



Softtron NMOS Utility

User Manual

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Table of Contents

1.	About NMOS Utility	3
1.1.	What NMOS Utility does	3
1.2.	A short NMOS vocabulary	3
2.	Installation and the background daemon	4
2.1.	First-time installation	4
2.2.	What happens after installation	4
2.3.	Updating NMOS Utility	5
3.	Configure the NMOS Node and Registry	6
3.1.	Configuration checklist	6
4.	How resources appear in NMOS	7
4.1.	What happens when an application starts	7
4.2.	Connection activation is deliberate	7
5.	Using NMOS with Softtron applications	9
5.1.	Recommended workflow	9
5.2.	Naming guidance	9
6.	Troubleshooting	10
6.1.	The daemon does not install or connect	10
6.2.	The Node is installed but not running	10
6.3.	The Node or endpoints do not appear in the controller	10
6.4.	The endpoint is visible but media does not start	11
6.5.	Identifiers changed unexpectedly	11
7.	Reference	12
7.1.	Persistent components	12
7.2.	NMOS standards used	12



1. About NMOS Utility

NMOS Utility is the macOS companion service that lets supported Softtron applications participate in an NMOS environment. It publishes their available inputs and outputs as NMOS resources, registers them with an NMOS Registry when one is available, and relays NMOS connection requests to the application that owns the media endpoint.

In practical terms. Run NMOS Utility once to install and configure the background service. Then start MovieRecorder, OnTheAir Video, M|Replay, or another compatible Softtron application and enable its NMOS inputs or outputs. They become available to NMOS controllers without having to keep NMOS Utility open.

1.1. What NMOS Utility does

- Creates and operates one NMOS Node on the Mac.
- Lets compatible Softtron applications add their own NMOS Devices and endpoints to that Node.
- Uses NMOS IS-04 discovery and registration so resources can be discovered directly or through an NMOS Registry.
- Uses NMOS IS-05 connection management to receive connection activations and pass the resulting configuration to the appropriate Softtron application.

1.2. A short NMOS vocabulary

Term	Meaning in this manual
Node	The NMOS resource representing this Mac and its network interfaces.
Device	The NMOS resource representing one Softtron application instance.
Sender	An NMOS output endpoint that makes a Flow available on the network.
Receiver	An NMOS input endpoint that can be connected to a Sender.
Registry	An NMOS IS-04 Registration API service that maintains a searchable inventory of resources.
Activation	An NMOS IS-05 request that moves a staged connection to active state.



2. Installation and the background daemon

NMOS Utility contains a privileged background daemon. The daemon is the component that keeps the NMOS Node available after you close the application and after the Mac restarts. The NMOS Utility application is the place where you install the daemon and change its settings.

Important — use the Applications folder only. Move NMOS Utility.app to the macOS Applications folder before installing the daemon, and do not run it from Downloads, a disk image, the Desktop, a temporary folder, or any other location. The daemon is embedded in the application bundle and macOS continues to reference that installed bundle. Moving or deleting the application can prevent the daemon from launching correctly.

2.1. First-time installation

1. Move NMOS Utility.app to /Applications and open it from there.
2. In the main window, click Install Daemon.
3. When macOS displays its authorization window, allow the installation and enter administrator credentials if requested.
4. Wait for the status to show that the daemon is installed and connected.
5. Click Configure and enter the NMOS Node and Registry settings described in the next section. Click Apply to start the Node.

2.2. What happens after installation

- The daemon is registered as a system service and starts automatically with macOS.
- The daemon can keep the NMOS Node running when NMOS Utility is closed.
- NMOS Utility is only required when you need to view status, install or remove the daemon, or edit the configuration.
- A newly installed daemon waits for its initial configuration before it creates the NMOS Node.



2.3. Updating NMOS Utility

When replacing NMOS Utility with a newer version, update the daemon as well. macOS can retain the previously registered service, so merely replacing the application bundle may leave the old daemon in use.

