SAE **Systems Application Enterprises, Inc.**

SAE OnBoard User's Manual
v2.2.0.0

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Overview

SAE OnBoard is a commercially available ELD designed as a solution that meets the Hours of Service (HOS) requirements and route management needs of the foodservice industry, allowing SAE to turn the ELD disruption into your advantage by building an intelligent solution so you have the technology you need to be more agile, responsive and competitive – Open and flexible to meet you where you are today – and relentlessly innovative to help you get ahead of what's next.

Major Features

- Faster-time-to-value – Realize value quickly with simple installation, in place upgrades, and automated log entries
- Efficient Operations – Quickly get things done with one-click features and straight forward console
- Support for Multiple Systems – Edit driver logs with the in-cab tablet or web-based application
- Data Analytics – Review current and historical data through dashboards and reports

ECM Adaptor

- Easy Installation – Small adaptor plugs directly into Truck Bus (J1939, J1708)
- Connecting adaptor cable provides pass through connection from truck bus
- Bus readings are relayed to the tablet and then forwarded on to the host for storage and retrieval in management reports and digital dashboards
- Communicates with tablet through Bluetooth

OnBoard In-Cab

- Provides easy to use touch screen interface
- Runs on Android (Nougat v7.1 or newer) tablets approved by SAE
- Remains cradled in the cab of truck
- Stores and forwards information in real-time to the SAE OnBoard host

OnBoard Geo-Location

- Near Real-time Location of Trucks – transmits breadcrumb GPS location to the OnBoard host on a scheduled basis
- Last known equipment location and actual route driven can be viewed graphically

Route Navigation

- Tablet provides turn-by-turn voice instructions
- Route stop sequence can be changed by the Driver, and the turn-by-turn navigation will reflect the new route
- The route is calculated for each route segment using real-time least cost routing software that accounts for current road conditions
- Adjusted stop ETA is transmitted back to the host for customer arrival notification with external systems
- Drivers may send a Delay notification by selecting the reason for the delay from a predefined list
- Driver Performance report compares the mileage planned segment to the driven segment to identify variances

SAE OnBoard Icons

The following icons are used on the SAE OnBoard display and are consolidated here for easy reference:

- ⊞ – New item/entry button
- ⊕ – New item/entry button
- ⊙ – Open Dropdown Selection button
- 📋 – Shipping Document button
- ✓ – Review button
- ✕ – Close button
- ✏ – Edit Duty Status Log button
- 🏠 – Home button
- 🚕 – Roadside Inspection button
- ☰ – Menu button
- 👤 – Driver button
- ⊖ – Remove item/entry button
- ⊖ – Remove item/entry button
- 🚛 – Vehicle button
- 🚃 – Trailer button

Login Sequence

Login sequence consists of authentication challenge followed by a logon request.

When SAE OnBoard is started, the Start display is activated as shown in Figure 1. A Driver may then start the authentication challenge by touching the START button.
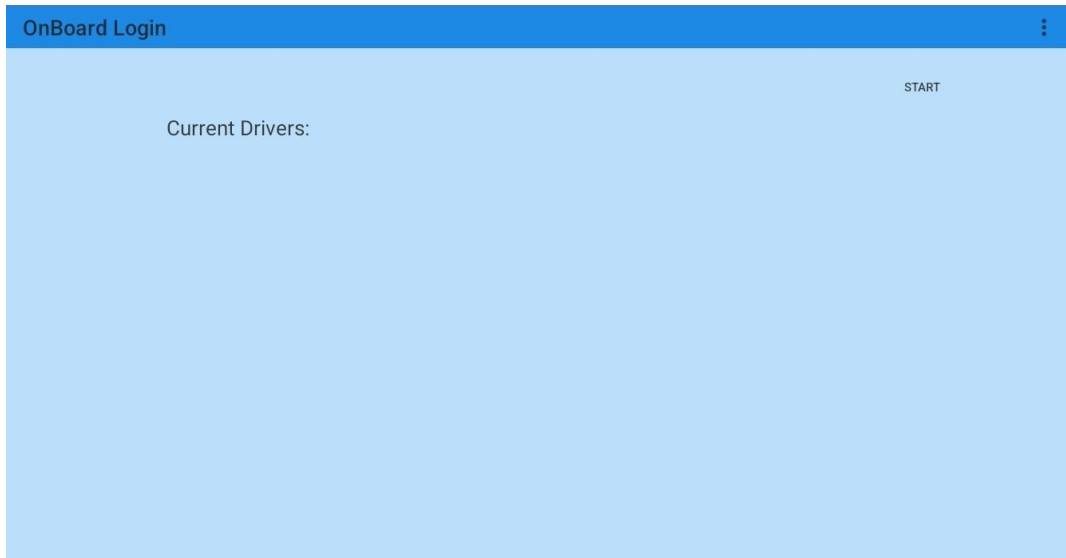

Figure 1

If this is the first login, the New Login display is activated as shown in Figure 2, with New Login preselected. The Driver may continue the authentication process by touching the DONE button.

