

macOS 14: What You Need To Know

2023
MACADMINS
CONFERENCE

 @roberthammen  @hammen

Who am I?

For the last 20+ years, as a consultant, contractor, and employee, I have been supporting Macs and iOS/iPadOS devices in environments ranging from small and medium businesses, to K-12, to Fortune 500 companies, to the US government. I now manage the macOS and iOS environments at a reusable rocket, spacecraft and satellite company headquartered in suburban Los Angeles, California.



2023
MACADMINS
CONFERENCE

 @roberthammen  @hammen

macOS 14 Sonoma

- Announced at WWDC in June
- Shipping in Fall

2023
MACADMINS
CONFERENCE

 @roberthammen  @hammen

Looking Back...

- macOS 10.15 Catalina:
 - OS and user data on separate partitions,
OS partition read-only
 - System Extensions/KEXT deprecation

2023
MACADMINS
CONFERENCE

Looking Back...

- macOS 11 Big Sur:
 - Apple Silicon support
 - Cryptographically-signed system volume
 - Boots from APFS snapshot
 - Major version number change

2023
MACADMINS
CONFERENCE

Looking Back...

- macOS 12 Monterey:
 - Erase all Content and Settings
 - Provisional Enrollment of macOS computers via iOS Configurator

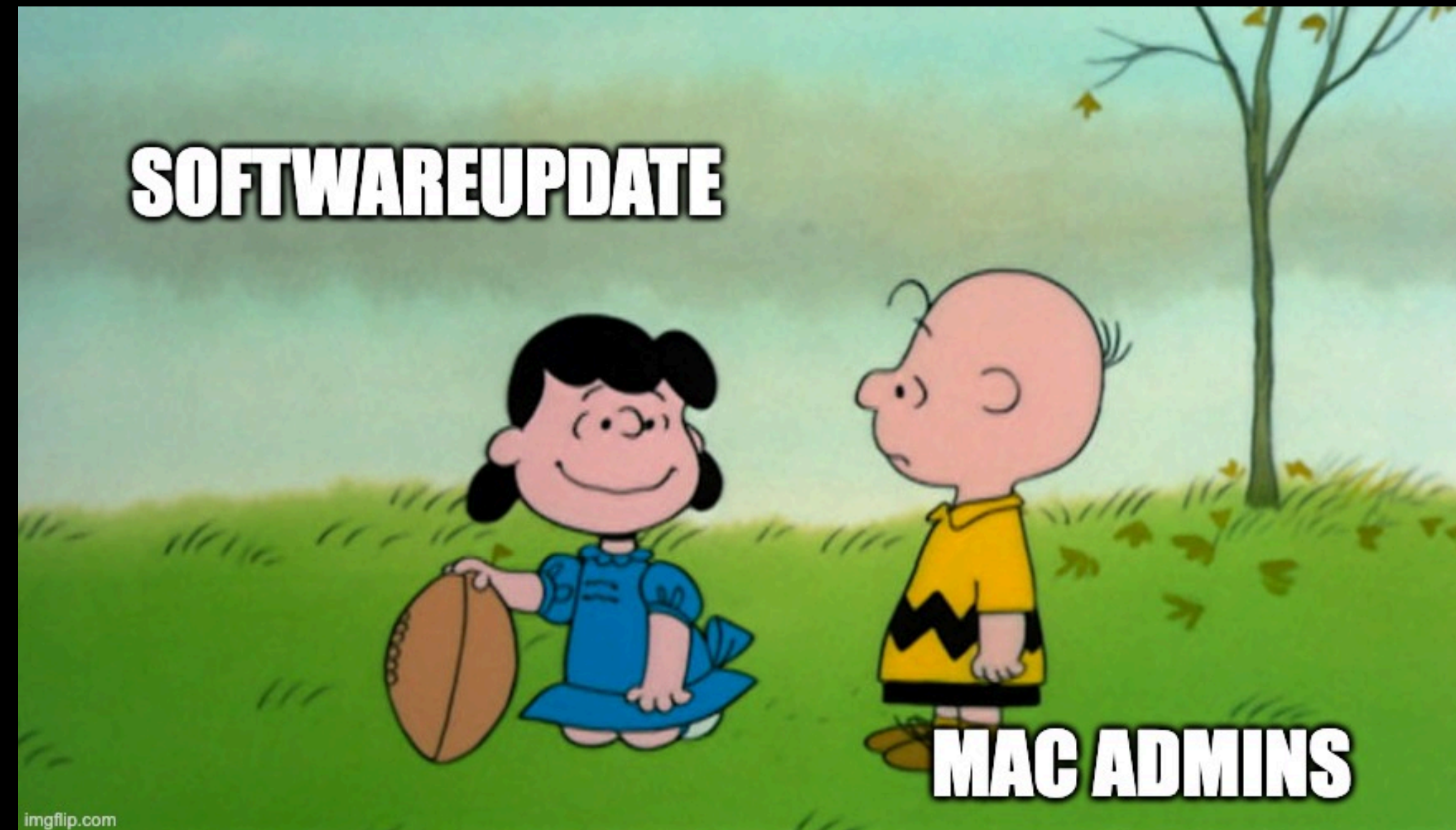
2023
MACADMINS
CONFERENCE

Looking Back...

