jamf

How to Configure Baseline for Jamf Pro

Contents

Preface

What is Baseline?

Written by the very talented Trevor Sysock at Second Son Consulting, Baseline is an MDM agnostic deployment solution for macOS that leverages swiftDialog, Installomator, and your original code to provide a zero or light touch deployment solution for Mac computers. It can be configured with a mobileconfig profile or a plist and can install packages, scripts, and Installomator labels that are defined in your configuration file.

What are the requirements for Baseline?
- macOS 12 or later
- SwiftDialog 2.4.2 or later
- Baseline 2.2 or later
- A mobileconfig profile or plist that defines what Installomator labels, Packages, or scripts to run

What does the Baseline package install?

All Baseline files are located in /usr/local/Baseline

The following items are installed in the Baseline folder:

- Packages - Add all packages that you want to install here.
- Scripts - Add all scripts that you want to run here.
- Icons - Add all icons that you want to use here.
- Baseline.sh - This is the primary Baseline script

Baseline also installs a LaunchDaemon in:
/Library/LaunchDaemons/com.secondsonconsulting.baseline.plist

Where are the Baseline log files located?

Baseline outputs 3 log files:

- /var/log/Baseline.log - This file contains a manifest of each step that Baseline processed. This is the best place to find an overview of "What did Baseline do, and was it successful?"
- /var/log/BaselineOutput.log - Baseline runs with /bin/zsh -x or set -x which is a verbose shell mode that prints output containing all variable expansion and details of every single step along the way.
    - When run via the provided pkg, the included LaunchDaemon directs this verbose output here.
    - When run manually in Terminal, the verbose output is sent to the standard output.
    - If running the script from a management tool, consider commenting out line 2 set -x to prevent a ton of data from being sent back to your tool.
- /var/log/Baseline-ScriptsOutput.log - For any Scripts or InitialScripts you have defined in your configuration file, the output of those scripts will be sent to this file.

How does Baseline work?

Baseline is written to follow an order of operations after the primary Baseline script has ran. Below is a brief description of the order of operations. For full details, read more here: https://github.com/SecondSonConsulting/Baseline/wiki/How-it-Works

1. Check for a valid mobileconfig or plist file.

2. Check for Installomator labels and if found, automatically install Installomator.

3. Check for the latest version of swiftDialog and install it automatically if an older version is found.

4. Check if a user is logged into the Mac computer. If no user is logged in, Baseline will wait until a user logs in.

5. Check for Initial Scripts. Initial Scripts can be used to customize the Baseline welcome screen.

6. Check for a Baseline configuration file. Either a mobileconfig profile or plist that tells Baseline what to install.

7. SwiftDialog will show all items that need to be installed, display any custom app icons, and show the installation progress of each item.

8. If there are any Installomator labels in your configuration, Installomator will be used to download and install the labels.

9. If there are any packages in your configuration, they will be installed.

10. If there are any scripts in your configuration, they will be run.

11. Baseline will delete its launch daemon to ensure it's not loaded again after a reboot.

12. Baseline will clean itself up after it is run by deleting all items in /usr/local/Baseline unless the "CleanupAfterUse" key is set to false. Log files are NOT deleted.

13. Baseline will present the user with a message after it runs letting the user know if everything was successful. If something failed it will be displayed in the message.

14. Baseline can be configured to reboot or logout when completed. A timer can be displayed that will force reboot or logout. The default behavior is to reboot with a two minute timer.

What will this guide cover?

This guide will cover configuring Baseline with customizations for Jamf Pro using a Mac PreStage enrollment. Sample files will be provided so you can following along with the guide. At the end of this guide, you will have a deployment workflow that makes use of the following features of Baseline:

- Initial Scripts
- Installomator Labels
- Packages
- Scripts
- Custom App Icons

Requirements for this guide:

This guide was written using the following items:

- Baseline version 2.2 or later
- iMazing Profile Editor 1.9 or later
- Jamf Composer 11.4: NOTE: There is a product issue with Jamf Composer 11.4.1 and later so make sure to download Jamf Composer 11.4 to follow along with this guide.
- Jamf Pro server 11.5 with administrative credentials
- A non production Mac computer running macOS Sonoma enrolled in Apple Business or School manager and assigned to your Jamf Pro server.
- Sample Files: https://hcsonline.com/images/pkg/BaselineSampleFiles.zip
- Access to GitHub

This guide makes use of the following configured items on the Jamf Pro server:

- A category named: Mac Deployment Baseline
- A computer PreStage Enrollment named: Baseline Mac Deployment
- Buildings named: HCS - Connecticut, HCS - Florida, HCS - New York
- Departments named: Accounting, Engineering, Information Technology

We highly recommend creating the Mac Deployment Baseline category and Baseline Mac Deployment PreStage for best results when following the lessons in this guide. Buildings and departments should be created to suit your environment. We are including sample files with this guide. There is a script named registration.sh that contains variables like company name, buildings, departments, deployment type, etc…. You can edit those items in the script prior to following this guide. If you don't edit that script, all the default HCS values will be used.

If you plan on using buildings and departments in your Baseline workflow, the name of the buildings and departments that you enter in the registration.sh script MUST be spelled exactly the same as they are on the Jamf Pro server. If they are not spelled exactly the same, the information you enter during the Baseline registration will NOT be sent to the Jamf Pro server. The registration.sh script is heavily commented to make it easy to understand what can be changed and what should NOT be touched.

NOTE: Baseline, Installomator, SwiftDialog, and the icons used in this guide all require access to GitHub. If your environment blocks GitHub you will NOT be able to following along with the lessons in this guide.

Section 1: Jamf Pro Preparation for Baseline

What You'll Need:
Learn what hardware, software, and information you'll need to complete the lessons in this guide.

Hardware and Software:
Requirements for following along with this guide. Download the items below:
- Baseline version 2.2 or later:
  https://github.com/SecondSonConsulting/Baseline/releases
- iMazing Profile Editor from the App Store:
  https://apps.apple.com/us/app/imazing-profile-editor/id1487860882?mt=12
- Jamf Composer:
  https://account.jamf.com/login
  NOTE: Login with your Jamf Account using your Jamf ID to download Jamf Composer. There is a product issue with Jamf Composer 11.4.1 or later so make sure to download Jamf Composer 11.4 to follow along with this guide.
- Jamf Pro server with administrative credentials
- A non production Mac computer running macOS Sonoma enrolled in Apple Business or School manager and assigned to your Jamf Pro server.
- Sample Files:
  https://hcsonline.com/images/pkg/BaselineSampleFiles.zip

NOTE: This guide assumes all downloaded software is in the Downloads folder on your Mac.

1. Log into your Jamf Pro server with administrative credentials.

2. Click Settings.

3. Click Computer Management.

4. Click Packages.
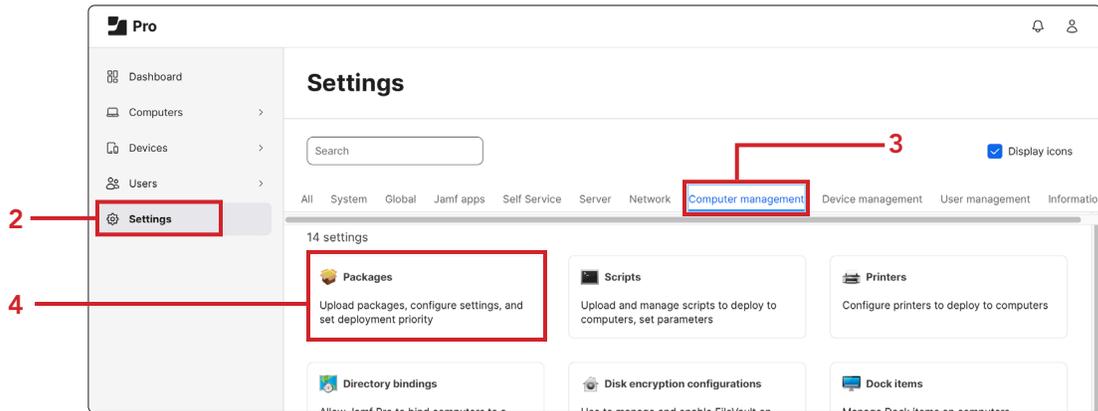
5. Click New,

6. Select the following:
   A. Category: Select a category of your choosing. This guide will use Mac Deployment Baseline.
   B. Filename: Drag the Baseline_v2.2.pkg from your Downloads folder to the Drop file here section.
   C. Click Save.
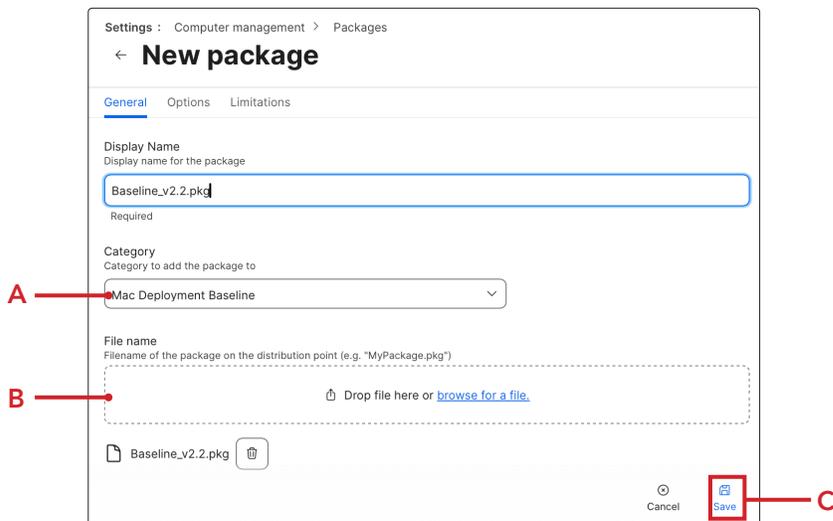
7. Repeat steps 5-6 and upload the Show Me Your ID 3.0.pkg located in the Sample Files folder that you downloaded in the beginning of this section. Confirm you have uploaded the following packages before continuing to step 11:
   • Baseline_v2.2.pkg
   • Show Me Your ID 3.0.pkg

