



Look to Drive Feature

Instructions for Use

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Overview

LDF is intended for users who:

- Use a compatible alternative drive controller (see “Compatibility” below).
- Can wear and operate Apple Vision Pro.
- Can reliably interact with Apple Vision Pro using your eyes.
- Do not have uncontrolled eye movement that interferes with the ability to use eye-gaze.

It is up to you and your trusted supporter supervision, along with your health care professionals and providers, to determine when the use of LDF is safe and appropriate. If you are unsure whether LDF is appropriate for you, consult your health care professional.

Indications for Use

The Apple Look to Drive Feature (LDF) is an accessory software medical device intended to supplement the functionality of a compatible wheelchair controller. The feature provides an alternative way for users to provide input to a compatible wheelchair controller through their gaze selection of software user interfaces. The feature does not replace or modify the functionality of the connected compatible wheelchair controller. The feature should not be used in uncontrolled environments requiring attention to safety.

Warnings and Precautions

Read all precautions and warnings before using LDF.

For additional information about preparing your space and seeing your surroundings while using Apple Vision Pro, refer to the Apple Vision Pro User Guide at <https://support.apple.com/guide/apple-vision-pro>.

LDF does not replace your wheelchair controller. LDF only sends inputs to the controller; it is not intended to modify the controller’s operation or override its safety features.

Monitor your wheelchair controller’s display. LDF does not provide status information about the wheelchair system (e.g., mode, speed setting). Always refer to your wheelchair controller’s display to have current information about the status and configuration of the system.

Refer to your wheelchair and controller manufacturer's instructions. Always follow the instructions for use, safety information, and maintenance guidance provided by the manufacturer of your wheelchair and by the manufacturer of your wheelchair controller. If you experience any issue with your wheelchair or your wheelchair controller, contact the corresponding manufacturer. Apple Support cannot diagnose or repair your wheelchair or your wheelchair controller.

Maintain a backup means of operating your wheelchair. It is your responsibility to maintain appropriate alternative backup and safety measures while using LDF. If you lose visual awareness of your surroundings through Apple Vision Pro at any time, stop using LDF immediately. If LDF does not behave as expected, stop using LDF and use your existing wheelchair’s controller.

Controlled environments only. Use LDF only in controlled environments (for example, indoors or in a controlled outdoor area such as a private patio or yard). Do not use LDF in uncontrolled environments requiring attention to safety, on roads, near roads, streets, or in any area where objects present a collision risk. Do not use LDF on roads or near roads, streets, or any area where moving objects present a collision risk. Do not use LDF around

stairs, balconies, railings, drop-offs, or other hazards. Do not use LDF near glass walls, glass doors, or other transparent or reflective barriers where a missed obstacle could cause harm. Do not use LDF in low light. Do not use LDF in rain, fog, or other wet conditions. Peripheral and local visibility may be reduced while wearing the headset, and small objects on the ground, transparent or reflective barriers, low-contrast hazards, and fast-moving objects may be difficult to perceive. Always maintain awareness of your real-world surrounding.

Adult trusted supporter supervision is recommended. LDF should be used under the supervision of an adult trusted supporter when appropriate to assure safe use.

Take it slow. Use the slowest speed option available on your wheelchair when starting, and never use excessive speed. Refer to your wheelchair controller modes to ensure safe speed settings are used in your environment.

Perform a pre-use check. Before each use, confirm that the travel area is clear and that your wheelchair, the wheelchair controller system, your Apple Vision Pro with LDF, cables, and stopping arrangement are functioning as intended.

Check before reversing. Rear visibility may be limited or unavailable. Do not reverse or turn into areas that have not been checked and cleared.

Keep Apple Vision Pro cameras clear. Low light, glare, dirt, coverings, condensation, or any obstruction over the forward cameras may reduce system performance. Do not use Apple Vision Pro if the cameras are dirty, fogged, blocked, or damaged.

Confirm your control profile and stop method. Before movement, confirm which control profile is active and how to stop the wheelchair immediately. If the selected drive profile disables joystick input, a separate and readily accessible stop method must be available and verified before use.

Confirm control is off after every session. Adult trusted supporters and operators must confirm that control has been disabled at the end of each session and before leaving the user wearing Apple Vision Pro. Never assume an active profile has turned off automatically. Initial use, tuning changes, and profile changes should be performed under supervision in a controlled area.

Do not operate the LDF while connected to wall power.

Manage cables. Secure all charging cables, developer straps, battery cords, and other tethers so they cannot snag, tighten, disconnect, or interfere with the wheelchair or its controller. Stop use immediately if a cable becomes caught, damaged, disconnected, or creates a trip or entanglement hazard.

