Expert Analysis and Resolution of VFS-Finder Volume Discrepancy for /Volumes/920NAS in macOS 15.7.1

I. Executive Summary and The VFS-Finder Discrepancy

The observation that the network attached storage (NAS) volume, identified as /Volumes/920NAS, appears in the output of the ls /Volumes command but is absent from the macOS Finder user interface presents a classic discrepancy between the operating system's kernel-level Virtual File System (VFS) and the application layer handling the graphical display. The successful appearance in the /Volumes directory confirms that the volume is successfully mounted and accessible at the Unix level of macOS.[1]

The suppression of the volume from the Finder, despite being successfully mounted, is almost invariably caused by explicit system-level visibility suppression flags. These flags intentionally instruct the Finder application not to display the volume icon in the desktop environment or within the sidebar's Locations section.[3]

The analysis identifies two primary technical mechanisms responsible for this hidden state: (1) The application of the nobrowse mount option at the VFS layer, which is common in automated network mounts, or (2) The presence of specific file system attributes, such as the UF_HIDDEN flag or the com.apple.FinderInfo extended attribute, set directly on the /Volumes/920NAS mount point directory.[3] A comprehensive diagnostic and remediation approach requires verification across three critical layers: Finder preferences, VFS mount options and file attributes, and underlying SMB network client stability.

II. Core Architecture: Bridging Kernel and Application Layers

A. The Role of the VFS and the /Volumes Directory

macOS, built upon the Darwin Unix core, adheres to the conventional Unix file hierarchy. All dynamically mounted filesystems, regardless of whether they are local partitions, external USB drives, or remote network shares like a NAS, must be integrated into the main file system tree at a designated mount point. Conventionally, macOS utilizes the /Volumes directory as the default location for these mount points.[1]

The presence of /Volumes/920NAS when executing the ls /Volumes command is highly significant; it verifies that the network connection to the NAS is established, authentication has succeeded, and the kernel's VFS layer recognizes the share as an active, mounted file system. This initial diagnostic step immediately rules out issues related to network connectivity failure or fundamental mounting errors. The investigation is therefore localized to why the successful mount is being obscured from the user interface.[1]

To gather initial, critical data on the connection type and active mount options, system diagnostics must focus on the VFS status. The mount command is indispensable, as it displays all currently mounted file systems, including the protocol used (e.g., SMB, AFP, NFS) and any specific VFS options applied during the mount process.[7] Furthermore, utilities like diskutil list or diskutil info /Volumes/920NAS provide detailed metadata about the volume's type and status [8], and df -h /Volumes/920NAS confirms the share’s immediate accessibility and reports its human-readable disk utilization.[9]

B. How Finder Enumerates Volumes

The Finder operates at the application layer, distinct from the kernel's VFS layer where the mount occurs. Finder employs a set of criteria to determine which volumes are displayed. These criteria include user-configured preferences, network protocols, and, critically, specific directives encoded in the file system itself.

Finder relies on the visibility status conveyed by:

1. **VFS Mount Options:** Flags passed to the mounting utility that specifically instruct Finder visibility, such as nobrowse or hidefromfinder.
2. **Directory Attributes:** Metadata stored directly on the mount point directory

(/Volumes/920NAS), which can mark the directory as hidden, irrespective of its mount status.

For network shares, the method by which the volume was mounted frequently determines its visibility attributes. Advanced mounting techniques, such as those employing autofs or custom shell scripts, often utilize the nobrowse option to prevent cluttering the desktop or sidebar, especially in environments with many shares.[10] This intentional suppression applied during the mounting process explains why the kernel is aware of the connection, but Finder is not instructed to display it. Therefore, a successful mount at the VFS level, masked by an explicit visibility suppression flag, is the most common technical explanation for this behavior.

III. Layer 1: Superficial Triage – Checking User and GUI Settings

Although the evidence points toward a kernel-level VFS flag, the initial diagnostic process must first confirm that the volume invisibility is not due to a simple user configuration error within Finder itself.

