IBM Data Shift

A Mac-to-Mac migration tool,
optimized for managed devices.

Simone Martorelli
Senior Software Engineer, Mac@IBM

University of Utah, MacAdmins Meeting
June 18th, 2025

IBM

Why IBM Data Shift?

Apple Migration Assistant frequently causes issues for devices that are enrolled in our management environment.
This may result in more support requests and a disrupted user experience.

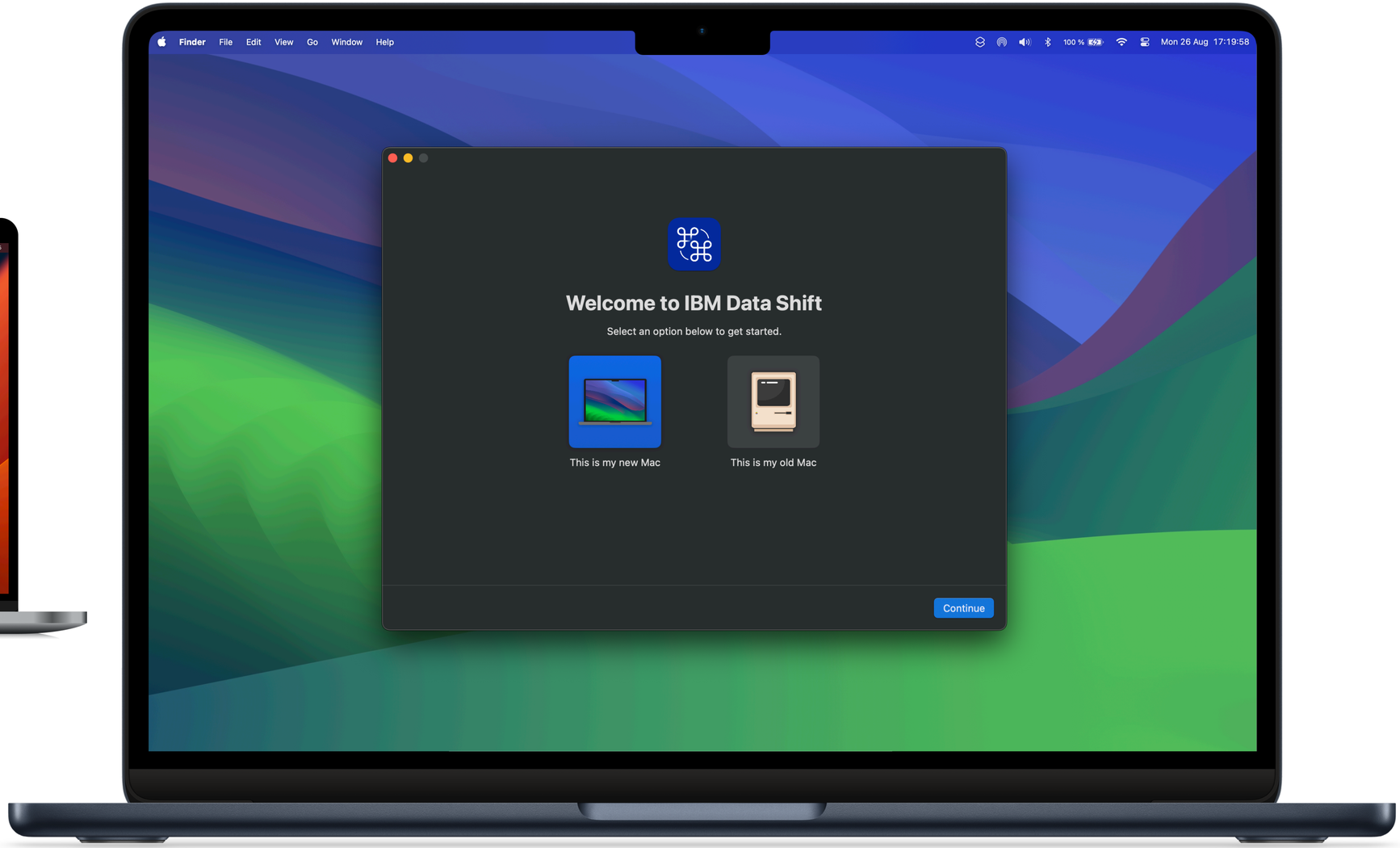
Common issues include:

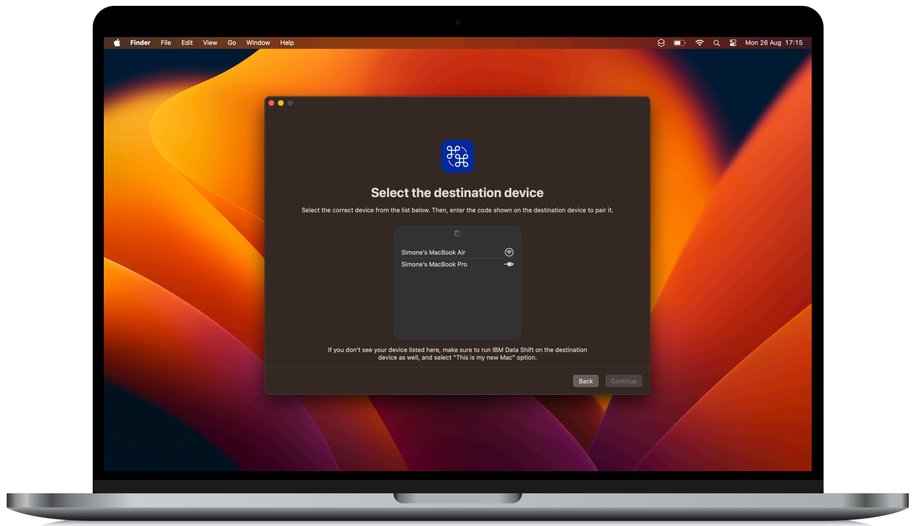
- Jamf Binary communication severed after enrollment.
- Post-setup migration issues with MDM account.
- Missing files and/or Errors.
- Time consuming.

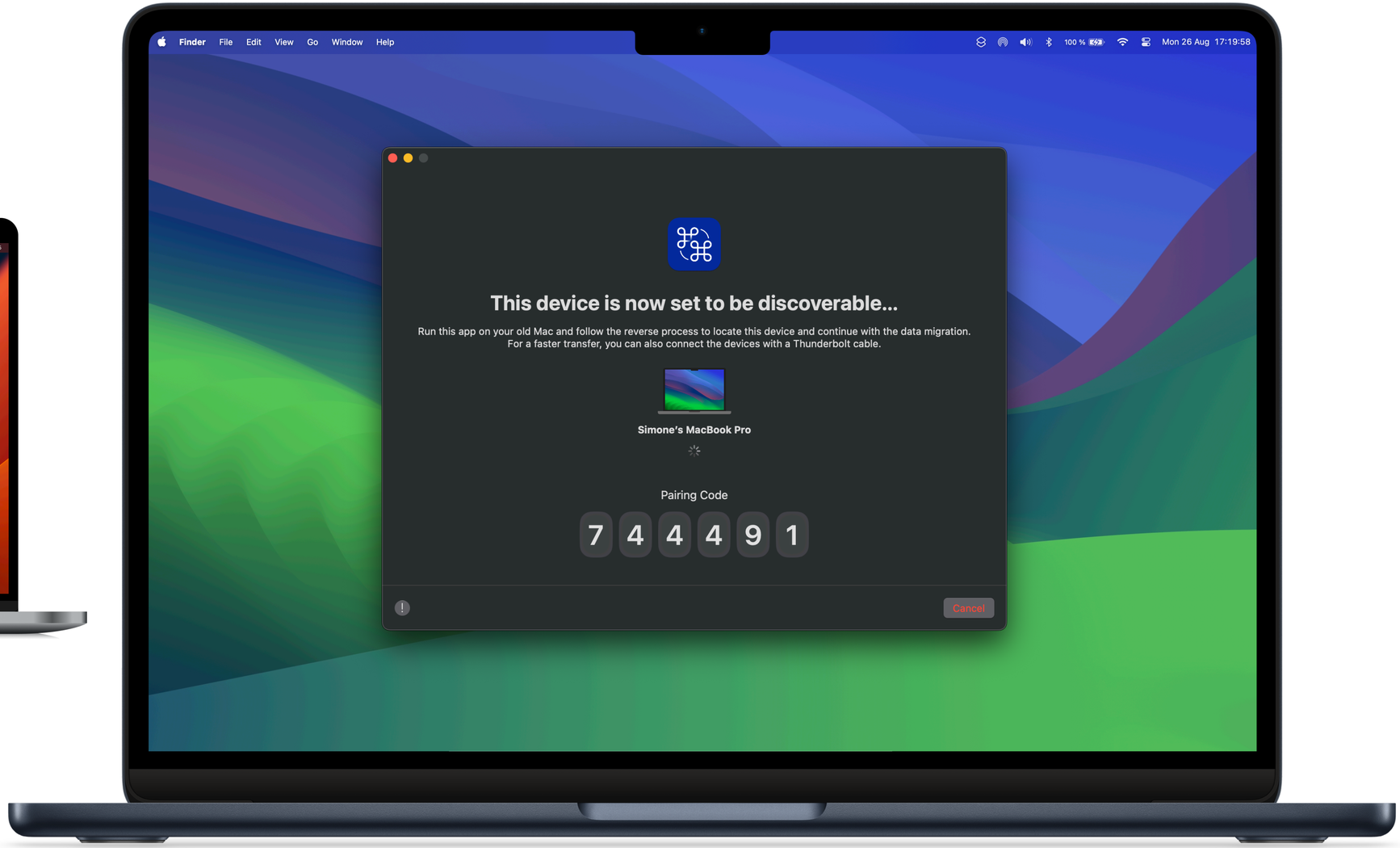
ibm.biz/mac-migration

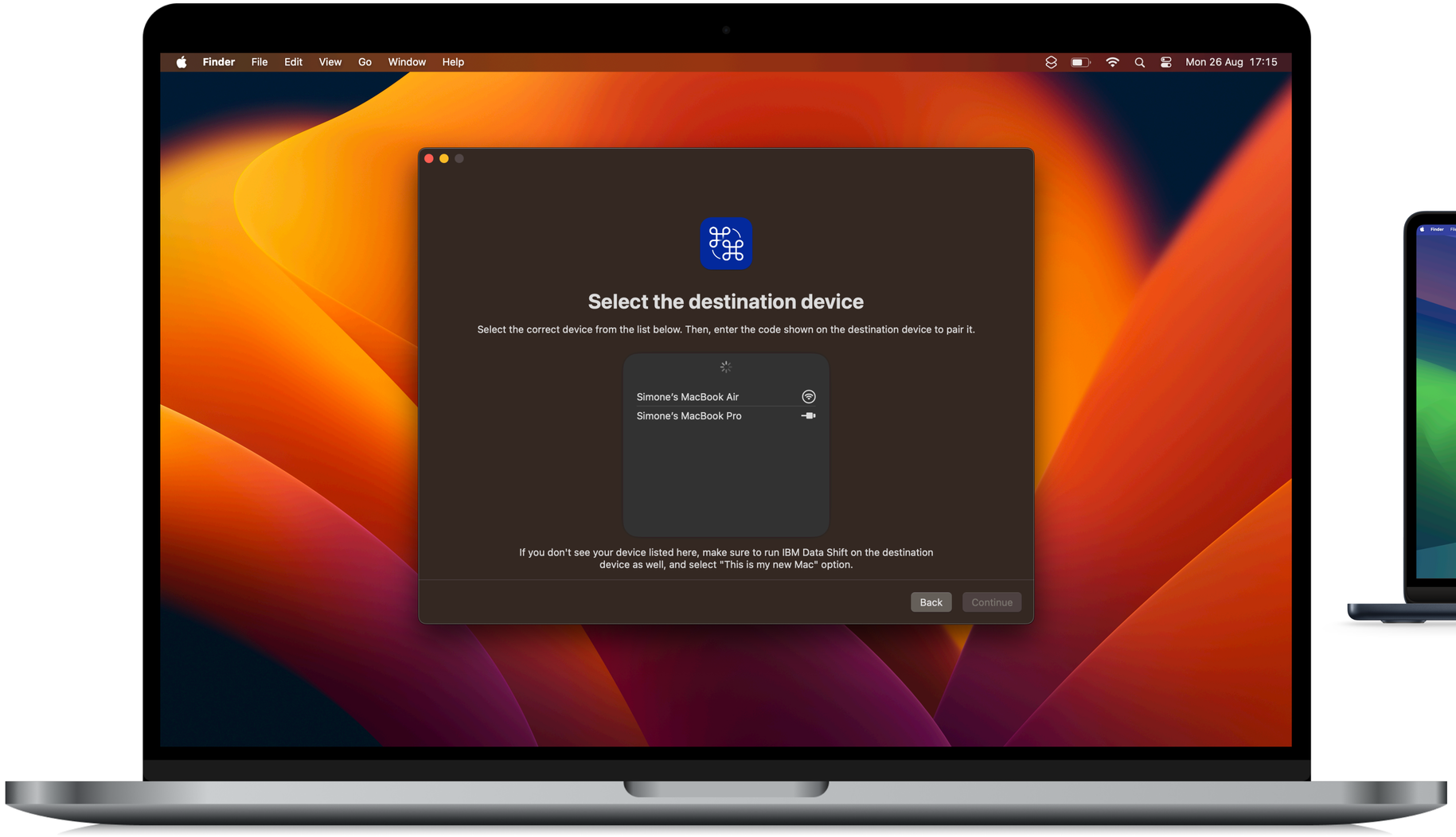
How does it work?