Figure 2

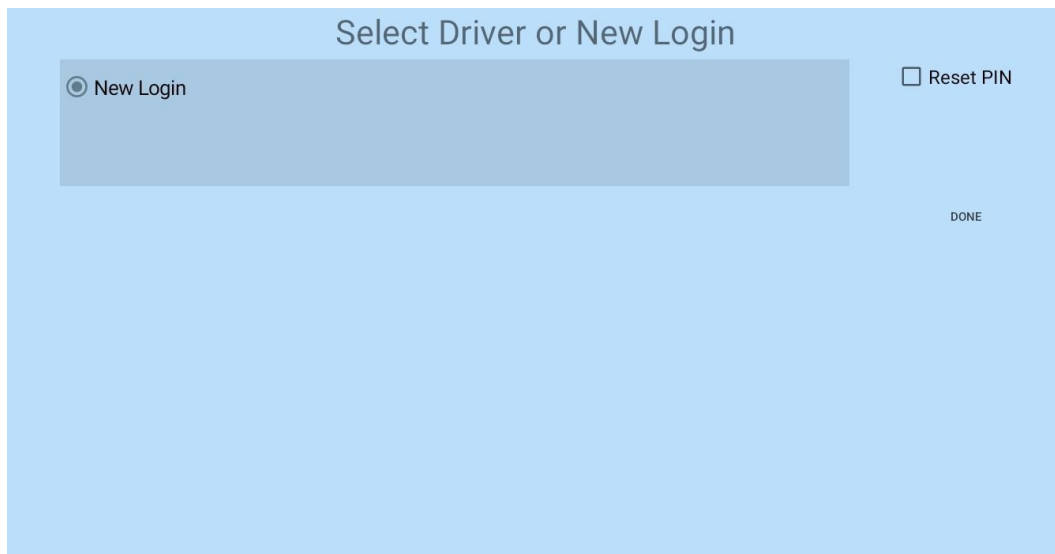Note that the following sequence of events could vary depending on Azure authentication settings for the corporation. The microsoft authentication Sign in display is now activated as shown in Figure 3.
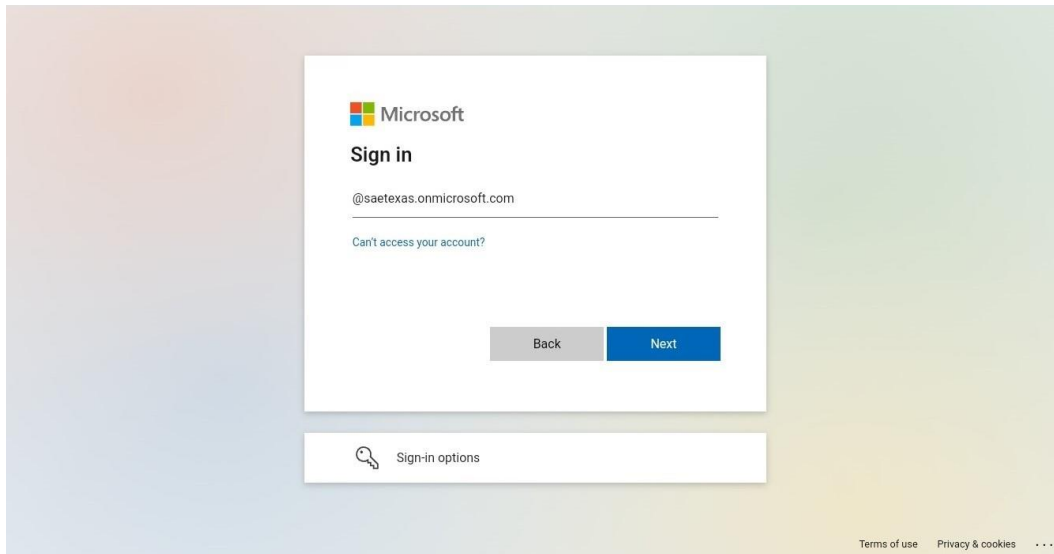

Figure 3

Enter the Username in User Principal Name (UPN) format, e.g. john.doe@contoso.com as shown in Figure 4. The Driver may continue to the password display by touching Next.
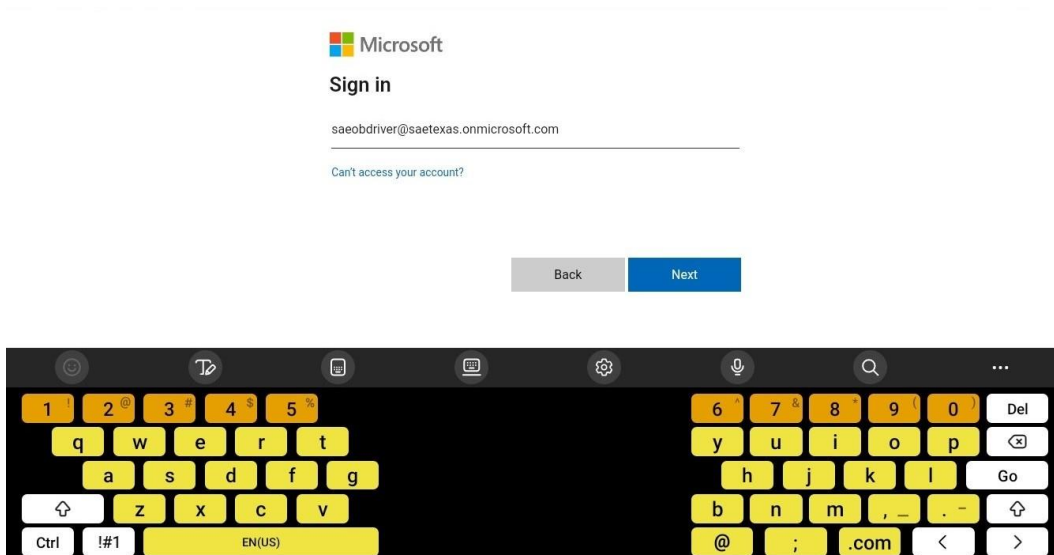

Figure 4

The Username is now shown at the top and the Password must be provided as shown in Figure 5. The driver may continue the authentication sequence by touching the Sign in button. Additional two factor authentication may be required.
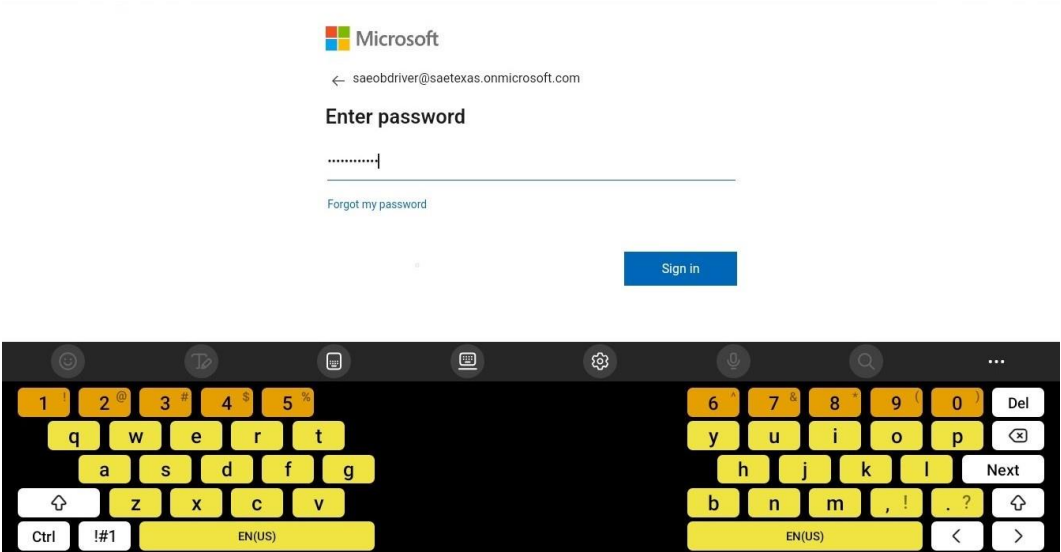
Figure 5

