

Deploying iOS and tvOS Devices Using Apple Configurator 2 and Jamf Pro

Technical Paper
Jamf Pro 10.9.0 or Later
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Jamf has made all efforts to ensure that this guide is accurate.

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Contents

4 Introduction

- 4 What's in This Guide
- 4 Additional Resources

5 Choosing a Deployment Method

6 Supervision Identities

- 6 Use a Supervision Identity from Apple Configurator 2
- 7 Create and Use a Supervision Identity from Jamf Pro

8 Automated Enrollment

- 8 Requirements
- 8 Deploying Devices Using Automated Enrollment

11 Manual Enrollment with an Enrollment URL

- 11 Requirements
- 11 Deploy Devices Using Manual Enrollment with an Enrollment URL
- 13 Further Considerations

14 Manual Enrollment with an Enrollment Profile

- 14 Requirements
- 14 Create an Enrollment Profile
- 14 Create and Upload the Supervision Identity
- 14 Create the "Prepare" Blueprint
- 15 Create the "Enroll" Blueprint
- 15 Deploy Devices Using Manual Enrollment with an Enrollment Profile

Introduction

What's in This Guide

This guide provides step-by-step instructions for deploying iOS and tvOS devices using Apple Configurator 2 and Jamf Pro.

Additional Resources

- [Use Automated Device Enrolment](#)
Decide whether to use Apple Configurator 2 or Apple's device enrollment program to deploy devices or computers in education and business environments.
- [Apple Configurator 2 User Guide](#)
Access the Apple Configurator 2 User Guide.
- [Apple TV management overview](#)
Learn more about tvOS device management capabilities.
- [Jamf Pro Administrator's Guide](#)
Find more instructions related to enrollment, configuration, security management, and distribution with Jamf Pro.

Choosing a Deployment Method

After the devices are enrolled with Jamf Pro, they can be managed remotely using Jamf Pro. To enroll the devices, choose one of the following deployment methods that best suits your organization:

- [Automated enrollment](#)—To use this method, your organization must be enrolled in Apple Business Manager (ABM) or Apple School Manager (ASM). This method uses a PreStage enrollment to enroll devices with Jamf Pro, supervise them, and configure device setup. First, a PreStage enrollment is created in Jamf Pro and then a blueprint is created in Apple Configurator 2. The blueprint is then applied to devices, which connects the devices to a Wi-Fi network and applies the settings in the PreStage.

This method also allows you to apply a supervision identity to devices as they are enrolled with Jamf Pro. This is done by associating a supervision identity with the DEP instance that is configured in the PreStage.

Automated enrollment via PreStage allows you to configure the following:

- Personalized user authentication in the Setup Assistant
- Customized device configurations
- Option to select “Prevent MDM Profile Removal” in PreStage, which will be respected after the 30-day provisional enrollment period.

Note: When you enroll tvOS 10.2 or later devices with Jamf Pro using ABM and ASM, the configuration can be applied through an Ethernet connection. For more information on zero-touch setup, see [Apple TV management overview](#) in Apple’s *Mobile Device Management Settings*.

- [Manual enrollment with an enrollment URL](#)—With this method, an Apple Configurator 2 blueprint is used to connect devices to an enrollment URL, which enrolls the devices with Jamf Pro. The blueprint is also used to supervise the devices, configure device settings, and apply a supervision identity.

To use the optional flow in this method and add devices to a remote management instance, your organization must be enrolled in ABM or ASM.

- [Manual enrollment with an enrollment profile](#)—Use this method if your organization does not participate in any of Apple’s device enrollment programs. With this method, an Apple Configurator 2 blueprint is used to apply an enrollment profile to devices, which enrolls the devices with Jamf Pro. The blueprint is also used to supervise the devices, configure device settings, and apply a supervision identity.

To apply blueprints, devices must be connected to an Apple Configurator 2 workstation with a USB or paired using the Ethernet cable. For information on how to connect your Apple TV 4K or Apple TV 4th generation to Apple Configurator, see the [Apple Configurator 2 User Guide](#). Starting with iOS 11 and tvOS 11, devices can be manually added to ABM or ASM using Apple Configurator 2.5 or later.