Complete Apple Vision Pro Setup. LDF may be affected by Apple Vision Pro fit and complete Apple Vision Pro setup steps, including hand and eye enrollment. Stop using Apple Vision Pro if displayed controls or command behavior do not match the user's intended movement.

Apple Vision Pro general safety. To learn how to safely use Apple Vision Pro, review the "User safety" section and the "Prepare your space before using Apple Vision Pro" section in the Apple Vision Pro User Guide at <https://support.apple.com/guide/apple-vision-pro>. Never use Apple Vision Pro in any situations requiring attention to safety.

Using the Feature

Getting Started

- LDF is compatible with Apple Vision Pro running visionOS 27 or later.
- LDF is only available after unlocking Apple Vision Pro and enabling at least one of Dwell Control, Switch Control, or AssistiveTouch
 - Refer to the Apple Vision Pro User Guide for guidance for more information on Dwell Control, Switch Control, and AssistiveTouch.
- Charge Apple Vision Pro before each use. LDF requires sufficient battery state of charge to operate and will become unavailable if battery falls below 10%, the minimum required level.
- Before using LDF, pair your wheelchair controller with Apple Vision Pro. Refer to the wheelchair controller manufacturer's instructions for pairing steps.

Enabling/Disabling Look to Drive

Starting LDF

Confirm at least one of the following Accessibility features is enabled (see Getting Started above):

- **Dwell Control** — the Look to Drive button appears automatically in the Dwell Control menu when LDF is available and a compatible wheelchair controller is connected.
- **Switch Control** — the Look to Drive button appears automatically in the Switch Control menu when LDF is available and a compatible wheelchair controller is connected.
- **AssistiveTouch** — the user must manually add the Look to Drive button to the AssistiveTouch menu. The button is enabled when LDF is available and a compatible wheelchair controller is connected; otherwise it is greyed out.

To launch LDF:

1. Open the Dwell Control, Switch Control, or AssistiveTouch menu on Apple Vision Pro.
2. Select the Look to Drive button (wheelchair icon).
3. Select **Start** to launch LDF, or **Cancel** to dismiss the dialog without starting.

LDF launches. Your space remains visible at all times so the user can see their surroundings. Other apps are dismissed while LDF is active.

NOTE: In the visionOS user interface, LDF is presented to the user as **Look to Drive** in the Dwell Control, Switch Control, and AssistiveTouch menus.

Pausing or exiting LDF

- Look at **Pause** to temporarily suspend LDF. The feature will send a stop command to the wheelchair controller. Look at Pause again to resume.
- Look at Exit to end the LDF session. The feature will send a stop command to the wheelchair controller and the control overlay closes. Please note, you cannot **Exit** if the feature is Paused.

Look to Drive Controls

The LDF button overlay

When LDF is active, a button overlay is displayed over your view of the room. The overlay includes:

- **Directional buttons** arranged around the center:
 - Cardinal directions: Forward, Backward, Left, Right.
 - Diagonal directions (corner controls): Forward-Left, Forward-Right, Backward-Left, Backward-Right.
- A **Stop** button at the top of the overlay (red).
- A **Stop** button at the bottom of the overlay (red).
- A **Pause** button at the top of the overlay.
- An **Exit** button at the top of the overlay.
- For TOLT users: There is a “mode” button to work with seating and pre-set speed adjustments. Refer to the user interface of the wheelchair’s controller to determine which mode you are in, to then determine which LDF overlay.
- For LUCI users: There is a “wheelchair” button. Selecting it displays new buttons:
 - Seat controls - operate the powered-seating functions installed in your wheelchair.
 - Speed controls - select among the speed profiles configured for your wheelchair. **NOTE:** always refer to the wheelchair controller display to understand which speed mode is selected prior to moving the wheelchair with LDF.
 - **NOTE:** Seating functions and speed profiles are setup by a qualified technician. LDF lets you operate and select among these existing configurations - it does not create, change or expand them.

Driving the wheelchair

- To send a movement command, look at the corresponding directional control.
- To send a stop command, you can look at no control button, look at either Stop control, look at the Pause control, or look at the Exit control. Alternatively, if you close your eyes, the feature will send a stop command to the wheelchair controller.

Automatic stop conditions

The feature will send the wheelchair controller a stop command automatically if:

- Apple Vision Pro disconnects from the paired wheelchair controller.
- Apple Vision Pro is removed from your head.
- Apple Vision Pro battery state of charge falls below the minimum required level.
- Apple Vision Pro loses system power. If this happens, your view through Apple Vision Pro will be lost — remove Apple Vision Pro immediately.
- LDF detects an issue.

Adjusting Your Seat

When LDF is connected to a LUCI wheelchair controller, which supports seat adjustment overlay buttons, a **Seat Controls** icon appears in the top right of the driving overlay.

