

Geotab Drive: The Cloud ELD Solution

What is Cloud ELD?

Geotab leverages cloud computing to deliver a reliable and robust ELD solution. The Cloud ELD interconnects the Geotab GO telematics device and the MyGeotab fleet management software with a mobile device running the Geotab Drive app.

For the driver, the Cloud ELD offers a simple way to monitor and record Hours of Service compliance information, including Records of Duty Status (RODS) and Driver Vehicle Inspection Reports (DVIR). For the fleet manager, the Cloud ELD offers a single interface for monitoring drivers and running reports on the status of the fleet.

What does the Geotab GO device record?

The Geotab GO device records any vehicular data it can access through the diagnostic port, including speed, engine data, temperatures, coolant levels, and more. The GO device also records the GPS coordinates, received from the internal GPS module.

Where is the information sent?

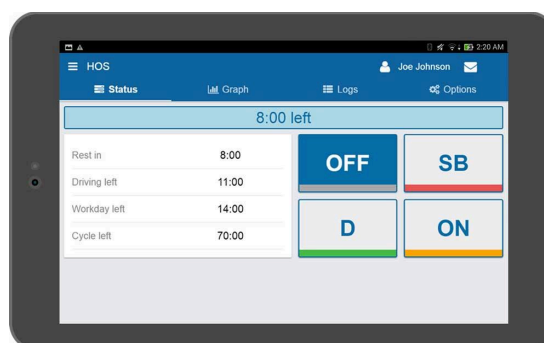
The vehicular and positional data recorded by the Geotab GO device is sent to a MyGeotab server over a cellular connection.

MyGeotab — Geotab's fleet management software — organizes the aggregated data, collected from the GO device, and presents it to the user through a user-friendly interface. This data is available in various forms ranging from reports, maps, and notifications.

Any data available on MyGeotab can be extracted for any number of additional uses through the MyGeotab API.

Geotab Drive App

The Geotab Drive App synchronizes with MyGeotab — via a Wi-Fi or cellular connection — to download the latest duty status logs and vehicle data. The Drive App also uploads logs manually created by the driver to MyGeotab for consolidation.



How Does It All Work Together?

Each piece of the Cloud ELD system does its part to ensure a reliable, accurate, and stable flow of data. As the vehicle is driven, the system follows a cyclical process:

1. The Geotab GO device sends engine data and location data to MyGeotab.
2. MyGeotab creates automatic duty status records.
3. The Drive App sends manual duty status changes to MyGeotab.
4. MyGeotab combines the data from the Drive App and the GO device to create an accurate record of duty status.

Geotab Cloud ELD Diagram



Figure 1: Engine and GPS Data from the GO device is sent to the MyGeotab server. Duty Status logs are created on the server, and then pushed down to the Geotab Drive app together with engine and location information.

Benefits of Cloud ELD

Reliability

If the mobile device experiences hardware problems and is unable to power up, or if it experiences software problems — for example, the device crashes due to a manufacturer software bug — the Cloud ELD will not lose any data. Neither scenario will impact the driver's logs because the GO device installed in the vehicle will continue to record accurate speed and engine information regardless of the status of the mobile device. The driver may switch to paper logs in this scenario, but as soon as they receive a new tablet or mobile device, they will have a full history of automatically-generated logs. No back office intervention is required to fill in status logs during any period for which a mobile device might be malfunctioning.

No Bluetooth

Another benefit to the Cloud ELD is that there is no pairing process required for the system to work. A major pitfall with solutions that rely on device pairing, through a wireless technology like Bluetooth, is connection issues.

Bluetooth and similar technologies may not be reliable enough for these critical circumstances. Drivers would need to be trained on what to do if the wireless connection fails. There would also need to be an alternative process for the driver to follow in case the connection cannot be repaired quickly.

One reason for this is the imperfect interoperability between different chipsets. There are hundreds of different Bluetooth chipsets from different manufacturers — may cause wireless interference.

No Power Source

The requirement to have tablets plugged into a power source is also unreliable. The connector will wear over time, especially if the tablet is repeatedly connected and removed. If, for any reason, the power is not properly connected, the tablet will end up sleeping and essential services that run on the tablet will no longer run, thus creating the possibility that the driver may fall out of compliance.

Another issue has to do with how mobile operating systems handle background tasks. Manufacturers are severely restricting the ability for apps to run continuously in the background as a way to limit the power consumption of all apps so that batteries are not depleted quickly. If every app on the system was allowed to run in the background, device batteries would not last very long and devices would not be reliable. Running an ELD process in the background on iOS puts the software vendor in violation of Apple's terms. Vendors risk having their ELD apps rejected at any time.

Cloud ELD simply triggers the device to wake up when a notification to the driver is needed. This means that the mobile device uses a fraction of the power of similar solutions and does not need to be powered to perform the ELD calculations.

Compatibility

With a wired solution, hardware compatibility becomes challenging.

With the Cloud ELD, devices on both the Android and iOS platforms (as well as others in the future) can be supported with ease. The aim is for the driver to log in to the application and get on with their day – without having to bother with wires or hardware connectors.

Compliance

The major reason why Geotab requires all the mobile devices to be connected to the cloud is to maintain accurate logs. When a driver operates vehicle A, and then needs to operate vehicle B, all the hours of service logs created for vehicle A need to be transferred over to the ELD used on the second vehicle. This transfer of logs at any time is a requirement of the ELD regulations.

No Cellular Coverage

The Geotab Drive app constantly receives ELD updates from the MyGeotab server after the initial login. Even if the vehicle is going in and out of coverage, Geotab Drive synchronizes with the cloud and stores data whenever connections are made throughout the day.

Based on a detailed analysis of real data by Geotab's Big Data team, the likelihood that a device stays out of cellular coverage consistently for long periods of time is rare. The likelier scenario is that a device moves in and out of coverage as it travels.

If the vehicle is out of cellular coverage, the GO device stores all recorded data, together with date and time information, on its internal memory. Once the vehicle enters an area with cellular coverage, the GO device transmits its stored data to the server. The server then coordinates the data and sends all missing pieces to the Drive App.

The Geotab Drive app is designed to work offline. When out of coverage, Geotab Drive can be used to access all the logs up to the point the vehicle went out of coverage, and it can still be shown to law enforcement. Within minutes of restoring coverage connectivity, the missing data is added to the app and becomes available for any future offline periods. This approach minimizes the impact of spotty coverage.

The Cloud ELDs offline capabilities, combined with Geotab's analysis of cellular coverage zones affecting actual fleets, means that the customer can feel confident that Cloud ELD offers the best and most reliable ELD service.