- macOS 13 Ventura:
 - Platform SSO
 - Declarative MDM
 - Passkeys
 - New System Settings app
 - Login Items management

2023
MACADMINS
CONFERENCE

Ventura Pain Points



- Software Update **still** unreliable at times
- `sudo kickstart -k system/com.apple.softwareupdated`
- Update “enforcement” also not reliable (Nudge, Super)



2023
MACADMINS
CONFERENCE

Ventura Pain Points, continued

- Deferrals
- MDM-managed Macs booting to Recovery
- Update nags appearing after device updated
- HDMI output issues
- Smartcard account lockouts



2023
MACADMINS
CONFERENCE

A Visual Representation of macOS Software Update



2023
MACADMIN'S
CONFERENCE

 @roberthammen  @hammen

Software Update in Sonoma

- Leverages Declarative MDM
- Can enforce software updates (local date/time on computer)
- Can leverage a DetailsURL (no RickRolling, please)
- Respects "Do Not Disturb" until last day
- Tom Bridge presented an *excellent* session at PSUMac 2023 - if you didn't attend, watch it on YouTube when available

2023
MACADMINS
CONFERENCE

Automated Device Enrollment

- In macOS 13, once a computer has been provisioned, or restored, the option to bypass ADE is no longer available for subsequent enrollments
- In macOS 14, you can bypass ADE once, for 8 hours, then full-screen window - closing the loophole left open above

2023
MACADMINIS
CONFERENCE

Automated Device Enrollment

- Can specify a minimum OS version required to enroll
 - i.e. 14.1 - device updates, reboots, restarts Setup Assistant
- Can enforce enabling FileVault at Setup Assistant
- The old “rm /private/var/db/.AppleSetupDone” trick no longer works in macOS Sonoma

2023
MACADMINS
CONFERENCE

Managed Apple IDs

- Previously very restricted - no eCommerce, Continuity
- Now supports: iCloud Keychain, Apple Wallet, Sidecar, Continuity Camera, Universal Control, etc.
- Developer Accounts can now use Managed Apple IDs

2023
MACADMINS
CONFERENCE

Apple Business/School Manager

- Can now control some specific functionality
- Allow Managed Apple ID sign-ins - any, managed, supervised devices
- Allow Messages/Calls - Anyone, or Organization-only
- Would like more controls over Managed Apple ID features and functionality here

2023
MACADMINS
CONFERENCE

Open ID Connect

- Apple allowed AxM Federation with Azure AD (Entra ID) in Commercial only
- Later added Google Workspace
- Open ID Connect is a framework for federation
- Open ID Shared Signals framework for events (password change)
- Will allow other identity providers to federate to AxM

2023
MACADMINS
CONFERENCE

Declarative Device Management

- DMM = MDM re-factored
- Less server, more client - takes a more active role in reporting/ managing the device
- Managed Apps can be deployed, updated, deleted
 - Will this improve VPP on macOS? Stay tuned...

2023
MACADMINS
CONFERENCE

Declarative Device Management

- Declarations for configuration management
 - ssh/sshd, sudo, PAM, CUPS, apache/httpd, bash, zsh
 - ntp, nsmb not listed
- Client has some intelligence
 - User disables FileVault, Declarative MDM can re-enable
- Rich Trouton presented an intro to Declarative Device Mgmt at PSUMac 2023 - watch it on YouTube when available

2023
MACADMIN'S
CONFERENCE

Platform Single Sign On

- Introduced in macOS 13, but lacked the ability to create local user accounts
- That is now addressed in Sonoma
- Multiple identity providers working on support, Microsoft
Platform SSO in private beta

2023
MACADMINS
CONFERENCE

New Restrictions Payloads

- Local User Creation
- Account Modification
- Device Name Modification
- Startup Disk Modification

2023
MACADMIN'S
CONFERENCE

More MDM changes

- New framework for MDM vendors makes it easier to support creating Self Service/Company Portal type app stores
- More progress/status information
- Potentially better experience (i.e. Xcode)