Finder File Edit View Go Window Help
Mon 26 Aug 17:15
Welcome to IBM Data Shift
Select an option below to get started.
This is my new Mac
This is my old Mac
Continue


Finder File Edit View Go Window Help
100 %
Mon 26 Aug 17:19:58
Welcome to IBM Data Shift
Select an option below to get started.
This is my new Mac
This is my old Mac
Continue


Finder File Edit View Go Window Help
Mon 26 Aug 17:15
Select the destination device
Select the correct device from the list below. Then, enter the code shown on the destination device to pair it.
Simone's MacBook Air
Simone's MacBook Pro
If you don't see your device listed here, make sure to run IBM Data Shift on the destination device as well, and select "This is my new Mac" option.
Back
Continue

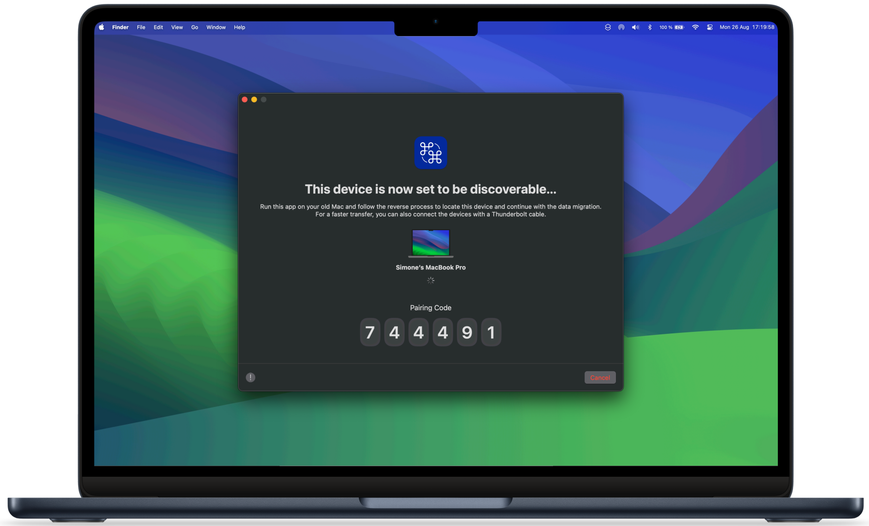

Finder File Edit View Go Window Help
100 %
Mon 26 Aug 17:19:58
This device is now set to be discoverable...
Run this app on your old Mac and follow the reverse process to locate this device and continue with the data migration.
For a faster transfer, you can also connect the devices with a Thunderbolt cable.
Simone's MacBook Pro
Pairing Code
7 4 4 4 9 1
Cancel

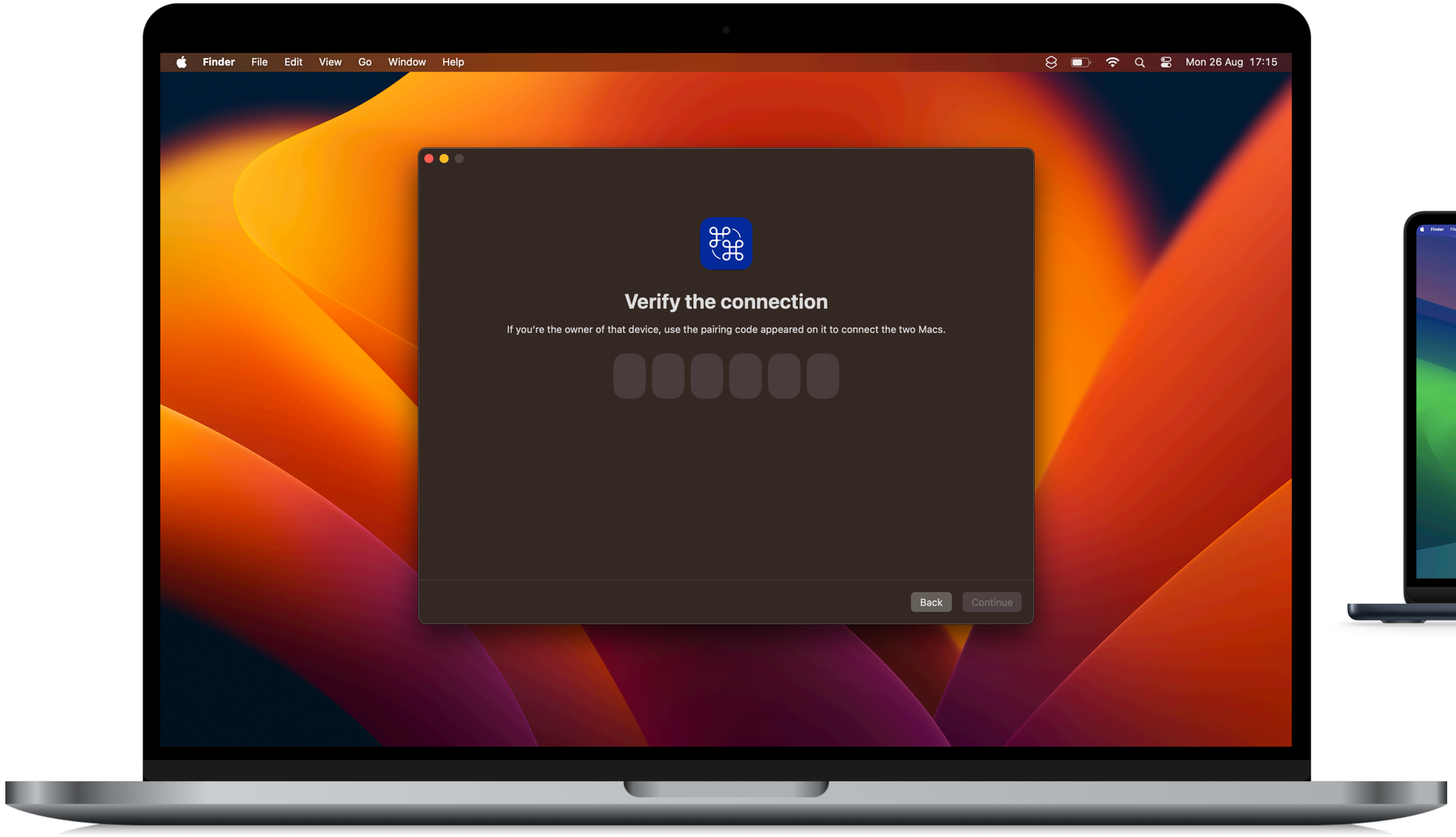


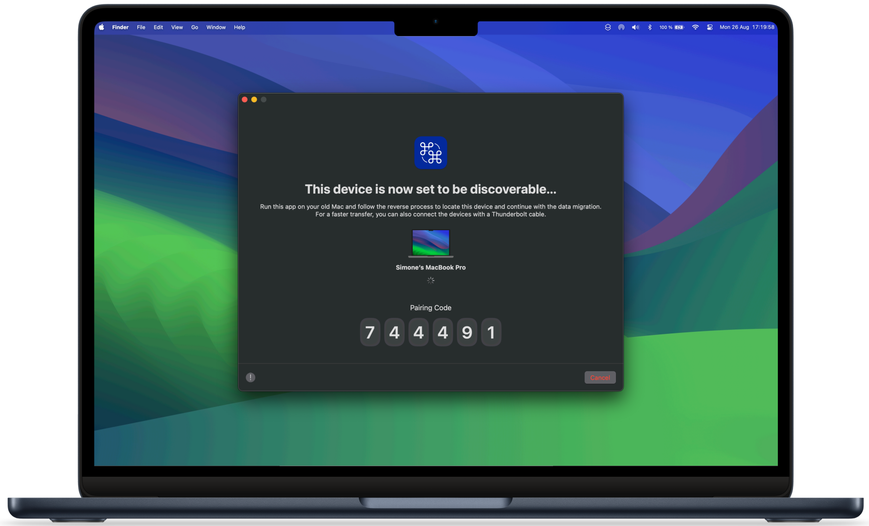
Available Connection Interfaces

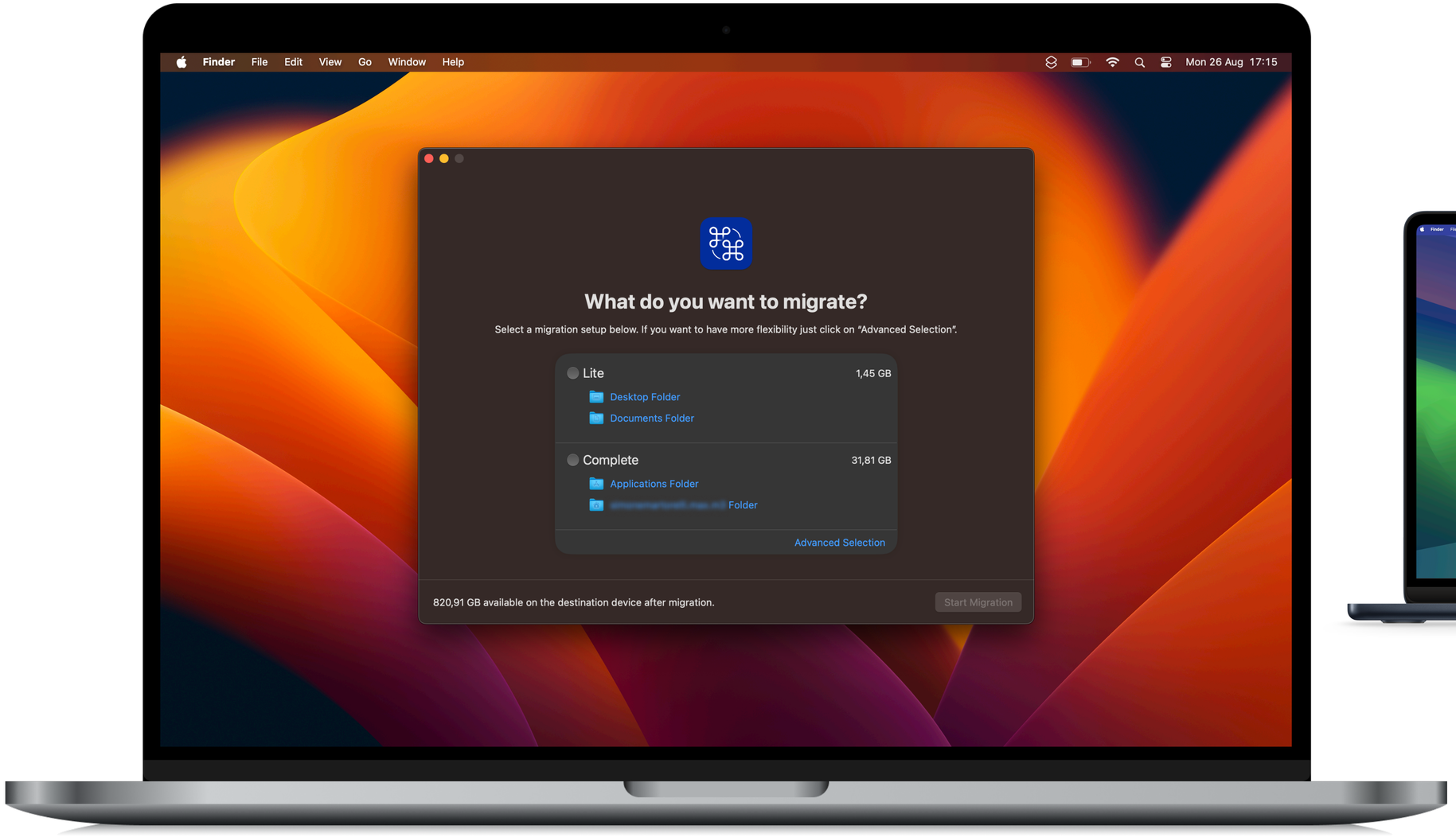
Wi-Fi

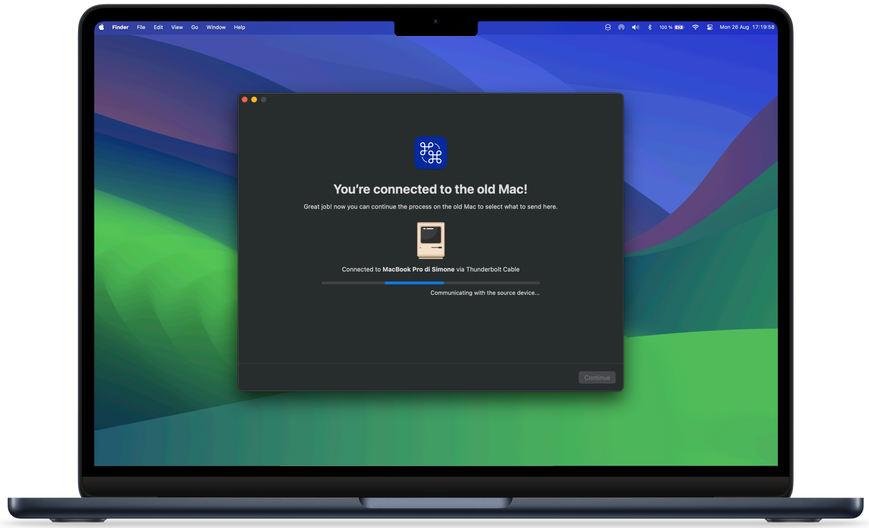
Thunderbolt

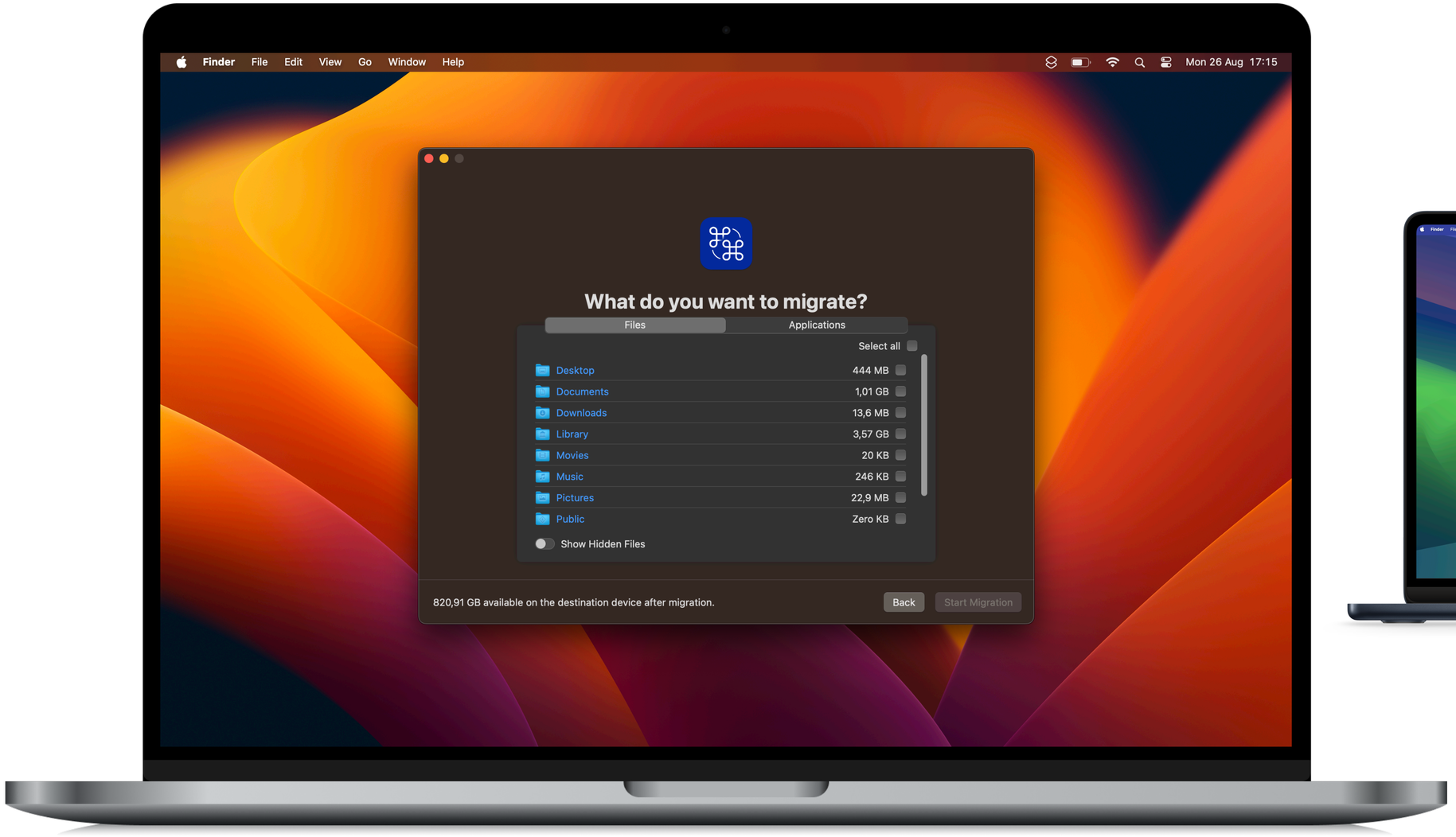


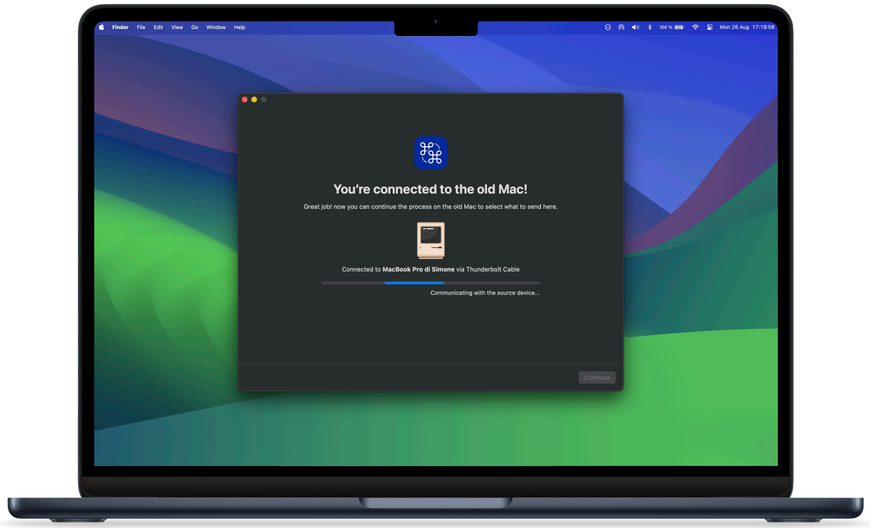

Finder File Edit View Go Window Help
Mon 26 Aug 17:15
Verify the connection
If you're the owner of that device, use the pairing code appeared on it to connect the two Macs.
Back
Continue