A. Comprehensive Review of Finder Preferences

Finder settings dictate the visibility of all volume types on the Desktop and in the Finder sidebar (under Locations). These preferences must be verified systematically.[13]

1. **General Tab:** Within Finder > Settings (or Preferences), the General tab controls icons displayed on the desktop. The user must ensure that "External disks" is checked. Although the NAS is a remote server, once mounted, it may be categorized and displayed alongside external disks or requiring the "Hard disks" option to be active, particularly for consistency.[15]
2. **Sidebar Tab:** The Sidebar tab controls items listed under Locations. It is mandatory to ensure that "External disks" and "Connected servers" are checked to allow the Finder to display network resources in this location.[14]

B. The Toggling Anomaly and Network Cache Refresh

Experience with macOS suggests that transient issues can sometimes prevent mounted network volumes from appearing, even when preferences are correctly set. This phenomenon is often attributed to corrupted Finder state information or outdated network resource caching mechanisms. For instance, reports indicate a paradoxical bug where unchecking, then rechecking, the "Connected servers" option temporarily resolves visibility issues for mounted NAS shares.[18] This suggests that toggling the preference forces a refresh of Finder's internal listing of network resources, bypassing a temporary error state related to Bonjour or mDNS network discovery.

Similarly, Finder aggressively caches network server metadata. A corrupted or outdated cache entry related to the 920NAS server can cause suppression, even after a successful mount. The temporary resolution involves navigating to Finder > Go > Connect to Server (Cmd+K) and clearing the list of "Recent Servers" from the dropdown list. This action forces Finder to discard outdated connection details, potentially resolving visibility glitches.[19]

C. Finder State Management and Forced Refresh

After confirming or adjusting preferences, the Finder's internal state must be refreshed to apply the changes. This can be accomplished by holding the Option key, right-clicking the Finder icon in the Dock, and selecting **Relaunch**.[15] Alternatively, one can use the Terminal command killall Finder.[21]

If all preference checks fail to make the volume visible, accessibility must be confirmed by forcing direct navigation. By using the command **Go > Go to Folder** (or pressing Cmd+Shift+G) and entering the exact path /Volumes/920NAS, the user can force Finder to open the directory.[2] If the Finder successfully navigates to and displays the contents of the share, it confirms that the volume is perfectly operational and the issue is strictly limited to the GUI's suppression of the volume *icon* in standard browsing locations (Desktop/Sidebar).

IV. Layer 2: Addressing System-Level Visibility Suppression

If Layer 1 is exhausted, the issue resides in the kernel or file system metadata layer, requiring

Terminal diagnostics and remediation.

A. The Primary Suspect: VFS Mount Options (nobrowse)

The nobrowse VFS flag is the leading candidate for explaining the discrepancy between a successful mount and Finder invisibility. The nobrowse option is an instruction passed during the mount operation, often by tools like mount_smbfs or the automatic mounting system (autofs), that explicitly tells the macOS application services (including Finder and Carbon) to exclude the volume from display on the Desktop and in the sidebar's Locations list.[3]

1. Diagnostic Procedure

The user must execute the mount command in Terminal and carefully inspect the line corresponding to /Volumes/920NAS.

If the output shows options such as (smbfs, nodev, nosuid, nobrowse) or, if using the automounter, (autofs, automounted, nobrowse), the presence of nobrowse confirms the system-level visibility suppression.[3]

2. Remediation for Manual Mounts

If the volume was mounted manually using a shell script or the mount_smbfs utility, the solution involves unmounting and remounting the share while explicitly ensuring the nobrowse option is omitted.

The steps are:

1. Unmount the volume: sudo umount /Volumes/920NAS
2. Remount the volume (example using SMB): sudo mount_smbfs //user:password@NAS_IP/Share /Volumes/920NAS
   Crucially, the mount command must be verified to ensure no flags like -o nobrowse are included.

3. Remediation for Automounts

If the volume is mounted via autofs (a common configuration for persistent network shares), the configuration files must be modified. The master map file (/etc/auto_master) and its specific subordinate map file (e.g., /etc/auto_smb or a custom /etc/auto_nas) control the mount options.[12] These files often default to flags like -nobrowse or -hidefromfinder. The hidefromfinder map option is functionally similar to nobrowse, setting the UF_HIDDEN flag on the mount root, thereby guaranteeing invisibility.[4] The user must remove these suppression options from the map file entry for the NAS share, save the configuration, and then force a reload of the automount system using sudo automount -vc.