2023
MACADMINS
CONFERENCE

Safari

- Can create multiple profiles with different settings/extensions
- Can create applications
 - more than just a Webclip/bookmark
- Still no way to manage/restrict Safari extensions

2023
MACADMINS
CONFERENCE

Passkeys

- Introduced in macOS 13 - potential replacement for passwords
- Had some enterprise limitations
 - Required iCloud Keychain
 - No Restrictions/Controls on sharing passkeys

2023
MACADMINS
CONFERENCE

Passkeys

- Managed AppleID's now support iCloud Keychain
- Can sync across devices
- Some controls/restrictions on sharing of passkeys

2023
MACADMINS
CONFERENCE

Logging

- auditd is deprecated
- New macOS 14 systems will disable by default - test upgrades
- Endpoint Security framework is replacement, but is missing functionality
- Please dupe feedback:

<https://boberito.medium.com/cf1d8c83d15d>

2023
MACADMINS
CONFERENCE

Redesigned Login Window

- Appearance is somewhat controversial
- Should be an area of testing
- New AutologinUsername and AutologinPassword MDM keys

2023
MACADMIN'S
CONFERENCE

Password Policy

- Can use regex to define password complexity
- Users are notified if password policy changes
- Prompted to update password to meet stricter requirements

2023
MACADMINS
CONFERENCE

Managed Device Attestation

- Automated Certificate Management Environment comes to macOS
- Slightly different process than SCEP (NDES)
- Certificate Signing Request uses private key stored in Secure Enclave
- SIP Status, Secure Boot status, OS version, Secure Enclave Enrollment ID can be used to determine if device is genuine

2023
MACADMINS
CONFERENCE

Relays

- VPN alternative going forward
- Instead of putting a computer/device on the corporate network to allow it access to a resource, leverage Relay to allow device access
- Managed Device Attestation is useful here

2023
MACADMINS
CONFERENCE

Configurator

- Supports Shortcuts on macOS, for additional workflow options
- iOS Configurator can automatically assign devices to a specific MDM server

2023
MACADMINS
CONFERENCE

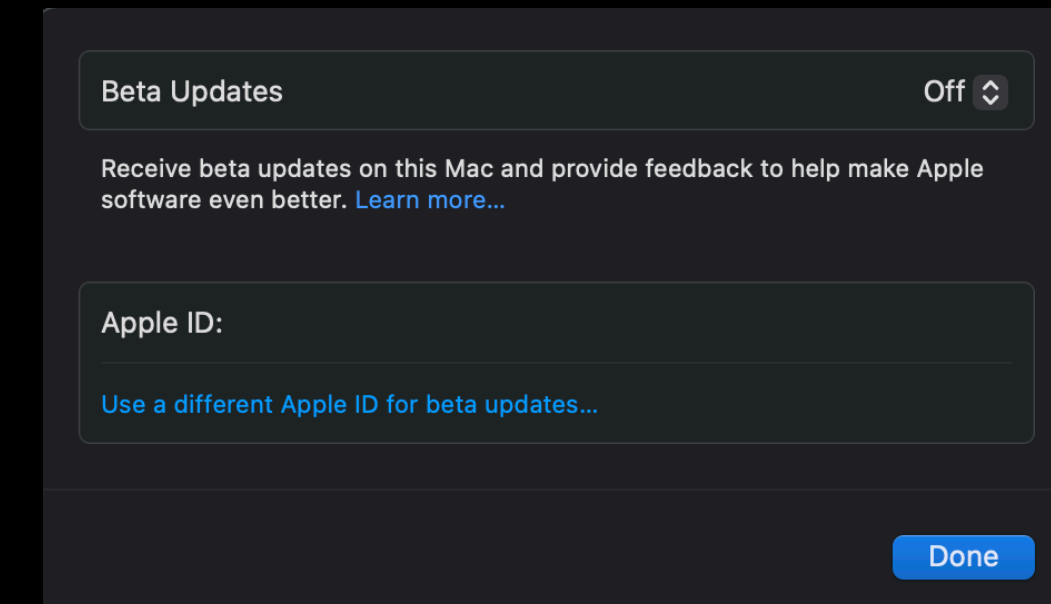
Miscellaneous Changes

- Sandboxed apps - cannot escape
- Prior to macOS Sonoma - non-sandboxed apps could access sandboxed app data
- New Privacy Preference Policy Control settings to control this
- Mechanism to prevent context-switching when entering passwords?