1. Replace the application in /Applications with the new NMOS Utility.app.
2. Open the new application from /Applications.
3. Click Uninstall Daemon and wait for the daemon to be removed.
4. Click Install Daemon and approve the macOS authorization prompt.
5. Confirm that the displayed daemon version matches the new application, then review the configuration.



3. Configure the NMOS Node and Registry

Click Configure in NMOS Utility to open the Node settings. On first configuration, applying the settings creates and starts the Node. Later, the same window lets you change the Node settings.

Setting	Purpose and guidance
Node Label	The human-readable name shown to NMOS controllers. By default it follows the Mac computer name. You can enter a custom label; use Reset to return to the automatic computer-name label.
Node Description	An optional explanatory description exposed with the NMOS Node. The default describes it as a Softtron NMOS Node.
HTTP Port	The local port used by the NMOS Node API. Leave the default unless your network plan requires a specific port. It must be a valid TCP port.
Registry IP	Optional address of the NMOS Registry. Enter this when your facility uses a known Registry rather than relying on discovery.
Registry Port	Optional Registration API port for that Registry. Leave it empty when the normal/default Registry port applies or when the Registry address is discovered automatically.

Registry behavior. With a configured Registry address, the Node uses that Registry for IS-04 registration. If the Registry fields are left blank, the daemon uses automatic discovery where supported by the network. A Registry makes the Node, Devices, Senders and Receivers centrally discoverable to NMOS controllers; it does not itself carry media.

3.1. Configuration checklist

- Use a stable, reachable Registry address if your NMOS controller expects central registration.
- Make sure the Mac and the Registry are on network paths that permit the required NMOS HTTP and discovery traffic.
- Keep the Node Label unique and recognisable to operators, especially in multi-Mac installations.
- After changing settings, click Apply and wait until the Node status reports that it is configured and running.



4. How resources appear in NMOS

NMOS Utility builds the resource hierarchy on demand. This keeps the Node persistent while allowing Softtron applications to publish only the resources they actually expose.

NMOS resource	Created by	Label and identifier behavior
Node	NMOS daemon, after configuration is applied.	Label: Mac computer name by default, or the custom Node Label. ID: a random UUID stored by the daemon and retained across restarts.
Device	A compatible Softtron application when it starts.	Label: the application Bonjour name, usually configurable in that application's preferences. ID: a random UUID retained across restarts, but it is lost if that application's preferences are deleted.
Sender / Receiver	A compatible Softtron application when an output or input is enabled for NMOS.	Label: the custom input or output name. ID: generated by the Softtron NMOS layer and reused across compatible Softtron applications; it remains stable across restarts unless the hps_boot file is deleted.

4.1. What happens when an application starts

1. The running daemon maintains the NMOS Node for the Mac.
2. A supported Softtron application connects to the daemon and creates its NMOS Device.
3. When an NMOS-capable input or output is enabled in that application, the corresponding Receiver or Sender is added beneath the Device.
4. The resources are advertised and, when configured, registered with the NMOS Registry.

4.2. Connection activation is deliberate

Creating a Sender or Receiver makes it visible to NMOS control systems; it does not by itself start a media connection. A Sender or Receiver is acted on when an NMOS controller submits an IS-05 activation. For a Receiver, the activation provides the connection information (such as SDP) to the application. For a Sender, the activation applies its enabled state and active transport parameters; the application supplies the Sender transport description as required.



Operational consequence. If an endpoint appears in a controller but no media starts, confirm that the controller has staged and activated the IS-05 connection. Visibility in an NMOS Registry is not the same as an active connection.



5. Using NMOS with Softtron applications

NMOS Utility does not create media endpoints on its own. In each compatible Softtron application, configure the relevant inputs or outputs, give them clear custom names, and enable their NMOS publication. The names assigned in the application become the labels operators see for the corresponding Senders and Receivers.

