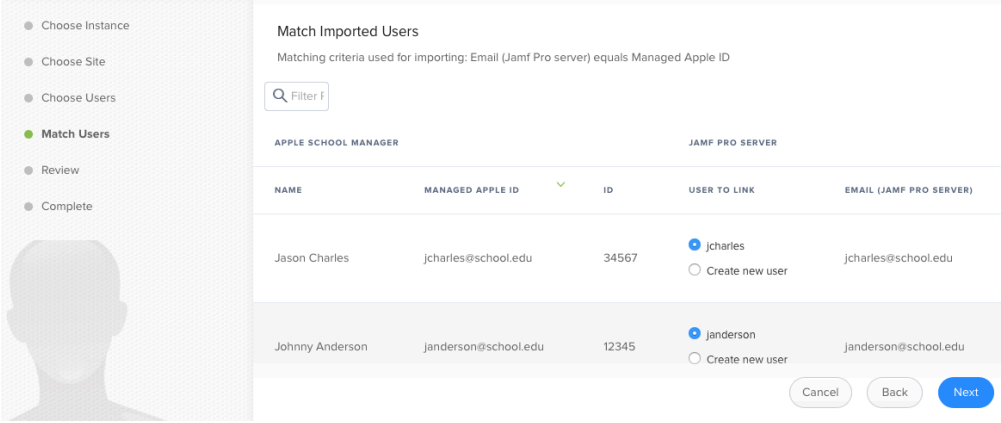
- Last Sync
- Status
- User Number
- Full name from Roster
- First Name
- Middle Name
- Last Name
- Managed Apple ID
- Grade
- Password Policy

An assistant in Jamf Pro guides you through the process of importing all users or a subset of users from Apple School Manager. If you choose to import a subset of users, you need to choose the criteria and values for the users you want to import. For example, you could import the students from an "Addition & Subtraction" course or an "Algebra" course only.



You can select from the following options when importing users from Apple School Manager:

- **Match to an existing user in Jamf Pro** —Imported users are matched to existing users in Jamf Pro based on the criteria selected when integrating Jamf Pro with Apple School Manager. (For more information, see Integrating with Apple School Manager.) Jamf Pro displays potential existing users in Jamf Pro that match the specified criteria. When you select an existing user in Jamf Pro to match the imported user to, information is populated in the Roster category of the user's inventory information. If this information existed prior to matching the imported user with the existing user, the information is updated.
- **Create a new user in Jamf Pro** —If you choose to create a new user, the imported user is automatically added to Jamf Pro in the Users tab and inventory information is entered in the Roster category of the user's inventory information.



Note: The number of users you can import and match varies depending on your environment. Importing a large number of users at once may affect performance. You may need to perform more than one import to import all users to Jamf Pro from Apple School Manager.

After users are imported, if an Apple School Manager Sync Time is configured for the Apple School Manager instance, user information is updated automatically based on the scheduled frequency and time. For more information about configuring the Apple School Manager Sync Time, see Integrating with Apple School Manager.

Requirements

To import users to Jamf Pro from Apple School Manager, you need the following:

- Jamf Pro integrated with Apple School Manager (For more information, see Integrating with Apple School Manager.)
- A Jamf Pro user account with the "Users" privilege

Importing Users from Apple School Manager

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.

3. Click **Search Users**.
4. Leave the search field blank and press the Enter key.
5. Click **Import**.
   If you choose to import a subset of users, choose the criteria, operator, and values to use to define the subset of users to import.

   > **Note:** When importing a subset of users based on multiple criteria, choose "or" from the **And/Or** pop-up menus if the criteria are the same.

6. Follow the onscreen instructions to import users.

   > **Note:** If you are importing a large number of users (e.g., 10,000), a progress bar is displayed in the assistant during the import process. You can click **Done** and perform other management tasks while the import takes place.

   User information is imported to Jamf Pro and applied in the Users tab.

   If you have site access only, users are imported to your site only.

Related Information

For related information, see the following section in this guide:

Classes
Find out how to create classes in Jamf Pro for use with Apple's Classroom app.

For related information, see the following technical paper:

Integrating with Apple School Manager to Support Apple's Education Features Using Jamf Pro
Get step-by-step instructions on how to integrate with Apple School Manager to support Apple's education features with Jamf Pro.

Deleting a User from Jamf Pro

You can remove a user from your inventory by deleting it from Jamf Pro.

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Search Users**.
4. Perform a search for the user you want to delete.
   For more information, see Simple User Searches.
5. Click the user.
6. Click **Delete** , and then click **Delete** again to confirm.

Managed Distribution for Users

Volume Purchasing User Registration

Before you can assign content purchased through volume purchasing (formerly VPP) to users for user-based managed distribution, users must register with volume purchasing by accepting an invitation. The following table describes the different methods you can use to distribute invitations:

Distribution Method	User Experience on macOS	User Experience on iOS	Notes
Send the invitation via email	The user clicks the URL in the email invitation and, if prompted, enters credentials for their LDAP directory account or a Jamf Pro user account. The user then connects to the App Store where they enter their Apple ID and complete the registration process.		
Prompt the user to accept the invitation, and make the invitation available in Self Service for macOS	A notification appears on the user's computer prompting them to register with volume purchasing. Users can also access the invitation in Self Service for macOS by clicking the **Notifications** icon in the Self Service toolbar. After clicking the invitation, the user connects to the App Store where they enter their Apple ID and complete the registration process.	A notification appears on the user's mobile device prompting them to register with volume purchasing. The user then connects to the App Store where they enter their Apple ID and complete the registration process.	The user only needs to accept the invitation on one device, even if the invitation is shown on multiple devices.