8. Click Computers.

9. Click PreStage Enrollments.

10. Click New.
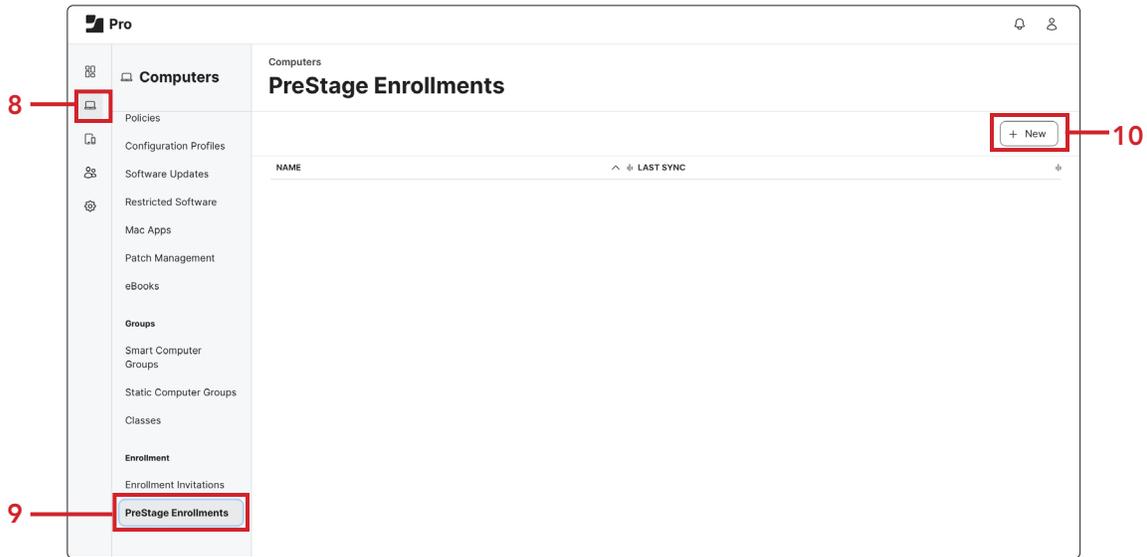
11. Select General then enter a name of your choosing in the Display Name field. This guide will use Baseline Mac Deployment.
    NOTE: Configure the rest of the PreStage settings to your needs. This guide will only focus on configuring the PreStage Name and Enrollment packages.

12. Click Enrollment Packages.
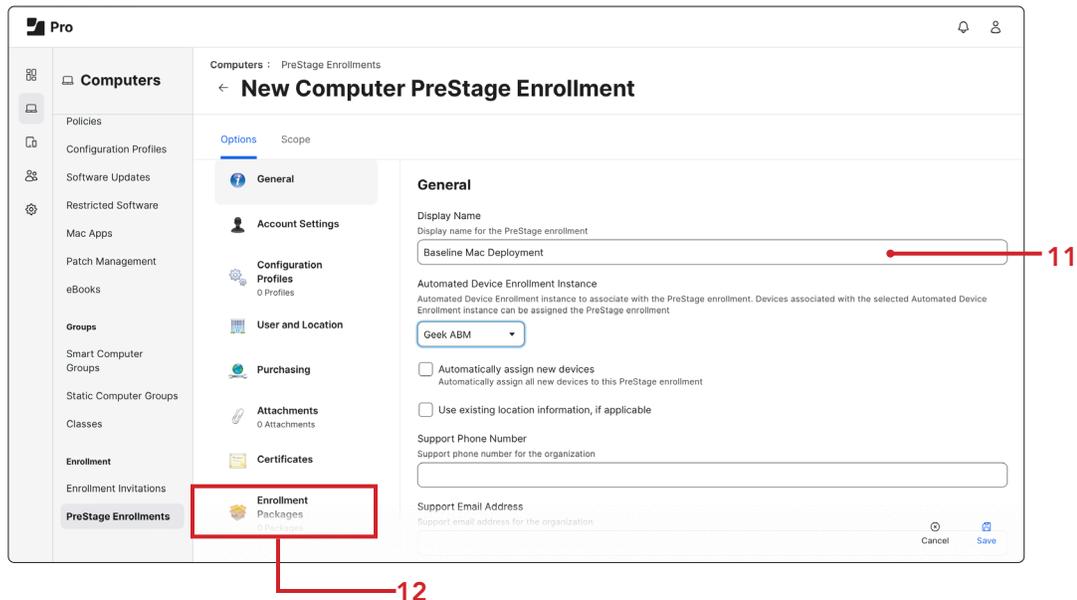
13. Click Configure.

14. Find the Baseline package.

15. Click Add.

16. Select the radio button for Cloud Distribution Point (Jamf Cloud).

17. Click Scope

18. Select a Mac to use for testing with Baseline.

19. Click Save.

20. Click Save.

Confirm PreStage Account Settings Creation

PreStage account settings creation may take extended time to save. Do not refresh.
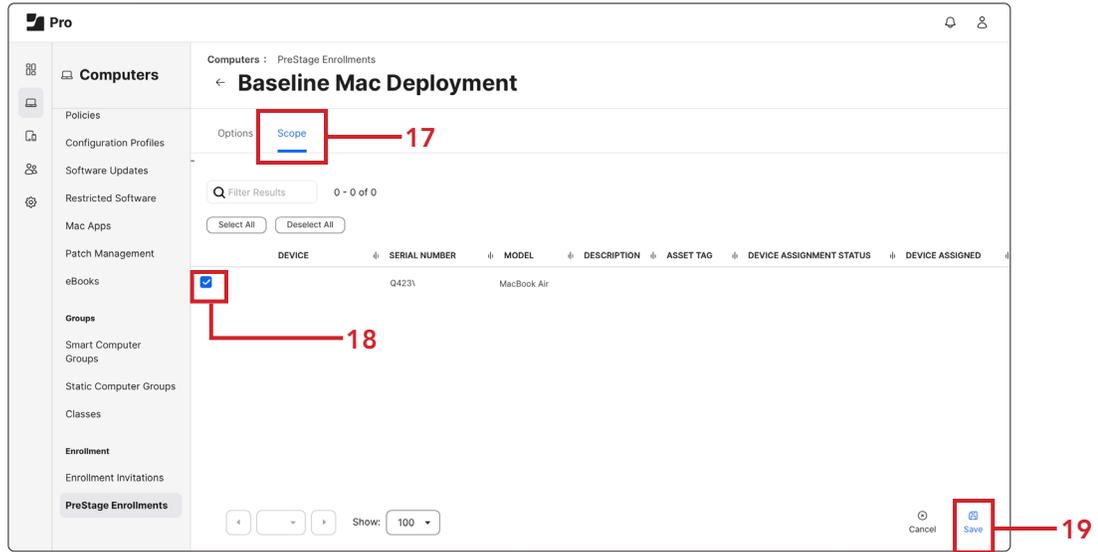
Cancel   Save
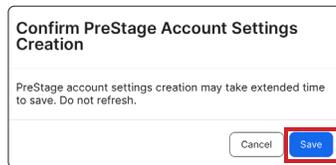
21. Click Computers.

22. Smart Computer Groups.

23. Click New.
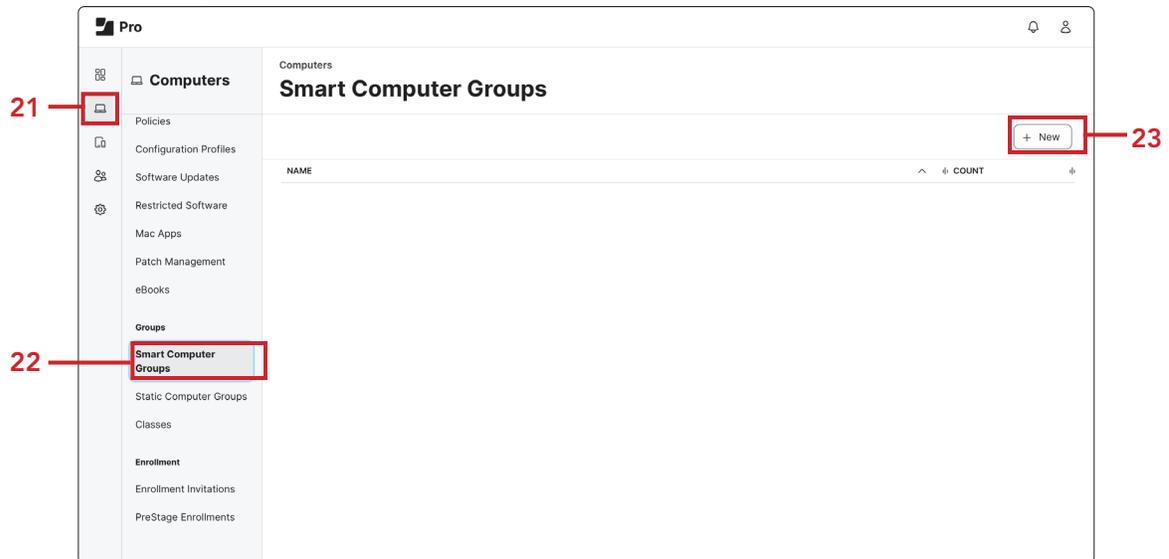
24. For Display Name, enter: Macs Enrolled with Baseline Mac Deployment PreStage.