1. Look at the **Seat Controls** icon in the top right of the driving overlay to open the Seat Controls overlay. The wheelchair will not drive while you are in Seat Controls.
2. The Seat Controls overlay shows four seat adjustments, each with an Up and Down control:
 - **Tilt** — adjusts the tilt of the seat.
 - **Recline** — adjusts the backrest recline angle.
 - **Leg Rests** — raises or lowers the leg rests.
 - **Elevation** — raises or lowers the seat height.
3. Look at the Up or Down control for the adjustment you want. The seat moves while you hold your eyes on the control and stops when you look away.

4. To return to the driving overlay, look at the **back arrow** in the top left of the Seat Controls overlay.

Before adjusting your seat: Ensure there is sufficient clearance above, behind, in front of, and around the wheelchair so that the seat or your body does not collide with people, pets, or objects in your environment.

NOTE: The availability of Tilt, Recline, Leg Rests, and Elevation depends on the powered seating functions installed on your wheelchair. Refer to your wheelchair manufacturer's instructions for information about your wheelchair's seating capabilities, and for safe operation of powered seating functions. Never drive your wheelchair in unsafe seating configurations.

Look to Drive Settings

LDF settings are available in Settings > Accessibility > Look to Drive on Apple Vision Pro. From this screen you can adjust the layout of the control overlay, manage logging, and view product information.

To open Look to Drive settings:

1. Open Settings on Apple Vision Pro.
2. Select Accessibility in the sidebar.
3. Under Accessories, select Look to Drive.

NOTE: In the visionOS, LDF is presented to the user as Look to Drive in Settings, and as Wheelchair in the Dwell Control / AssistiveTouch menu.

- **Control Buttons Row:** The Control Buttons Row setting determines where the Stop, Pause, and Exit controls appear in the LDF control overlay. Select either at Top or Bottom to your preference. The change applies the next time you launch LDF.
 - Top (default) — places the Stop, Pause, and Exit controls along the top of the overlay.
 - Bottom — places the Stop, Pause, and Exit controls along the bottom of the overlay.
- **Allow Logging:** The Allow Logging setting controls whether LDF records wheelchair control event information during use and the amount of time those logs will be stored. The logs remain on your device and no one can access these logs unless they are exported and shared by the user. Apple Support may request that you share those logs to troubleshoot issues with the feature. Allow Logging offers the following options:
 - 1 Hour (default): LDF keeps wheelchair control event logs for 1 hour. Logs older than 1 hour are deleted automatically.
 - 24 Hours: LDF keeps wheelchair control event logs for 24 hours. Logs older than 24 hours are deleted automatically.
 - Never: Logging is turned off. LDF does not record logs, and Apple Support may have limited ability to investigate reported issues without logs.
- **About:** Select About to view product and regulatory information for LDF.

For more information about Apple Vision Pro, please view the Apple Vision Pro User Guide at <https://support.apple.com/guide/apple-vision-pro>.

For information about your wheelchair controller, refer to the manufacturer's labelling and instructions for use.

Troubleshooting

If you experience difficulties while using LDF, refer to the troubleshooting guide below. Before troubleshooting, confirm you are contacting the right party — see “Where to Get Help” above. Issues with your wheelchair or your wheelchair controller should be directed to the corresponding manufacturer, not to Apple Support.

Problem: The wheelchair stopped unexpectedly during use.

Solution:

- Check the wheelchair status indicator on the overlay to confirm the controller is connected.
- Check that the wheelchair controller is powered on and not in an error state. Refer to the controller manufacturer’s instructions (TOLT Technologies or LUCI).
- Check that your wheelchair is powered on and not in an error state. Refer to the wheelchair manufacturer’s instructions.
- Check that Apple Vision Pro battery state of charge is above the minimum required level. Charge Apple Vision Pro if needed.
- Look at any directional control to resume movement.
- If the wheelchair or controller appears to be at fault, contact the corresponding manufacturer. If LDF appears to be at fault, contact Apple Support: support.apple.com.

Problem: LDF is not available in the Dwell Control / Switch Control / AssistiveTouch menu.

Solution:

- Confirm Dwell Control or AssistiveTouch is enabled (Settings > Accessibility > Interaction > Dwell Control > Turn on).
- Confirm a compatible wheelchair controller is paired with Apple Vision Pro.
- Confirm Apple Vision Pro battery state of charge is above the minimum required level.
- Confirm visionOS is up to date. Install any pending updates.
- Restart Apple Vision Pro.
- If issues persist, contact Apple Support.

Problem: The wheelchair is not responding, or movement is delayed.

Solution:

- Check the wheelchair status indicator on the overlay to confirm the controller is connected.
- Confirm the wheelchair is powered on and not in an error state. Refer to the wheelchair manufacturer’s instructions.
- For Bluetooth (LUCI): move closer to the controller and confirm pairing. For controller-specific issues, contact LUCI.
- For USB (TOLT): check that the cable is attached at both ends. For controller-specific issues, contact TOLT Technologies.
- If the issue is specifically with LDF or Apple Vision Pro, contact Apple Support. Otherwise, contact the wheelchair controller and/or wheelchair manufacturer.