5.1. Recommended workflow

1. Install and configure the daemon in NMOS Utility.
2. Start the Softtron application, such as MovieRecorder, OnTheAir Video, or M|Replay.
3. Set its Bonjour name and the names of the inputs and outputs you intend to expose; these names become NMOS labels.
4. Enable the required NMOS inputs and/or outputs in the application.
5. In the NMOS controller, locate the Mac Node, then the application Device, then the required Sender or Receiver.
6. Make the required IS-05 connection and activate it.
7. Verify the result in the Softtron application and in the controller.

5.2. Naming guidance

- Use an unambiguous Bonjour name for each Softtron application instance; it becomes the NMOS Device label.
- Use descriptive input/output names that tell an operator what the endpoint carries, for example “Studio 1 Program Out” rather than “Output 1”.
- Avoid changing names during a production. A rename can make an endpoint harder to recognise in controller routing panels even though its ID remains stable.



6. Troubleshooting

6.1. The daemon does not install or connect

- Confirm that NMOS Utility.app is in /Applications and that you launched that exact copy.
- Click Install Daemon again and complete the macOS authorization prompt.
- If an older version was installed, click Uninstall Daemon, wait for it to be removed, then install again.
- Restart the Mac if macOS still reports an unavailable service after installation.
- Do not move, rename, or delete the application bundle after the daemon is installed; reinstall the daemon if you do.

6.2. The Node is installed but not running

- Open NMOS Utility and check the NMOS Node Status.
- If the daemon is installed but not configured, click Configure, complete the required Node fields, and click Apply.
- Check that the selected HTTP port is valid and not reserved by another local service.
- After a configuration change, allow a few seconds for the daemon to rebuild and register the Node.

6.3. The Node or endpoints do not appear in the controller

- Confirm that the daemon status is connected and the Node status is configured and running.
- If using a Registry, check the Registry IP address and port, and verify that the Registry is reachable from the Mac.
- If not using a configured Registry, verify that the network permits the discovery method used in your NMOS deployment.
- Start the supported Softtron application and enable the specific NMOS input or output; endpoints are not created until they are enabled.
- Make sure that the application is compatible with the Softtron NMOS Utility application version.
- Check the application's Bonjour name and endpoint names, then search for those labels in the controller.



6.4. The endpoint is visible but media does not start

- Make sure the controller has completed an IS-05 activation, not just discovered the resource.
- For a Receiver, verify that the staged connection details and SDP are valid for the selected input.
- For a Sender, verify the controller has applied the intended master enable and transport parameters.
- Check the media-network configuration, multicast/unicast requirements, and firewall policies separately from NMOS discovery.

6.5. Identifiers changed unexpectedly

- Node ID: it normally survives reboots; reconfigure or reinstall only if the daemon data has been reset.
- Device ID: it survives reboots but can be regenerated if the owning application's preferences are deleted.
- Sender/Receiver ID: it normally survives reboots; deleting the hps_boot file resets the stored identity data.

Before contacting support. Record the NMOS Utility daemon version, Node status, Registry address (if used), the application name and Bonjour name, the endpoint label, and whether the controller has activated the connection. This makes it much faster to distinguish discovery, registration, and media-connection issues.



7. Reference

7.1. Persistent components

- NMOS Utility application: installed in /Applications; used to manage the daemon and configuration.
- NMOS daemon: system service embedded in the application bundle; starts with macOS and runs independently of the UI.
- Node identity: stored by the daemon and reused across restarts.
- Application Device identity: stored in the application preferences.
- Endpoint identity: maintained by the Softtron NMOS layer; hps_boot deletion resets it.

7.2. NMOS standards used

NMOS Utility follows the NMOS model in which IS-04 defines the discovery, registration and resource model, while IS-05 defines connection management and activation. The exact behavior available in a Softtron application depends on the inputs and outputs that application exposes.