Distribution Method	User Experience on macOS	User Experience on iOS	Notes
Make the invitation available in Self Service only	The user can access the invitation in Self Service for macOS by clicking the **Notifications** icon in the Self Service toolbar. After clicking the invitation, the user connects to the App Store where they enter their Apple ID and complete the registration process.	The user can access the invitation in the Self Service app by clicking **VPP Invitations**. The user then connects to the App Store where they enter their Apple ID and complete the registration process.	The user only needs to accept the invitation on one device, even if the invitation is shown on multiple devices.
Automatically register only users with Managed Apple IDs and skip invitation	Only users that are in the scope of the invitation that have Managed Apple IDs are automatically registered with volume purchasing. The users do not receive an invitation and are not prompted to register with volume purchasing. Users that are in the scope of the invitation that do not have Managed Apple IDs do not receive an invitation and are not registered with volume purchasing.		To configure automatic registration options for the invitation, the **Automatically Register with volume purchasing if users have Managed Apple IDs** option must be enabled for the location. For more information, see Integrating with Volume Purchasing.

After an invitation is sent, it is available in Self Service on any computer or mobile device that the user is assigned to. If the user has more than one invitation, they must accept each invitation individually. If the user does not accept the invitation and attempts to install an app or book assigned through volume purchasing, they are prompted to accept the invitation before the app or book is installed.

Note: Jamf Pro also supports device-based managed distribution, which allows distributing Mac App Store apps directly to computers and App Store apps directly to mobile devices. For device-based distribution, volume purchasing user registration is not required. For more information, see Managed Distribution for Computers and Managed Distribution for Mobile Devices.

Requirements

To register users with volume purchasing, you need a location set up in Jamf Pro. For more information, see Integrating with Volume Purchasing.

To send an invitation via email, you need an SMTP server set up in Jamf Pro. For more information, see Integrating with an SMTP Server.

If you send an invitation via email and require users to log in, users must log in to a registration page with an LDAP directory account or a Jamf Pro user account. For users to log in with their LDAP directory account, you need an LDAP server set up in Jamf Pro. For more information, see Integrating with LDAP Directory Services.

To send an invitation by prompting users, you need:

- Computers with macOS 10.9 or later that are bound to a directory service or mobile devices with iOS 7.0.4 or later (For more information, see Binding to Directory Services.)
- A push certificate in Jamf Pro (For more information, see Push Certificates.)

To configure automatic registration options for the invitation, the **Automatically Register with volume purchasing if users have Managed Apple IDs** option must be enabled on the location. For more information, see Integrating with Volume Purchasing.

Sending an Invitation

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Invitations**.
4. Click **New** (+ New) .
5. Use the General pane to configure basic settings for the invitation, including the location and the method to use for sending the invitation.

   Note: The invitation is automatically added to the site that the location belongs to.

6. (Optional) To automatically register users in the scope of the invitation that have Managed Apple IDs and send an invitation to the users that do not have Managed Apple IDs, select the **Automatically register with volume purchasing if users have Managed Apple IDs** checkbox.
   Users that have Managed Apple IDs are automatically registered with volume purchasing and do not receive an invitation or get prompted to register with volume purchasing. Users that do not have Managed Apple IDs receive the invitation via the method selected from the **Distribution Method** pop-up menu.

   Note: This checkbox is only displayed if the **Automatically register with volume purchasing if users have Managed Apple IDs** option is enabled for the location. For more information, see Integrating with Volume Purchasing.

7. Click the **Scope** tab and configure the scope of the invitation.

   Note: If the site of the location is changed at any point, users that do not belong to that location's site are removed from the scope of the invitation. For more information, see Scope.

8. Click **Save**.

   An invitation is immediately sent to the users you specified. You can view the status of the invitation in the list of invitations.

Viewing Invitation Usage

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Invitations**.
4. Click the invitation you want to view usage for.
5. Click **Usage**.
   Basic invitation usage information is displayed, such as the status and last action.
6. To view additional details such as the date sent and the invitation ID, click the username for that item.

Resending an Invitation

Jamf Pro allows you to resend invitations to users that have not yet registered with volume purchasing.

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Invitations**.
4. Click the invitation you want to resend.
5. Click **Resend**.

   An invitation is immediately sent to users in the scope that have not yet registered with volume purchasing.

Related Information

For related information, see the following section in this guide:

User-Based Volume Assignments
Find out how to assign content to users for managed distribution.

For related information, see the following Knowledge Base article:

Redoing Volume Purchasing User Registration for an Unintended Apple ID
Find out how to redo the registration for a user that registered with volume purchasing using an unintended Apple ID.

User-Based Volume Assignments

Jamf Pro allows you to assign content purchased in volume to users for user-based managed distribution.

Jamf Pro allows you to assign the following types of content to users:

- iOS apps
- Mac apps
- Books

After apps have been assigned to users, you can also use Jamf Pro to revoke them from users. Books cannot be revoked.

When you create a volume assignment in Jamf Pro, you choose a location, and all content purchased for managed distribution using the location is automatically available. Then you specify the content that you want to assign, and the users you want to assign it to (called "scope").

Note: Jamf Pro also supports device-based managed distribution, which allows distributing Mac App Store apps directly to computers, as well as App Store apps and apps purchased in volume directly to mobile devices. For device-based distribution, user assignments are not required. For more information, see Managed Distribution for Computers and Managed Distribution for Mobile Devices.

For more information on purchasing and distributing apps and books in volume, visit one of the following websites:

- Apple School Manager User Guide
- Apple Business Manager User Guide

Requirements

User assignments require computers with macOS 10.9 or later and mobile devices with iOS 7 or later.

To assign content purchased in volume to users, you need:

- A location set up in Jamf Pro (For more information, see Integrating with Volume Purchasing.)
- Users that are registered with volume purchasing (For more information, see Volume Purchasing User Registration.)

Creating a Volume Assignment

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Volume Assignments**.
4. Click **New** + New .
5. Use the General payload to configure basic settings for the volume assignment, including the location.

   Note: The assignment is automatically added to the site that the location belongs to.

6. Use the Apps and eBooks payloads to select the checkbox for each app and book you want to assign. If a recently purchased app or book is not displayed in the list, follow the steps in the Recently Purchased Volume Content is not Displayed in Jamf Pro Knowledge Base article to add that app or book to the list.
7. Click the **Scope** tab and configure the scope of the assignment.

   Note: If the site of the location is changed at any point, users that do not belong to that location site are removed from the scope of the invitation. For more information, see Scope.