2023
MACADMINS
CONFERENCE

How to Obtain macOS 14

- RIP seedutil
- Three ways: Developer Beta (June), Public Beta (July), AppleSeed for IT (what you should use)
- Since macOS 13.4, new beta sign-in in Software Update
- Cannot enforce MAID or particular beta program here



2023
MACADMIN'S
CONFERENCE

AppleSeed for IT

- <https://appleseed.apple.com/it>
- Sign in with your AxM Managed Apple ID
- What's New WWDC 2023 PDF
- Test Plans (Exchange, Software Update)
- macOS Testing Template (Excel)

2023
MACADMINS
CONFERENCE

Betas

- Release on average every two weeks
- Posted in #apple-dev-rss channel, usually on Tuesdays
- Pay attention to private AppleSeed Slack channel for emerging issues

2023
MACADMINS
CONFERENCE

Betas Keep Coming...

- You will most likely be waiting for your MDM vendor to release Day Zero support
- Contact your MDM vendor about availability of a pre-release server with macOS 13 support
- Cannot properly manage macOS/iOS/iPadOS without an MDM

2023
MACADMIN'S
CONFERENCE

Testing

- The best time to begin testing is immediately after WWDC
- The second best time to begin testing is now
- Developers have more focus earlier in the cycle than later
- Far easier to change course sooner than later
- Periodically test beta versions throughout the year, not just leading up to major OS releases

2023
MACADMINS
CONFERENCE

How To Test

- VMs used to be the way, but challenges with testing ADE and Apple ID sign-ins leave them less helpful
- Best to use physical hardware - Erase All Content and Settings is a godsend, as is Configurator DFU Restore (install Xcode Beta)
- Be sure to test on Intel if you must support
- New MacBook Airs are great for this purpose

Resources

- Xcode 15 beta - Updated MobileFramework
- UTM - <https://mac.getutm.app>
- IPSW's from appleseed.apple.com/it portal

2023
MACADMINS
CONFERENCE

Who should test?

- Immediately - IT/CPE, InfoSec, Helpdesk
- You need to solicit testers from your user community
 - Identifying good testing candidates easier said than done
- Make it easy for them to sign up, understand that their Mac may experience crashes/problems

2023
MACADMINS
CONFERENCE

Managed Apple ID's for Testing

- Staff user is perfect for this
- Make sure user signs into AppleSeed for IT site before trying to sign into Software Update

Add New Account

First Name	Test		
Middle Name (optional)	Middle Name		
Last Name	User		
Managed Apple ID ⓘ	testuser	@	
Roles / Locations	Staff	at	🔍 Location

2023
MACADMIN'S
CONFERENCE

What to test?

- Start with upgrading an enrolled Mac
- Also test enrollment (scoping)
- Test your application suites, internal tools, websites, Self Service or Company Portal app installs, etc.

2023
MACADMINS
CONFERENCE

Test Your Apps

- Do they launch? Do they function correctly?
- Identify all of the apps your org uses, and who is responsible for each one
- Come up with test plans

2023
MACADMINS
CONFERENCE

 @roberthammen  @hammen

Filing Feedback



2023
MACADMIN'S
CONFERENCE

 @roberthammen  @hammen

Filing Feedback

- Feedback is how you tell Apple something isn't working, or important functionality is missing
- File feedback early and often
- File feedback first, THEN AppleCare Enterprise