B. Secondary Suspects: File System Attributes

If the mount command confirms that the nobrowse VFS flag is *not* present, the suppression is enforced at the file system attribute level, applied directly to the /Volumes/920NAS directory itself. Finder respects specific metadata stored on directories, overriding standard visibility settings.

1. The UF_HIDDEN Flag

The UF_HIDDEN (User Flag Hidden) attribute is a standard flag used in macOS to hide files and directories from Finder's default view.

- **Diagnosis:** Use the extended ls command: ls -leO@ /Volumes/920NAS. If the flag column shows hidden, the flag is set.[28]
- **Remediation:** Use the chflags command to remove the hidden attribute: sudo chflags nohidden /Volumes/920NAS.[5]

2. Extended Attributes (com.apple.FinderInfo)

Extended attributes (xattrs) store arbitrary metadata, including legacy Finder information, often captured in the com.apple.FinderInfo attribute. If this attribute contains outdated or corrupt data, it can enforce the hidden status, sometimes even overriding the chflags

command.[6]

- **Diagnosis:** Use xattr /Volumes/920NAS to list extended attributes. The presence of com.apple.FinderInfo suggests a possible cause.[31]
- **Remediation:** Remove the specific attribute using the delete flag: sudo xattr -d com.apple.FinderInfo /Volumes/920NAS.

For robust remediation, particularly in cases where metadata corruption is suspected, combining the steps is necessary: execute sudo xattr -d com.apple.FinderInfo /Volumes/920NAS; sudo chflags nohidden /Volumes/920NAS; killall Finder.[5] This layered approach ensures that both the attribute setting and the file system flag are cleared before forcing Finder to reload.

The relationship between Layer 2A and 2B mechanisms indicates a priority structure: if VFS mount options (Layer 2A) prohibit browsing (nobrowse), the issue is resolved there. If VFS options permit browsing, Finder then checks the directory attributes (Layer 2B). If attributes like UF_HIDDEN are set, Finder proceeds to suppress visibility based on this metadata. This necessity to check both layers sequentially is crucial for a definitive solution.

The table below summarizes the technical diagnostics required for visibility suppression:

Diagnostic Analysis of Volume Visibility Flags

Mechanism	**Command**	**Expected Output (Hidden)**	**Remediation Command**	**Causal Layer**
VFS Mount Option	mount	… (smbfs,…, nobrowse)	Must unmount and remount without the option.	System/Kernel
File System Flag	ls -leO@ /Volumes/920 NAS	… /Volumes/920 NAS hidden…	sudo chflags nohidden /Volumes/920 NAS [5]	Directory Attribute
Extended Attribute	xattr /Volumes/920 NAS	com.apple.Fin derInfo	sudo xattr -d com.apple.Fin derInfo /Volumes/920 NAS [6]	Metadata Attribute

V. Layer 3: NAS and SMB Client Configuration in macOS 15.7.1

Since /Volumes/920NAS represents a NAS share, it relies on network protocols, most likely Server Message Block (SMB), for communication. Modern macOS versions, including 15.7.1, have exhibited persistent stability and performance issues with SMB when connecting to non-Apple devices, such as Synology NAS units.[33] While Layer 2 fixes the persistent *hidden* state, Layer 3 addresses the *transient* visibility failures caused by connection instability. If the volume frequently disconnects or browsing speeds are prohibitive (as reported in several macOS forums [35]), Finder will not reliably display the resource, requiring prophylactic SMB tuning.

A. Modern macOS SMB Instability Context

Issues such as Finder freezing during file transfers, slow directory listings, and spontaneous disconnections are common when macOS interacts with SMB shares, particularly after recent OS updates.[33] These instabilities translate directly into poor visibility, as Finder cannot enumerate an unresponsive or unstable mount point. Addressing these underlying protocol inefficiencies is essential for achieving reliable, long-term visibility.