8. Click **Save**.

Revoking Apps from Users

To revoke specific apps from all users in the scope of a volume assignment, you remove the apps from the volume assignment.

To revoke all the apps in a volume assignment from specific users, you remove the users from the scope.

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Volume Assignments**.
4. Click the volume assignment you want to revoke.
5. Select the Apps payload and remove apps from the assignment as needed.
6. Click the **Scope** tab and remove users from the scope as needed.
   For more information, see Scope.
7. Click **Save**.

If the **Notify users when an app is no longer assigned to them** checkbox is selected for the location, a notification is sent to users.

Revoking All Apps from Users

For each location, you can revoke all apps that have been assigned to users.

1. Log in to Jamf Pro.
2. In the top-right corner of the page, click **Settings** .
3. Click **Global Management**.
4. Click **Volume Purchasing** .
5. Click the location for which you want to revoke all apps.
6. Click **Revoke All**, and then click **OK** to confirm.

   If the **Notify users when an app is no longer assigned to them** checkbox is selected for the location, a notification is sent to users.

Viewing Content Associated with a Volume Assignment

For each volume assignment, you can view the apps or books in the App Catalog or eBook Catalog in Jamf Pro if the content has been added to the catalog. This allows you to modify the scope of the content to redistribute it.

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Volume Assignments**.
4. Click a volume assignment to view the content.
5. Select the Apps or eBooks payload.
   A list of content is displayed.
6. If the app or book has been added to the App Catalog or eBook Catalog in Jamf Pro, click the link next to the app or book to view the content in the respective catalog.

   The content is displayed in the App Catalog or eBook Catalog, and you can modify the scope to redistribute the content. For information, see the following: App Store Apps, Mac App Store Apps, and Books Available in the iBooks Store.

Adding Content Associated with a Volume Assignment

For each volume assignment, you can add the assigned apps and books to the App Catalog or eBook Catalog in Jamf Pro if the content has not yet been added to the catalog.

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.

3. Click **Volume Assignments**.
4. Click the volume assignment for the content you want to add to the App Catalog or eBook Catalog.
5. Select the Apps and/or eBooks payload.
   A list of content is displayed.
6. If the app or book has not been added to the App Catalog or eBook Catalog in Jamf Pro, click the button next to the app or book to add it to the respective catalog.

   The content is displayed in the App Catalog or eBook Catalog, and you can add the content to the catalog for distribution. For information, see the following: App Store Apps, Mac App Store Apps, and Books Available in the iBooks Store.

Viewing the Users that Volume Purchasing Content is Assigned To

For each volume assignment, you can view the users that content purchased in volume is assigned to.

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Volume Assignments**.
4. Click the volume assignment for which you want to view the users that the content is assigned to.
5. Select the Apps and/or eBooks payload.
   A list of content is displayed.
   For each app or book, you can view the number of users that the content is assigned to in the In Use column.
6. To view the users that the content is assigned to, click the number displayed in the In Use column.

Simple Volume Purchasing Content Searches for Users

A simple volume purchasing content search functions like a search engine, allowing you to quickly search the mobile device apps, Mac App Store apps, and books in Jamf Pro for a general range of results.

Volume purchasing content searches are based on the name of the app or book you are searching for and display the following information:

- Name of the app or book
- Location used to purchase the content
- Type of content
- Total content that has been purchased with the location
- Number of apps or books assigned to computers, mobile devices, or users
- Number of volume assignments that the content is associated with

Search Syntax

This section explains the syntax to use for search functions. In general, searches are not case-sensitive.

Note: The default search preference is "Exact Match". For most items, the option can be changed to either "Starts with" or "Contains". For more information about configuring account preferences, see Jamf Pro User Accounts and Groups.

The following table explains the syntax you can use for search functions:

Search Function	Usage	Example
Return all Results	Use an asterisk (*) without any other characters or terms, or perform a blank search.	Perform a search for "*" or leave the search field empty to return all results.
Perform Wildcard Searches	Use an asterisk after a search term to return all results with attributes that begin with that term.	Perform a search for "key*" to return all results with names that begin with "key".
	Use an asterisk before a search term to return all results with attributes that end with that term.	Perform a search for "*note" to return all results with names that end with "note".
	Use an asterisk before and after a search term to return all results that include that term.	Perform a search for "*ABC*" to return all results that includes "ABC".

Search Function	Usage	Example
Include Multiple Search Terms	Use multiple search terms separated by a comma (,) to return all results that include those search terms.	Perform a search for “key*, *note” to return all results that begins with “key” and ends with “note”.
Exclude a Search Term	Use a hyphen (-) before a search term to exclude results that include the term.	Perform a search for “ABC*, -*note” to return all results with names that begin with “ABC” except for those that end with “note”.

Performing a Simple Volume Purchasing Content Search

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Search Volume Content**.
4. Enter one or more search terms in the field provided.
5. Press the Enter key.
   The list of search results is displayed.

Viewing the Users that Content is Assigned To

You can view the users that content is assigned to.

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Search Volume Content**.
4. Enter one or more search terms in the field provided.
5. Press the Enter key.
   A list of content is displayed.
6. To view the users that the content is assigned to, click the number displayed in the In Use column.
   The users that have the content assigned to them are listed on the Users pane.

Viewing the Volume Assignments that Content is Associated With

You can view the volume assignments that content is associated with.

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Search Volume Content**.
4. Enter one or more search terms in the field provided.

5. Press the Enter key.
   A list of content is displayed.
6. To view the volume assignments that the content is associated with, click the number displayed in the Volume Assignments column.

Related Information

For related information, see the following sections in this guide:

- Advanced Volume Purchasing Content Searches for Users
  Find out how to create and save an advanced volume purchasing content search.
- Volume Purchasing Content Reports for Users
  Find out how to export the data in your search results to different file formats.
- User-Based Volume Assignments
  Find out how to assign content to users for managed distribution.
- Managed Distribution for Computers
  Find out how to assign apps to computers for managed distribution.
- Managed Distribution for Mobile Devices
  Find out how to assign apps to mobile devices for managed distribution.