The Create PIN display is now activated as shown in Figure 6. The PIN will be used for local authentication only such as authenticating after a reboot, switching between co-drivers or road side inspection. The PIN can be 4 to 6 digits and is only stored locally, not on the network. The Driver may create the PIN by typing it twice, once in the Create PIN and again in the Confirm PIN fields, the touching the DONE button.
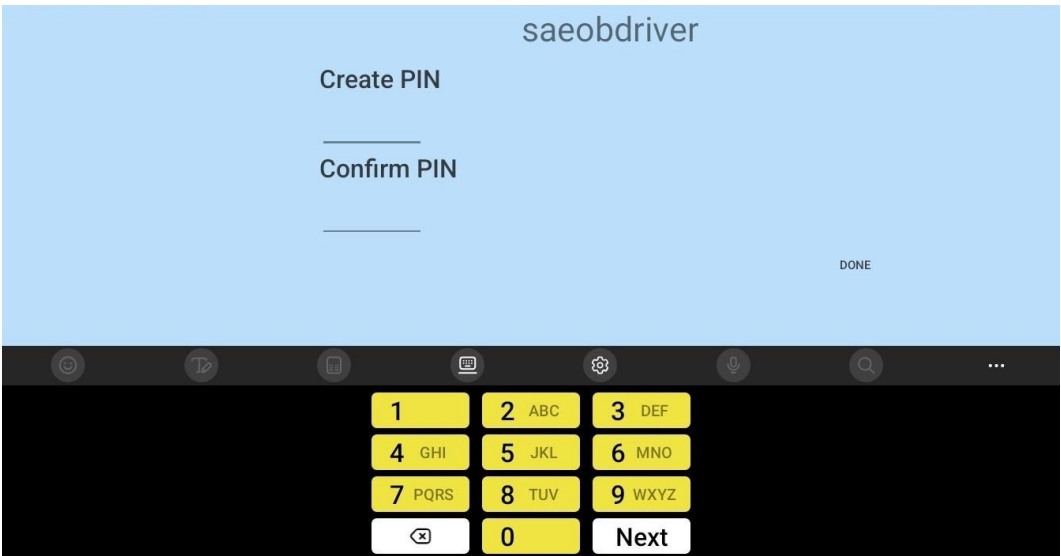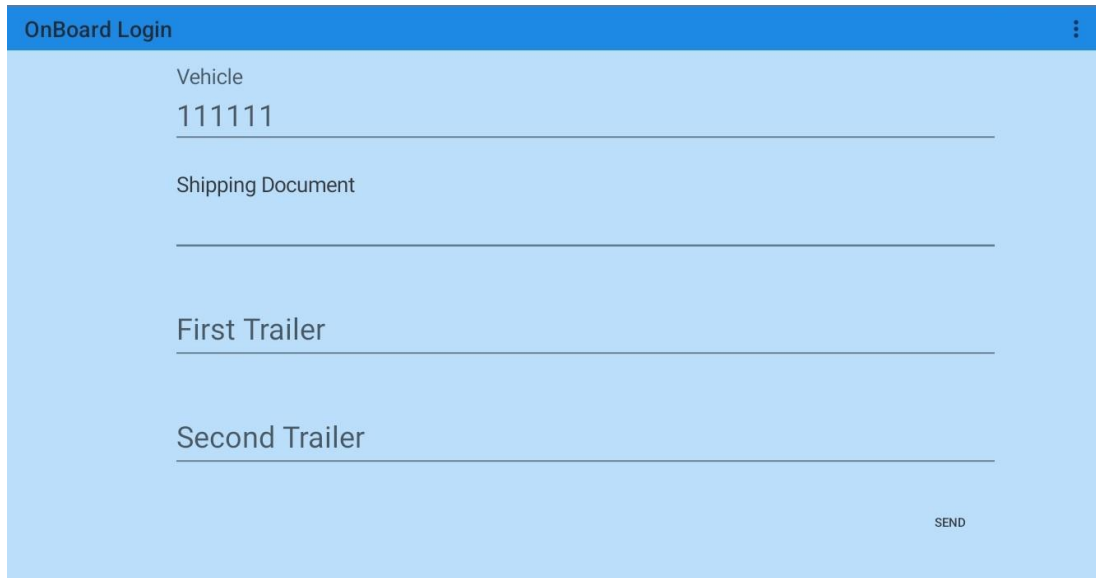

Figure 6

The Driver has been authenticated and the Logon Request display is activated as shown in Figure 7. The Driver may add more information at this point, and then touch the SEND button.

Figure 7

A Team Driver (i.e., Co-Driver) may login with a Username and Password in a similar fashion once the first Driver has logged on. This is performed by adding a second Driver from the Menu button.

Once a Driver has logged in to SAE OnBoard in a particular Vehicle, if there is any Unidentified Drive Time recorded by SAE OnBoard for that Vehicle, then the Driver is presented with details about these drive times and allowed to claim any belonging to the Driver.

Local Authentication

Overview. During local authentication, an app authenticates the user against credentials stored locally on the device. For OnBoard, we stored a user created PIN and NOT the Password.

When the OnBoard app is restarted (software crash or tablet reboot) the Start display is activated as shown in Figure 8. A list of the current drivers is displayed. The Driver may start the local authentication by touching the START button.

Figure 8

The Select Login display (see Figure 9) is activated with several choices: Select Driver, New Login and Reset PIN.