25. Click Criteria.

26. Click Add (+).

27. Click Choose for Enrollment Method: PreStage enrollment.

28. Click Options (•••)

29. Click Choose for Baseline Mac Deployment.

30. Click Save.

31. Select the checkbox for Show in Jamf Pro Dashboard.

Computer Group	Criteria	Reports		☑ Show in Jamf Pro Dashboard
AND/OR	CRITERIA	OPERATOR	VALUE	
▾	Enrollment Method: PreStage enrollment	is ▾	Baseline Mac Deployment	▾

32. Click Computers.

33. Click Policies.

34. Click New.

35. Configure the following:
   A. Display Name: Install Show me your ID 3.0
   B. Category: Select a category of your choosing. This guide will use Mac Deployment Baseline
   C. Trigger: Select Custom and enter InstallShowMe
   D. Execution Frequency: Ongoing

36. Click Packages.

37. Click Configure.
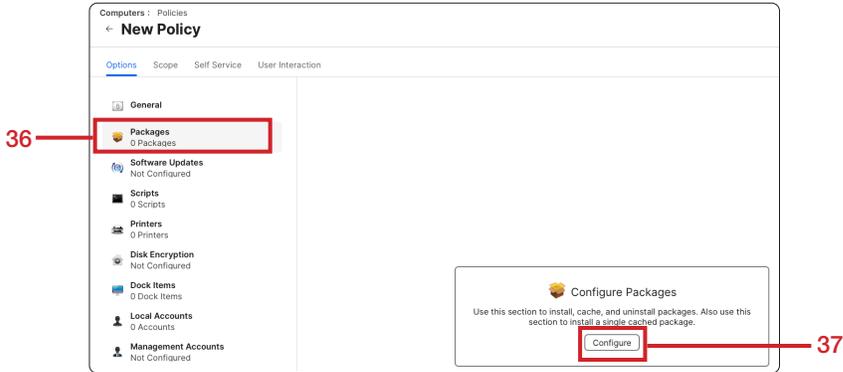
38. Click add for Show Me Your ID 3.0.pkg.

39. Confirm the Action is set to Install.

40. Click Scope.
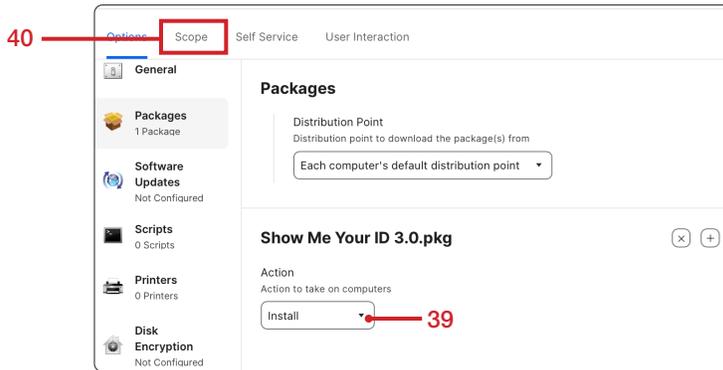
41. Click Add.
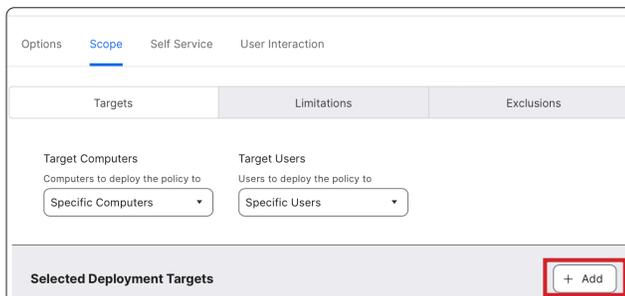
42. Click Computer Groups.

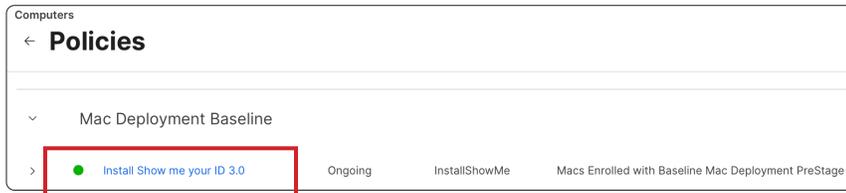43. Enter baseline in the search field.

44. Click Add for Macs Enrolled with Baseline Mac Deployment PreStage
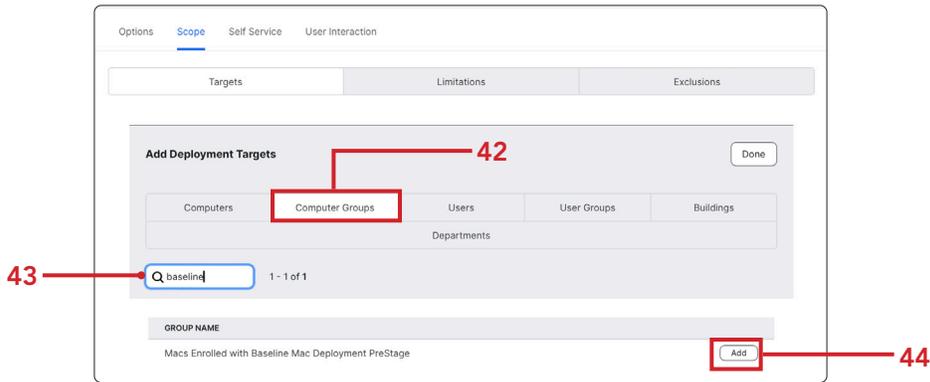
45. Click Save.
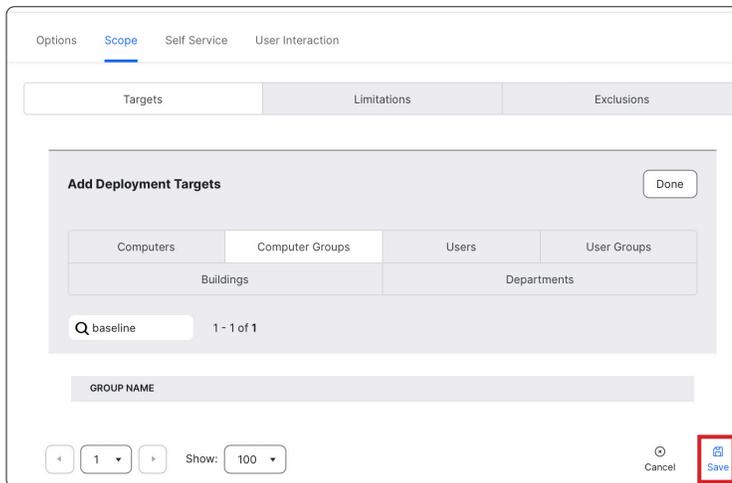
46. Confirm the policy was created.

47. Log out of the Jamf Pro server.

This completes this section.

In the next section, we will create the configuration files needed to instruct Baseline during a Mac deployment.

Section 2: Creating Baseline Configuration Files

What You'll Need:
Learn what hardware, software, and information you'll need to complete the tutorials in this section.

Hardware and Software:
Requirements for following along with this section:
- iMazing Profile Editor - Downloaded in section one of this guide.
- Sample Files - Downloaded in section one of this guide.

In this section we will use iMazing Profile Editor to configure the files needed to instruct Baseline on what to install during a Mac computer deployment. For the purposes of this guide, our requirement is for the end-user to choose between two deployment types. The user will choose the "Executives" or "Staff" deployment type, and Baseline will install different applications based on that choice. We need to configure separate instruction plists for each of those choices.

1. Open iMazing Profile Editor located in the Applications folder. If you're presented with any first run messages, accept them.