This device is now set to be discoverable...
Run this app on your old Mac and follow the reverse process to locate this device and continue with the data migration.
For a faster transfer, you can also connect the devices with a Thunderbolt cable.
Simone's MacBook Pro
Pairing Code
7 4 4 4 9 1
Cancel

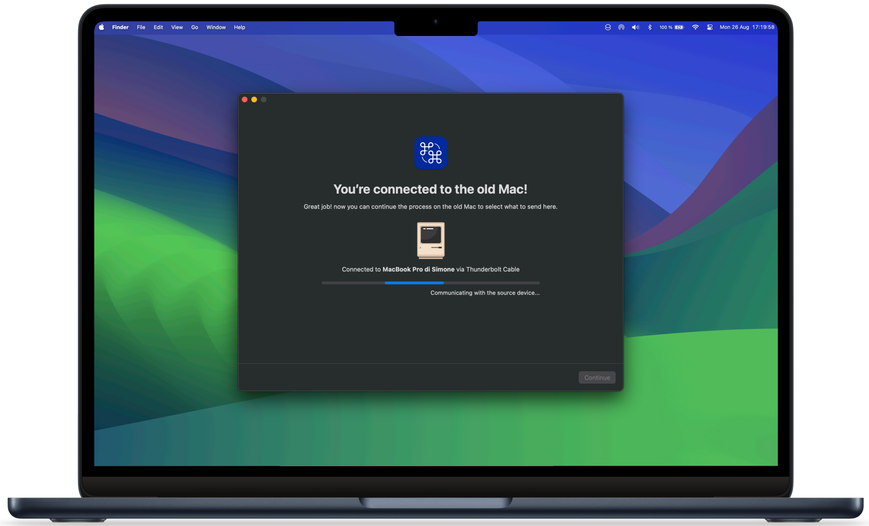

Finder File Edit View Go Window Help
Mon 26 Aug 17:15
What do you want to migrate?
Select a migration setup below. If you want to have more flexibility just click on "Advanced Selection".
Lite
1,45 GB
Desktop Folder
Documents Folder
Complete
31,81 GB
Applications Folder
Folder
Advanced Selection
820,91 GB available on the destination device after migration.
Start Migration

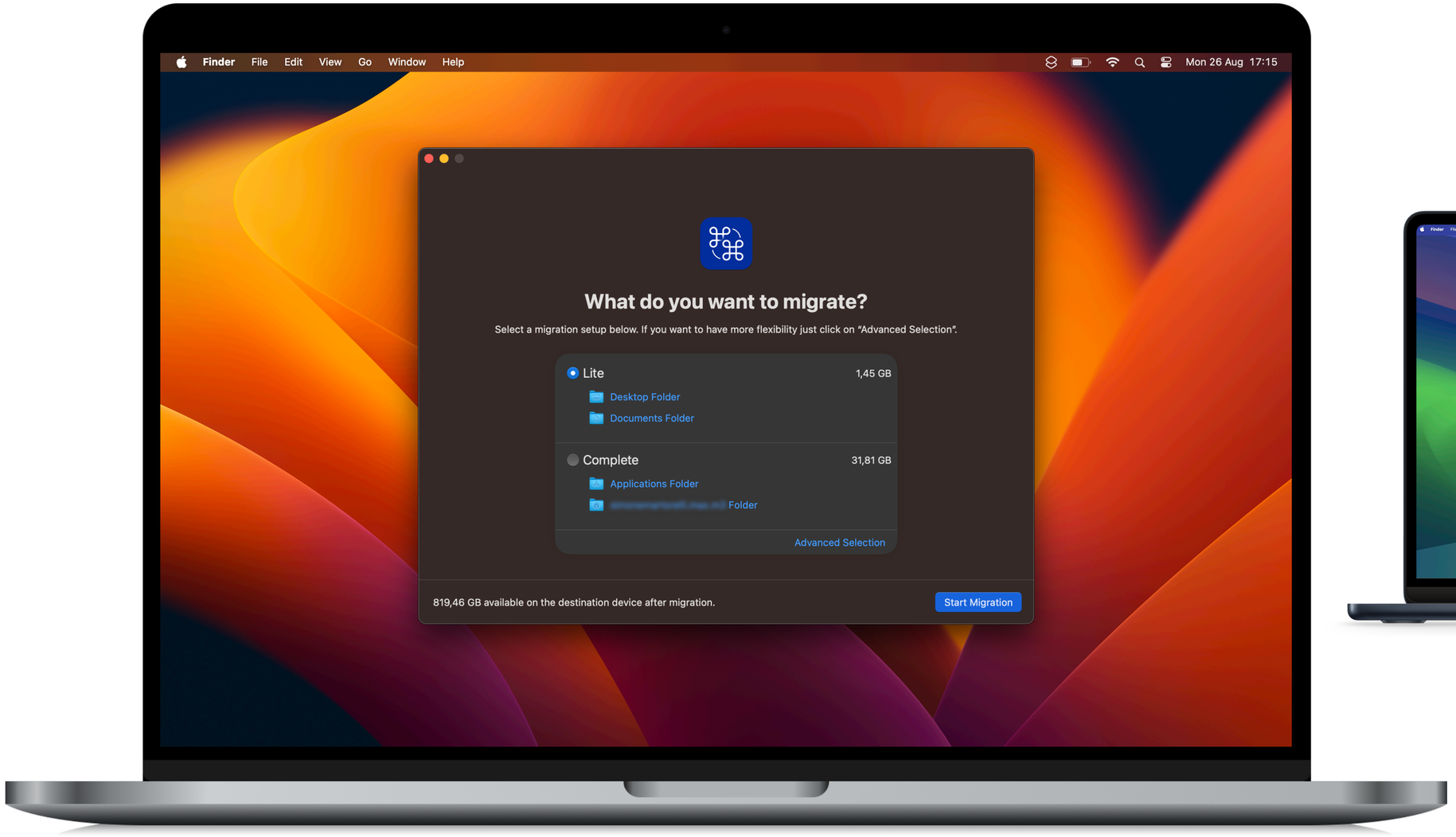

You're connected to the old Mac!
Great job! now you can continue the process on the old Mac to select what to send here.
Connected to MacBook Pro di Simone via Thunderbolt Cable
Communicating with the source device...

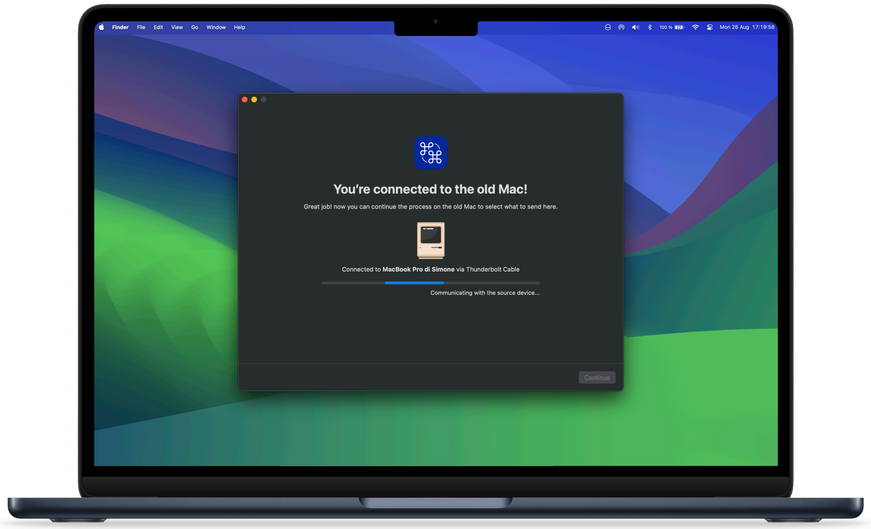

Finder File Edit View Go Window Help
Mon 26 Aug 17:15
What do you want to migrate?
Files
Applications
Select all
Desktop 444 MB
Documents 1,01 GB
Downloads 13,6 MB
Library 3,57 GB
Movies 20 KB
Music 246 KB
Pictures 22,9 MB
Public Zero KB
Show Hidden Files
820,91 GB available on the destination device after migration.
Back
Start Migration


You're connected to the old Mac!
Great job! now you can continue the process on the old Mac to select what to send here.
Connected to MacBook Pro di Simone via Thunderbolt Cable
Communicating with the source device...

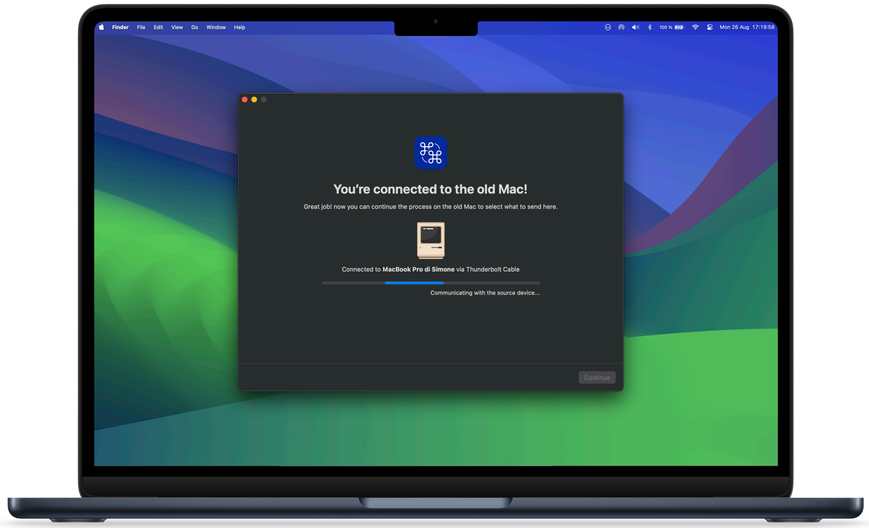
Finder File Edit View Go Window Help
Mon 26 Aug 17:15
What do you want to migrate?
Files
Applications
Select all
1Password.app 394 MB
AppCleaner.app 8,4 MB
Apparency.app 13,5 MB
Apple Configurator.app 64,3 MB
DevCleaner.app 6,2 MB
Developer.app 16 MB
Figma.app 252 MB
Firefox.app 396,2 MB
Show Hidden Files
820,91 GB available on the destination device after migration.
Back
Start Migration


You're connected to the old Mac!
Great job! now you can continue the process on the old Mac to select what to send here.
Connected to MacBook Pro di Simone via Thunderbolt Cable
Communicating with the source device...
Continue

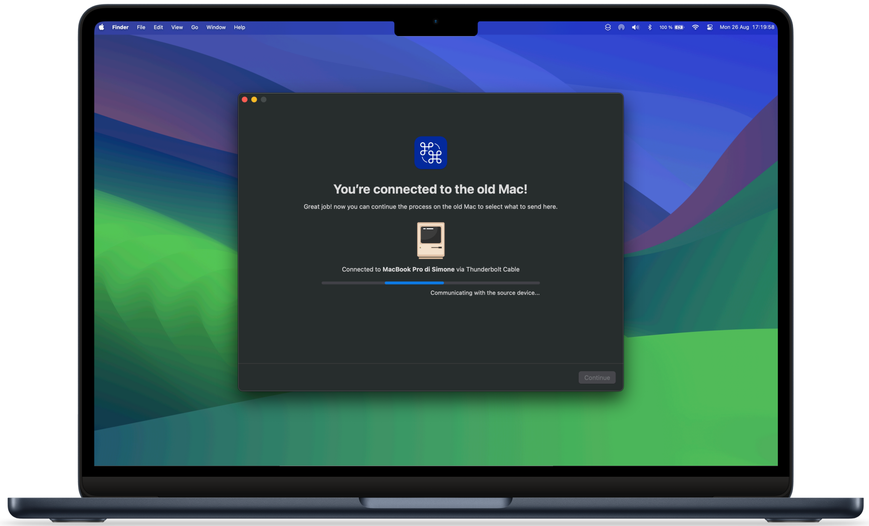

Finder File Edit View Go Window Help
Mon 26 Aug 17:15
What do you want to migrate?
Select a migration setup below. If you want to have more flexibility just click on "Advanced Selection".
Lite
1,45 GB
Desktop Folder
Documents Folder
Complete
31,81 GB
Applications Folder
Folder
Advanced Selection
819,46 GB available on the destination device after migration.
Start Migration