Reset PIN implies reauthenticating the selected user via Microsoft (see Figure 3). **New Login** implies authenticating via Microsoft Azure (see Figure 3). **Selecting a current driver** in the list will prompt the driver for the PIN to do a local authentication.
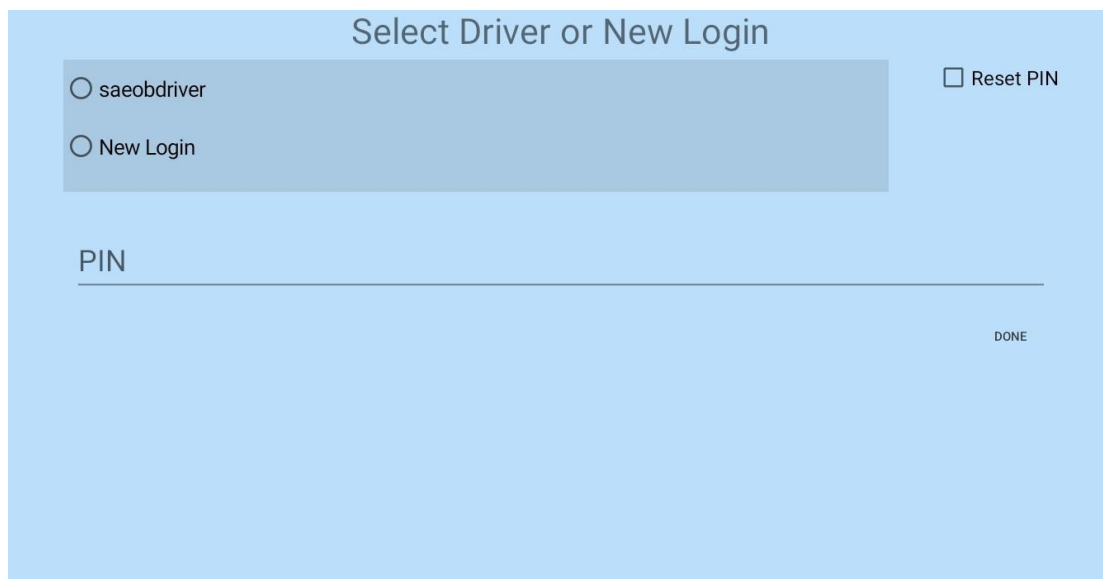

Figure 9

PIN Reset (I forgot my PIN)

If the PIN needs to be reset and the Driver is already on the Duty Status display, the overflow menu has the **Reset PIN** option.
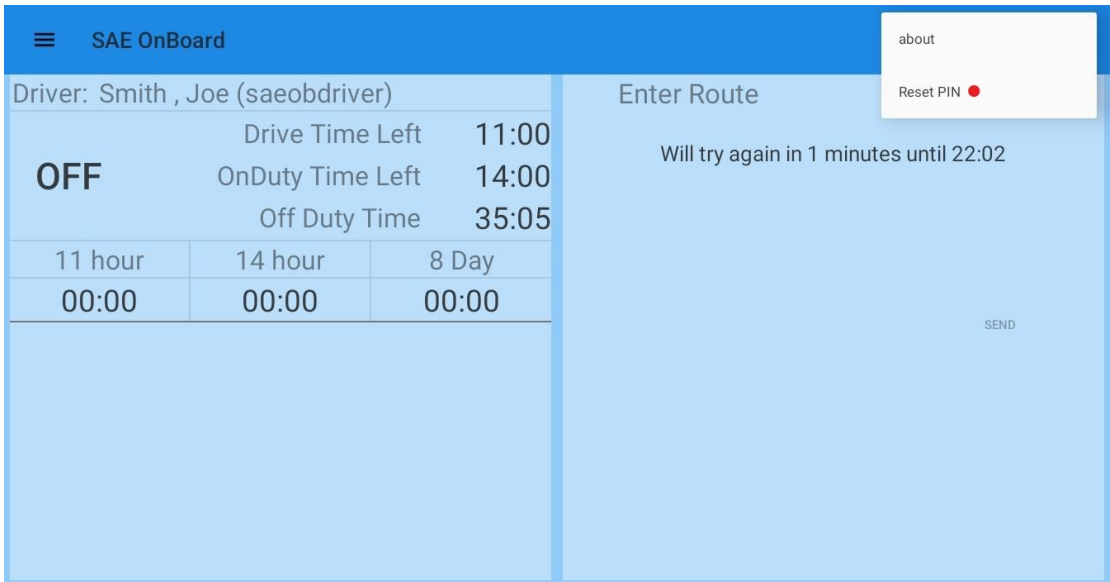

Figure 10 Reset PIN on Overflow menu.

If the tablet or the OnBoard app has restarted and the Driver is at the Select Driver display, use the Reset PIN checkbox shown in Figure 11 Select Driver with Reset PIN checked. After selecting the reset PIN the user will be required to re-authenticate to Microsoft Assure as per Figure 4 and Figure 5 and then be allowed to re-enter the PIN as per Figure 6.
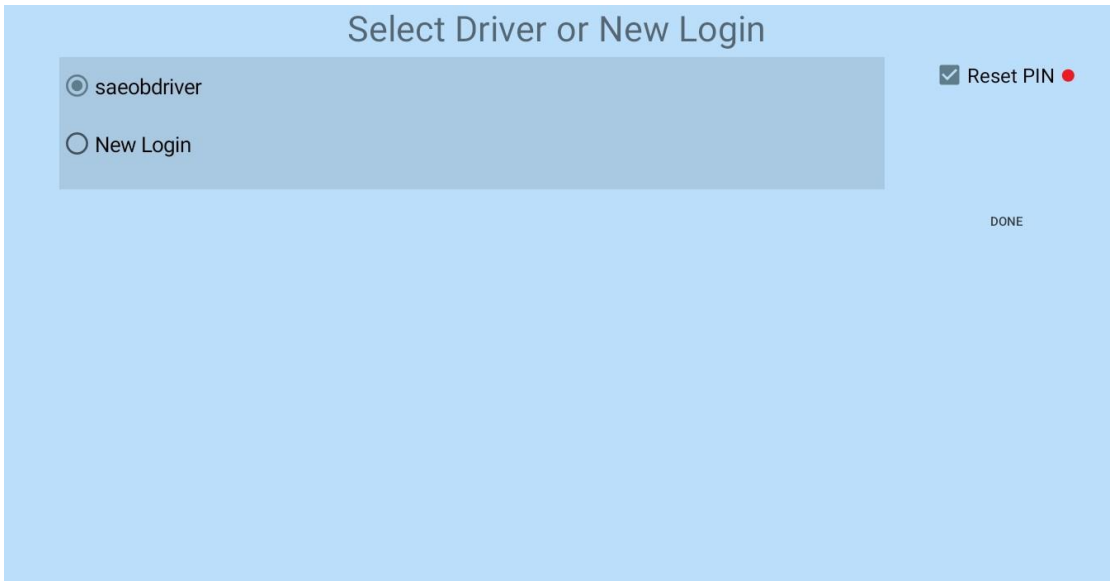

Figure 11 Select Driver with Reset PIN checked.