   NOTE: iMazing Profile Editor has a built in configuration profile for Baseline which makes configuring Baseline much easier. All the icons used in the configuration profiles are stored in a path on the HCS GitHub page. Access to GitHub is required as discussed in the Preface of this guide.

   iMazing Profile Editor

2. Click the General payload if it's not already selected and configure the following:
   A. Name: Executives
   B. Identifier: Enter an identifier of your choosing. This guide will use com.hcs.baseline
   C. Organization: Enter your organization name. This guide will use HCS
   D. Click Search Preferences in the upper right corner.
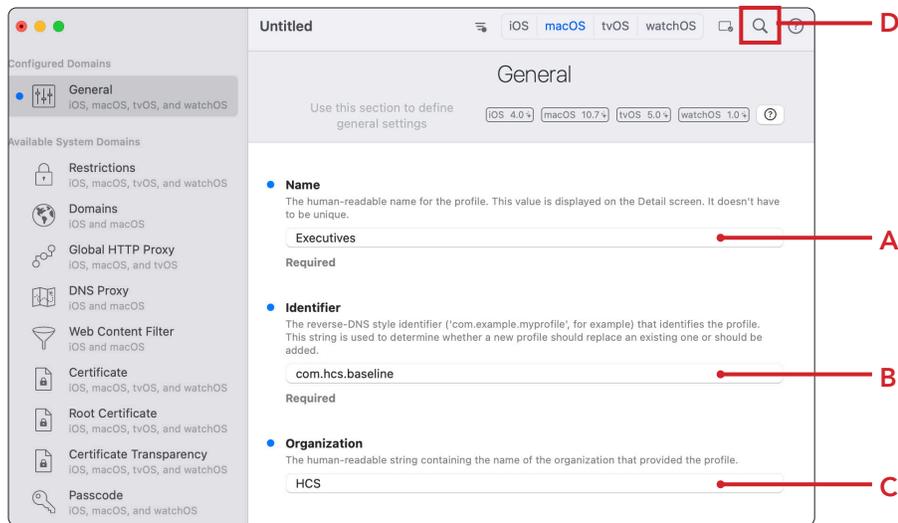
3. Enter baseline in the search field

4. Click Add Configuration Payload.
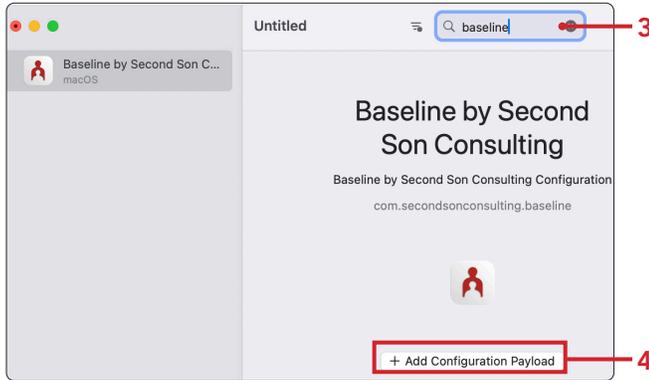
5. Under InitialScripts, Configure the following:
   A. Click Add (+)
   B. Display Name: Registration
   C. Script Path: /usr/local/Baseline/Scripts/registration.sh

6. Under Installomator, configure the following:
   A. Click Add (+).
   B. Display Name: Google Chrome
   C. Label: googlechromepkg
   D. Icon: https://github.com/HCSTech/icons/blob/main/Google_Chrome.png?raw=true
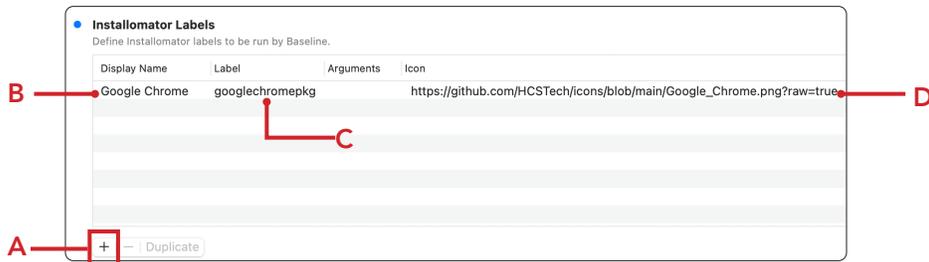
7. Scroll down to Packages and configure the following:
    A. Click Add (+).
    B. Display Name: Verified Tokens
    C. Package Path: /usr/local/Baseline/Packages/VerifiedTokens-1.0.pkg
    D. Icon: https://github.com/HCSTech/icons/blob/main/VerifiedTokens.png?raw=true
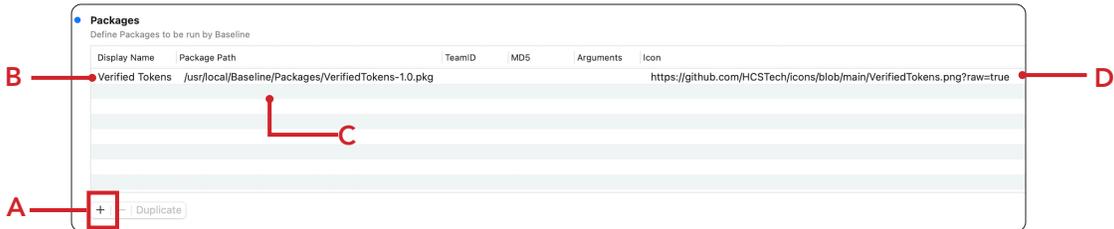
8. Scroll down to Scripts and configure the following:
    A. Click Add (+).
    B. Display Name: Show Me Your ID 3.0
    C. Script Path: /usr/local/bin/jamf
    D. Arguments: policy -event InstallShowMe
    E. Icon: https://github.com/HCSTech/icons/blob/main/ShowMeYourID.png?raw=true
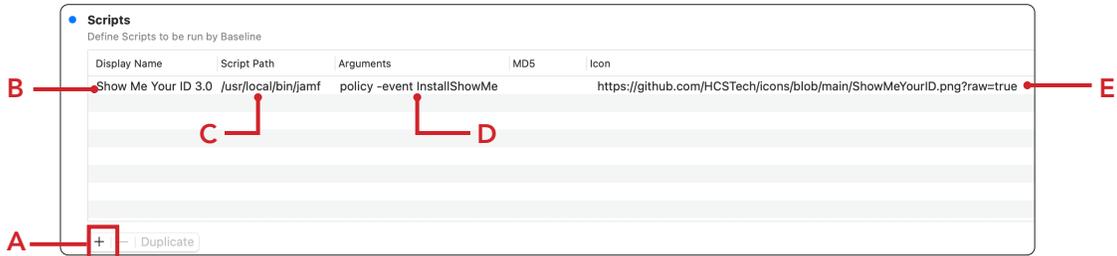
9. Enable the following items:
    • Force Restart
    • Blur Screen
    • Show Progress Bar
    • Show Display Names on Progress Bar
    • Cleanup After Use
    • Use Installomator SwiftDialog Integration.
    • Verbose Jamf Items
       NOTE: The items without the blue dots are enabled by default.
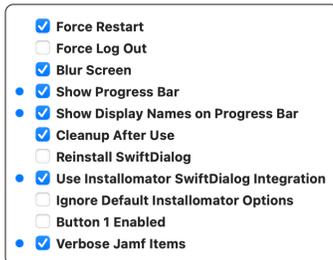
10. Scroll down and configure the following:
    A. Dialog List Window Options:
       --title "Installing Required Applications" --message "This may take a few minutes...." --icon "/usr/local/Baseline/Icons/Logo.png"
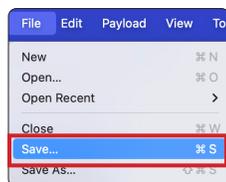   B. Dialog Success Window Options:
       --title "Required Application Install Completed" --message "Installation Complete. Restarting Your Mac." --icon "/usr/local/Baseline/Icons/Logo.png"
    C. Dialog Failure Window Options:
       --title "Something Went Wrong" --message "Please Contact the IT Department" --icon "/usr/local/Baseline/Icons/Logo.png"

    NOTE: If you copy and paste the above paths, be sure the entire path is on one line as shown in the picture. The copy and paste will add a line break that needs to be removed.

11. Click File and select Save.

12. Configure the following:
    A. Save As: Executives
    B. Where: Desktop
    C. Sign profile with: Do not sign
    D. Click Save.

    NOTE: We are saving the mobile configuration file to the Desktop in case edits are needed in the future. We are NOT going to use to use a mobile configuration profile with Baseline. We will use a plists with Baseline and add them to a custom package that we will create later in this guide. This will ensure the plist configuration files are in place when Baseline runs and will guarantee the InitialScripts are completed. A mobile configuration file coming from Jamf Pro may not install in time for Baseline and that would cause Baseline to fail.
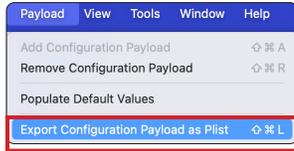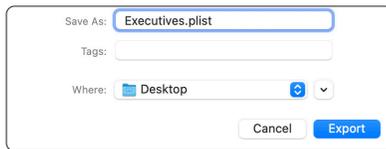
13. Select Payload then Export Configuration payload as Plist.

14. Configure the following:
    A. Save As: Executives.plist
    B. Where: Desktop
    C. Click Export.

15. Confirm both files are saved on the Desktop.

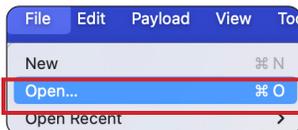16. Control-click on the Executives mobile configuration profile and select Duplicate.

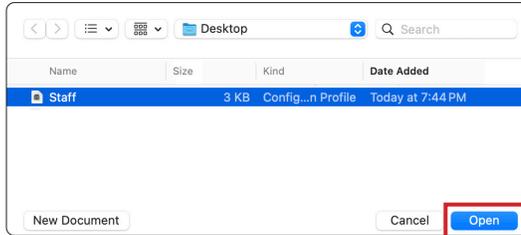17. Rename the Executives mobile configuration profile to Staff.