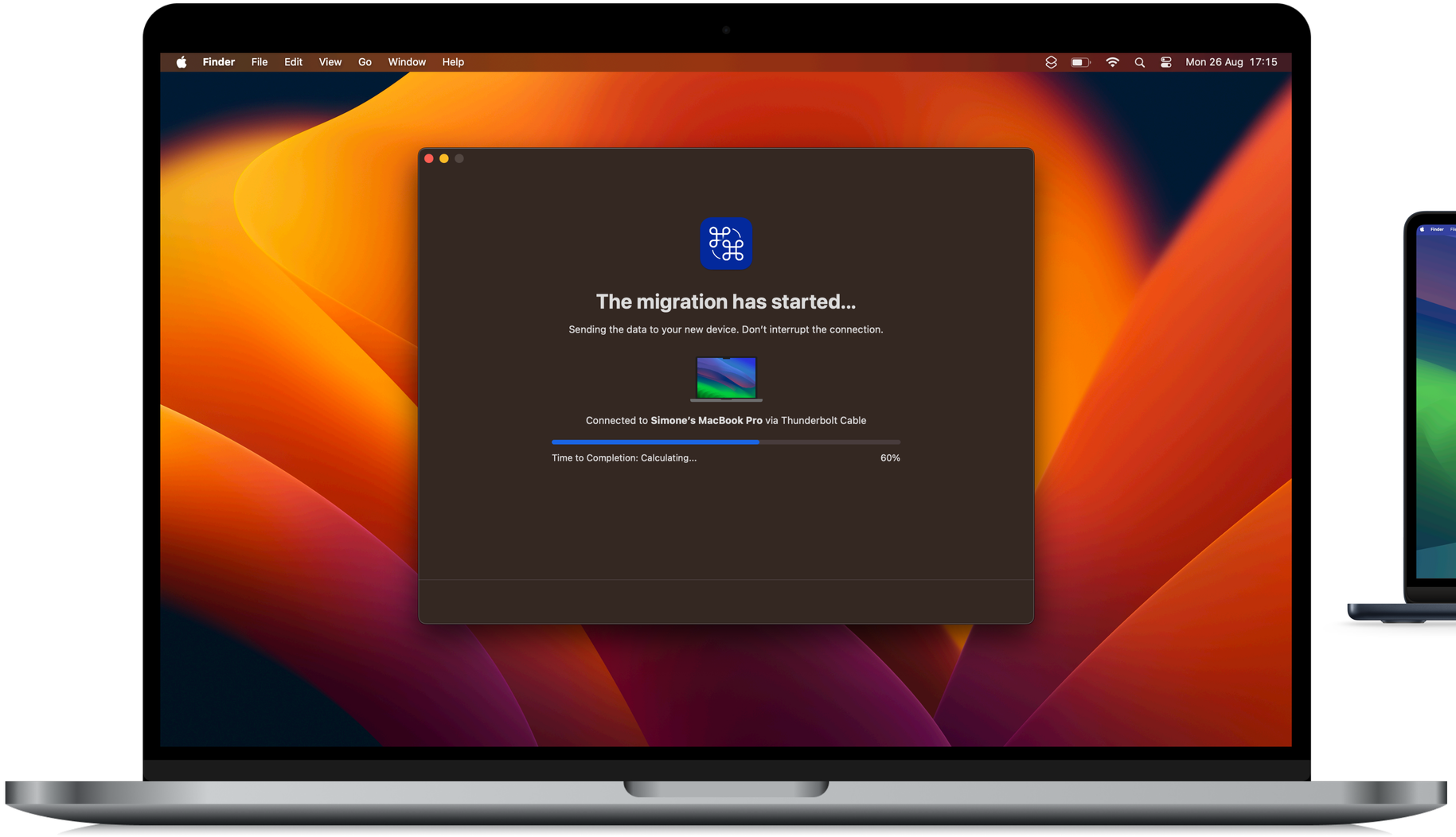

You're connected to the old Mac!
Great job! now you can continue the process on the old Mac to select what to send here.
Connected to MacBook Pro di Simone via Thunderbolt Cable
Communicating with the source device...

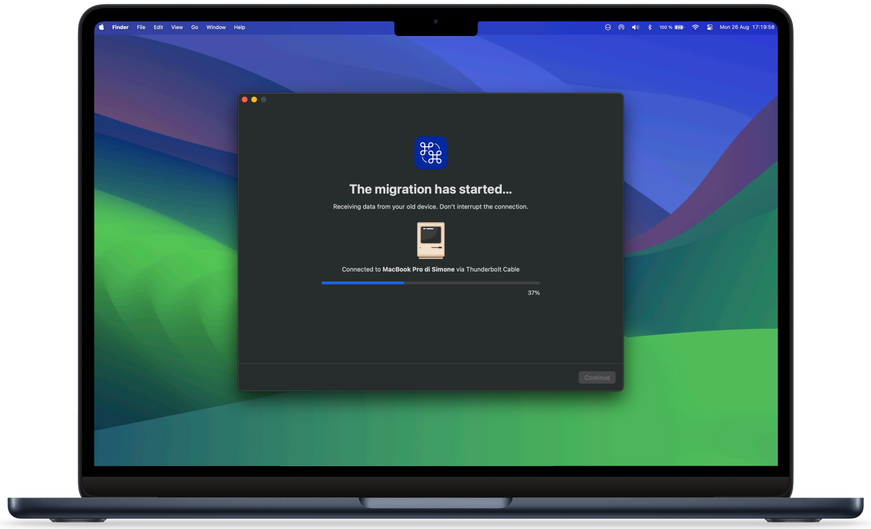
Finder File Edit View Go Window Help
Mon 26 Aug 17:15
Attention
Be aware that once the migration begins, the app will prevent both devices from entering sleep mode.
OK
Lite
1,45 GB
31,81 GB
Applications Folder
simonemartorelli.max.m3 Folder
Advanced Selection
819,46 GB available on the destination device after migration.
Start Migration

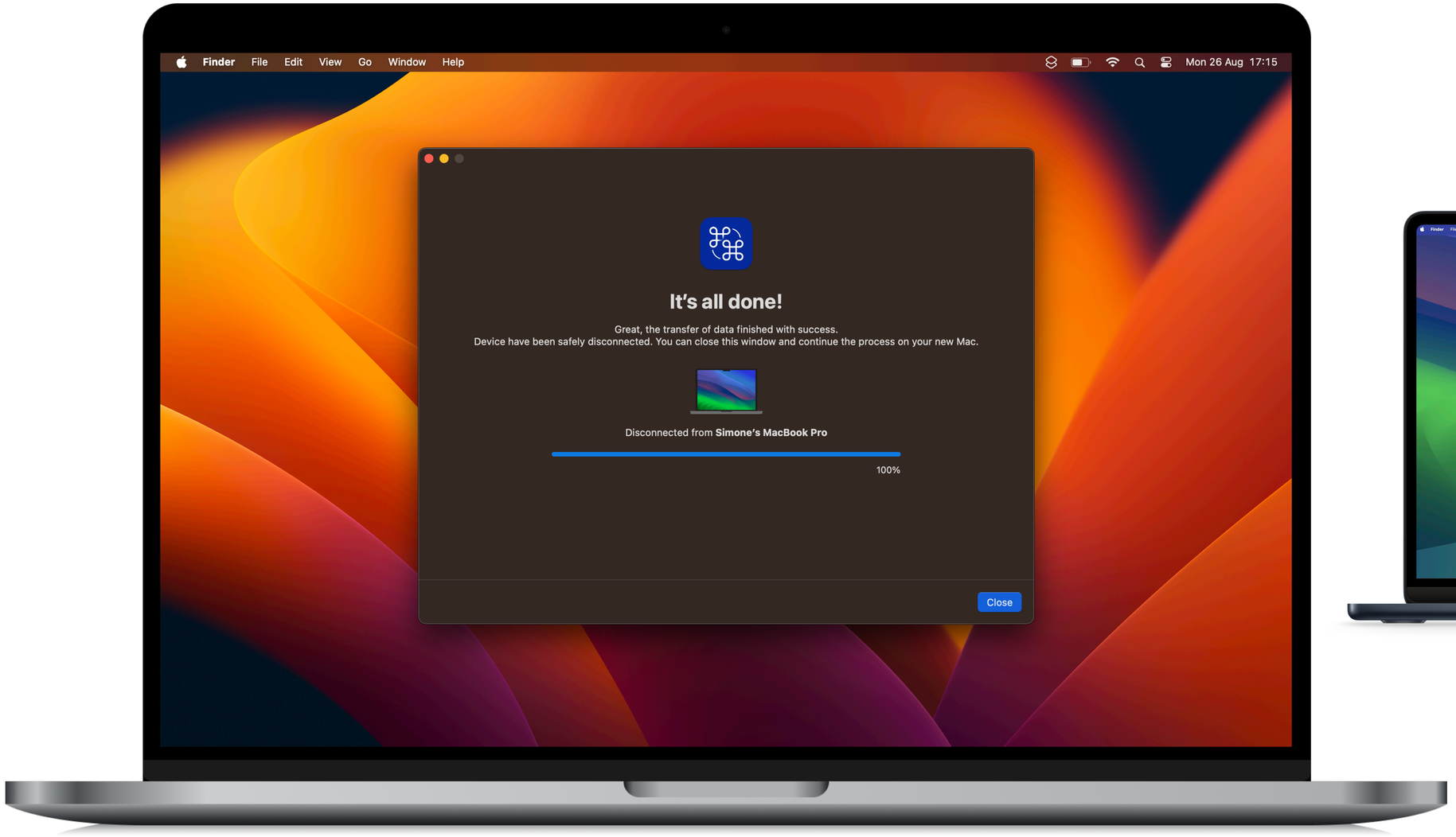

You're connected to the old Mac!
Great job! now you can continue the process on the old Mac to select what to send here.
Connected to MacBook Pro di Simone via Thunderbolt Cable
Communicating with the source device...

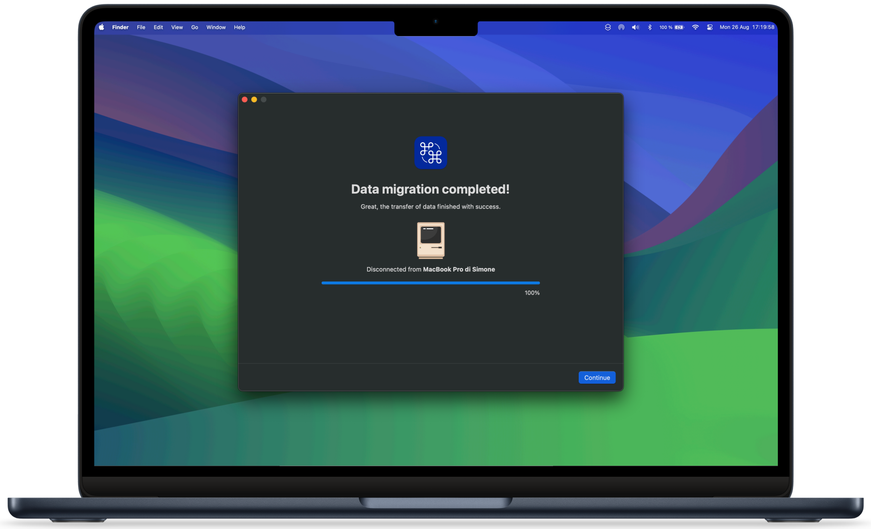
Finder File Edit View Go Window Help
Mon 26 Aug 17:15
Attention
Avoid interacting with the files involved in the migration process, as doing so may lead to data loss.
OK
Lite
1,45 GB
Applications Folder
simonemartorelli.max.m3 Folder
Advanced Selection
819,46 GB available on the destination device after migration.
Start Migration

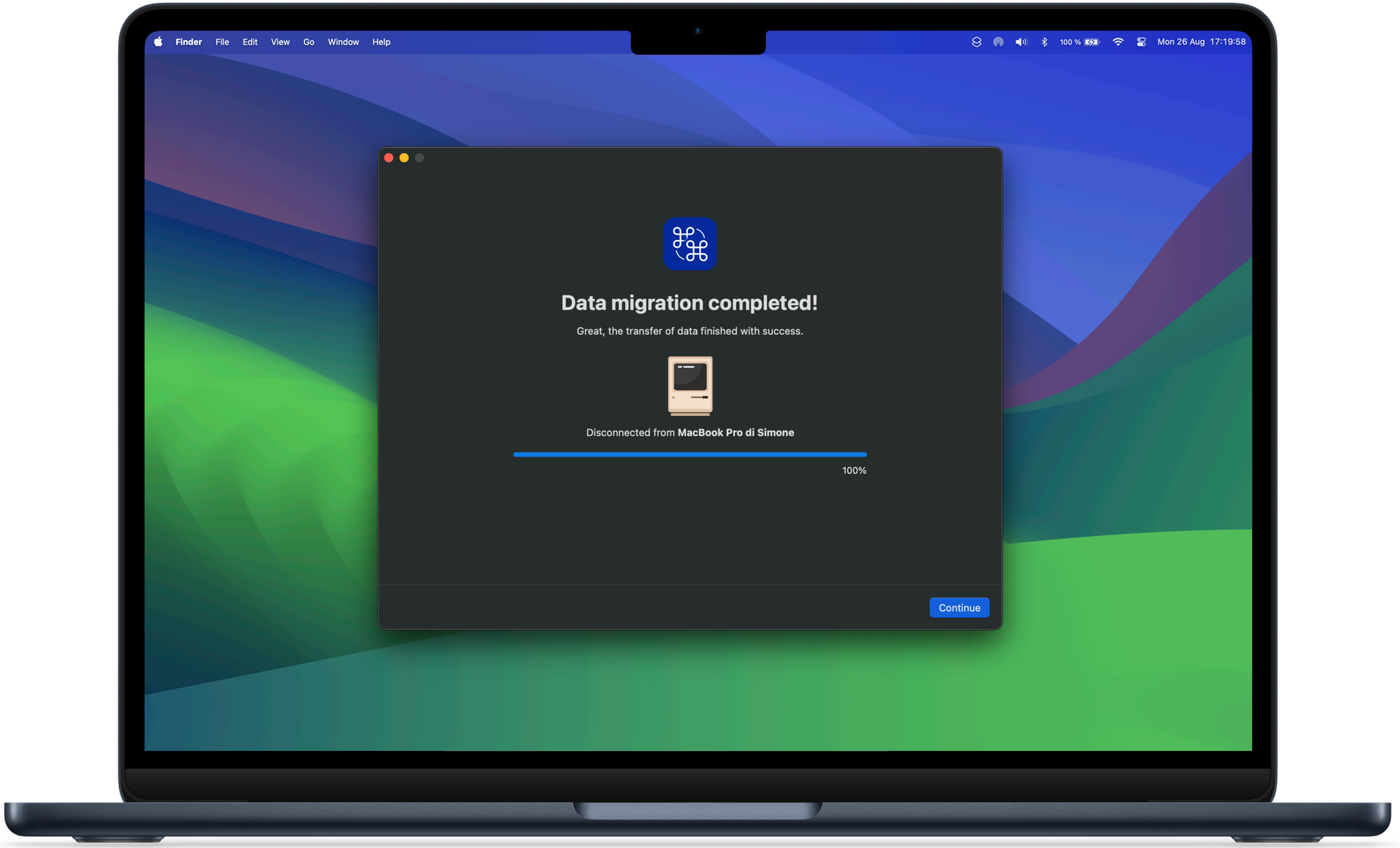

You're connected to the old Mac!
Great job! now you can continue the process on the old Mac to select what to send here.
Connected to MacBook Pro di Simone via Thunderbolt Cable
Communicating with the source device...