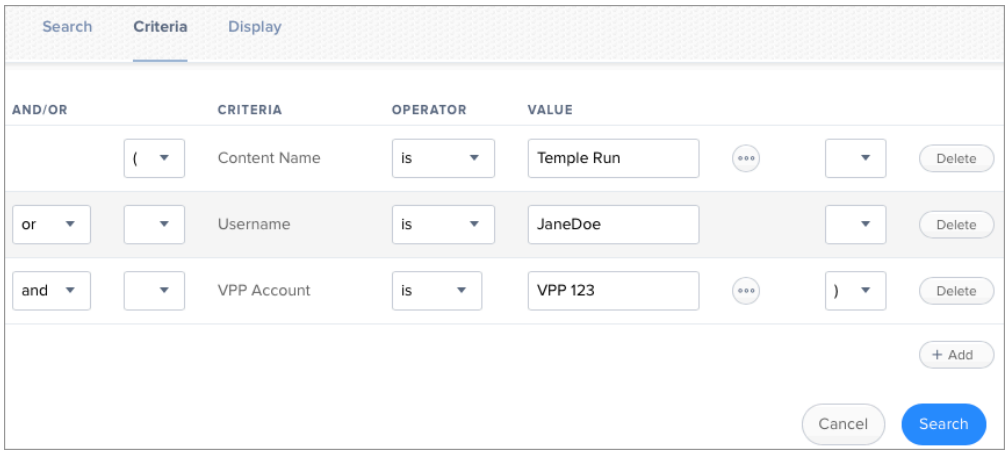
Advanced Volume Purchasing Content Searches for Users

Advanced volume purchasing content searches allow you to use detailed search criteria to search mobile device apps, Mac App Store apps, and books in Jamf Pro. These types of searches give you more control over your search by allowing you to do the following:

- Generate specific search results.
- Specify which attribute fields to display in the search results.
- Save the search.

Creating an Advanced Volume Purchasing Content Search

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Search Volume Content**.
4. Click **New** + New .
5. Use the Search pane to configure basic settings for the search.
   To save the search, select the **Save this Search** checkbox.
6. Click the **Criteria** tab and add criteria for the search:
   a. Click **Add** + Add .
   b. Click **Choose** for the criteria you want to add.
   c. Choose an operator from the **Operator** pop-up menu.
   d. Enter a value in the Value field or browse for a value by clicking **Browse** ... .
   e. Repeat steps a through d to add criteria as needed.
7. Choose an operator from the **And/Or** pop-up menus to specify the relationships between criteria.
8. To group criteria and join multiple operations, choose parentheses from the pop-up menus around the criteria you want to group.



9. Click the **Display** tab and select the attribute fields you want to display in your search results.
10. Click **Save**.

    Operations in the search take place in the order they are listed (top to bottom).

    The results of a saved search are updated each time content is modified and meets or fails to meet the specified search criteria.

    To view the search results, click **View**.

Viewing Advanced Volume Purchasing Content Search Results

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Search Volume Content**.
4. Click the advanced volume purchasing content search you want to view the results for.
5. Click **View**.

   The list of search results is displayed.

Related Information

For related information, see the following sections in this guide:

- Simple Volume Purchasing Content Searches for Users
  Learn how to quickly search volume purchasing content for a general range of results.
- Volume Purchasing Content Reports for Users
  Find out how to export the data in your search results to different file formats.

Volume Purchasing Content Reports for Users

The data displayed in volume purchasing content search results can be exported from Jamf Pro to the following file formats:

- Comma-separated values file (.csv)
- Tab delimited text file (.txt)
- XML file

Creating Volume Purchasing Content Reports

1. Log in to Jamf Pro.
2. Click **Users** at the top of the page.
3. Click **Search Volume Content**.
4. View simple or advanced volume purchasing content search results.
   For more information, see Simple Volume Purchasing Content Searches for Users or Advanced Volume Purchasing Content Searches for Users.
5. At the bottom of the list, click **Export**.
6. Follow the onscreen instructions to export the data.

   The report downloads immediately.

Book Distribution

Understanding Managed Books

Jamf Pro allows you to manage books that are distributed to iOS devices. When a book is managed by Jamf Pro, you have more control over distribution and removal of the book. The following table provides more detail:

	Unmanaged Books (iOS and macOS)	Managed Books (iOS only)
Distribution Methods		
Make available in Jamf Self Service	✓	✓
Install automatically/prompt users to install		✓
Removal Options		
Remove from Jamf Self Service	✓	✓
Remove in-house books from mobile devices		✓
Remove from computers		
Remove in-house books when MDM profile is removed		✓

Managed Book Requirements

The following requirements determine whether a book can be managed by Jamf Pro:

- The device has iOS 8 or later
- The book is an in-house book, or a book available in the iBooks Store that is free or purchased in volume and assigned to the user via managed distribution (For information, see User-Based Volume Assignments.)

If you try to make a book managed and these requirements are not met, the book behaves as unmanaged.

Understanding Book Distribution Methods

Jamf Pro provides two book distribution methods: install the book automatically/prompt users to install the book (iOS only), or make the book available in Self Service.

Install Automatically/Prompt Users to Install

When managed book requirements are met, the book is installed on iOS devices and users can view it with Apple's iBooks app. If managed book requirements are not met, the book will be made available in Self Service for users to install. For more information, see Managed Book Requirements.

The book is installed automatically if the following conditions are met:

- The device has iOS 8 or later.
- The device is supervised.

> **Note:** For more information on supervision, see Apple's documentation at: https://support.apple.com/guide/apple-configurator-2/welcome/mac

- The user is signed in to the App Store on the device.
- The iBooks Store has not been disabled on the device.
- The device is not configured to require an Apple ID password for all purchases.
- If the book wasn't assigned to the user for managed distribution, the user has recently authorized an App Store purchase on the device, or the user's Apple ID has previously been used to install the book.

If these conditions are not met, users are prompted to install the book.