18. Switch back to iMazing Profile Editor.
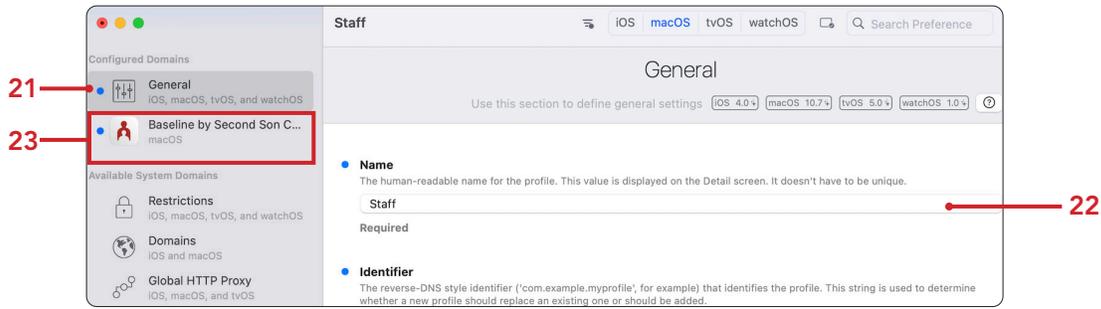
19. Click File and select Open.

20. Navigate to the Staff mobile configuration profile on the Desktop and click Open.

21. Select the General payload .

22. Change the name from Executives to Staff.

23. Click the Baseline payload.
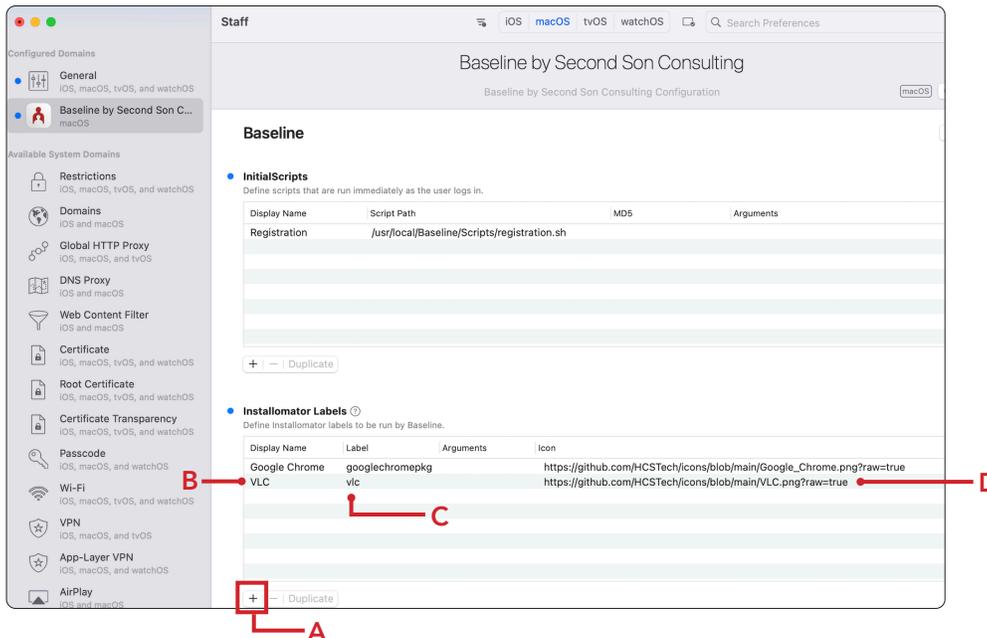

24. Scroll down to Installomator Labels.
    A. Click Add (+).
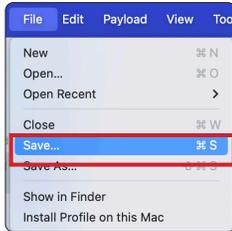   B. Display Name: VLC
    C. Label: vlc
    D. Icon: https://github.com/HCSTech/icons/blob/main/VLC.png?raw=true

    NOTE: We are adding VLC to this configuration profile so we can show the difference between what the Executive and Staff deployment workflows will install when Baseline runs.
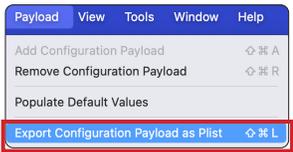
25. Save the changes we made to the Staff configuration profile. Select File then Save.
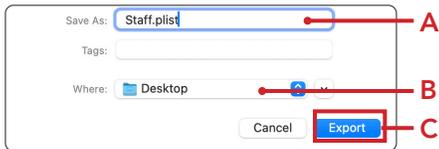

26. Select Payload then Export Configuration payload as Plist.
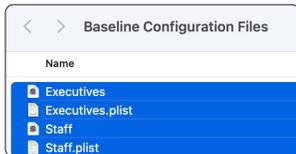

27. Configure the following:
    A. Save As: Staff.plist
    B. Where: Desktop
    C. Click Export.

28. Confirm both files are saved on the Desktop.

29. Create a folder on your Desktop named Baseline Configuration Files and copy the Executive and Staff plists and mobile configuration files on your Desktop to the folder.

30. Click iMazing Profile Editor menu and select Quit iMazing Profile Editor.

This completes this section.

In the next section, we will create a custom package that installs the plists and other configuration files needed for Baseline to run during a Mac deployment.

## Section 3: Create an asset package for Baseline

What You'll Need:
Learn what hardware, software, and information you'll need to complete the tutorials in this section.

Hardware and Software:
Requirements for this section:
- Jamf Composer
- Sample Files - Downloaded in section one of this guide.
- Plists created in section two of this guide.
- A signing certificate. - IF YOU DON'T HAVE A SIGNING CERTIFICATE THE PACKAGE CREATED IN THIS SECTION WILL FAIL DURING PRESTAGE ENROLLMENT.

A signed package is required when adding packages to a computer PreStage enrollment in Jamf Pro. A signing certificate can be from your Apple developer account or from your Jamf Pro server. If you already have a signing certificate configured in your settings of Jamf Composer you can continue on with this section of the guide. If you do NOT have a signing certificate from Apple, you can create one using your Jamf Pro server by following the instructions at the link below. This guide will NOT cover the creation of a signing certificate. Once you have a signing certificate, you can configure JamfJamf Composer to use it in the Settings > Packages section. See picture below.
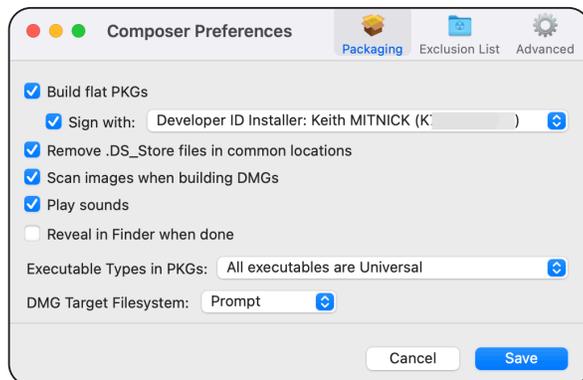
https://learn.jamf.com/en-US/bundle/technical-articles/page/Creating_a_Signing_Certificate_Using_Jamf_Pros_Built-in_CA_to_Use_for_Signing_Configuration_Profiles_and_Packages.html

In this section we will use Jamf Composer to create a package that contains all the configuration files needed for Baseline to run during a Mac computer deployment. This guide will NOT cover downloading Jamf Composer from Jamf. It is assumed that Jamf Composer is already installed on your Mac per the instructions in section one of this guide.

1. Open Jamf Composer located in /Applications/Jamf Pro/. If this is the first time opening Jamf Composer, you will be greeted with a message requiring full disk access. You need to allow full disk access before continuing with Jamf Composer. Follow the onscreen instructions to enable full disk access for Jamf Composer.
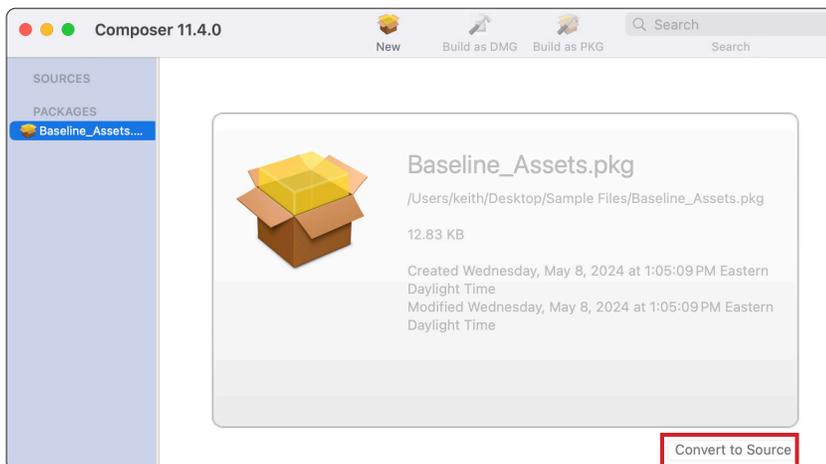
2. Click Cancel.
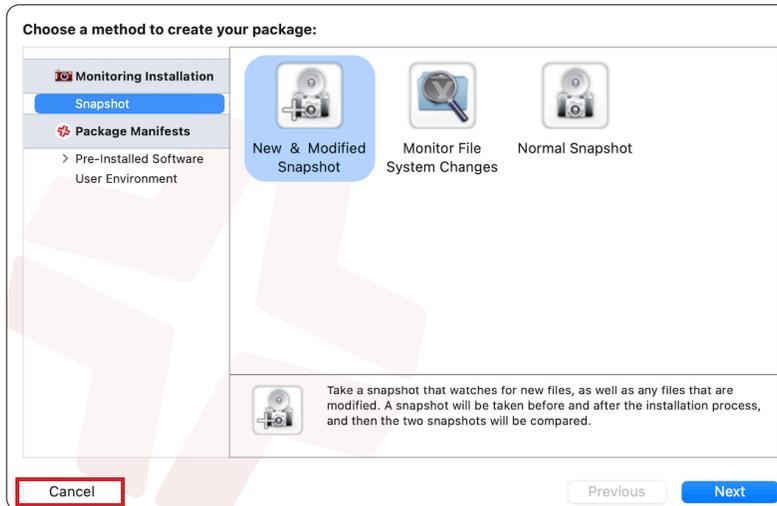
3. Open the Sample Files folder that you downloaded in section one of this guide. Drag the Baseline_Assets.pkg into the sidebar of Jamf Composer underneath the word PACKAGES. You will see a green plus sign indicating the file will be copied into Jamf Composer.
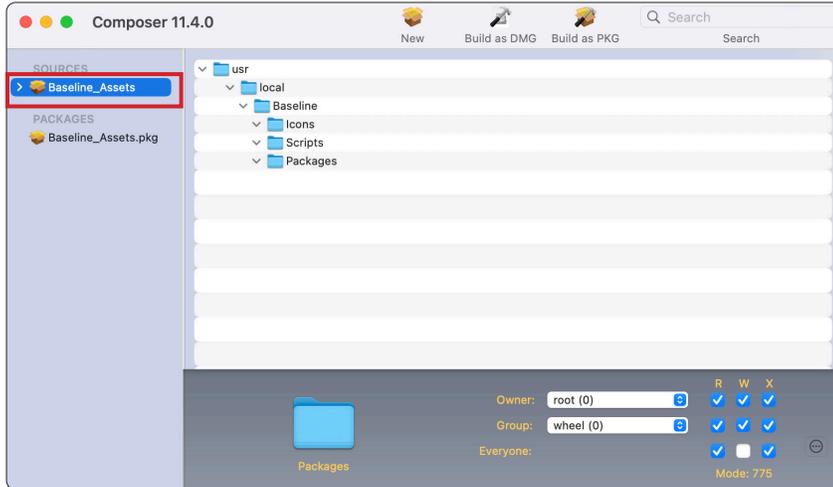