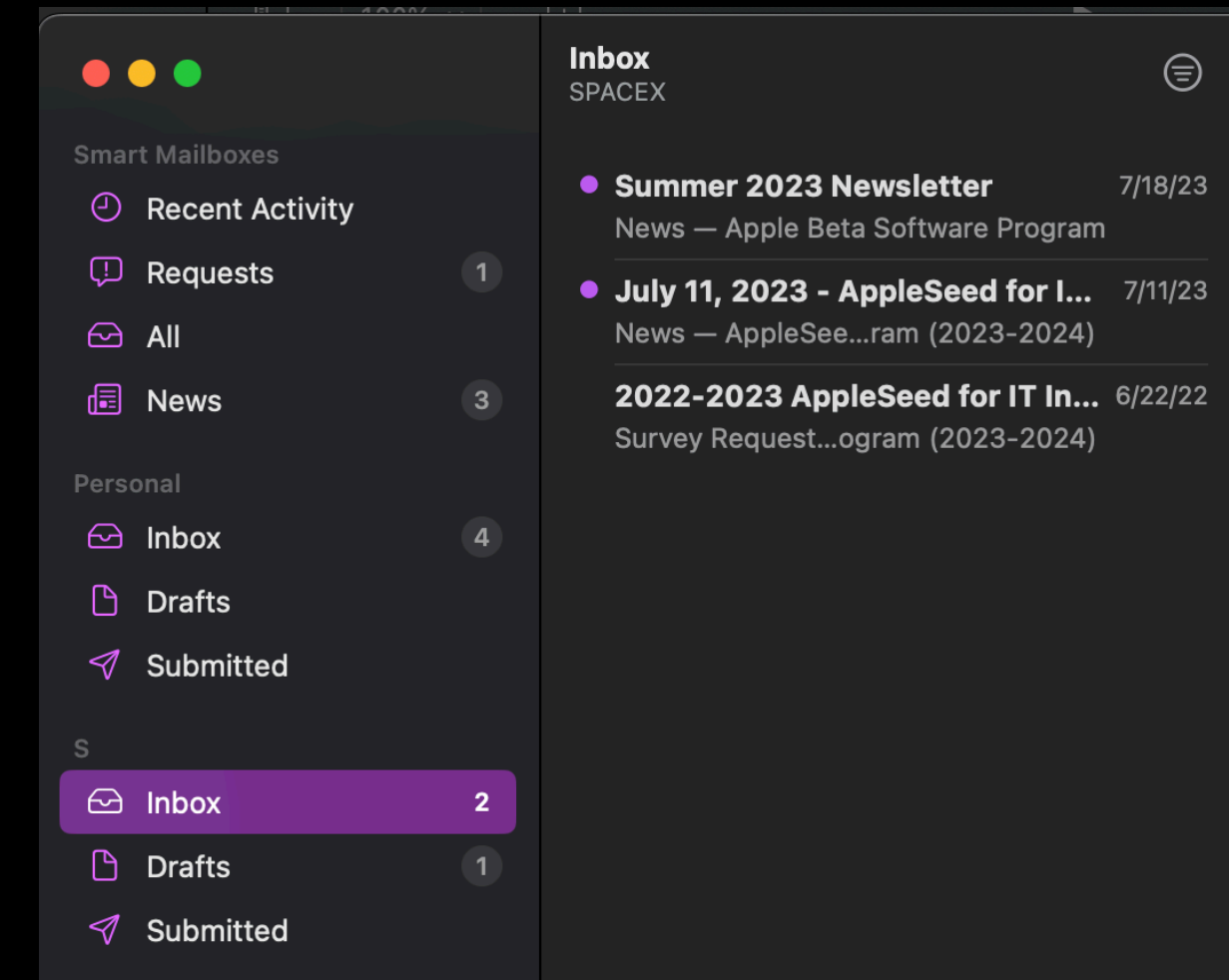
2023
MACADMINS
CONFERENCE

Filing Feedback

- Feedback Assistant app - /System/Library/CoreServices/Applications
- <https://feedbackassistant.apple.com>
- [applefeedback://](#)

2023
MACADMINS
CONFERENCE

Filing Feedback



- Be sure to use a Managed Apple ID!
- When creating Feedback, be sure it's filed under your organization, not personal
- Different teams monitor different feedback channels, and yours could be ignored if not filed properly

2023
MACADMIN'S
CONFERENCE

Filing Feedback

- What were you trying to accomplish?
- What did you expect would happen?
- What actually happened?
- Screen shots, videos, logs, sysdiagnose all helpful
- Deployment Blockers require escalation

2023
MACADMINS
CONFERENCE

Example Feedback



Robert Hammen

May 10, 2023 at 2:20 PM

ASSIGNEE

Make Finder Go->Connect to Server auto-translate Windows-format URLs

FB12181533 – Assigned to Robert Hammen

Recent Similar Reports: None

Resolution: Open

Basic information

Please provide a descriptive title for your feedback:

Make Finder Go->Connect to Server auto-translate Windows-format URLs

Which area are you seeing an issue with?

Finder

What type of feedback are you reporting?

Suggestion

Details

Are you able to collect a screenshot or screen recording that shows the issue? If so, please attach it to this report.

No

Description

Please describe the issue and what steps we can take to reproduce it:

One of the many pain points with supporting macOS in a predominantly Windows environment is the difference in server nomenclature between Windows and macOS.

2023
MACADMINS
CONFERENCE



@roberthammen



@hammen

Filing Feedback

- Re-test when new betas are released
- File feedback again if your issue is still present

2023
MACADMINS
CONFERENCE

 @roberthammen  @hammen

Documenting your Provisioning Process

- Do you have a runbook that documents what applications/settings/profiles/configuration changes are made as part of your provisioning process?
- If the answer is **No**, the time to create one is **now**

2023
MACADMINS
CONFERENCE

Why Test Sonoma Now?