Problem: I got a message that Apple Vision Pro battery is low and LDF is unavailable.

Solution:

- Switch to your wheelchair’s standard controller.
- Charge Apple Vision Pro before resuming use of LDF.

Problem: My wheelchair is behaving unexpectedly.

Solution:

- Stop using LDF and use your wheelchair’s standard controller.
- Refer to the instructions for use provided by your wheelchair manufacturer and your wheelchair controller manufacturer.
- Contact your wheelchair provider or the wheelchair controller manufacturer (TOLT or LUCI) before resuming use of LDF.

Problem: I don’t see the Seat Controls icon in the driving overlay.

Solution:

- Seat Controls require a wheelchair controller that supports seat adjustment through LDF. The LUCI supports LDF seat adjustment icon button functionality; refer to the Compatibility table above for current support.
- Confirm your wheelchair has the corresponding powered seating functions installed. Refer to your wheelchair manufacturer’s instructions.
- If your controller and wheelchair both support seat adjustment but the icon is missing, contact Apple Support.

Problem: The seat adjustment (Tilt, Recline, Leg Rests, or Elevation) does not respond.

Solution:

- Confirm your wheelchair is equipped with the corresponding powered seating function. Not all wheelchairs include all four adjustments.
- Refer to your wheelchair manufacturer’s instructions and contact your wheelchair provider if the adjustment is installed but not responding.
- If other seat adjustments work but only one does not respond, contact your wheelchair provider or wheelchair controller manufacturer.

Customer Support

This information is available on the internet at: <https://regulatoryinfo.apple.com/ifu/ldf>. You may also call Apple Support through the Contact Apple Support option in the About Look to Drive Features screen, or write to medicalcompliance@group.apple.com or One Apple Park Way, Cupertino, CA 95014, USA to request a paper copy of this information and other labelling.

Where to Get Help

LDF works together with compatible wheelchair controllers and Apple Vision Pro. Each is provided by a different manufacturer. If you experience a problem, contact the appropriate entity.

If the issue is with...	Contact
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The LDF feature on Apple Vision Pro (control overlay, gaze selection, visionOS, Apple Vision Pro platform)	Apple Support — support.apple.com
Your TOLT wheelchair controller	Contact TOLT. Refer to the instructions for use provided with TOLT.
Your LUCI wheelchair controller	Contact LUCI. Refer to the instructions for use provided with the LUCI.
Your wheelchair	Your wheelchair manufacturer or wheelchair provider

Always refer to the instructions for use provided by your wheelchair manufacturer and by your wheelchair controller manufacturer for safe operation, maintenance, and troubleshooting of those devices. Apple Support cannot diagnose or service your wheelchair or your wheelchair controller.

Security

Apple recommends that you use the built-in privacy and security protections of Apple Vision Pro, which are designed to protect your data and privacy. These protections include setting a password and using Optic ID. It is important to secure Apple Vision Pro since you will be storing personal information.

Users will also receive visionOS update notifications on Apple Vision Pro, and updates are delivered wirelessly, encouraging rapid adoption of the latest security fixes. See “Privacy and security” in the Apple Vision Pro User Guide, available at <https://support.apple.com/guide/apple-vision-pro>.

In the event that you suspect or would like to report any security issues with your device, please visit Apple’s support web page at <https://support.apple.com/111756>.

Maintaining the Device

Secure Software Updates

Software updates to Look to Drive Feature (LDF) are released as part of updates to the visionOS. This means updates to Look to Drive Feature (LDF) are bundled along with the OS updates and the user can access the updated version of Look to Drive (LDF) by updating their visionOS. Apple regularly releases software updates to address emerging security concerns and also provides new features; these updates are provided for all supported devices simultaneously.

Technical Specifications and Compatibility

Compatible wheelchair controllers	TOLT (USB); LUCI (Bluetooth)
Platform compatibility requirement	Apple Vision Pro running visionOS 27 or later
Minimum operating Apple Vision Pro battery state of charge	Above 10%

Compatibility:

LDF operates with Apple Vision Pro running visionOS 27 or later, and only with the wheelchair controllers listed below. LDF does not connect to wheelchairs controllers other than those listed.

Controller	Manufacturer	Connection
TOLT	TOLT Technologies	USB (Apple Developer Strap required)
LUCI	LUCI	Bluetooth

For setup, pairing, and safe operation of your wheelchair controller, refer to the manufacturer's instructions for use that came with the controller.

Symbols



Manufacturer



Read instructions before use



Look to Drive Feature (LDF)