4. Click Convert to Source.

5. Select Baseline_Assets under the SOURCES section and expand all the folders on the right side as shown below.

NOTE: We provided this package as a template to be used for Baseline to make it easier to deploy the settings and configuration files needed for Baseline.


6. Open the Sample files and Baseline Configuration Files folders and organize the folders as shown below.
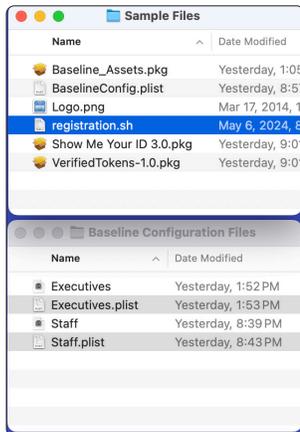
7. Copy the files into the following locations in Jamf Composer:
  A. Copy the Executives and Staff plists from the Baseline configuration files folder into the Baseline folder in Jamf Composer.
  B. Copy the BaselineConfig.plist from the Sample Files folder to the Baseline folder in Jamf Composer.
  C. Copy the Logo.png file from the Sample Files folder to the Icons folder in Jamf Composer.
  D. Copy the registration.sh file from the Sample Files folder to the Scripts folder in Jamf Composer.
  E. Copy the VerifiedTokens-1.0.pkg file to the Packages folder.

  NOTE: Make sure your folder structure in Jamf Composer looks like the picture below before continuing onto the next step.
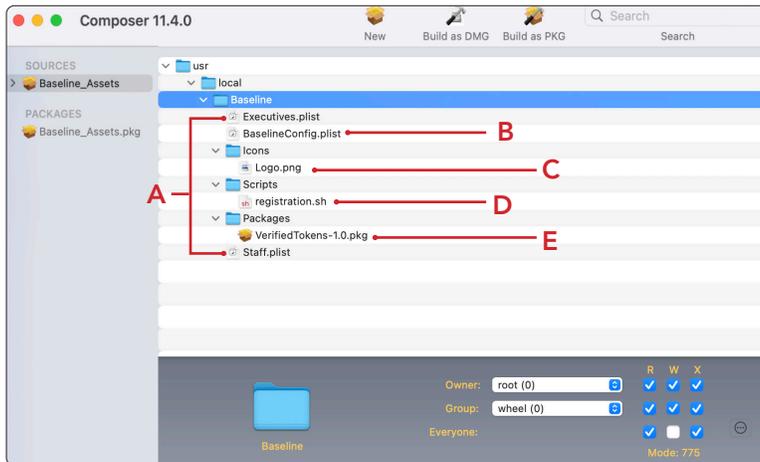
This folder structure follows the Baseline order of operations. Here is an explanation of how it works:

Baseline Root Folder When Baseline runs, it looks in the Baseline root folder for a BaselineConfig.plist which tells Baseline to run any Initial Scripts, for example, (registration.sh). It also contains the Executives.plist and Staff.plist which are configuration files that tell Baseline what to install.

Icons Folder The registration.sh script contains code that looks for a file named Logo.png. Think of this file as the branded logo for your company that will appear when Baseline runs.

Scripts Folder The registration.sh script is an initial script that will run first when Baseline is in operation.

Packages Folder Add any packages that you want to run in this folder.

8. Follow these steps:
    A. Select Executives.plist and change the permissions to the following:
        • Owner: root
        • Group: wheel
        • Read only
   B. Select the Staff.plist and set the same permissions as above.
    C. Click Build as PKG.
    NOTE: This sets the proper permissions for the files that we added into Jamf Composer.

Use this area to set the permissions for Executives.plist and Staff.plist
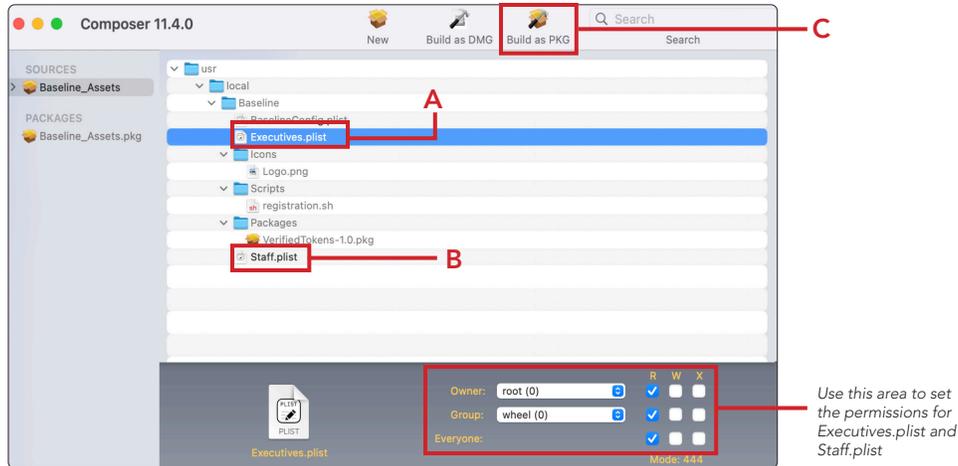
9. Save the package to the Desktop. Click Save.
    NOTE: You may be prompted to enter your administrative credentials to sign the package.
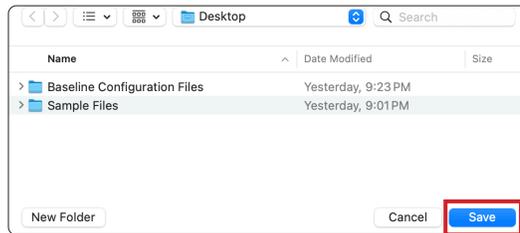
10. Confirm the Baseline_Assets.pkg was created on the Desktop.

11. Confirm the Baseline_Assets.pkg is signed by opening the Terminal application located in /Applications/Utilities.

12. Enter the following command:

`pkgutil --check-signature /Users/work/Desktop/Baseline_Assets.pkg`

NOTE: The path to your Baseline_Assets.pkg will be different from the path shown above.

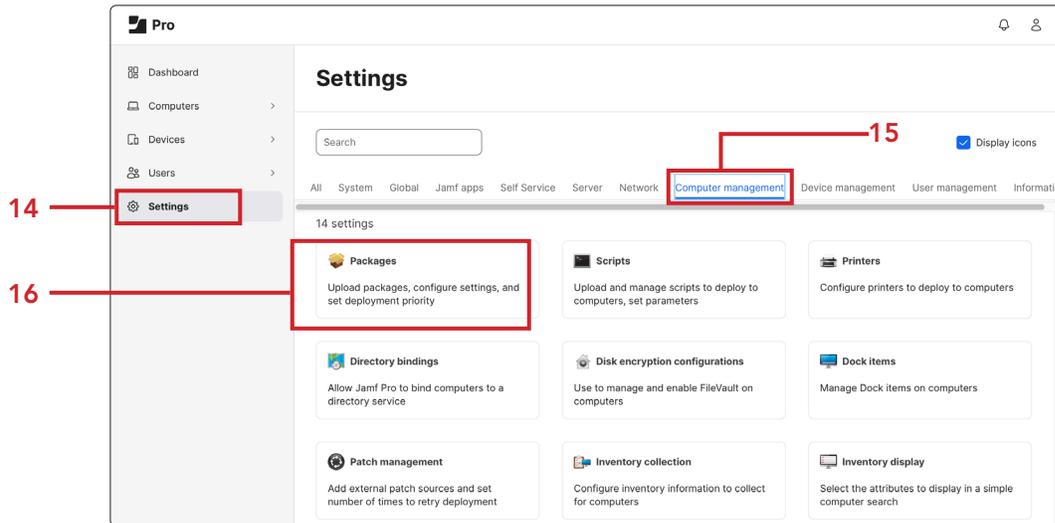You will see information similar to the picture below indicating the package was successfully signed. Quit the Terminal application once you confirmed your package is signed.
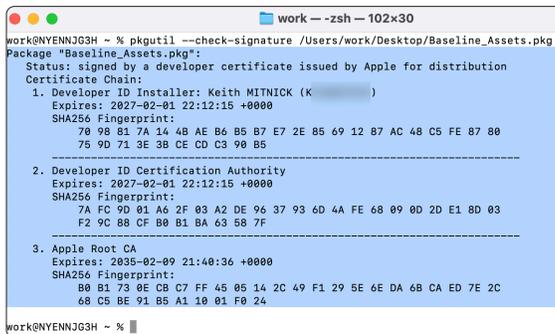
13. Upload the package to the Jamf Pro server. Log into your Jamf Pro server with administrative credentials.