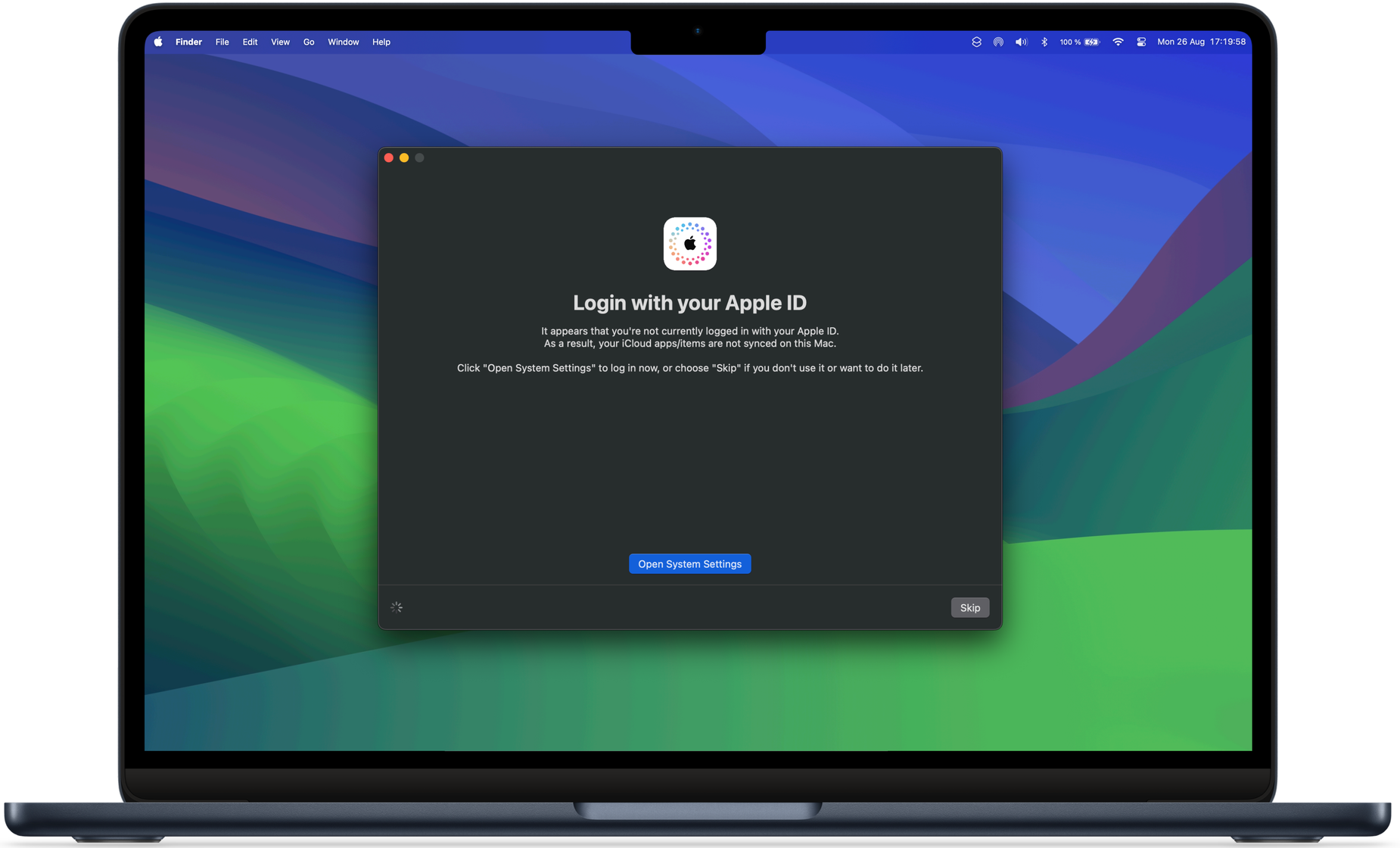

Finder File Edit View Go Window Help
Mon 26 Aug 17:15
The migration has started...
Sending the data to your new device. Don't interrupt the connection.
Connected to Simone's MacBook Pro via Thunderbolt Cable
Time to Completion: Calculating...
60%

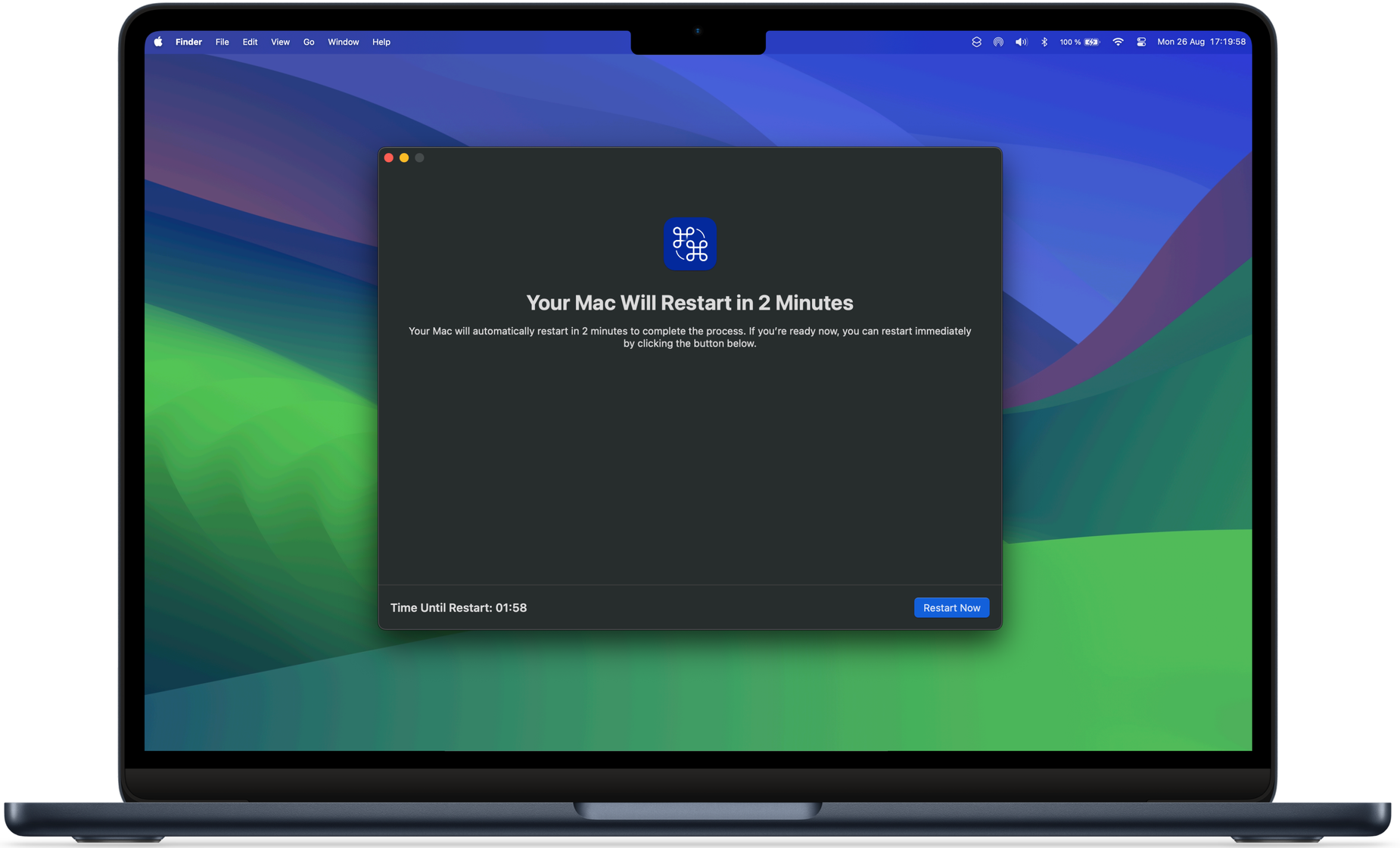

The migration has started...
Receiving data from your old device. Don't interrupt the connection.
Connected to MacBook Pro di Simone via Thunderbolt Cable
37%

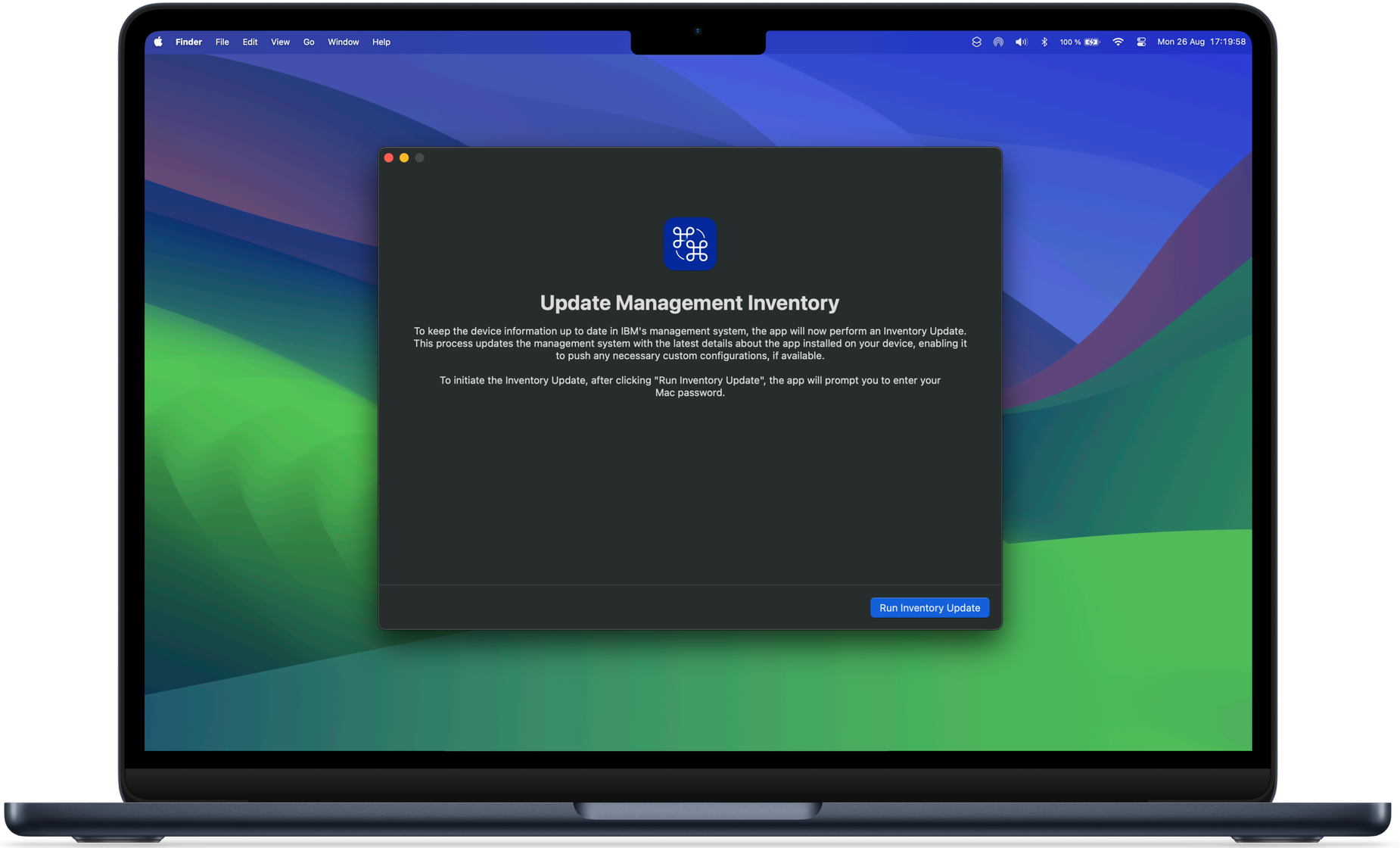

Finder File Edit View Go Window Help
Mon 26 Aug 17:15
It's all done!
Great, the transfer of data finished with success.
Device have been safely disconnected. You can close this window and continue the process on your new Mac.
Disconnected from Simone's MacBook Pro
100%
Close

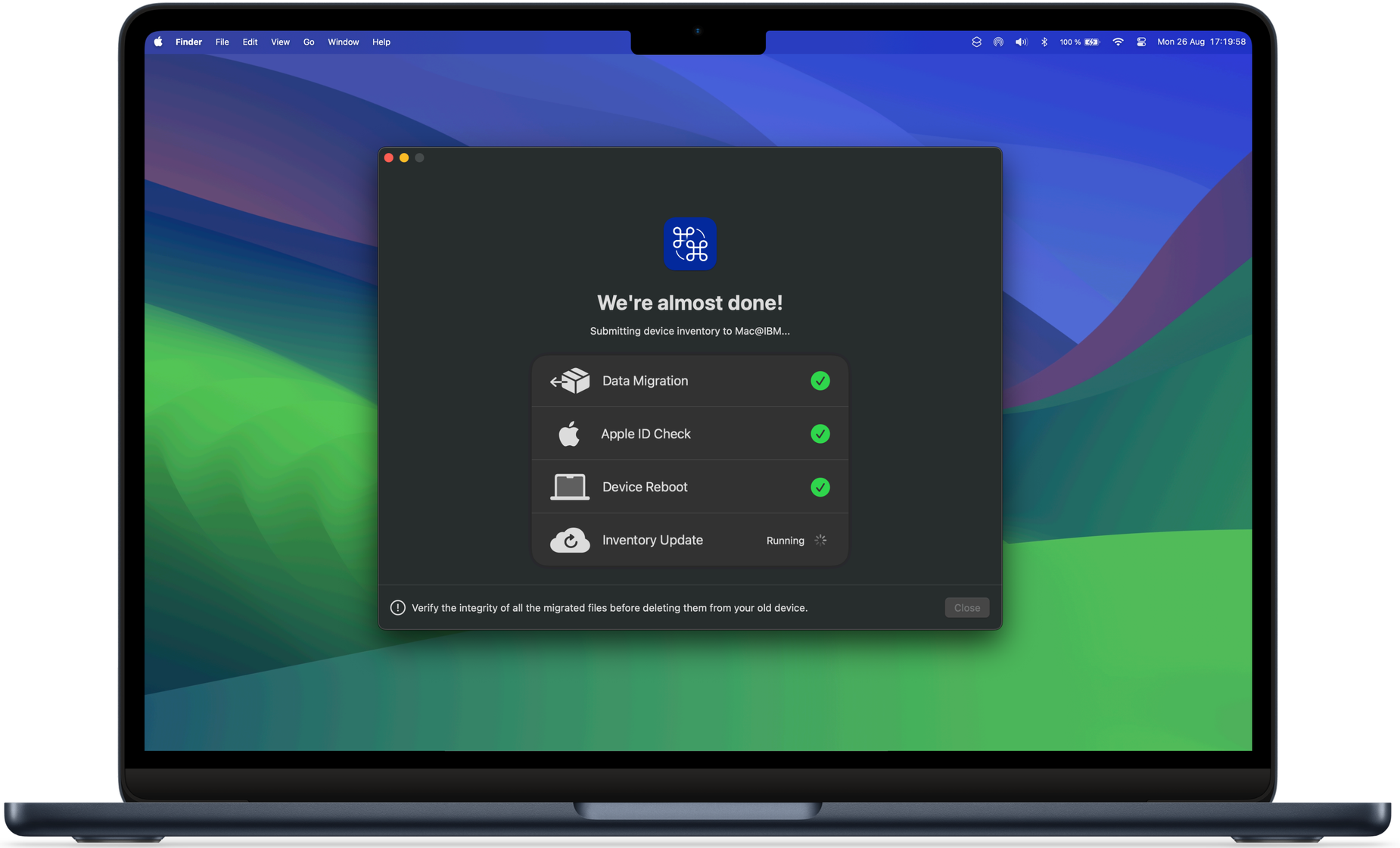

Data migration completed!
Great, the transfer of data finished with success.
Disconnected from MacBook Pro di Simone
100%
Continue