Duty Status

After a Driver completes the login process, the Duty Status display is shown (see Figure 12: Duty Status Display with Team Drivers) which provides the Driver with their current Duty Status, Remaining Time, Route Information (when appropriate), Diagnostic and Malfunction Indicators, and more.
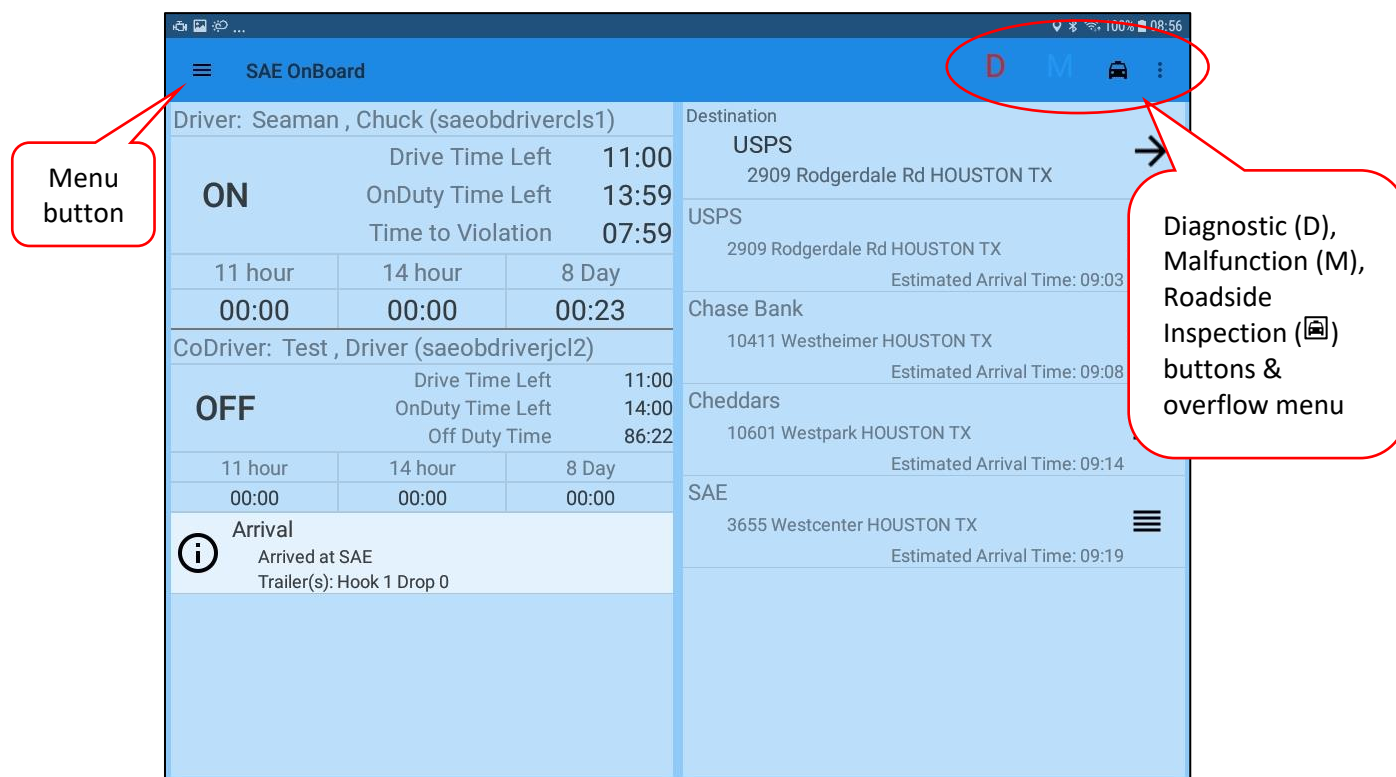

Figure 12: Duty Status Display with Team Drivers

Other features of SAE OnBoard are accessible from this display such as Changing Duty Status, Reviewing/Editing the Duty Log, Responding to Edit Requests, Displaying/Transmitting the Duty Log for a Roadside Inspection, etc.

The Menu button (stack of 3 short horizontal lines) near the upper left corner of the Duty Status display allows the Driver to access additional features of the SAE OnBoard application.

The buttons in the upper right corner of the display allow the Driver to activate the Diagnostic (D) and Malfunction (M) Conditions display, the Audit or Roadside Inspection ("police car" icon) displays, or the Overflow menu (⋮) displays.

Change Duty Status

To change the Duty Status from the Duty Status display, touch the current Duty Status to activate the Change Duty Status display as shown in Figure 13: Change Duty Status Display.
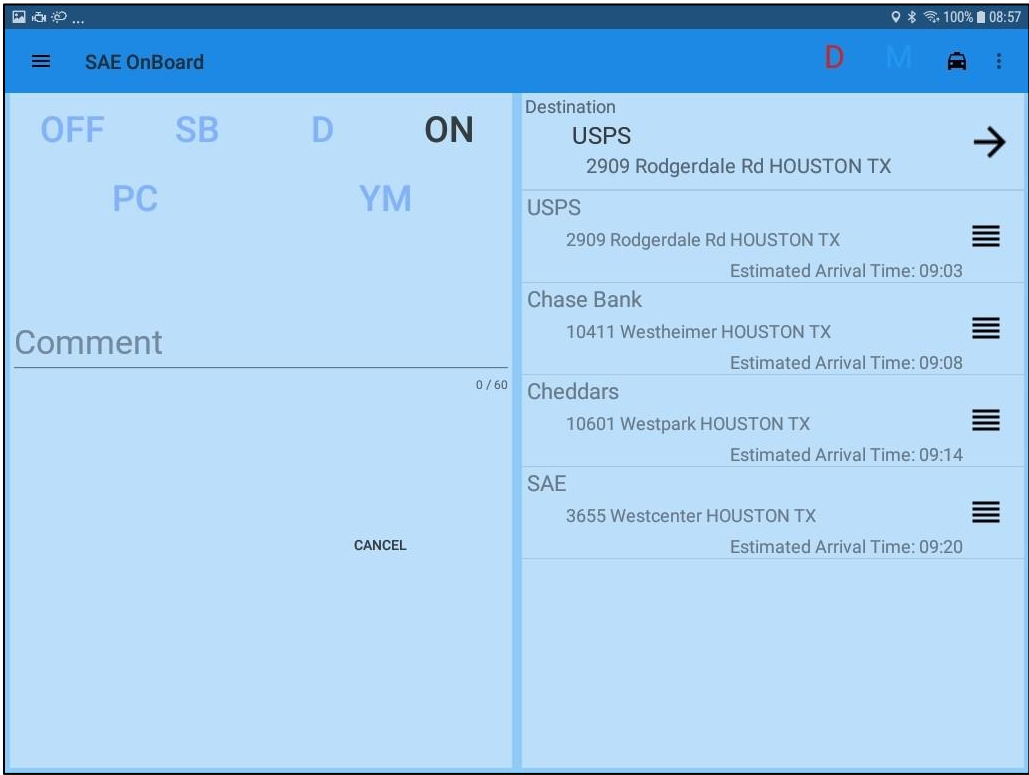