> **Note:** If a user is in the scope for a book, the book will be installed automatically on all iOS devices that the user is assigned to in Jamf Pro if managed book requirements are met. On other iOS devices that do not meet managed book requirements or computers assigned to the same user, the book will be made available in Self Service.

Make Available in Jamf Self Service

When you distribute a book using this method, it is made available in Self Service for users to install. You can choose whether or not to make the book managed when possible. For more information, see Managed Book Requirements.

Related Information

For related information, see the following sections in this guide:

- Understanding Managed Books
  Learn about managed books and their requirements.
- In-House Books
  Find out how to distribute in-house books.
- Books Available in the iBooks Store
  Find out how to distribute books available in the iBooks Store.
- Items Available to Users in Jamf Self Service for macOS
  Learn more about which items can be made available in Self Service for macOS.

In-House Books

In-house books are books that are not available from the iBooks Store. Jamf Pro allows you to distribute in-house books to computers, mobile devices, and users. Jamf Pro provides two distribution methods for in-house books: install the book automatically/prompt users to install the book (iOS only), or make the book available in Self Service. After a book is installed, users can view it with Apple's iBooks app.

Before you distribute an in-house book, it is important to consider where the book will be hosted. There are two hosting locations that you can use for in-house books:

- **Distribution points**—This hosting location is only available if your principal distribution point is the cloud distribution point. To use this hosting location, you upload the book to the principal distribution point when configuring settings for the book in Jamf Pro.

  Note: Books cannot be replicated to file share distribution points.

- **Web server**—This hosting location is always available, regardless of what type of distribution point the principal is. To use this hosting location, the book must be hosted on a web server before you distribute it. Then, when you distribute the book, you specify the URL where it is hosted. Jamf Pro also allows you to configure a JSON Web Token (JWT) to control the distribution of in-house books from a web server. For more information, see the Configuring a JSON Web Token to Secure Downloads of iOS and tvOS In-House Apps and Books Knowledge Base article.

When you distribute an in-house book, you configure settings for the book. Then, you specify the computers, mobile devices, and users that should receive it (called "scope").

Note: In-house books cannot be distributed to personally owned mobile devices.

Requirements

To distribute an in-house book, the book must be one of the following types of files:

- ePub file (.epub)
- iBooks file (.ibooks)
- PDF

To install an ePub file, you need:

- A mobile device with iOS 4 or later and iBooks 1.0 or later
- A computer with macOS 10.7 or later and an application to view books

To install an iBooks file, you need:

- An iPad with iOS 5 or later and iBooks 2.0 or later
- A computer with macOS 10.9 or later and iBooks 1.0 or later

Distributing an In-House Book

1. Log in to Jamf Pro.
2. Click **Computers**, **Devices**, or **Users** at the top of the page.
3. Click **eBooks**.
4. Click **New**  .
5. Select **In-house eBook** and click **Next**.
6. Use the General pane to configure settings for the book, including the display name and distribution method.

   Note: If you choose "Make Available in Self Service" as the distribution method, the **Make eBook managed when possible** checkbox is selected by default. However, in-house books distributed to computers cannot be managed. For more information, see Managed Book Requirements.

   If your principal distribution point is the cloud distribution point and you choose "Distribution Points" from the **Hosting Location** pop-up menu, be sure to upload the book file.
7. Click the **Scope** tab and configure the scope of the book.
   For more information, see Scope.
8. (Optional) Click the **Self Service** tab and configure the way the book is displayed in Self Service. You can customize the text displayed in the description for the book in Self Service by using Markdown in the Description field.
   For information about Markdown, see the Using Markdown to Format Text Knowledge Base article.

   Note: The **Self Service** tab is only displayed if “Make Available in Self Service” is chosen in the **Distribution Method** pop-up menu.
9. Click **Save**.

   For books set to the “Install Automatically” distribution method, books are installed the next time mobile devices in the scope check in with Jamf Pro. Users can view installed books with Apple's iBooks app.

   For books set to the ”Make Available in Self Service” distribution method and books that cannot be installed automatically, books are available in Self Service for users to install the next time Self Service is launched.

Removing a Managed In-House Book from Mobile Devices

To remove a managed in-house book from one or more devices, you remove the mobile device or devices from the scope.

1. Log in to Jamf Pro.
2. Click **Computers**, **Devices**, or **Users** at the top of the page.
3. Click **eBooks**.
4. Click the book you want to remove.
5. Click the **Scope** tab and remove mobile devices from the scope as needed.
   For more information, see Scope.
6. Click **Save**.

The book is removed the next time the mobile devices check in with Jamf Pro.

Related Information

For related information, see the following sections in this guide:

- Books Available in the iBooks Store
  Find out how to distribute books available in the iBooks Store.
- Viewing Books for a Computer
  Find out how to view the books in the scope of a computer.
- Viewing Books for a Mobile Device
  Find out how to view the books in the scope of a mobile device.
- Viewing the Pending Management Commands for a Mobile Device
  Find out how to view and cancel pending book installations and removals for a mobile device.

For related information, see the following Knowledge Base article:

Hosting In-House Books and Apps on a Tomcat Instance
Find out how to host in-house books on the Tomcat instance that hosts Jamf Pro.

Books Available in the iBooks Store

Jamf Pro allows you to distribute books that are available in the iBooks Store to computers, mobile devices, and users. Jamf Pro provides two distribution methods for iBooks Store books: install the book automatically/prompt users to install the book (iOS only), or make the book available in Self Service. After a book is installed, users can view it using Apple's iBooks app.

Note: Books available in the iBooks Store cannot be distributed to personally owned mobile devices.

When you distribute a book available in the iBooks Store, you add it to Jamf Pro and configure settings for the book. Then, you specify the computers, mobile devices, and users that should receive it (called "scope").

Note: Removing a target from the scope of book does not revoke the book license from the user it was assigned to and does not remove the book from any device it was installed on.

VPP Codes

When you distribute a book available in the iBooks Store, you can also associate VPP codes with the book and track their redemption.

Note: Jamf Pro also supports managed distribution, which involves volume assignments instead of VPP codes. For more information, see User-Based Volume Assignments.