- Provide feedback to Apple and shape direction of OS
- Find bugs/issues, potentially exclusive to your environment
- Be ready to support as close to release as possible
 - Deferrals were a major pain point in macOS 13
- Prepares you for future hardware releases

2023
MACADMINS
CONFERENCE

Why Support Right Away?

- Previous Security model: slow and methodical change management approach, with change control board, approvals, and backout plans
- Number of updates for Zero-Days exploited in wild is increasing
- Today's Agile Security model, with regularly-scheduled releases as well as critical security updates/Rapid Security Response

2023
MACADMINS
CONFERENCE

Security!

- Apple provides patches for current OS and previous 2, i.e. N-2
- Read the Apple Security Updates KB:
<https://support.apple.com/en-us/HT201222>
- Not all fixes are back-ported to older OSes
- Apple - most secure OS is latest OS

2023
MACADMINS
CONFERENCE

Security!

- If you want to have the most secure Mac, you must be running the latest (N) macOS (with the latest app updates, of course)

2023
MACADMINS
CONFERENCE

 @roberthammen  @hammen

macOS 14

System Requirements

macOS Sonoma
is compatible with
these devices.

[Learn more about Mac >](#)

iMac
2019 and later
[Learn more >](#)

iMac Pro
2017
[Learn more >](#)

MacBook Air
2018 and later
[Learn more >](#)

MacBook Pro
2018 and later
[Learn more >](#)

Mac Pro
2019 and later
[Learn more >](#)

Mac Studio
2022 and later
[Learn more >](#)


Mac mini
2018 and later
[Learn more >](#)

2023
MACADMINS
CONFERENCE

 [@roberthammen](#)  [@hammen](#)

Mac Evaluation Utility


OverviewResults



macOS Ventura

Version 13.4.1 (22F82)

MacBook Pro




IP Addresses

Private

10.32.131.249

Public

192.112.253.52



Apple Network Services

These tests verify reachability of key services required to use macOS. These services include Apple Push Notification service (APNs), certificate validation, and software update services.

✓

Certificate Validation

✓

Time Servers

✓

ApplePushService Daemon

✓

Push Notifications

✓

Device Setup

✓

Device Management

✓

Apple Business Essentials

✓

Software Update

✓

Apple ID

✓

App Store

✓

Notarization Service

✓

Content Caching

✓

Additional Content

✓

Feedback Assistant

✓


Apple Diagnostics

✓

iCloud Private Relay

✓

Push Provider (MDM Servers)



HTTPS Interception

These tests verify that HTTPS traffic isn't being inspected by a proxy server. Necessary macOS services may reject any SSL or TLS connection inspected by a proxy.

✓

Certificate Validation

✓

Device Setup

✓

Device Management

✓

Apple Business Essentials

✓

Apple Business Manager and Apple School Manager

✓

Software Update

✓

Apple ID

✓

App Store

✓

Content Caching

✓

Additional Content

✓

Feedback Assistant

✓

DNS Resolution

✓

Apple Diagnostics

✓

Push Provider (MDM Servers)