For related information, see the [Apple Configurator 2 User Guide](#) and the following Jamf Knowledge Base video:

[Adding iOS Devices to DEP with Apple Configurator 2.5](#)

Supervision Identities

Starting with Apple Configurator 2, supervised devices can be paired with multiple Apple Configurator 2 workstations. To ensure that devices are paired securely, each workstation must have a matching supervision identity and an identity certificate (.p12 file) with a private key. The identity is applied to devices when enrolled using a PreStage enrollment or paired with an Apple Configurator 2 workstation. If the wrong identity is applied to a device, the device must be wiped, re-supervised, and re-enrolled to change the identity.

Supervision identities can be created in Apple Configurator 2 or Jamf Pro. If the identity you want to use is already in Apple Configurator 2, you can use it with any of the workflows explained in this paper. Otherwise, you can use Jamf Pro to create a new supervision identity that can be downloaded as an identity certificate and private key.

For more information about supervision identities, see the [Apple Configurator 2 User Guide](#).

Use a Supervision Identity from Apple Configurator 2

1. Download the identity from Apple Configurator 2:
 - a. Navigate to **Preferences > Organizations** and select the identity.
 - b. Click the **Action** pop-up menu (gear icon) and then choose **Export Supervision Identity**.
 - c. Enter a password for the identity.
You will need to enter the password when uploading the identity to Jamf Pro.
 - d. Save the identity.
The identity is saved to the workstation as a .p12 file.
2. Upload the identity to Jamf Pro so it can be accessed from other Apple Configurator 2 workstations. See "Uploading a Supervision Identity" in the [Supervision Identities](#) section of the *Jamf Pro Administrator's Guide*.
3. From an Apple Configurator 2 workstation, log in to Jamf Pro.
4. Download the supervision identity (.p12).
See "Downloading a Supervision Identity" in the [Supervision Identities](#) section of the *Jamf Pro Administrator's Guide*.
5. Double-click the .p12 file and add it to Keychain Access.
6. Import the identity to Apple Configurator 2 by choosing the identity.
For more information, see the [Apple Configurator 2 User Guide](#).

Repeat steps 3–6 on other Apple Configurator 2 workstations.

Create and Use a Supervision Identity from Jamf Pro

1. Create a supervision identity using Jamf Pro.
See [Supervision Identities](#) in the *Jamf Pro Administrator's Guide*.
2. From an Apple Configurator 2 workstation, log in to Jamf Pro.
3. Download the supervision identity (.p12).
See "Downloading a Supervision Identity" in the [Supervision Identities](#) section of the *Jamf Pro Administrator's Guide*.
4. Double-click the .p12 file and add it to Keychain Access.
5. Import the identity to Apple Configurator 2 by choosing the identity.
For more information, see the [Apple Configurator 2 User Guide](#).

Repeat steps 2–5 on other Apple Configurator 2 workstations.

Automated Enrollment

Beginning with Apple Configurator 2.5, you can add mobile devices to your Apple deployment account regardless of where they were purchased. If you already use Automated Device Enrollment and want to supervise mobile devices that were purchased outside of your Apple deployment account, this workflow allows you to enroll any iOS or iPadOS device supported by Apple Configurator 2 with Automated Device Enrollment, and then with Jamf Pro.

Requirements

To deploy devices using automated enrollment, you need:

- Jamf Pro 9.82 or later
- A Mac with Apple Configurator 2.5 or later
- Find My iPhone/iPad turned off from the Settings app to disable Activation Lock
- iOS and iPadOS devices supported by Apple Configurator 2 connected to Wi-Fi
- Enrollment in Apple Business Manager (ABM) or Apple School Manager (ASM)

For detailed Apple Configurator 2 requirements, see the [Apple Configurator 2 User Guide](#).

Note: It is recommended that you enroll tvOS 10.2 or later devices with Jamf Pro using ABM and ASM. The PreStage enrollment configuration is applied through an Ethernet connection. For information on how to connect your Apple TV 4K or Apple TV 4th generation to Apple Configurator, see the [Apple Configurator 2 User Guide](#).