Figure 13: Change Duty Status Display

Touch the desired status value to change the current Duty Status. Only those Duty Status values that are currently available may be selected. If desired, also enter a comment.

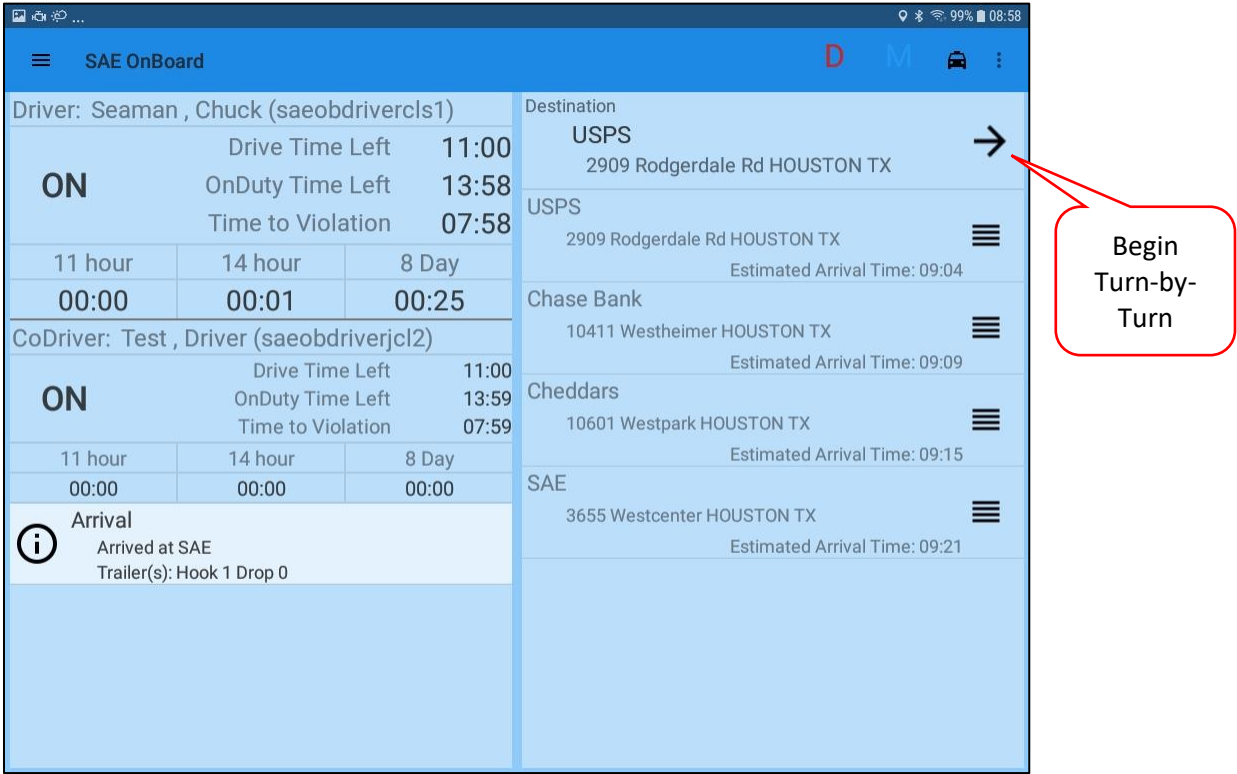Then, touch the SAVE button to change the status and return to the Duty Status display as shown below.

Figure 14: Team Drivers (both On-Duty)

Turn-by-Turn Navigation

Pressing the "Right Pointing Arrow" at the top of the Stop List shown in *Figure 14: Team Drivers (both On-Duty)* above begins the Turn-by-Turn navigation as shown below:
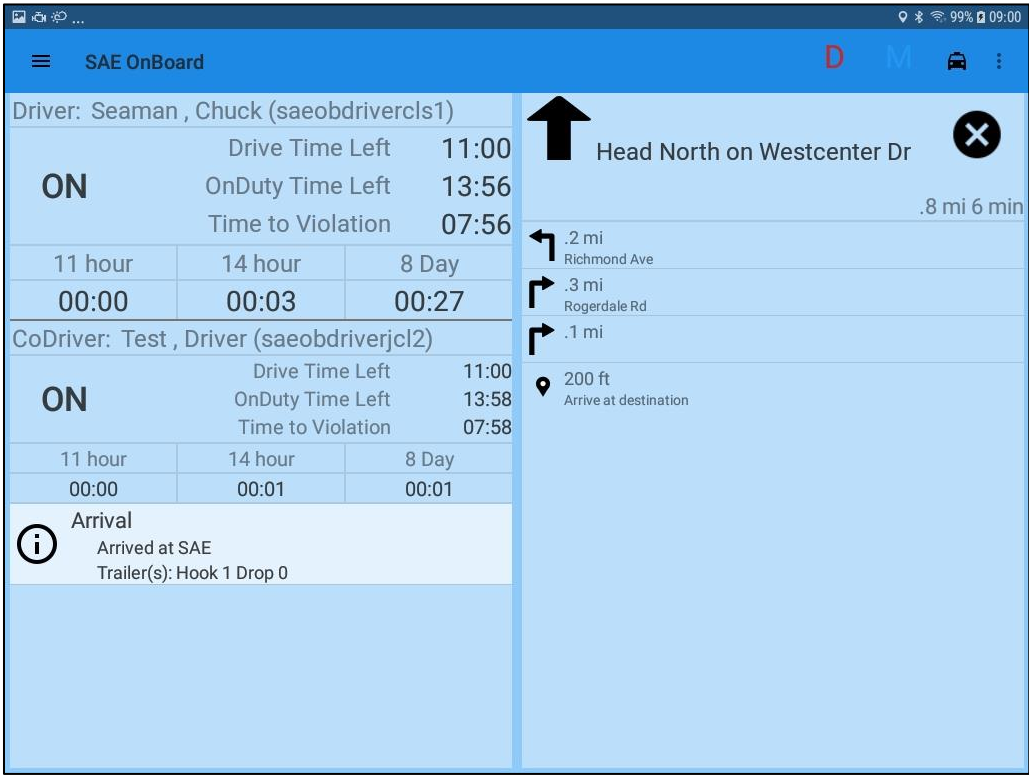

Figure 15: Turn-by-Turn Navigation

Each movement for the turn-by-turn navigation is spoken for the Driver to hear when enabled.