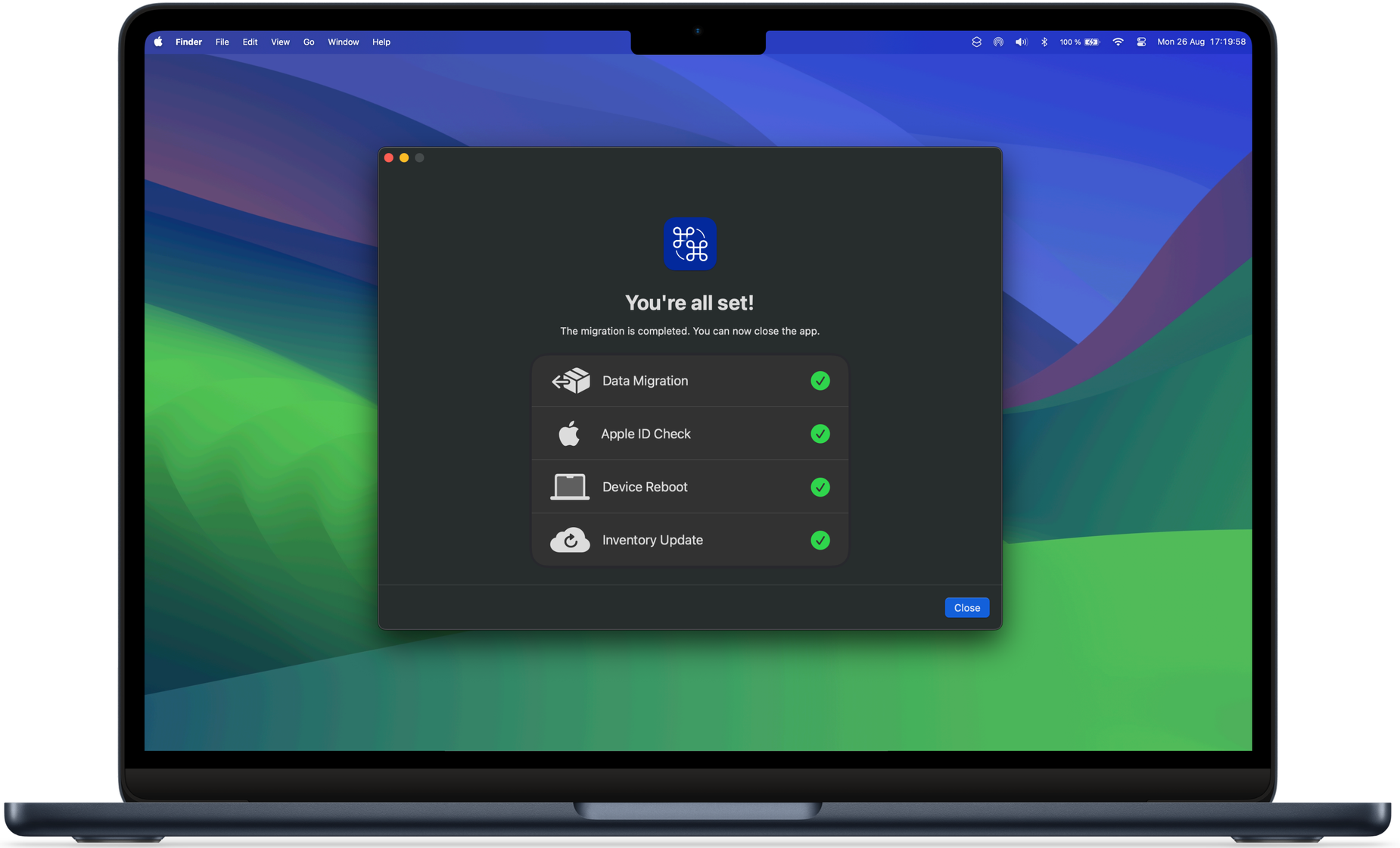

Finder File Edit View Go Window Help
100 %
Mon 26 Aug 17:19:58
Data migration completed!
Great, the transfer of data finished with success.
Disconnected from MacBook Pro di Simone
100%
Continue


Finder File Edit View Go Window Help
100 %
Mon 26 Aug 17:19:58
Login with your Apple ID
It appears that you're not currently logged in with your Apple ID.
As a result, your iCloud apps/items are not synced on this Mac.
Click "Open System Settings" to log in now, or choose "Skip" if you don't use it or want to do it later.
Open System Settings
Skip

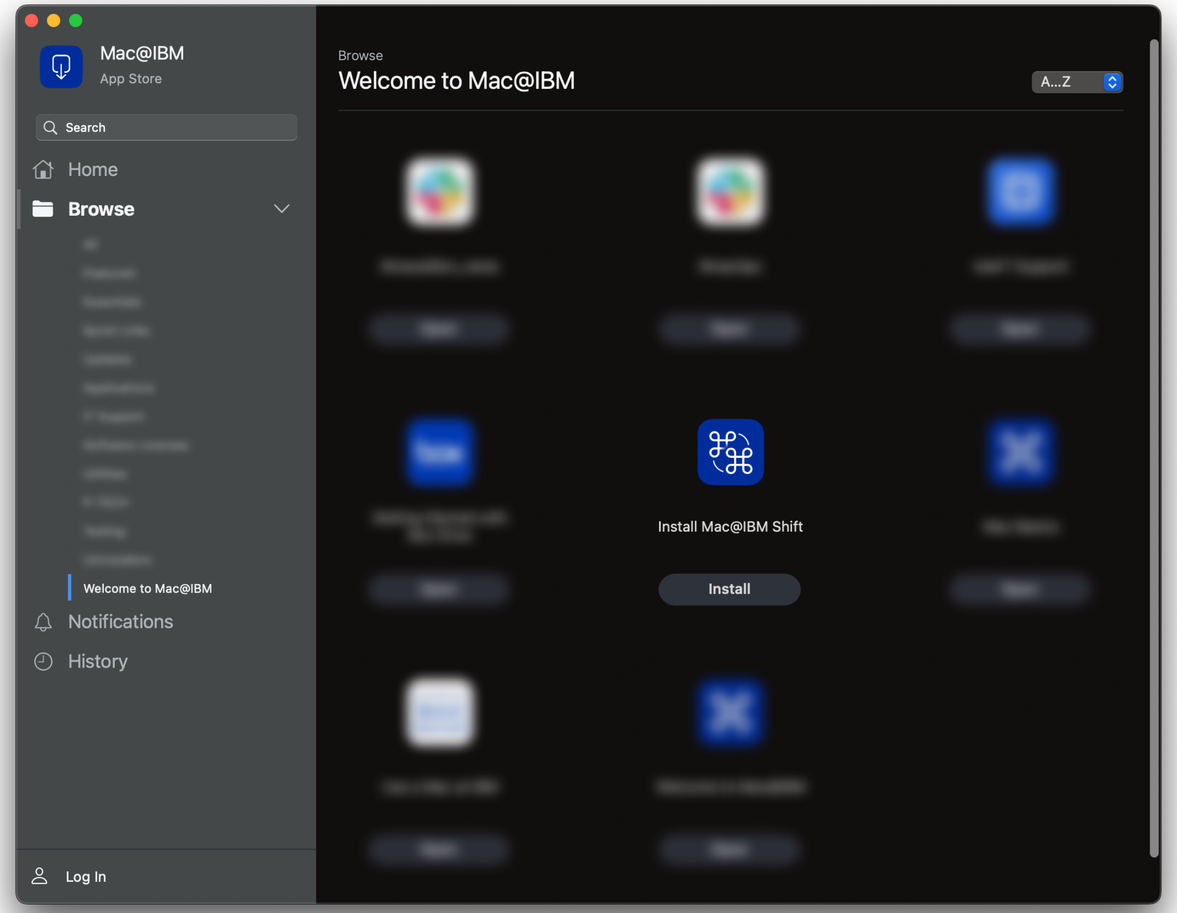

Finder File Edit View Go Window Help
100 %
Mon 26 Aug 17:19:58
Your Mac Will Restart in 2 Minutes
Your Mac will automatically restart in 2 minutes to complete the process. If you're ready now, you can restart immediately by clicking the button below.
Time Until Restart: 01:58
Restart Now

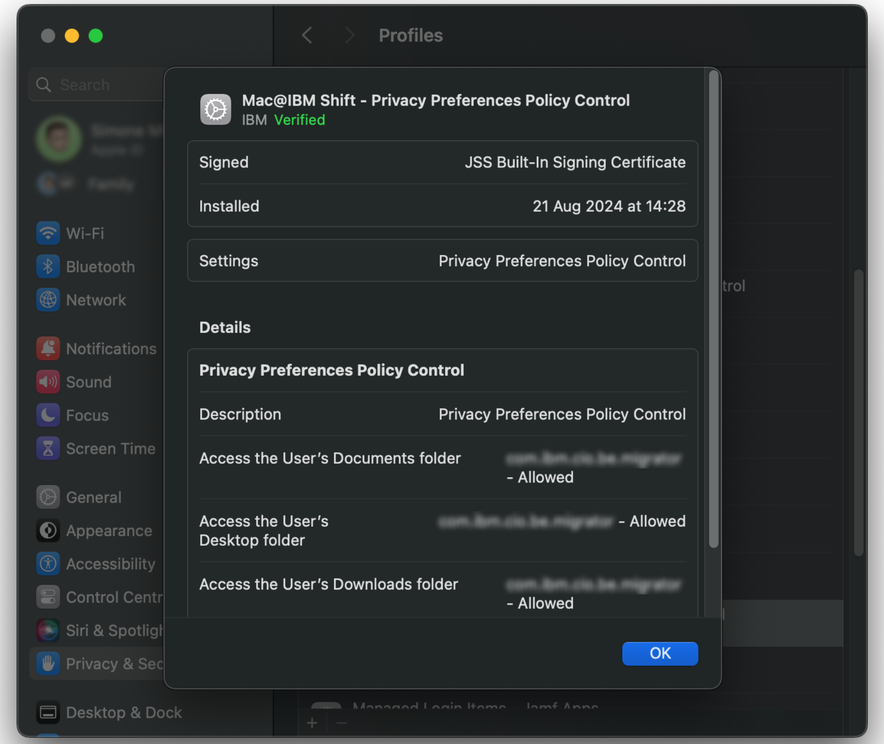

Finder File Edit View Go Window Help
100 %
Mon 26 Aug 17:19:58
Update Management Inventory
To keep the device information up to date in IBM's management system, the app will now perform an Inventory Update. This process updates the management system with the latest details about the app installed on your device, enabling it to push any necessary custom configurations, if available.
To initiate the Inventory Update, after clicking "Run Inventory Update", the app will prompt you to enter your Mac password.
Run Inventory Update


Finder File Edit View Go Window Help
100 % Mon 26 Aug 17:19:58
We're almost done!
Submitting device inventory to Mac@IBM...
Data Migration
Apple ID Check
Device Reboot
Inventory Update
Running
Verify the integrity of all the migrated files before deleting them from your old device.
Close


Finder File Edit View Go Window Help
100 %
Mon 26 Aug 17:19:58
You're all set!
The migration is completed. You can now close the app.
Data Migration
Apple ID Check
Device Reboot
Inventory Update
Close

Integration with Jamf Pro





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How is it made?

IBM Data Shift is a native macOS app written in Swift.

Developed exclusively using Apple frameworks, including SwiftUI, Combine, and Network.

Supports macOS 12 and later. This approach provides an effective balance between maintaining backward compatibility and leveraging the latest development APIs.

Device discovery uses the Bonjour service, and the connection is established through a TCP socket secured with TLS, enhanced by an additional pre-shared key (PSK).

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Branding and Customization

App Name and Bundle ID

To ensure proper project organization and avoid conflicts, update both the target name and the bundle identifier in your Xcode project. Do not use the default values.

Organization Name

You can use your organization’s name or your team name. This helps ensure that your project is clearly identified and properly attributed.

Bonjour Service Identifier

This identifier is used by Bonjour to advertise and discover the service on the local network.

App Icon

Collaborate with your design team, or simply use your team’s logo.

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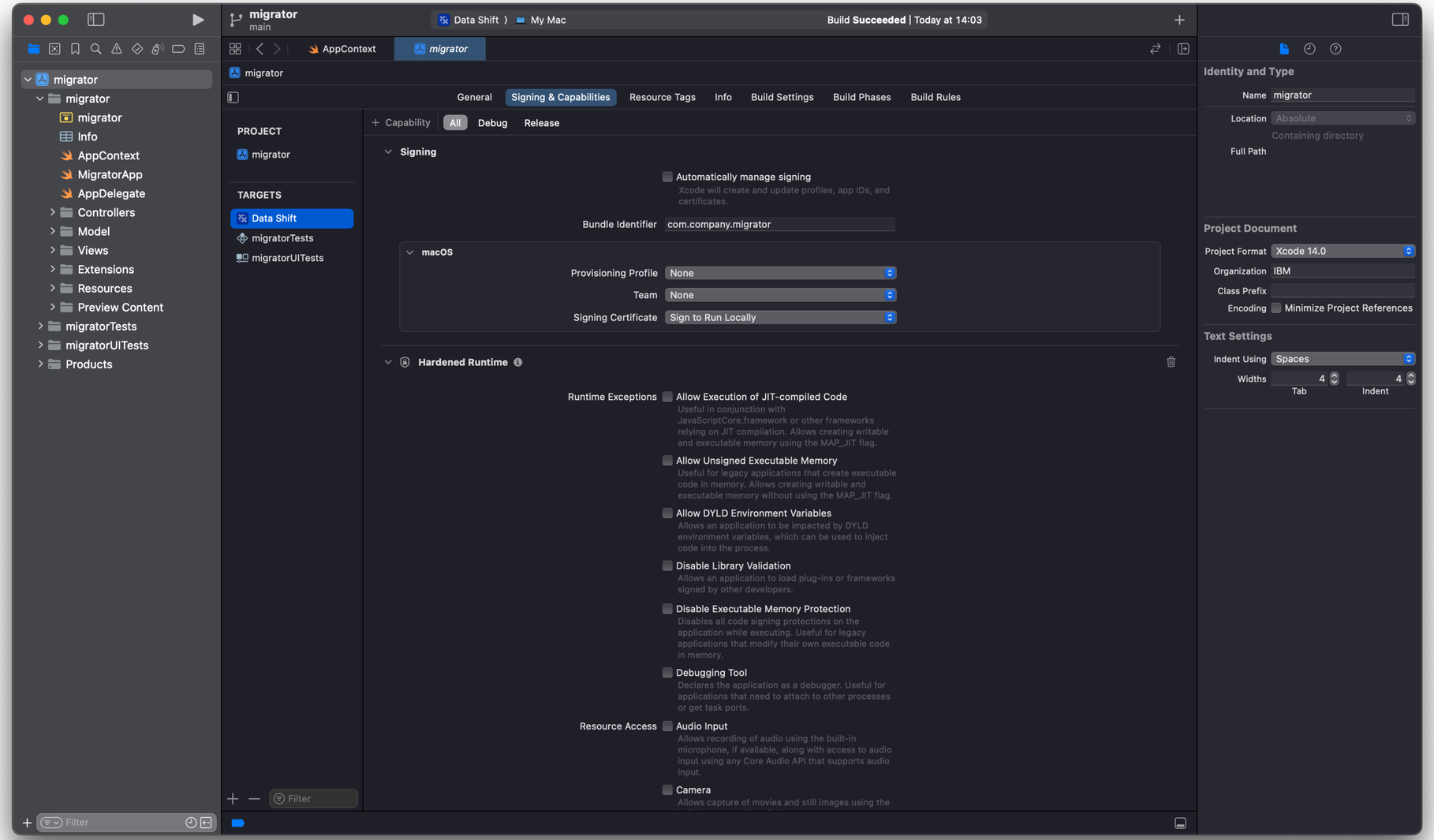
App Name and Bundle ID

To change application name open the project in Xcode, in Project Navigator select "**migrator**" and double click on the target name.