Deploying Devices Using Automated Enrollment

1. Ensure Jamf Pro is integrated with Automated Device Enrollment (formerly DEP).
For more information, see Integrating with Apple's Device Enrollment in the *Jamf Pro Administrator's Guide*.
2. Connect your device to a computer with Apple Configurator 2 installed. If the **Trust This Computer?** pop-up window occurs, choose "Trust".
3. Open Apple Configurator 2 and do the following:
 - a. Verify that the device displays in **All Devices** and that it is not currently supervised.
 - b. Note the device's serial number that is available from the Info view in Apple Configurator. You will use the serial number to assign the device to the MDM server.
4. Select the device and click **Prepare** from the **Actions** menu.
5. In the Prepare Devices dialog box, do the following:
 - a. Select **Prepare with Manual Configuration**.

- b. Select **Add to Device Enrollment Program**.

Important: The **Activate and Complete Enrollment** setting must not be selected. Do not change the default for **Supervise Device**, which should be automatically selected.

- c. (Optional) Select **Allow devices to pair with other computers**.
 - d. Do not change the default for **Enable Shared iPad** which should be automatically deselected.
 - e. Click **Next**.
6. In the "Enroll in MDM Server" dialog box:
 - a. If this is your first time using Apple Configurator, choose **New Server**.
 - b. If you have previously used Apple Configurator, choose your MDM server from the pop-up menu.
 7. Click **Next**.
 8. In the "Define an MDM Server" dialog box:
 - a. Enter a display name for your server.
 - b. Enter your enrollment URL. For example, <https://instancename.jamfcloud.com/configuratorenroll> if hosted in Jamf Cloud, or <https://jss.instancename.com:8443/configuratorenroll> if hosted on-premise.

Note: If the code 404 error message appears, disregard this message and click **Next**.

9. You will be prompted to add trust anchor certificates for the MDM server. Select the Jamf Pro certificate and click **Next**.
10. Choose the organization that will be used to supervise the devices or choose "New Organization" and click **Next**.
11. Sign in to your Apple deployment account. Ensure that you use the same Apple ID that you used to enroll in Apple Business Manager or Apple School Manager. You may be prompted to verify your identity with two-factor authentication.
12. Generate or choose a supervision identity. If this is your first time using Apple Configurator, select **Generate** a new supervision identity.
13. Select which setup steps you want to show on the device. It is recommended to test this workflow to verify if your configuration is correct.
14. Connect the device to Wi-Fi manually, or push a Wi-Fi profile to the device. Ensure the correct credentials are sent in the profile.
15. From the Actions menu, choose **Prepare**. If your device is already set up, you will be prompted to erase the device. You may need to enter your Apple ID password for the Apple deployment account.
16. The device will reboot and then be added to your account. This may take several minutes.
17. When the "Hello" screen displays, do not continue setting up the device. Log in to Apple Business Manager or Apple School Manager and assign the device to the MDM server:
 - a. Click **Device Assignments**.

- b. Enter the device's serial number and assign it to your MDM server.
- 18. After the device is moved, log in to Jamf Pro and navigate to **Mobile Devices > PreStage Enrollments** and select the PreStage enrollment of where these devices will be assigned. If no PreStage enrollment is configured, create a new one. To automatically apply a supervision identity as devices are enrolled using a PreStage enrollment, make sure a supervision identity is specified for the device enrollment instance in the PreStage. For more information, see "Adding a Supervision Identity to a Device Enrollment Instance" on the [Supervision Identities](#) page in the *Jamf Pro Administrator's Guide*.
- 19. Select which steps in the Setup Assistant to skip.
- 20. Ensure the device record is selected with a status of "Assigned" before continuing with configuring the device.
- 21. On the mobile device, go through the setup steps.

Note: The "Invalid Profile" error may display on the device after it has been assigned to the MDM server. This prevents the device from going through the Setup Assistant. To fix this, restore the device using Recovery Mode. Alternatively, in Apple Configurator, choose **Restore** from the **Actions** menu.

The Remote Management message displayed on the device confirms the enrollment is working.

Manual Enrollment with an Enrollment URL

Requirements

To deploy devices using manual enrollment and a static enrollment URL, you need:

- Jamf Pro 9.82 or later
- iOS or tvOS devices supported by Apple Configurator 2
- A Mac with Apple Configurator 2 installed

To deploy devices using manual enrollment and a dynamic enrollment URL, you need:

- Jamf Pro 9.96 or later
- iOS or tvOS devices supported by Apple Configurator 2
- A Mac with Apple Configurator 2 installed
- An SMTP server set up in Jamf Pro

For detailed Apple Configurator 2 requirements, see the [Apple Configurator 2 User Guide](#).