14. Click Settings.

15. Click Computer Management.

16. Click Packages

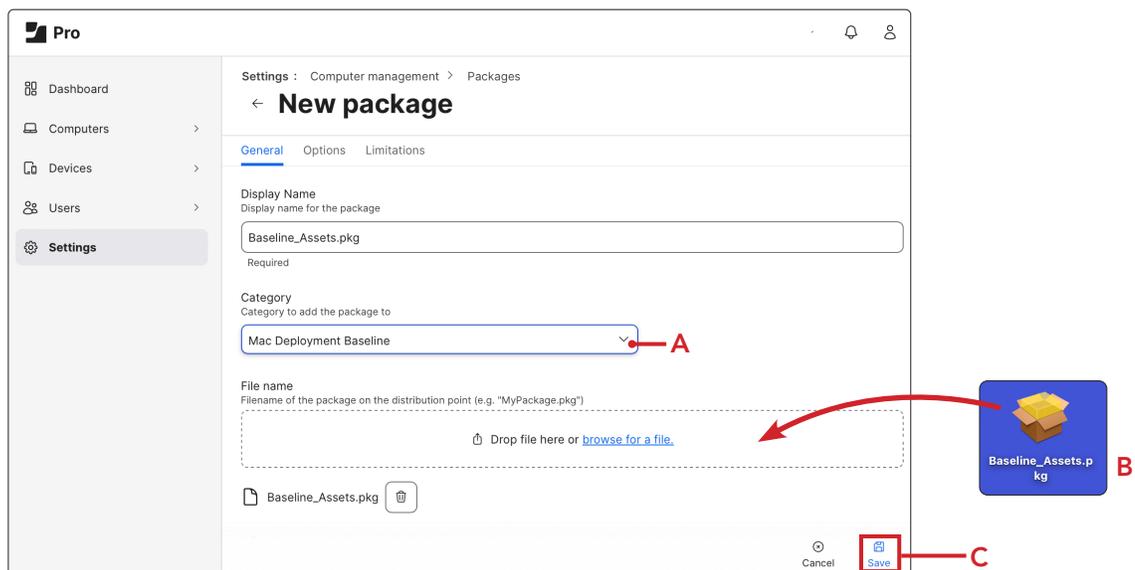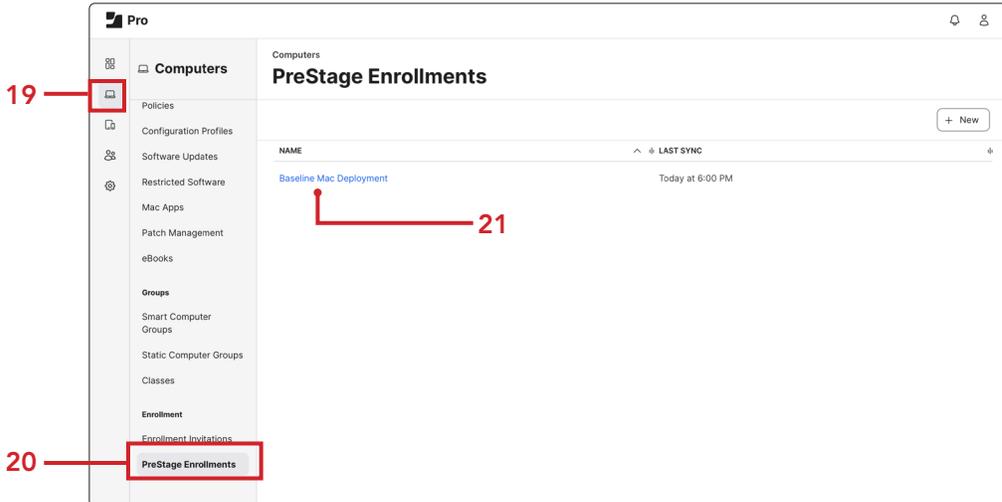17. Click New (+).

18. Select the following:
    A. Category: Select a category of your choosing. This guide will use Mac Deployment Baseline.
    B. Filename: Drag the Baseline_ Assets.pkg from your Desktop to the Drop file here section.
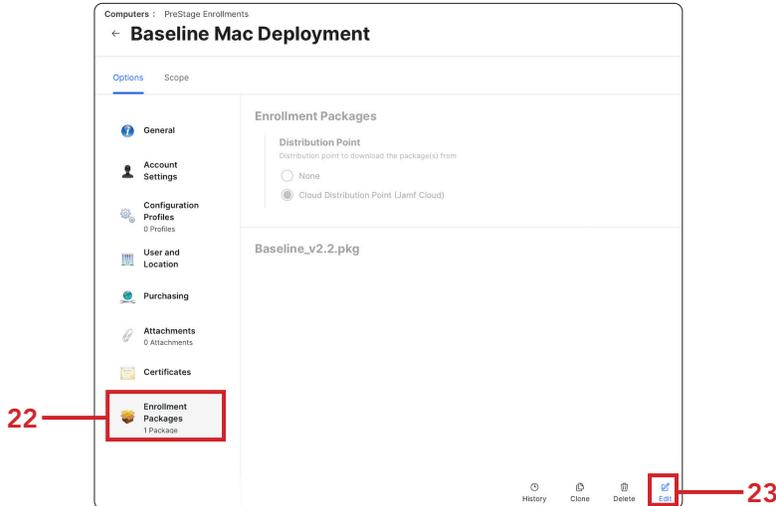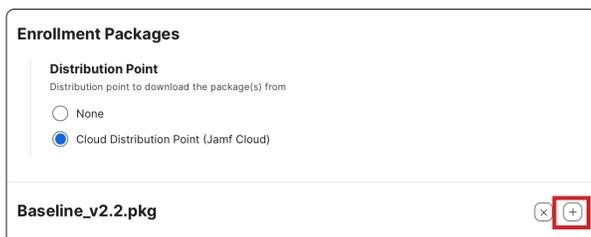   C. Click Save.

19. Click Computers.

20. Click PreStage Enrollments.

21. Select the Baseline Mac Deployment PreStage.

22. Select Enrollment Packages.

23. Click Edit.

24. Click Add (+).
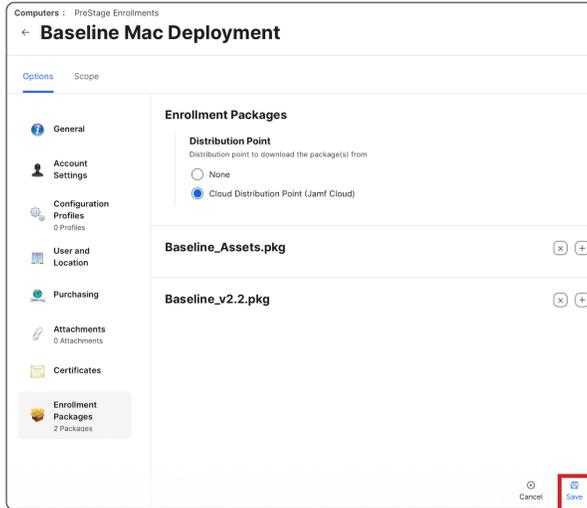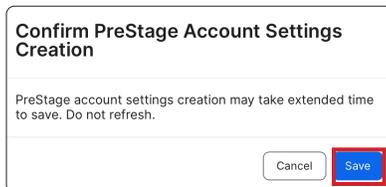
25. Locate the Baseline_Assets.pkg, click Add.

| Baseline_Assets.pkg | Mac Deployment Baseline | Add |

26. Click Save.

27. Click Save.

Confirm PreStage Account Settings Creation

PreStage account settings creation may take extended time to save. Do not refresh.

Cancel   Save

28. Log out of the Jamf Pro server. This completes this section.

In the next section, we will deploy a Mac computer using the PreStage with Baseline.

Section 4: Deploying a Mac Computer with Baseline

What You'll Need:
Learn what hardware, software, and information you'll need to complete the tutorials in this section.

Hardware and Software:
Requirements for following along with this section:

NOTE: Erase all contents and settings on your test Mac computer BEFORE continuing with this section.

- A Mac computer assigned to the Baseline Mac Deployment PreStage.
- Administrative access to the Jamf Pro Server

NOTE: This guide will NOT cover all the screens shown during the Automated Device Enrollment process.