Stop Arrival/Departure Modes

SAE OnBoard supports both Automatic and Manual Customer Stop arrival and departure. In Automatic mode, Stop Arrival is based on a number of factors including Geofences around a Stop, the order of the stop in the Route, and proximity to other nearby Stops. In Manual mode, Drivers have control over when each Stop arrival and departure happens. The following screenshot is an example of the SAE OnBoard tablet operating in Automatic mode:
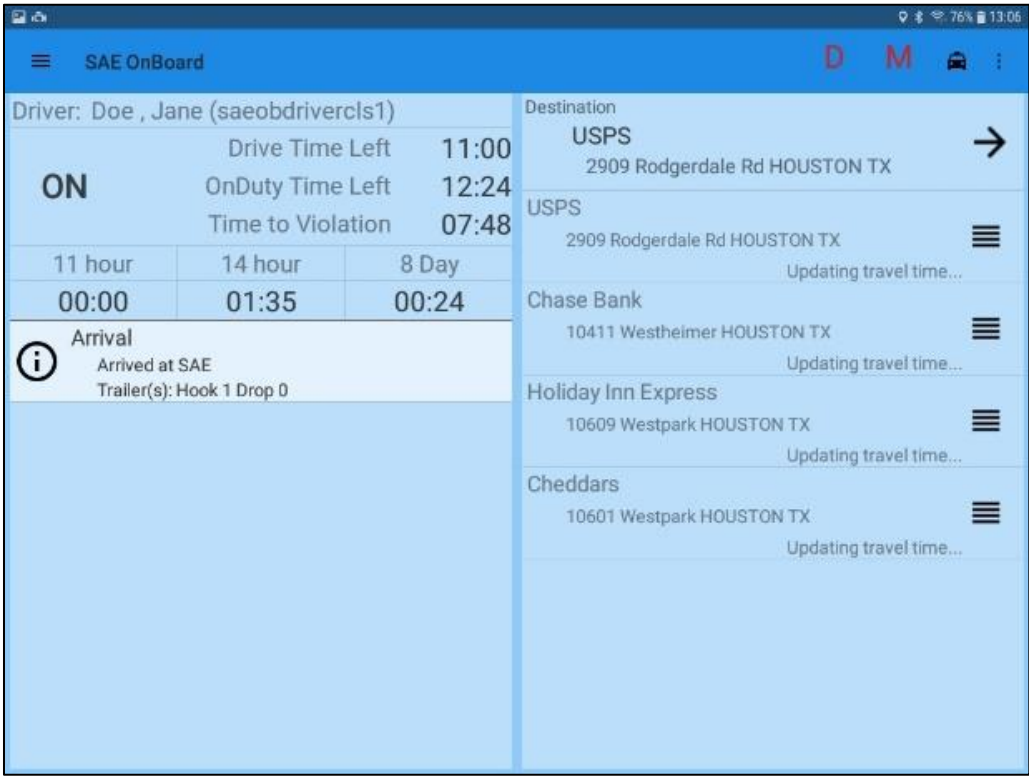

Figure 16: Automatic Stop Arrivals & Departures

In automatic mode, Stop arrival and departure messages appear on the left side of the screen based on the arrival and departure criteria as the Route is performed by the Driver.

The following screenshot is an example of the SAE OnBoard tablet operating in Automatic mode:
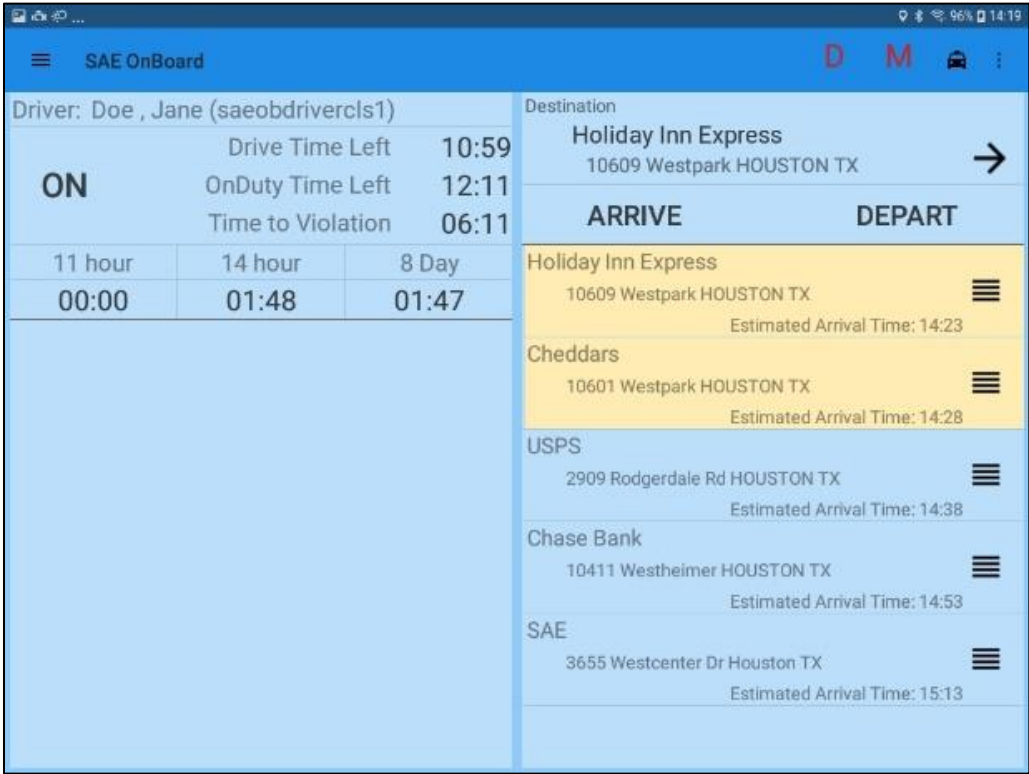

Figure 17: Manual Stop Arrivals & Departures

In manual mode, Stop arrivals and departures occur as the Driver selects stops and taps the ARRIVE or DEPART button as the Route is performed by the Driver.