✓

Siri and Search

- <https://support.apple.com/en-us/HT210060>

2023
MACADMINS
CONFERENCE

 @roberthammen  @hammen

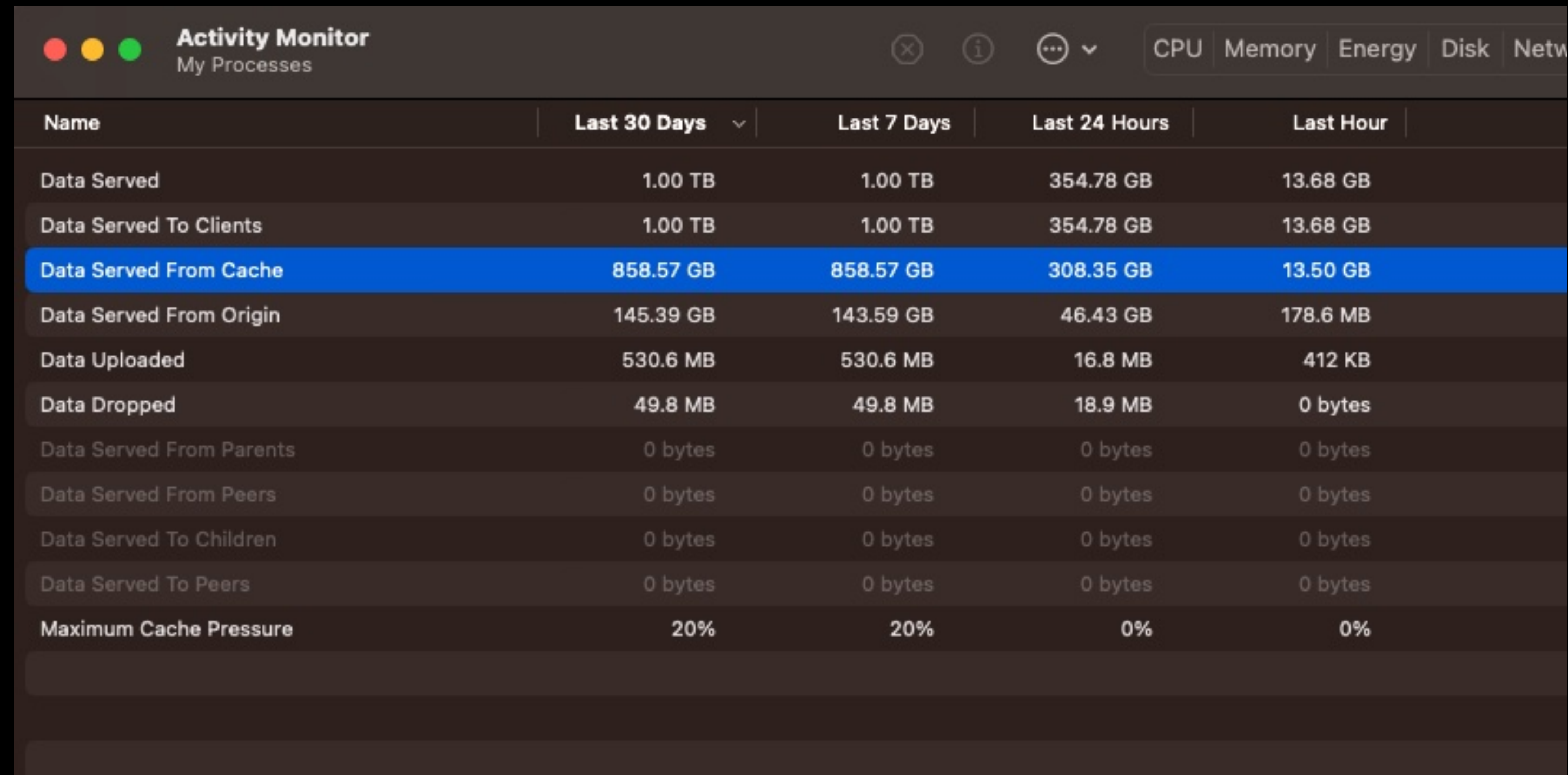
Evaluate Your Environment

- Still binding to AD, and using mobile accounts? Plan for future changes
- Happy with your Security Tools?
 - When did they support system/network extensions?
 - When did they support Apple Silicon?
 - One-year contracts

2023
MACADMIN'S
CONFERENCE

Evaluate Your Environment

- Lot of Apple devices on your network? Set up a caching server:



The screenshot shows the macOS Activity Monitor application with the 'Network' tab selected. The 'Data Served From Cache' row is highlighted in blue. The table displays network activity metrics for various categories over different time periods.

Name	Last 30 Days	Last 7 Days	Last 24 Hours	Last Hour
Data Served	1.00 TB	1.00 TB	354.78 GB	13.68 GB
Data Served To Clients	1.00 TB	1.00 TB	354.78 GB	13.68 GB
Data Served From Cache	858.57 GB	858.57 GB	308.35 GB	13.50 GB
Data Served From Origin	145.39 GB	143.59 GB	46.43 GB	178.6 MB
Data Uploaded	530.6 MB	530.6 MB	16.8 MB	412 KB
Data Dropped	49.8 MB	49.8 MB	18.9 MB	0 bytes
Data Served From Parents	0 bytes	0 bytes	0 bytes	0 bytes
Data Served From Peers	0 bytes	0 bytes	0 bytes	0 bytes
Data Served To Children	0 bytes	0 bytes	0 bytes	0 bytes
Data Served To Peers	0 bytes	0 bytes	0 bytes	0 bytes
Maximum Cache Pressure	20%	20%	0%	0%

2023
MACADMINS
CONFERENCE

Deferrals - Do You Need Them?

- “I’ve got 99 macOS problems, but a deferral profile ain’t one, son”



2023
MACADMIN'S
CONFERENCE

 @roberthammen  @hammen

macOS Security Compliance Project

- https://github.com/usnistgov/macOS_security
- Open-source tool that evaluates your current security configuration against NIST 800-53, DISA-STIG, and others
- Generates guidance, scripts, configuration profiles, etc. to configure additional security settings

- By Mac Admins, for Mac Admins



macOS Security Compliance

2023
MACADMINS
CONFERENCE

 @roberthammen  @hammen

When will macOS 14 ship?