Then change bundle identifier. Do not just leave the default one.



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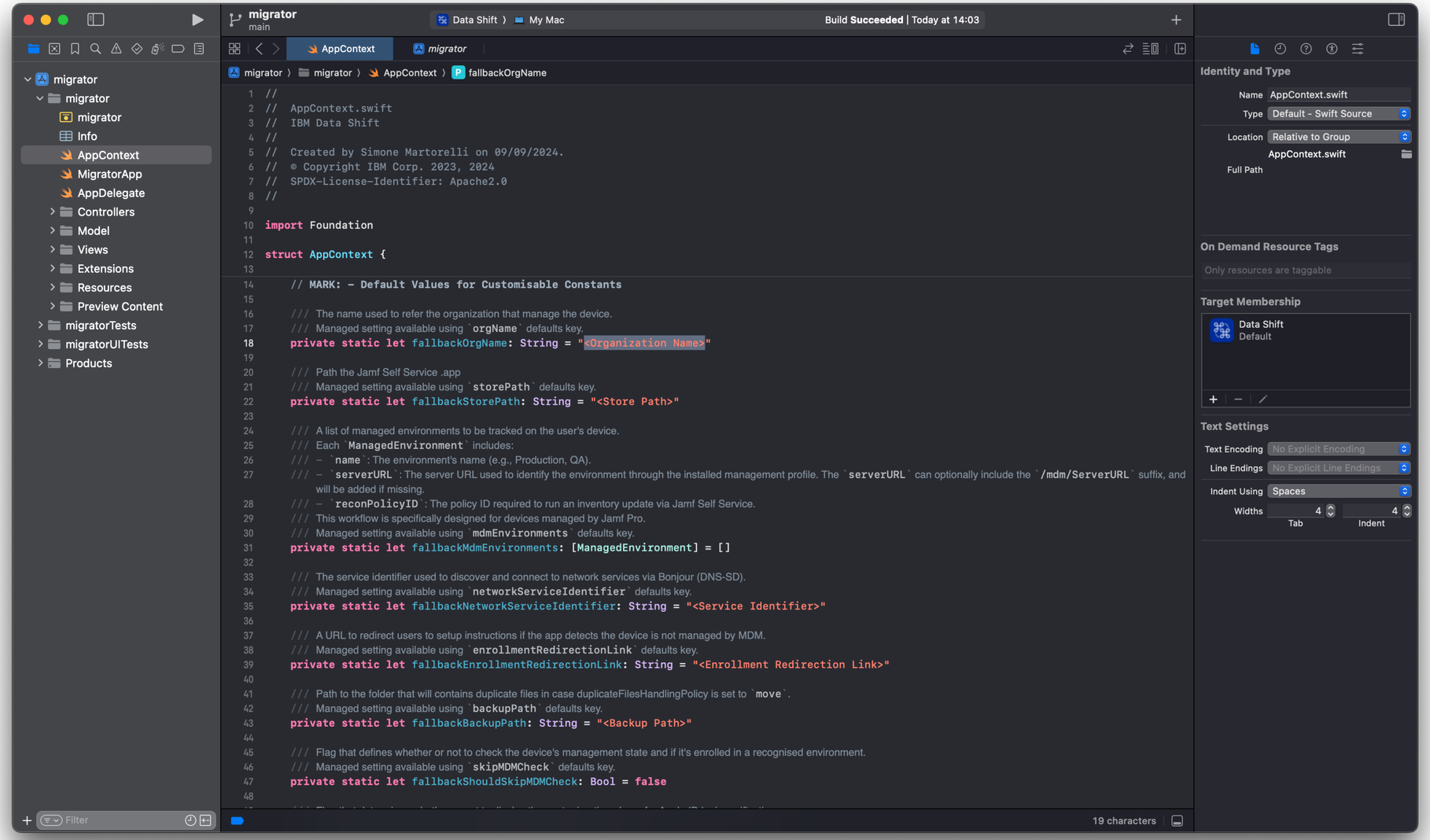
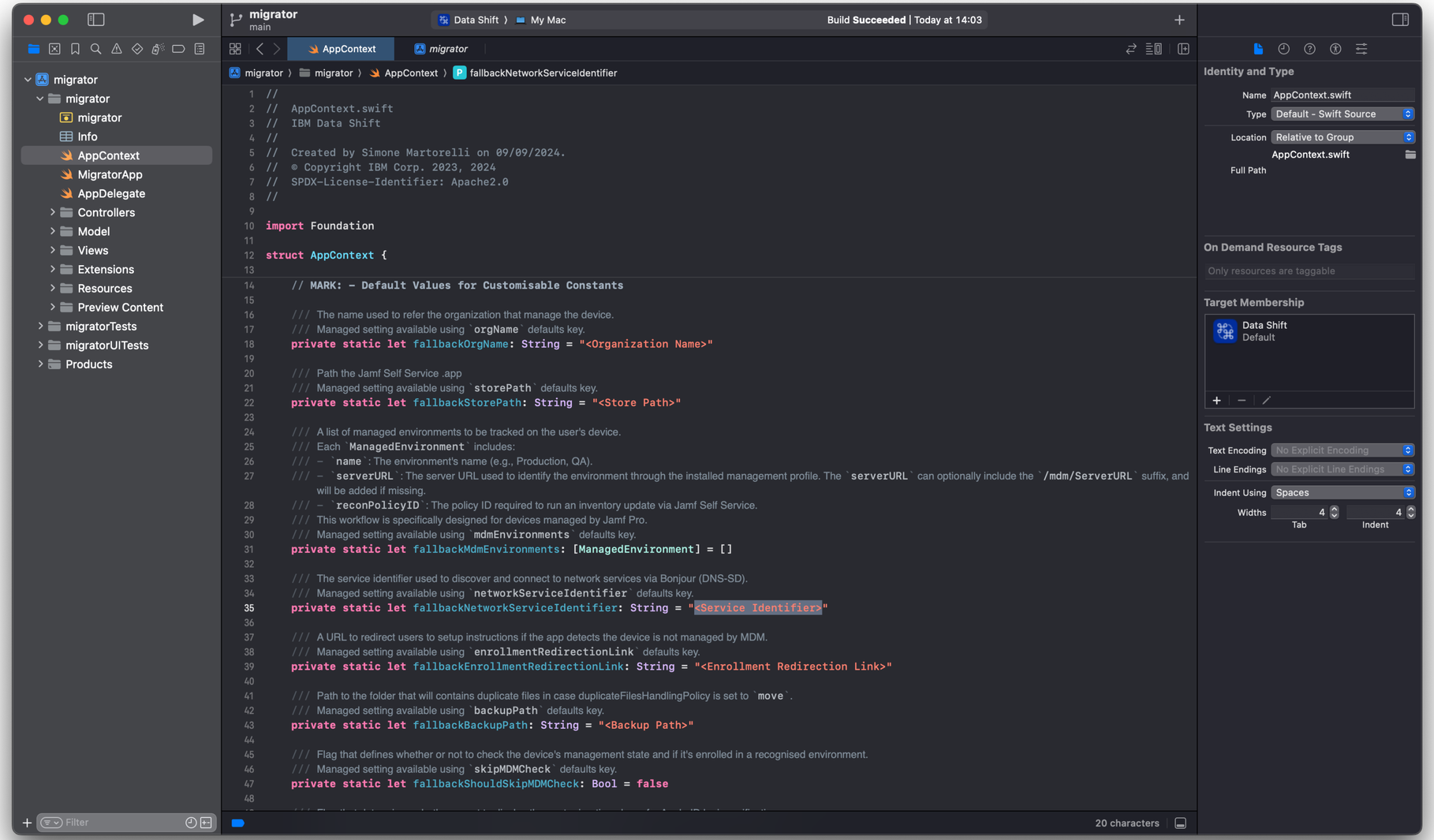
Organization Name

This is the organisation/team name used in some of the app dialogs. Customise it replacing **<Organization Name>** string with you org/team name.



Bonjour Service Identifier

This is the name of the service advertised by bonjour. Customise it replacing <Service Identifier> string with something like _migrator_ibm. We suggest to include your company name in it. Do not add spaces or special characters except _. Remember to change the Bonjour services entry in the project Info panel to match your new service identifier, leaving the ._tcp ending as it is.



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App Icon

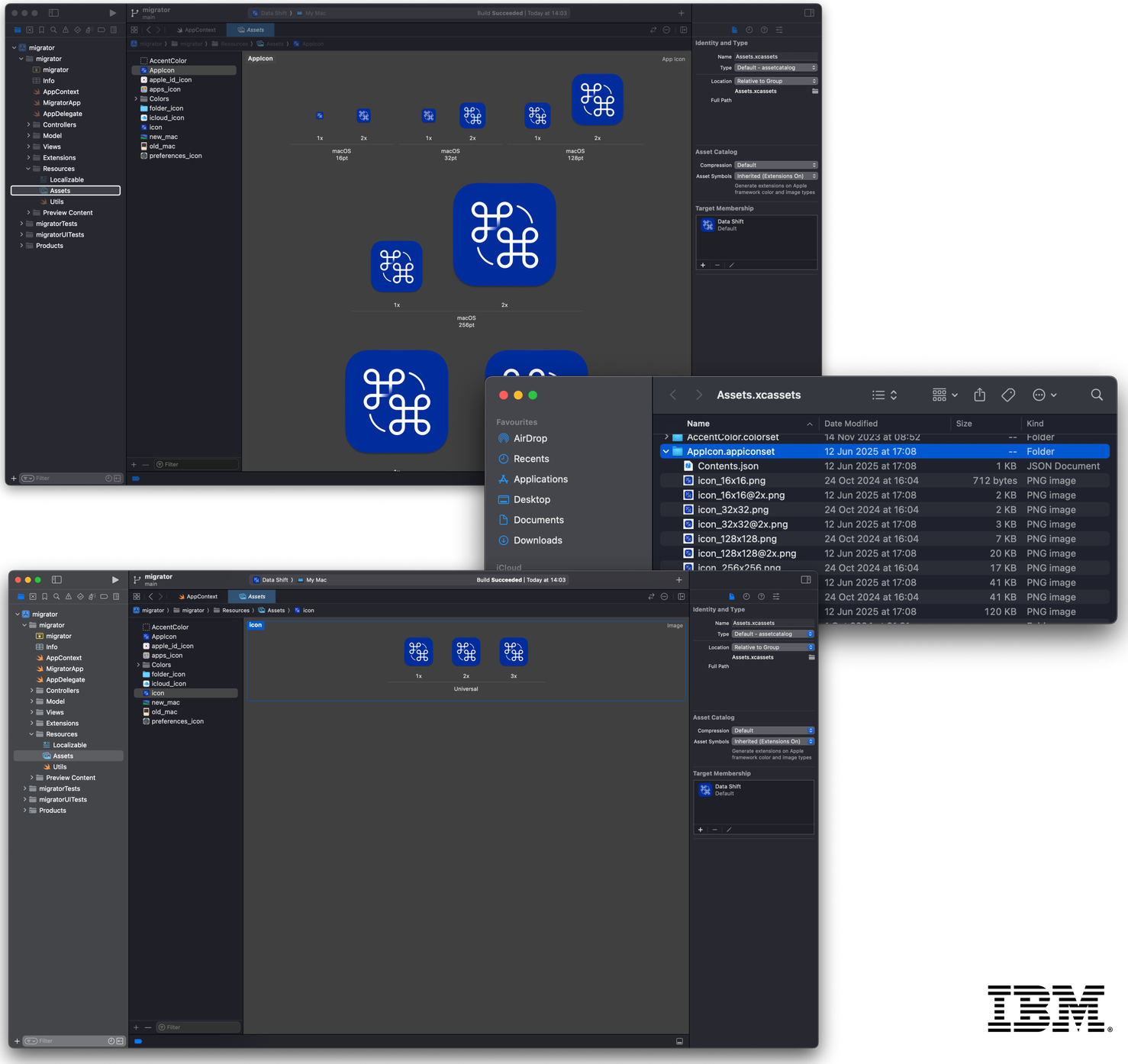
There are two types of icons used in this application:
App Icons: These are used by macOS as the main application icons.
Page Icons: These are used as icons on various pages within the app.

Changing the App Icon

1. In the Project Navigator, right-click on the **migrator/ Resources -> Assets.xcassets** folder and select Show in Finder.
2. In Finder, you will see all the icons used by the app.
3. To update the app icon, replace all PNG files inside the **AppIcon.appiconset** folder with your custom icon files.
   Important: The file names and resolutions must match the originals exactly. For example, 16x16@2x.png must remain named 16x16@2x.png and have a resolution of 32x32 pixels.