B. Essential SMB Tuning via /etc/nsmb.conf

The macOS SMB client behavior can be customized globally using the configuration file located at /etc/nsmb.conf.[37] This file frequently does not exist by default and must be created using administrative privileges.[38] Adjusting key parameters in this file is necessary to improve compatibility and stability with heterogeneous networks, particularly those featuring NAS devices.

1. Critical Directives for Reliability

Specific configurations mitigate common stability problems:

- **Disabling Packet Signing (signing_required=no):** Packet signing often causes significant performance degradation and intermittent disconnections when connecting to servers that do not require or poorly implement it. Disabling this requirement dramatically improves stability and speed for many NAS environments.[36]
- **Enabling Streams (streams=yes):** This is crucial for maintaining compatibility with complex file metadata and alternative data streams, especially when handling files created by applications like Microsoft Office on the Mac, which rely on SMB functionality for stable file access.[34]
- **Adjusting Timeouts (max_resp_timeout=600):** By increasing the response timeout value (measured in half-seconds), macOS becomes more tolerant of slow server responses, preventing premature disconnection or freezing during large browsing operations.[37]

2. Procedure for Creating/Modifying /etc/nsmb.conf

The file creation and modification process requires root privileges:

Bash

```
sudo nano /etc/nsmb.conf
```

The following configuration should be entered under the [default] section to apply global stability enhancements. After modification, the user must disconnect and reconnect the NAS share for the changes to take effect.[37]

The modification of /etc/nsmb.conf transforms the solution from a temporary visibility fix (Layer 2) to a robust, long-term operational fix (Layer 3). By stabilizing the underlying SMB connection, Finder is less likely to lose connection or ignore the mount point due to network browsing failures.

Recommended /etc/nsmb.conf Settings for macOS 15.7.1 NAS Reliability

Setting	Value	Rationale for Inclusion	Source Context
[default]	*(Section Header)*	Applies settings globally to all SMB connections.	SMB Client Configuration
signing_required	no	Resolves performance bottlenecks and potential connection dropouts caused by mandatory packet signing negotiation.[36]	Connection Stability
streams	yes	Improves handling of complex files and metadata, often necessary for complex workflows.[34]	File Compatibility
aapl_off	true	Enhances interoperability with NAS devices that do not fully support Apple's extended SMB features.[37]	NAS Compatibility
max_resp_timeout	600	Extends the timeout window (to 60 seconds) for slow server responses, preventing premature disconnection or freezing.[37]	Reliability/Performance

VI. Conclusion and Persistence Strategy

The inability of the Finder to display the mounted /Volumes/920NAS volume is a systemic issue rooted in visibility suppression flags applied either at the VFS mount level (the highly probable nobrowse option) or via directory metadata attributes (UF_HIDDEN).

The resolution requires moving through a structured diagnostic sequence: first, confirm Finder preferences and execute a mandatory Finder relaunch. Second, utilize the mount command to identify and remove the nobrowse VFS flag, which necessitates unmounting and remounting the share correctly. If the flag is absent, diagnostics shift to chflags and xattr tools to clear residual file system attributes, such as com.apple.FinderInfo, ensuring the mount point is not marked as hidden.

Persistence Recommendations

For long-term reliability and persistent visibility, the method used to reconnect the NAS volume must be reviewed to ensure it does not reintroduce visibility suppression flags.

1. **Manual Login Items (Preferred GUI Method):** The safest method for ensuring automatic connection without system-level suppression is configuring the volume in the Login Items section of System Settings. By connecting manually once via Finder > Connect to Server (Cmd+K) and clicking the plus sign to save the address as a Favorite Server, the volume can be set to automatically connect upon user login.[40] This typically avoids the use of command-line utilities that default to -nobrowse.
2. **Automount Configuration Review:** If the user relies on autofs for system-wide mounting, the relevant map files (such as /etc/auto_master and its subordinates) must be permanently edited to exclude the -nobrowse and -hidefromfinder options from the mount definition for the 920NAS share.[26]
3. **SMB Client Stabilization:** To prevent future transient visibility failures caused by protocol instability, the modifications to /etc/nsmb.conf are considered mandatory best practice for robust NAS interaction on macOS 15.7.1.
4. **Network Advertisement:** Finally, ensure that the NAS device itself is configured to advertise its services correctly on the local network using modern discovery protocols like Bonjour/mDNS, which aids Finder in automatically detecting and presenting network resources.[19]