- Apple OS releases = Fall
- macOS Ventura - October 24, 2022
- macOS Monterey - October 25, 2021
- macOS Big Sur - November 12, 2020
- Normally: macOS gets major release, then several point updates

2023
MACADMINS
CONFERENCE

The Future is Bright

- macOS market share increasing
- Apple's increased focus on Enterprise, Security, & Privacy
- Apple environments increasing in size

2023
MACADMINS
CONFERENCE

 @roberthammen  @hammen

Additional Resources



2023
MACADMINS
CONFERENCE

 @roberthammen  @hammen

Relevant WWDC Sessions

- What's New in Managing Apple Devices

<https://developer.apple.com/videos/play/wwdc2023/10040/>

- Do More With Managed Apple ID's

<https://developer.apple.com/videos/play/wwdc2023/10254>

- Explore Advances in Declarative Device Management

<https://developer.apple.com/videos/play/wwdc2023/10041>

2023
MACADMINS
CONFERENCE

Relevant WWDC Sessions

- Deploy Passkeys At Work

<https://developer.apple.com/videos/play/wwdc2023/10263>

- Ready, set, relay: Protect App Traffic with Network Relays

<https://developer.apple.com/videos/play/wwdc2023/10002>

2023
MACADMINS
CONFERENCE

Blog Posts

- <https://www.jamf.com/blog/apple-wwdc23-day-one-recap/>
- <https://www.jamf.com/blog/helping-apple-win-the-enterprise-and-change-the-future-of-work/>
- <https://www.jamf.com/blog/helping-apple-win-in-education-and-change-the-future-of-learning/>
- <https://www.jamf.com/blog/shared-ipad-in-business-wwdc2023/>

2023
MACADMINS
CONFERENCE

Blog Posts

- <https://simplemdm.com/blog/wwdc-2023-recap/>
- <https://blog.kandji.io/testing-prerelease-operating-systems-apple>
- <https://blog.kandji.io/apple-declarative-device-management-updates-wwdc-2023>
- <https://blog.kandji.io/apple-device-enrollment-wwdc-2023>
- <https://blog.kandji.io/apple-wwdc-2023-recap>

2023
MACADMINS
CONFERENCE

Blog Posts

- <https://www.sentinelone.com/blog/macOS-14-sonoma-toughening-up-macos-for-the-enterprise/>

2023
MACADMIN'S
CONFERENCE

 @roberthammen  @hammen

Documentation Links

- Apple Platform Deployment Guide:
<https://support.apple.com/en-us/guide/deployment/welcome/web>
- What's New in Apple Platform Deployment:
<https://support.apple.com/en-us/guide/deployment/dep950aed53e/1/web/1.0>
- Apple Platform Security Guide:
<https://support.apple.com/guide/security/welcome/web>

2023
MACADMINS
CONFERENCE

Documentation Links

- Apple Platform Security Guide Document History:
<https://support.apple.com/guide/security/document-revision-history-secb82d6b274/web>
- macOS Sonoma Preview
<https://www.apple.com/macOS/sonoma-preview/>
- Use Apple Products on Enterprise Networks:
<https://support.apple.com/en-us/HT210060>

2023
MACADMINS
CONFERENCE

Thank You's

- To the folks at Penn State, past and present, who have helped put on this conference, physically and virtually, for the last decade plus: Gretchen, Rusty, Chris, Joshua, Dave, Jamie, etc.
- To the former Apple sysadmins who have been absorbed by the mothership: these folks are the reasons why Apple has added Enterprise-specific/desired features, making our lives easier.

2023
MACADMINS
CONFERENCE

 @roberthammen  @hammen

Thank You's

- To the folks who contribute to MacAdmins Slack, Jamf Nation, Reddit, Github, and/or their own personal blogs. You have saved many of us countless hours of work/research/testing.
- And to you, attending this conference session in person, or watching the presentation on YouTube.

2023
MACADMIN'S
CONFERENCE

 @roberthammen  @hammen

Give Back!

- Find some way to contribute back to the community: either posting on Slack, Jamf Nation, Reddit, blogging, whatever.
- Don't hesitate to share something you've learned!

2023
MACADMIN'S
CONFERENCE

 @roberthammen  @hammen

In Memoriam

- J. David Hester

May 29, 1962 - September 12, 2019

2023
MACADMINS
CONFERENCE

 @roberthammen  @hammen

Questions?



<https://bit.ly/psumac2023-155>

2023
MACADMINS
CONFERENCE

 @roberthammen  @hammen

2023
MACADMINS
CONFERENCE



 @roberthammen  @hammen