Changing the Default Page Icon

1. In the Project Navigator, select **migrator/Resource -> Assets.xcassets.**
2. Select the icon asset and replace the file by simply dragging and dropping your new icon file.
3. For best results, we recommend using a .pdf file for the page



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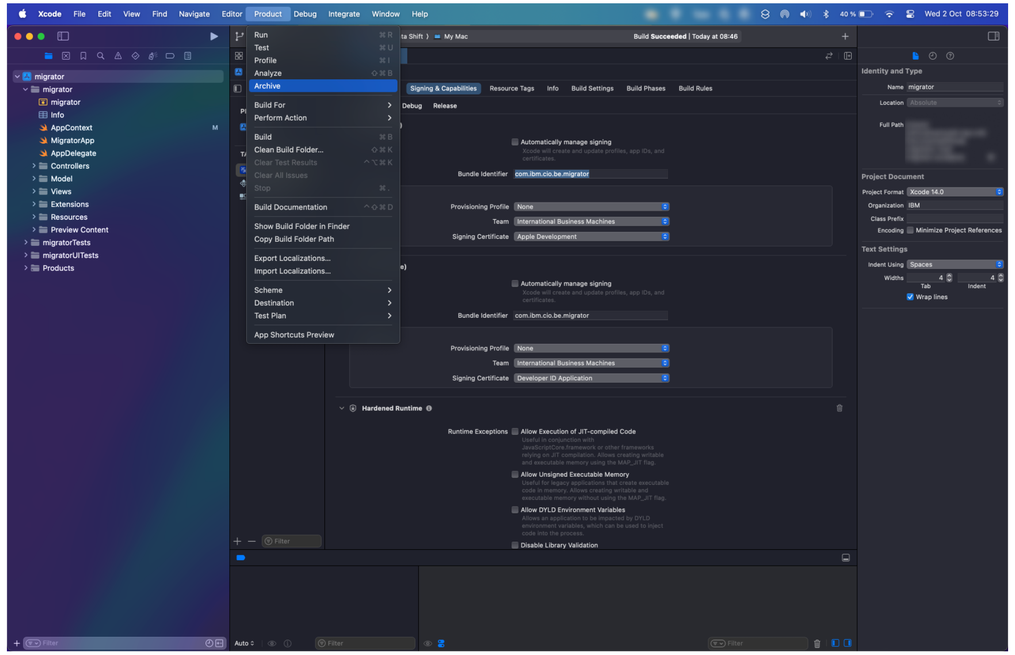
Build, Sign and Notarize

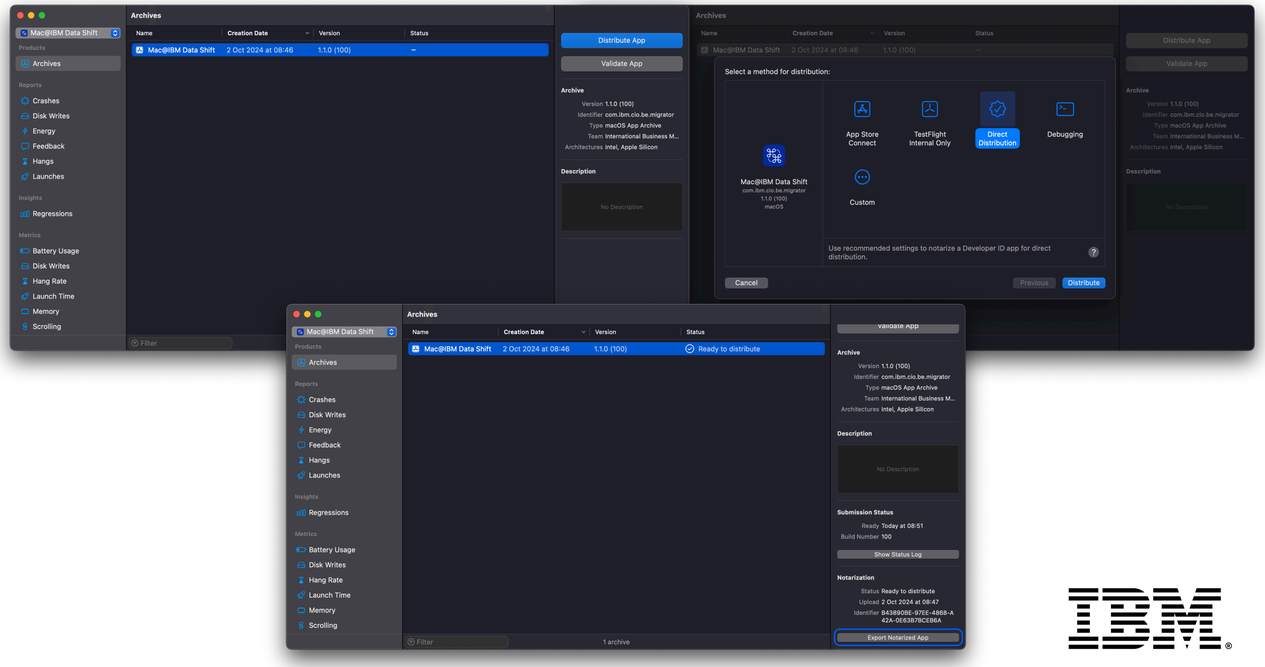
What do you need?

- Apple ID enrolled in your company's Apple Developer Enterprise Program;
- Latest Xcode (available on the App Store);
- Your team Developer ID Application certificate installed in your Keychain.

The steps:

1. The first mandatory task is to follow the steps to rebrand the app if you haven't done it already.
2. Once you're ready to distribute the app the first thing to do is to Archive it: go on "**Product**" -> “**Archive**"
3. It will take a while but at the end you'll se the Organiser window with the archives list for your app. Select the latest one and then hit "**Distribute App**”.
4. Chose Direct Distribution.
5. Hit "**Distribute**" and wait until it finish.
6. Now it's time to wait until the Apple notarisation service doesn't do all the needed checks. At the end of this process the archive in the organiser window should present the "Ready to distribute" status.
7. Last hit "**Export Notarized App**" to save the signed and notarised





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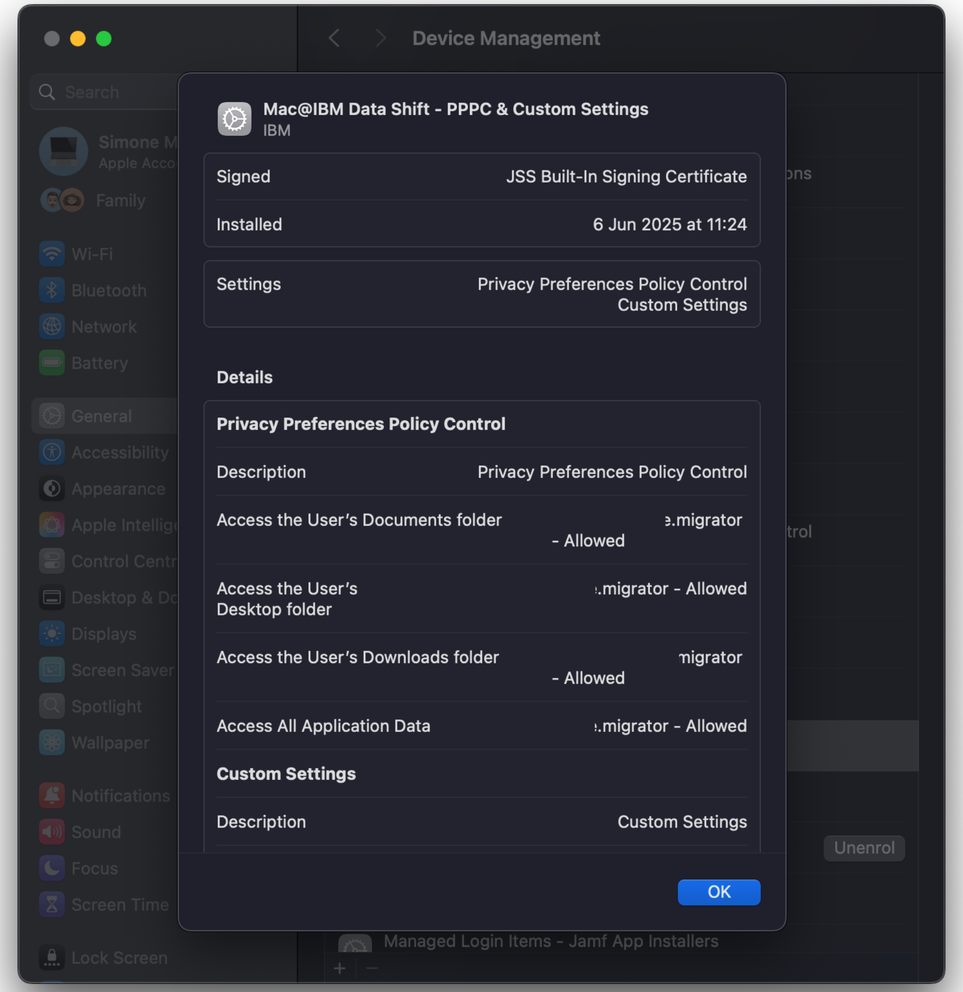
Configuration profile for PPPC and custom settings

In order for IBM Data Shift to function properly, it requires Full Disk Access permissions, along with access to the Documents, Desktop, and Downloads folders. The best way to grant these permissions is by using a Privacy Preferences Policy Control (PPPC) payload deployed through a configuration profile.



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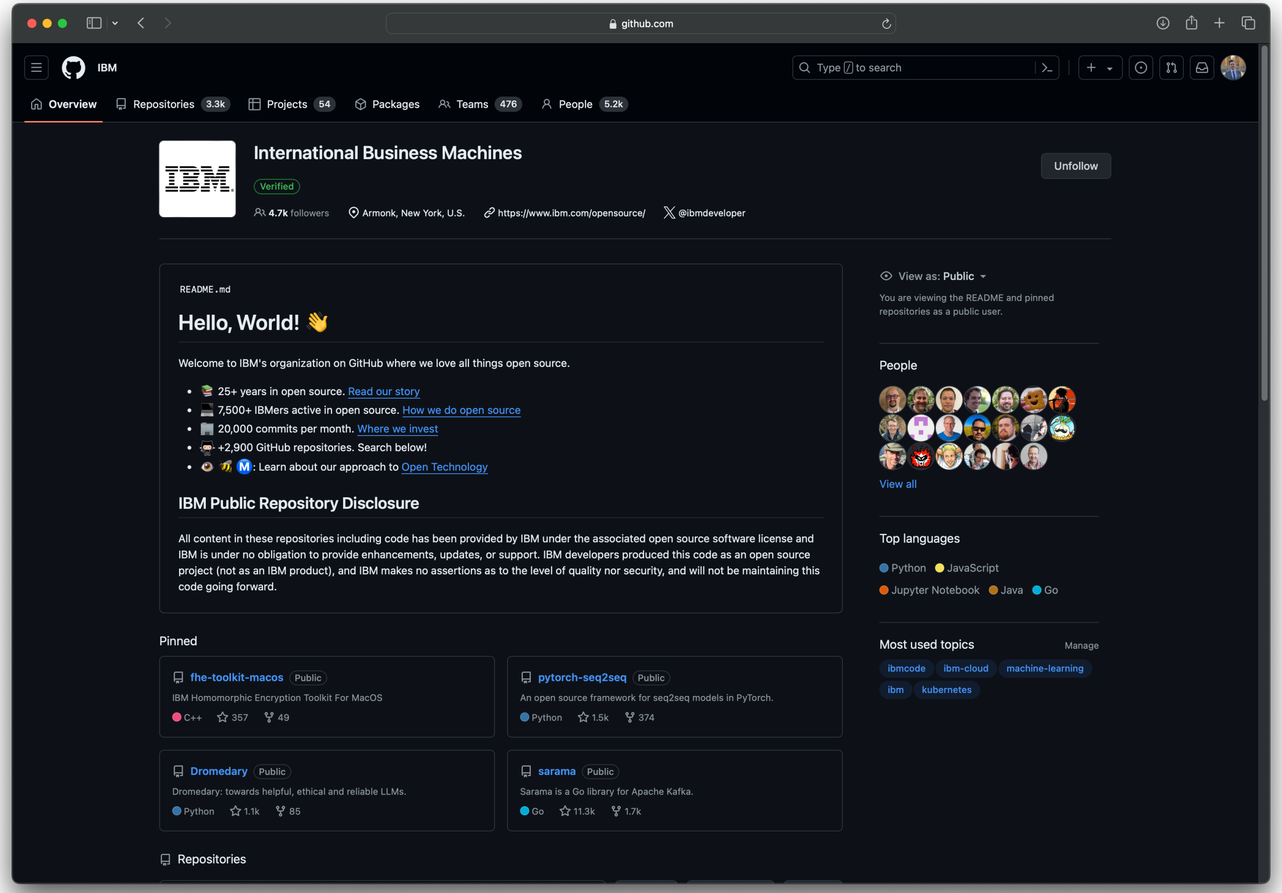
Additionally, IBM Data Shift provides various customizable configurations through custom user level settings.

Key	Description
skipMDMCheck	Defines whether or not to check the device's management state and if it's enrolled in a recognised environment.
skipAppleIDCheck	Determines whether or not to display the post-migration phase for Apple ID login verification.
skipJamfRecon	Specifies whether or not to perform an inventory update to Jamf Pro.
jamfReconMethod	Specifies what method to use to run the Jamf inventory update.
duplicateFilesHandlingPolicy	Defines how to handle duplicate files on the target device.
excludedPathsList	Represents a list of paths that need to be excluded from the migration scope.
allowedPathsList	Represents a list of paths that need to be explicitly included in the migration scope.
excludedFileExtensions	Represent a list of file extensions that needs to be ignored and so excluded from the migration.
mdmEnvironments	Array of "environment" objects used by the app to recognize the machine's MDM environment.
storePath	The path to the Jamf self service.
backupPath	The user relative path to the migration backup folder.
orgName	The organization's name used within the text showed in the UI.
enrollmentRedirectionLink	The link where the app redirects the user if **skipMDMCheck** is set to false and no recognized MDM environment are found on the device.

It’s Open Source!

Free pre-compiled release will be available later this year.
Contribute and participate in the discussions.
Join #mac-ibm-open-source channel in the MacAdmins Slack workspace



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Latest Updates

Version 1.2.1

Device Connection

Improvements

- New automatic connection recovery logic;
- Enabled full peer-to-peer communication between devices (devices no longer need to be on the same network);

Bug Fixes

- Fixed a bug that caused unexpected disconnection between devices shortly after establishing the connection;

Performance

Improvements

- Optimized memory usage: the app now uses 90–95% less RAM;
- Improved file discovery process;

Accessibility

Improvements

- Enhanced accessibility labels and hints;

App Configuration

Improvements

- Expanded the set of configurable keys;
- The variable base path construction for the excludedPathsList and allowedPathsList configuration profile keys has been enabled.

General Updates

Bug Fixes

- Fixed a bug that caused incorrect display of menu bar items;
- Fixed a bug that caused incorrect file representation;
- Fixed a bug that allowed users to quit the app without seeing the quit alert;
- Corrected several typos in the app texts;

Future considerations for IBM Data Shift

- Adopt Liquid Glass UI in macOS 26.
  At last WWDC, Apple presented a new unified UI design style called Liquid Glass. We're aiming at supporting it in macOS 26 later this year.
- Improve file discovery performances.
  This could be achievable by avoiding redundant checks and potentially implementing a cache system for file information.
- Improved app migration to include app-related files.
  macOS apps usually have many extra-bundle paths where they store files, such as configurations, settings, and caches.
- Customisable predefined migration options.
  Working on a way to customise the "predefined" migration options through settings deployed in the configuration profile.
- Allow the migration to be paused and resumed.
  Working on a feature that will allow the user to be able to pause and restart the migration at a later time.
- Warn user about non-universal binaries.
  To avoid issues during Intel to Apple Silicon device migration.
- Pause migration and warn user under certain battery level.
  It's common for users to run the migration while their devices aren't plugged in, which could cause the device to run out of battery during the process.
- Build script.
  A script that would ease the rebranding and signing work for the admin.
- Improve user awareness on the process status.
  - Alert users to the presence of duplicate files;
  - Provide a final report of the migration to the user;
  - Make it clearer what is not going to be migrated;
- Cloud services detection and support.
  Detect common cloud sharing services (e.g., OneDrive, Box, etc.) and provide the user with the information needed to set them up without conflicts.

For the complete list, please visit the "Issues" tab in the project's GitHub repository.

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