For more information on purchasing books in volume, visit one of the following websites:

- Apple School Manager User Guide
- Apple Business Manager User Guide

Requirements

To distribute a book available in the iBooks Store, the book must be an ePub file (.epub) or iBooks file (.ibooks).

To install an ePub file, you need:

- A mobile device with iOS 4 or later and iBooks 1.0 or later
- A computer with macOS 10.9 or later and an application to view books

To install an iBooks file, you need:

- An iPad with iOS 5 or later and iBooks 2.0 or later
- A computer with macOS 10.9 or later and iBooks 1.0 or later

Distributing an iBooks Store Book

1. Log in to Jamf Pro.
2. Click **Computers**, **Devices**, or **Users** at the top of the page.
3. Click **eBooks**.
4. Click **New**  .
5. Select **eBook available in the iBooks Store** and click **Next**.
6. Do one of the following:
   - To add the book by browsing the iBooks Store, enter the name of the book, choose an iBooks Store country and click **Next**. Then click **Add** for the book you want to add.
   - To add the book by uploading a VPP code spreadsheet, click **Choose File** and upload the Excel spreadsheet (.xls) that contains VPP codes for the book.
   - To add the book by manually entering information about it, click **Enter Manually**

   Note: iBooks files (.ibooks) may need to be added manually.
7. Use the General pane to configure settings for the book, including the display name and distribution method.
8. Click the **Scope** tab and configure the scope of the book.
   For more information, see Scope.
9. (Optional) Click the **Self Service** tab and configure the way the book is displayed in Self Service. You can customize the text displayed in the description for the book in Self Service by using Markdown in the Description field.
   For information about Markdown, see the Using Markdown to Format Text Knowledge Base article.
10. (Optional) If you have not already uploaded a VPP code spreadsheet, click the **VPP Codes** tab and upload the Excel spreadsheet (.xls) that contains VPP codes for the book.

    Note: The **VPP Codes** tab is only displayed if the **Free** checkbox is not selected.
11. Click **Save**.

For books set to the “Install Automatically” distribution method, books are installed the next time mobile devices in the scope check in with Jamf Pro. Users can view installed books with Apple's iBooks app.

For books set to the ”Make Available in Self Service” distribution method and books that cannot be installed automatically, books are available in Self Service for users to install the next time Self Service is launched.

Further Considerations

Books are enabled by default when added to Jamf Pro. This means you can edit the book details and assign licenses, and the book will be displayed in Self Service or installed on computers and mobile devices based on the selected distribution method. You can disable a book by deselecting the **Enable** checkbox. This stops the book's subsequent installations and it is not displayed in Self Service. You cannot edit book details if it is disabled.

A book will be automatically disabled in Jamf Pro if it is a managed distribution item that has been removed from the iBook Store. You will not be able to assign licenses, and the installation commands will not be sent. The book will not be displayed in Self Service. An automatically disabled managed distribution item will not be removed from computers or mobile devices that already have this item installed.

Related Information

For related information, see the following sections in this guide:

- In-House Books
  Find out how to distribute in-house books.
- Viewing Books for a Computer
  Find out how to view the books in the scope of a computer.
- Viewing Books for a Mobile Device
  Find out how to view the books in the scope of a mobile device.
- Viewing the Pending Management Commands for a Mobile Device
  Find out how to view and cancel pending book installations and removals for a mobile device.

jamf | PRO

Group Management

About Groups

You can create groups in Jamf Pro to organize computers, mobile devices, or users that share similar attributes. You can use these groups as a basis for performing advanced searches and configuring the scope of remote management tasks, such as adding them to Classes for use with Apple's Classroom app or performing mass actions.

You can create smart groups and static groups for computers, mobile devices, or users. Smart groups are based on criteria and have dynamic memberships. Static groups have fixed memberships that you manually assign.

Note: Personally owned mobile devices cannot be included in device group memberships.

Smart Groups

Jamf Pro allows you to create smart groups for managed computers, mobile devices, or users. You can create smart groups based on one or more inventory attributes.

For more information about inventory attributes that you can base smart groups on, see the following sections:

- Viewing and Editing Inventory Information for a Computer
- Viewing and Editing Inventory Information for a Mobile Device
- Viewing and Editing Inventory Information for a User

If there is an SMTP server set up in Jamf Pro, you can enable email notifications for the group. This allows email notifications to be sent to Jamf Pro users each time the group membership changes. For information on setting up an SMTP server and enabling email notifications for Jamf Pro user accounts, see Integrating with an SMTP Server and Email Notifications.

After creating a smart group, you can view its memberships.

Creating a Smart Group

1. Log in to Jamf Pro.
2. Click **Computers**, **Devices**, or **Users** at the top of the page.
3. Click **Smart Computer Groups**, **Smart Device Groups**, or **Smart User Groups**.
4. Click **New** + New and configure basic settings for the group.
5. To enable email notifications, select the **Send email notification on membership change** checkbox.
6. Click the **Criteria** tab and add criteria to the group:
   a. Click **Add** + Add .
   b. Click **Choose** for the criteria you want to add.

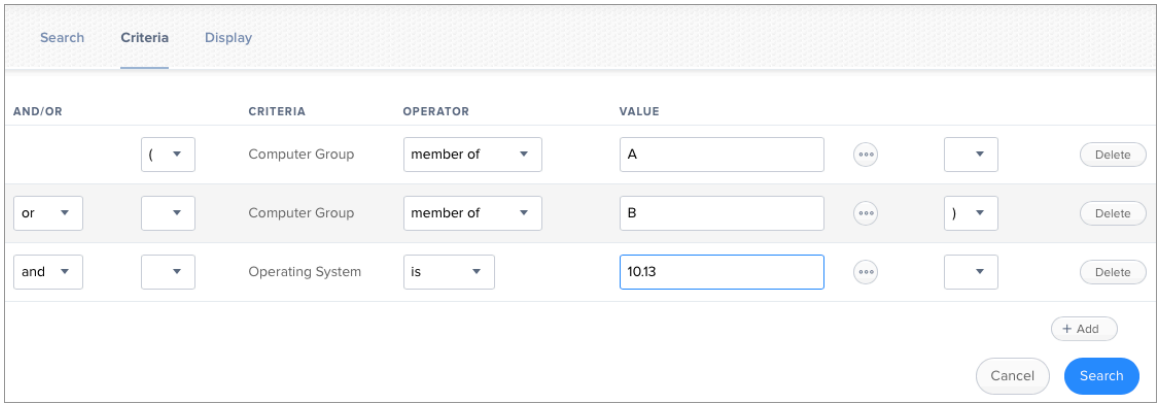
      Note: Only your 30 most frequently used criteria are listed. To display additional criteria, click **Show Advanced Criteria**.