Works cited

1. Why does Finder see volumes which are not under /Volumes? - Apple

StackExchange, accessed October 7, 2025, https://apple.stackexchange.com/questions/163876/why-does-finder-see-volumes-which-are-not-under-volumes
2. Hidden /Volumes folder - Mac - Apple Support Communities, accessed October 7, 2025, https://discussions.apple.com/thread/1161743
3. How do I make NFS automounted volumes visible in Finder? - Apple Stack Exchange, accessed October 7, 2025, https://apple.stackexchange.com/questions/102991/how-do-i-make-nfs-automounted-volumes-visible-in-finder
4. accessed October 7, 2025, https://www.manpagez.com/man/5/auto_master/#:~:text=This%20option%20as%20used%20in,root%20directory%20of%20the%20map.
5. Hide and unhide files or directories visibility with chflags on macOS | amanhimself.dev, accessed October 7, 2025, https://amanhimself.dev/blog/hide-unhide-files-or-directories-with-chflags/
6. chflags nohidden not unhiding hidden files - Ask Different - Apple StackExchange, accessed October 7, 2025, https://apple.stackexchange.com/questions/400376/chflags-nohidden-not-unhiding-hidden-files
7. What's the terminal command to see how network shares are connected? - Ask Different, accessed October 7, 2025, https://apple.stackexchange.com/questions/154040/whats-the-terminal-command-to-see-how-network-shares-are-connected
8. How to find mounted storage devices in OSX? - Stack Overflow, accessed October 7, 2025, https://stackoverflow.com/questions/15904945/how-to-find-mounted-storage-devices-in-osx
9. Understanding and Using the df Command in Linux - Medium, accessed October 7, 2025, https://medium.com/@linuxadminhacks/understanding-and-using-the-df-command-in-linux-bed97a5002d1
10. Finder not showing mounted /Volumes devices? - Mac Support, accessed October 7, 2025, https://macosx.com/threads/finder-not-showing-mounted-volumes-devices.318145/
11. Mounting NAS Volumes in Mac OS X the Right Way - Chrissy LeMaire, accessed October 7, 2025, https://blog.netnerds.net/2013/10/mounting-nas-volumes-in-mac-os-x-the-right-way/
12. HOW TO Mount a Network Share using the Automount as non-root, accessed October 7, 2025, https://discussions.apple.com/thread/4927134
13. See the devices connected to your Mac - Apple Support (ME), accessed October 7, 2025, https://support.apple.com/en-me/guide/mac-help/mchlp1039/mac
14. Where do mounted volumes and thumb drives show up in OSX Lion? - Super User, accessed October 7, 2025,

https://superuser.com/questions/314573/where-do-mounted-volumes-and-thumb-drives-show-up-in-osx-lion
15. How do I make the hard drive visible in the Finder? - Ask Different - Apple StackExchange, accessed October 7, 2025, https://apple.stackexchange.com/questions/72821/how-do-i-make-the-hard-drive-visible-in-the-finder
16. macos catalina finder is not showing all mounted volumes - Apple Support Communities, accessed October 7, 2025, https://discussions.apple.com/thread/254206328
17. Customize the Finder sidebar on Mac - Apple Support, accessed October 7, 2025, https://support.apple.com/guide/mac-help/customize-the-finder-sidebar-on-mac-mchl83c9e8b8/mac
18. Showing Network Drives in Finder Sidebar - Apple Support Community, accessed October 7, 2025, https://discussions.apple.com/thread/254900928
19. Info - How-to fix NAS visibility in macOS Finder sidebar | SynoForum.com, accessed October 7, 2025, https://www.synoforum.com/threads/how-to-fix-nas-visibility-in-macos-finder-sidebar.6903/
20. macos - Shared devices not appearing in Network - Ask Different - Apple StackExchange, accessed October 7, 2025, https://apple.stackexchange.com/questions/148649/shared-devices-not-appearing-in-network
21. I Found My Mac's Secret Files. Here's How to Find Yours | PCMag, accessed October 7, 2025, https://www.pcmag.com/how-to/how-to-access-your-macs-hidden-files
22. How to Show Hidden Files on Mac - YouTube, accessed October 7, 2025, https://www.youtube.com/watch?v=8HvedBfa7S0
23. Go directly to a specific folder on Mac - Apple Support, accessed October 7, 2025, https://support.apple.com/guide/mac-help/go-directly-to-a-specific-folder-on-mac-mchlp1236/mac
24. How do I access the Volumes directory in Macintosh HD? - Apple Stack Exchange, accessed October 7, 2025, https://apple.stackexchange.com/questions/175266/how-do-i-access-the-volumes-directory-in-macintosh-hd
25. mount volume - nobrowse - AppleScript | Mac OS X - MacScripter, accessed October 7, 2025, https://www.macscripter.net/t/mount-volume-nobrowse/47680
26. Functional Automount of Network Shares in macOS - fkylewright.com, accessed October 7, 2025, https://www.fkylewright.com/wordpress/2023/06/functional-automount-of-network-shares-in-macos/
27. macos:automatically_mount_network_shares [Wizardry and Steamworks], accessed October 7, 2025, https://grimore.org/macos/automatically_mount_network_shares
28. Why am I unable to remove attributes from files using xattr on macOS? - Super