For information on static and dynamic Apple Configurator 2 enrollment URLs, see [Apple Configurator Enrollment Settings](#) in the *Jamf Pro Administrator's Guide*.

Apple Configurator 2.5 or later allows you to add devices with iOS 11 or later and tvOS 10.11 or later to Apple Business Manager (ABM) or Apple School Manager (ASM). For more information, see the [Apple Configurator 2 User Guide](#).

Deploy Devices Using Manual Enrollment with an Enrollment URL

1. In Jamf Pro, enable the Apple Configurator enrollment methods you intend to use. For more information, see [Apple Configurator Enrollment Settings](#) in the *Jamf Pro Administrator's Guide*.
2. If you are enrolling via a dynamic URL, use an enrollment invitation to generate and view the enrollment URL or send it to the person operating the Apple Configurator workstation. See "Viewing or Sending a Dynamic Apple Configurator Enrollment URL via a Mobile Device Enrollment Invitation" in the [Apple Configurator Enrollment Settings](#) section of the *Jamf Pro Administrator's Guide*.
3. Make sure a supervision identity is in Jamf Pro and on Apple Configurator 2 workstations.
4. In Apple Configurator 2, add the enrollment URL for Jamf Pro to the MDM server preferences.

- If you are enrolling via the static URL, enter the static Apple Configurator enrollment URL for Jamf Pro.
The static Apple Configurator enrollment URL for Jamf Pro is the URL for Jamf Pro followed by “/configuratorenroll”. For example, “https://instancename.jamfcloud.com” (hosted in Jamf Cloud) or “https://jss.instancename.com:8443/configuratorenroll” (hosted on-premise).
 - If you are enrolling via a dynamic URL, the enrollment URL is available in Jamf Pro or in the email or SMS message sent via the enrollment invitation, depending on whether you chose to view or send the URL.
For more information, see the [Apple Configurator 2 User Guide](#).
5. If users will not connect to a network independently, create a Wi-Fi configuration profile.
For information on configuration profiles, see the [Apple Configurator 2 User Guide](#).
 6. Create a blueprint that will be used to apply the profile and enroll devices with Jamf Pro.
For information on blueprints, see the [Apple Configurator 2 User Guide](#).
 7. Modify the device information for the blueprint if desired.
For information on how to edit device info, see the [Apple Configurator 2 User Guide](#).
 8. Prepare the blueprint:
For more information, see the [Apple Configurator 2 User Guide](#).
 - a. Choose "Manual Configuration" from the **Prepare with** pop-up menu.
 - b. (Optional) Select the **Add to Device Enrollment Program** checkbox if you want to manually add to your device enrollment instance the devices (iOS 11 or later and tvOS 10.12 or later) that were not purchased directly from Apple, an Apple Authorized Reseller, or an authorized cellular carrier. The **Activate and complete enrollment** checkbox is selected by default. Use this setting for an existing device that has a record in, and is managed by, Jamf Pro. When you deselect the checkbox after the blueprint is applied, the device is left at the Setup Assistant, and the end user needs to complete the enrollment.
 - c. Select Jamf Pro as the MDM solution.
 - d. (Optional) Sign in to ABM or ASM. Use the Apple ID that allows you to manage devices in your device enrollment instance.
 - e. Choose the supervision identity.
 - f. Select which steps in the Setup Assistant to skip.
 9. If you created a Wi-Fi profile, add the Wi-Fi profile to the blueprint.
For more information, see the [Apple Configurator 2 User Guide](#).
 10. Connect devices to the Apple Configurator 2 workstation using a USB or Ethernet cable. For information on how to connect your Apple TV 4K or Apple TV 4th generation to Apple Configurator, see the [Apple Configurator 2 User Guide](#).
 11. Apply the blueprint.

The devices are configured with the settings in the blueprint and enrolled with Jamf Pro.