   c. Choose an operator from the **Operator** pop-up menu.
   d. Enter a value in the **Value** field or browse for a value by clicking **Browse** ... .
   e. Repeat steps a through d to add criteria as needed.

      Note: Creating a smart group with no criteria will cause all managed computers, mobile devices, or users to be included in the group's membership.

7. Choose an operator from the **And/Or** pop-up menus to specify the relationship between criteria.

8. To group criteria and join multiple operations, choose parentheses from the pop-up menus around the criteria you want to group.



9. (Optional) If you are creating a smart device group, you can configure the group to send remote commands to mobiles devices when the devices become members of that group. For example, the Set Wallpaper remote command can be configured to automatically set the wallpaper on devices when they become members of the smart group. Click the **Automated Management** tab and configure remote commands to send to devices that are members of the group.
10. Click **Save**, and then click **View**.

    Operations in the group take place in the order they are listed (top to bottom).

    Group memberships are updated each time the following happens:

    - Computers submit inventory to Jamf Pro and meet or fail to meet the specified criteria.

      Note: Some inventory attributes are updated when computers check in rather than when they submit inventory (e.g., Last Check-in). Smart groups containing criteria based on these attributes update memberships each time computers check in.

    - Mobile devices contact Jamf Pro and meet or fail to meet the specified criteria.
    - User information is edited.

Viewing Smart Group Memberships

1. Log in to Jamf Pro.
2. Click **Computers**, **Devices**, or **Users** at the top of the page.
3. Click **Smart Computer Groups**, **Smart Device Groups**, or **Smart User Groups**.
4. Click the smart group you want to view memberships for.
5. Click **View**.

   A list of group memberships is displayed.

Related Information

For related information, see the following sections in this guide:

- Computer Reports
  Find out how to export the data in group membership lists to different file formats.
- Mass Actions for Computers
  Find out how to perform mass actions on group memberships.
- Mobile Device Reports
  Find out how to export the data in group membership lists to different file formats.
- Mass Actions for Mobile Devices
  Find out how to perform mass actions on group memberships.
- Scope
  Learn how to configure scope based on computer, mobile device, or user groups.

Static Groups

Static groups give you a way to organize computers, mobile devices, or users by assigning them to a group. These groups have fixed memberships that must be changed manually.

After creating a static computer group, you can view its memberships.

Creating a Static Group

1. Log in to Jamf Pro.
2. Click **Computers**, **Devices**, or **Users** at the top of the page.
3. Click **Static Computer Groups**, **Static Device Groups**, or **Static User Groups**.
4. Click **New** + New and configure basic settings for the group.
5. Click the **Assignments** tab and select the checkbox for each computer, device, or user you want to add.
6. Click **Save**, and then click **View**.

Computers become members of the group the next time they check in with Jamf Pro.

Mobile devices become members of the group the next time they contact Jamf Pro.

Viewing Static Group Memberships

1. Log in to Jamf Pro.
2. Click **Computers**, **Devices**, or **Users** at the top of the page.
3. Click **Static Computer Groups**, **Static Device Groups**, or **Static User Groups**.
4. Click the static group you want to view memberships for.
5. Click **View**.

A list of group memberships is displayed.

Related Information

For related information, see the following sections in this guide:

- Computer Reports
  Find out how to export the data in group membership lists to different file formats.
- Mass Actions for Computers
  Find out how to perform mass actions on group memberships.
- Mobile Device Reports
  Find out how to export the data in group membership lists to different file formats.
- Mass Actions for Mobile Devices
  Find out how to perform mass actions on group memberships.
- Scope
  Learn how to configure scope based on computer groups.

Classes

Jamf Pro allows you to create classes for use with Apple's Classroom app. When you create a class in Jamf Pro, you use a payload-based interface to configure settings to apply to teacher and student computers and iPads. These settings are then applied to the devices in a class for use with Apple's Classroom app.

In addition, you can use an assistant in Jamf Pro to import classes created in Apple School Manager and configure them to be used with Apple's Classroom app. When you import a class to Jamf Pro, you also import the users associated with the class.

Class Payloads

The payloads you choose to configure for the class depend on if your environment uses Shared iPad. The following table explains the payloads you can configure in Classes:

Payload	Description
General	This payload allows you to enter a display name and description for a class.
Students	This payload allows you to add students to a class.
Student User Groups	This payload allows you to add student user groups to a class.
Teachers	This payload allows you to add teachers to a class.
Teacher User Groups	This payload allows you to add teacher user groups to a class.
Mobile Device Groups	This payload allows you to add mobile device groups to a class.
App Usage Restrictions	This payload allows you to restrict which apps are available to a student. Shared iPad only
Home Screen Layout	This payload allows you to configure the layout of the Dock and the pages on the student iPad. Shared iPad only

Apple's Classroom App Class Configuration

When creating a class for Apple's Classroom app, you can configure settings for the following environments:

- **Environment with Shared iPad**—In this environment, you add a student user group that contains students with Managed Apple IDs to a class. You also add a mobile device group that contains Shared iPad devices. You assign the teacher to an iPad or computer in Jamf Pro, and then add the teacher to the class (either as an individual user or as a user group).
  In addition, you can include app usage restrictions and Home screen layout settings to customize the student experience on the iPad.
- **Environment without Shared iPad**—In this environment, you assign each student to an iPad in Jamf Pro. Then, you add the students (either as individual users or as a user group) to a class. You assign the teacher to an iPad or computer in Jamf Pro, and then add the teacher to the class (either as an individual user or as a user group).
- **Environment with computers**—In this environment, you assign a student to a computer in Jamf Pro. Then, you add the students to a class (either as individual users or as a user group). You assign the teacher to an iPad or computer in Jamf Pro, and then add the teacher to the class (either as an individual user or as a user group).