User, accessed October 7, 2025, https://superuser.com/questions/1871402/why-am-i-unable-to-remove-attributes-from-files-using-xattr-on-macos
29. Files on my desktop seem to set themselves as hidden files (macOS Catalina), greyed out, even though they don't begin with periods [duplicate] - Apple Stack Exchange, accessed October 7, 2025, https://apple.stackexchange.com/questions/392901/files-on-my-desktop-seem-to-set-themselves-as-hidden-files-macos-catalina-gre
30. Clearing the quarantine extended attribute from downloaded applications - Der Flounder, accessed October 7, 2025, https://derflounder.wordpress.com/2012/11/20/clearing-the-quarantine-extended-attribute-from-downloaded-applications/
31. How do I remove the "extended attributes" on a file in Mac OS X? - Stack Overflow, accessed October 7, 2025, https://stackoverflow.com/questions/4833052/how-do-i-remove-the-extended-attributes-on-a-file-in-mac-os-x
32. Extended attributes: the good, the not so good, the bad., accessed October 7, 2025, https://www.lesbonscomptes.com/pages/extattrs.html
33. Frustrating SMB issue that freezes the Finder on my Mac. If I can't resolve this I'll have to sell my NAS and start over. Please help! | Synology Community, accessed October 7, 2025, https://community.synology.com/enu/forum/1/post/190614
34. MacOS Sequoia and Synology NAS -- SMB protocol issues? - Apple Support Communities, accessed October 7, 2025, https://discussions.apple.com/thread/255894003
35. Network Share folders disappearing on Mac Finder. Come back after re-connecting - Reddit, accessed October 7, 2025, https://www.reddit.com/r/macsysadmin/comments/1kcgtse/network_share_folders_disappearing_on_mac_finder/
36. MacOS issue when connecting to SMB shares with large number of files - Reddit, accessed October 7, 2025, https://www.reddit.com/r/MacOS/comments/13u8zhf/macos_issue_when_connecting_to_smb_shares_with/
37. macOS SMB client configuration - 7fivefive Support Centre, accessed October 7, 2025, https://support.7fivefive.com/kb/latest/mac-os-smb-client-configuration
38. Missing nsmb.conf file - macos - Apple StackExchange, accessed October 7, 2025, https://apple.stackexchange.com/questions/353386/missing-nsmb-conf-file
39. osx server smb.conf location - Apple Support Community, accessed October 7, 2025, https://discussions.apple.com/thread/7376815
40. How do I have a network share mount in Mac OS X persist between reboots - Super User, accessed October 7, 2025, https://superuser.com/questions/125189/how-do-i-have-a-network-share-mount-in-mac-os-x-persist-between-reboots
41. MacOS: NAS shares in Finder's sidebar and "Network" folder : r/synology - Reddit, accessed October 7, 2025,

https://www.reddit.com/r/synology/comments/u7ttx6/macos_nas_shares_in_finders_sidebar_and_network/