Note : If you receive the "The cloud configuration server is unavailable or busy. [MCCloudConfigErrorDomain – 0x80EF (33007)]" error message, your device is not eligible to be added to your organization's device enrollment option. For example, the device is already enrolled in a different device enrollment instance.

Further Considerations

When you add iOS or tvOS devices to Apple Business Manager or Apple School Manager using Apple Configurator, the end user has a 30-day provisional period to remove the device from enrollment, supervision, and management. The 30-day provisional period begins after the device is activated. During that period, the end user will see a banner on the lock screen notifying them of the updated remote management state and will be able to remove the management profile in **Settings > Device Management > Profile** . After 30 days, opting out of remote management will not be possible.

Manual Enrollment with an Enrollment Profile

Requirements

To deploy devices using manual enrollment and an enrollment profile, you need:

- Jamf Pro 9.82 or later
- iOS or tvOS devices supported by Apple Configurator 2
- A Mac with Apple Configurator 2 installed

For detailed Apple Configurator 2 requirements, see the [Apple Configurator 2 User Guide](#).

Create an Enrollment Profile

1. In Jamf Pro, create an enrollment profile.
See "Creating an Enrollment Profile for Use with Apple Configurator" in the [Enrollment Profiles](#) section of the *Jamf Pro Administrator's Guide*.
2. (Optional—Not required for cloud environments or if your Jamf Pro instance has a publicly-trusted SSL certificate.) Download the trust profile (`Trust Profile.mobileconfig`) from Jamf Pro.
See "Downloading the Trust Profile" in the [Enrollment Profiles](#) section of the *Jamf Pro Administrator's Guide*.
3. Download the enrollment profile (`<Nameofprofile>.mobileconfig`) from Jamf Pro.
See "Downloading an Enrollment Profile" in the [Enrollment Profiles](#) section of the *Jamf Pro Administrator's Guide*.

Create and Upload the Supervision Identity

Make sure a supervision identity is in Jamf Pro and on Apple Configurator 2 workstations.

Create the "Prepare" Blueprint

The "Prepare" blueprint will be used to apply a Wi-Fi configuration profile and the supervision identity.

1. In Apple Configurator 2, create a Wi-Fi configuration profile.
For information on configuration profiles, see the [Apple Configurator 2 User Guide](#).

2. Create a blueprint and name it "Prepare".
For information on blueprints, see the [Apple Configurator 2 User Guide](#).
3. Modify the device information for the blueprint if desired.
For information on how to edit device info, see the [Apple Configurator 2 User Guide](#).
4. Prepare the blueprint:
For more information, see the [Apple Configurator 2 User Guide](#).
 - a. Choose "Manual Configuration" from the **Prepare with** pop-up menu.
 - b. Choose "Do not Enroll in MDM" from the **Server** pop-up menu.
Devices will be enrolled with Jamf Pro through the enrollment profile, not the blueprint.
 - c. Select your supervision options and choose a supervision identity.
 - d. Select which steps in the Setup Assistant to skip.
5. Add the Wi-Fi profile to the blueprint.
For more information, see the [Apple Configurator 2 User Guide](#).
6. (Optional—Not required for cloud environments or if your Jamf Pro instance has a publicly-trusted SSL certificate.) Add the trust profile (Trust Profile.mobileconfig) to the blueprint.

Create the "Enroll" Blueprint

The "Enroll" blueprint will be used to enroll devices with Jamf Pro by installing the trust profile and the enrollment profile.

1. Create a blueprint and name it "Enroll".
For more information, see the [Apple Configurator 2 User Guide](#).
2. Add the enrollment profile (<Nameofprofile>.mobileconfig) to the blueprint.
For more information, see the [Apple Configurator 2 User Guide](#).

Note: Do not prepare this profile.

Deploy Devices Using Manual Enrollment with an Enrollment Profile

1. Connect devices to the Apple Configurator 2 workstation via USB or pair using an Ethernet cable. For information on how to connect your Apple TV 4K or Apple TV 4th generation to Apple Configurator, see the [Apple Configurator 2 User Guide](#).
2. Apply the "Prepare" blueprint to the devices.
3. Apply the "Enroll" blueprint to the devices.

The devices are first configured with the settings in the "Prepare" blueprint. Later, they are enrolled with Jamf Pro using the "Enroll" blueprint.