  Note: When assigning a student or teacher to a computer in Jamf Pro, you must ensure that the username in Jamf Pro matches the username of the MDM-enabled user on the computer. For more information about enabling MDM for users, see the following Knowledge Base articles:

  - Enabling MDM for Local User Accounts
  - Managing User Approved MDM with Jamf Pro

When you create a class for use with Apple's Classroom app, Jamf Pro automatically installs an associated EDU profile on the teacher and student devices. This profile allows student and teacher devices to communicate. It also ensures that students can log in to a Shared iPad device if Shared iPad has been enabled on the iPad.

Classes Imported from Apple School Manager

You can automatically create classes in Jamf Pro by importing classes from Apple School Manager. When you integrate with Apple School Manager, you configure a class naming format by choosing variables that are applied to the display name for all imported classes. (For more information about class naming, see Integrating with Apple School Manager.) In addition, the Students payload and Teachers payload for imported classes are automatically populated with the information imported from Apple School Manager.

An assistant in Jamf Pro guides you through the process of importing classes from Apple School Manager. It allows you to choose the class you want to import from a list of classes in Apple School Manager. When you import a class, you also import the users associated with the class. This automatically creates new users in Jamf Pro and appends inventory information to existing users. For information about users imported from Apple School Manager, see Importing Users to Jamf Pro from Apple School Manager.

Note: If a user is added to a class in Apple School Manager after the class has been imported, the user is imported to Jamf Pro and matched with existing users at the configured sync time based on the criteria for matching imported users from Apple School Manager. If there is no match, the imported user is added to Jamf Pro as a new user in the Users tab. For more information, see Matching Criteria for Importing Users from Apple School Manager.

After a class is imported, class information is updated automatically based on the Apple School Manager Sync Time. For more information about configuring the Apple School Manager Sync Time, see Integrating with Apple School Manager.

Requirements

If you are creating a class to work with Apple's Classroom app, you need the following:

- Apple Education Support enabled in Jamf Pro. (For more information, see Apple Education Support Settings.)
- Teacher assigned to an iPad or computer in Jamf Pro. If using student computers in a class, the student must be assigned to the computer. (For more information, see User Assignments.)

  Note: When assigning a student or teacher to a computer in Jamf Pro, you must ensure that the username in Jamf Pro matches the username of the MDM-enabled user on the computer. For more information about enabling MDM for users, see the following Knowledge Base articles:

  - Enabling MDM for Local User Accounts
  - Managing User Approved MDM with Jamf Pro

In addition, you must ensure that teacher and student devices meet the minimum device requirements for use with Apple's Classroom app. For more information about device requirements, see Classroom requirements in Apple's *Classroom User Guide*.

To import class information from Apple School Manager, you need the following:

- Jamf Pro integrated with Apple School Manager (For more information, see Integrating with Apple School Manager.)
- A Jamf Pro user account with the "Users" and "Classes" privileges

Configuring a Class

1. Log in to Jamf Pro.
2. Click **Computers**, **Devices**, or **Users** at the top of the page.
3. Click **Classes**.
4. To create a new class, click **New** + New and do the following:
   a. Use the General payload to enter a display name and description for the class.
   If you specify a Class Description Format when integrating with Apple School Manager, the Description field is not editable. For more information, see Integrating with Apple School Manager.

   > **Note:** The description for the class is not synced from Jamf Pro to Apple School Manager.

   b. Add students to the class using the Students payload or the Student User Groups payload.
   c. Add teachers to the class using the Teachers payload or the Teacher User Groups payload.
5. To import class information from Apple School Manager, click **Import** and do the following:
   a. Follow the onscreen instructions to import class information.

   > **Note**: If you are importing a large number of classes (e.g., 10,000), a progress bar is displayed in the assistant during the import process. You can click **Done** and perform other management tasks while the import takes place.

   If you import users from Apple School Manager that match current users in Jamf Pro, you can choose to match the imported user with the current user, or create a new user in Jamf Pro with the information imported from Apple School Manager.

   b. Click **Done**.
   Class information is imported to Jamf Pro, and user information is applied in the Users tab. For more information about importing user information, see Importing Users to Jamf Pro from Apple School Manager.
   If you have site access only, classes are imported to your site only.
   c. Click the class you imported, and then click **Edit** to add devices and optional Shared iPad payloads to the class.
6. Add computers or mobile devices to the class by doing the following:
   - Add mobile device groups to the class using the Mobile Device Groups payload.
   - Add computers to the class by adding students that are assigned to computers.

7. (Optional) If your environment uses Shared iPad, do the following:
   a. Use the App Usage Restrictions payload to restrict which apps are available to users on Shared iPad.
   b. Use the Home Screen Layout payload to configure the layout of the Dock and the pages on the iPad.
8. Click **Save**.

Further Considerations

- If you change the site of a class, devices in the class are removed from the class. Users that are not already added to the new site are also removed from the class.
- Deleting a class also deletes the EDU profile from devices in the class.

Related Information

For related information, see the following sections in this guide:

- Mobile Device PreStage Enrollments
  Find out how to enable Shared iPad when enrolling an iPad with Jamf Pro.
- About Groups
  You can create smart or static device groups based on Shared iPad or Managed Apple IDs.

For related information, see the following technical papers:

- Supporting Apple's Classroom App and Shared iPad Using Jamf Pro
  Get step-by-step instructions on how to support Apple's Classroom app and Shared iPad with Jamf Pro.
- Integrating with Apple School Manager to Support Apple's Education Features Using Jamf Pro
  Get step-by-step instructions on how to integrate with Apple School Manager to support Apple's education features with Jamf Pro.