1. Power on your Mac computer and follow the on screen instructions. When you get to the Remote Management screen, Click Enroll and continue to follow the on screen instructions. Baseline will start once the user is logged in.
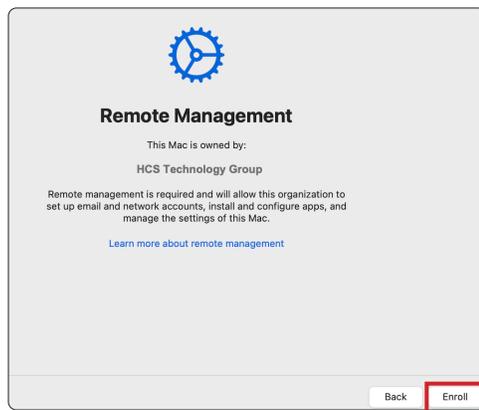
2. If you're using a portable Mac computer, IE.. MacBook Air, and the power supply is not connected, you will be greeted with the message below. Once you connect power, Baseline will continue the deployment process.
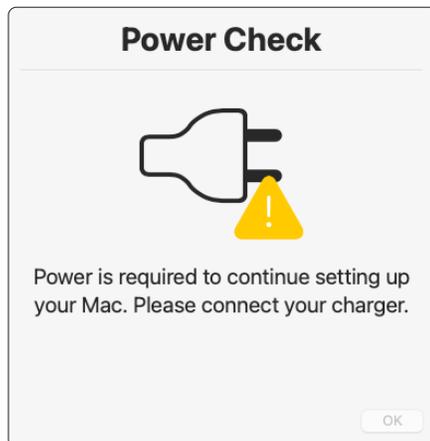
3. Enter your information at the Register your Mac screen.

4. Select Executives from the Deployment Type menu.

5. Click OK.

   NOTE: This information is customizable to your needs. It can be edited in the registration.sh file located in the Sample Files folder you downloaded in section one of this guide. In this example, Asset Tag, Department, and Building information will be sent to the computer record on the Jamf pro server.


6. When presented with the message below, it may take a few minutes for Baseline to start the process of installing applications and running policies. This is because registration.sh is setting the Building and Department and running a Jamf recon.
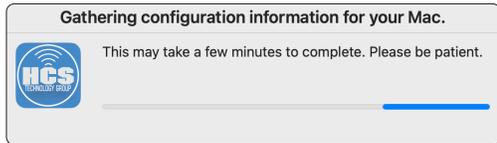

7. Baseline is now installing the applications we configured for the Executives Deployment type. Installomator downloads Google Chrome directly from Google's servers, validates it for authenticity, and then installs the package. Baseline shows the progress while Installomator does it's job. Show Me Your ID 3.0 is coming from the custom trigger policy we created on the Jamf Pro server.
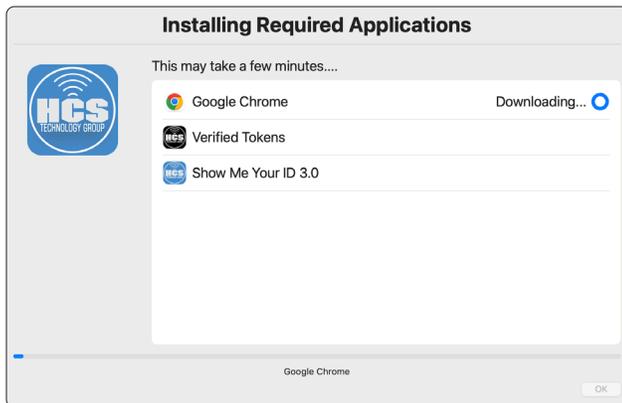
8. A green check indicates the software was successfully installed. If there was a failure, a red X will be shown on this screen.
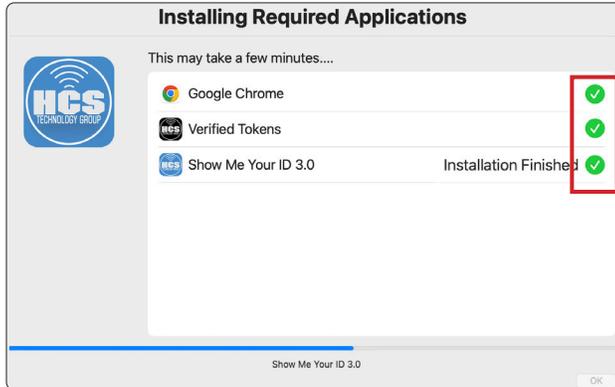
9. If everything was installed successfully, you are presented with the screen below. If there were any errors, they would be shown to you on this screen as well. Click Restart Now.
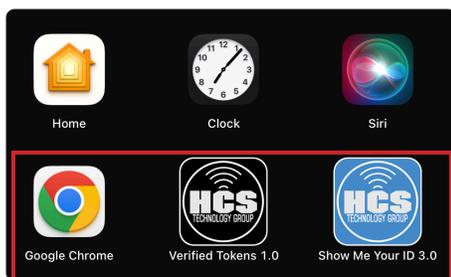
   NOTE: If you don't require a restart after a Mac computer deployment you can change this to Logout by adjusting your settings files for Baseline.
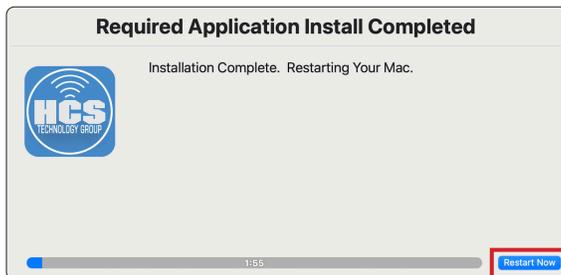
10. Log into your Mac and select Launch Pad from the Dock.

11. Confirm Google Chrome, Show Me Your ID 3.0, and Verified Tokens are installed.This is the software that we specified in the Executives plist.

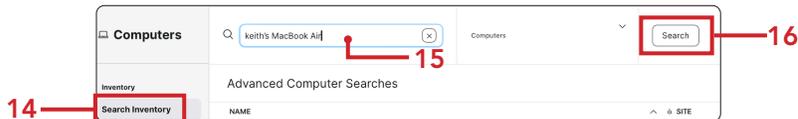12. Log into your Jamf Pro server with administrative credentials.

13. Click computers.

14. Click Search Inventory.

15. In the field, enter the name of the Mac computer that you just enrolled.
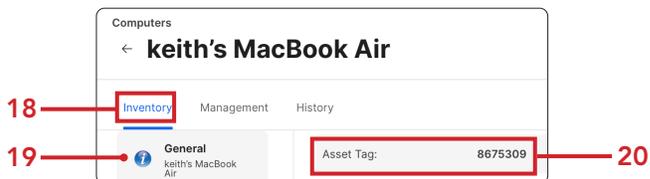
16. Click Search.

17. Select your computer from the list.

18. Click Inventory.

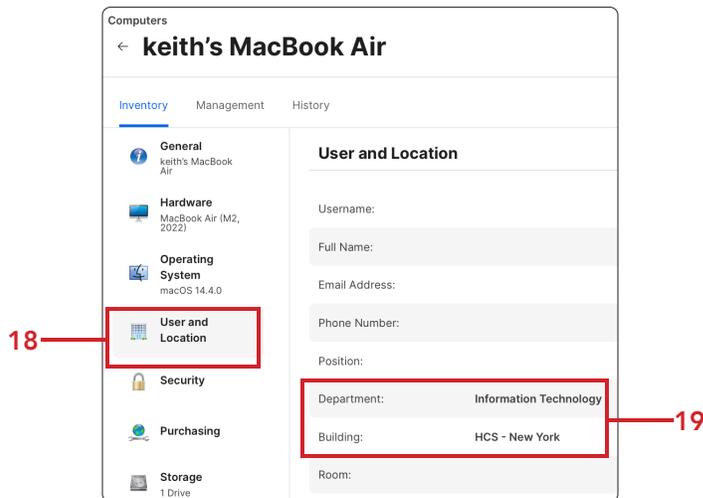19. Select General if it's not already selected.

20. Confirm the Asset Tag you entered at the Baseline registration screen is there.
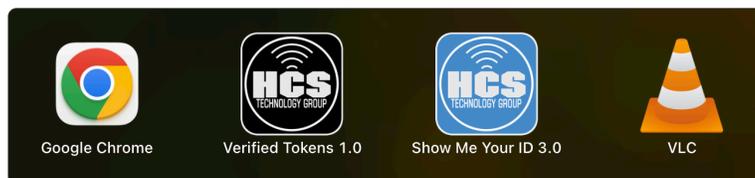
21. Select User and Location.

22. Confirm the Department and Building information you entered at the Baseline registration screen is there.

23. This step is OPTIONAL: If you want to test the Staff deployment, Erase all contents and settings on your Mac and start the deployment process over following the steps in this section but this time select Staff as the deployment type. The Staff deployment installs the same apps as the Executives deployment but adds VLC as an additional application. Once done, confirm Google Chrome, VLC, Show Me Your ID 3.0, and Verfied Tokens are installed.

This completes the guide.

Section 5: Links to all items used in this guide

Baseline:
https://github.com/SecondSonConsulting/Baseline

HCS Icons:
https://github.com/HCSTech/icons/tree/main

HCS Technical Articles:
https://hcsonline.com/support/white-papers

iMazing Profile Editor:
https://imazing.com/profile-editor/download

Installomator:
https://github.com/Installomator/Installomator/tree/main

Installomator Labels:
https://github.com/Installomator/Installomator/blob/main/Labels.txt

Jamf:
https://www.jamf.com

SwiftDialog:
https://github.com/swiftDialog/swiftDialog