Route Delay

A Driver may send notification of a Route Delay by selecting the Route Delay button from the Main Menu, choosing a reason for the delay from the list presented as shown below, and then touching the SEND button:
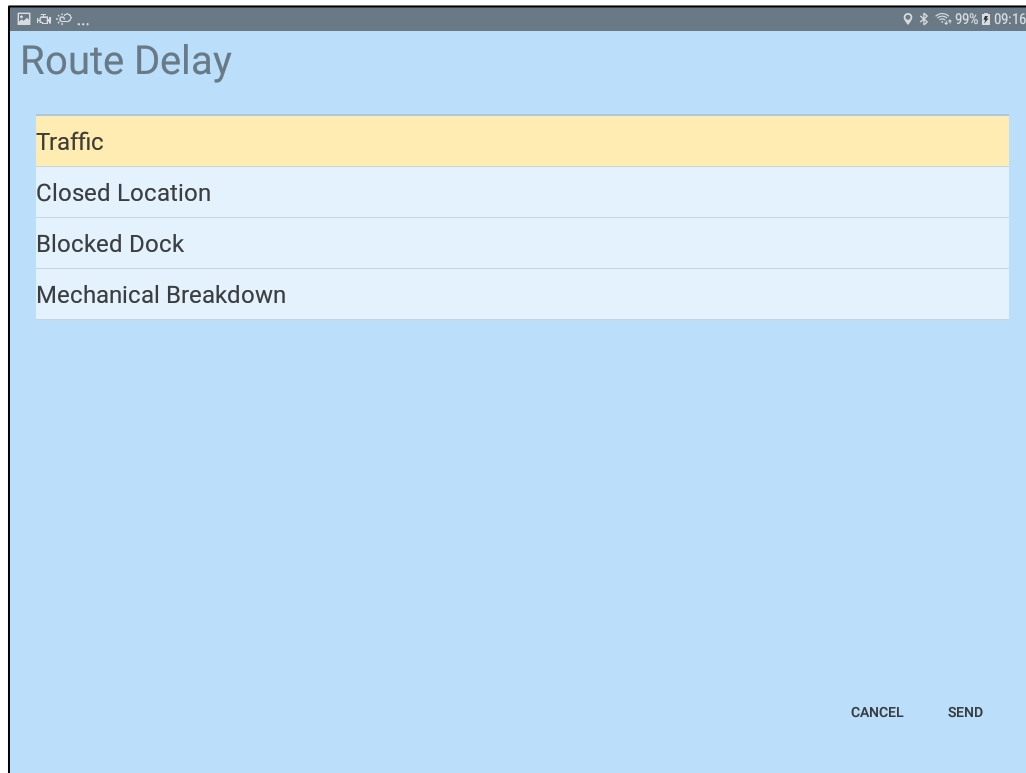

Figure 18: Route Delay Code Selection

The list of Delay Codes is defined by each SAE OnBoard Customer.

Duty Log

A Driver may review their Daily Log by touching the Menu button followed by the Review Daily Log button. The Review Daily Log display appears as shown in Figure 19.
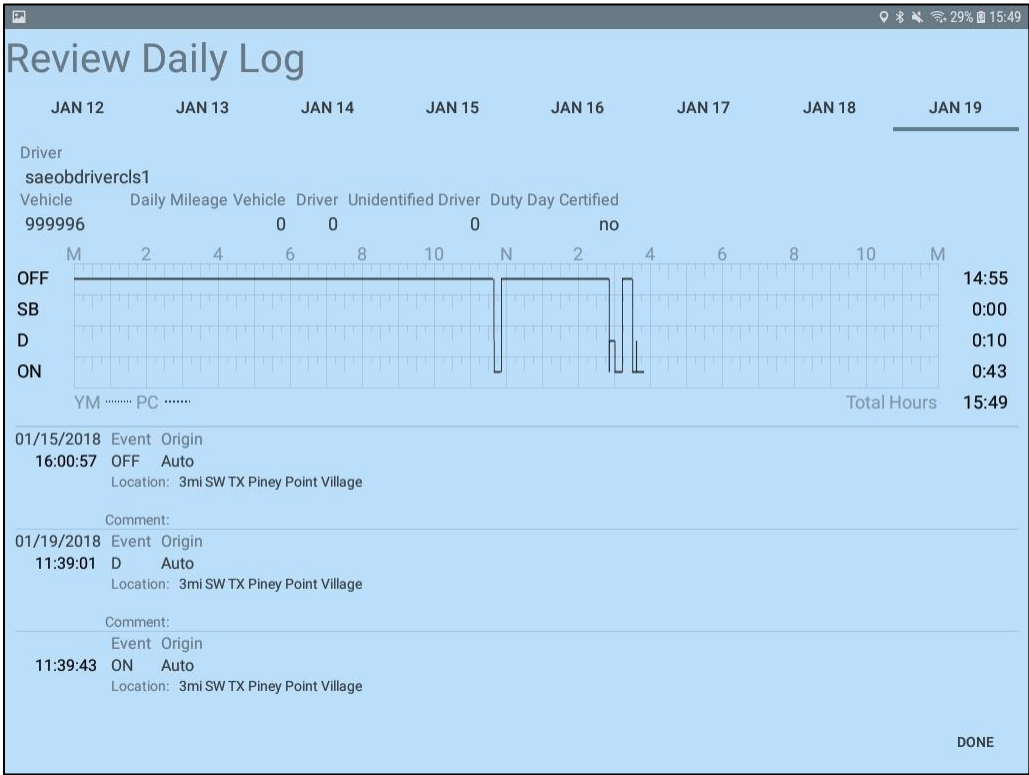

Figure 19: Review Daily Log

Initially, the current Duty Day is shown. Prior days may be selected by touching the Date button (e.g., JAN 15 in the screenshot above) across the top of the display, or by swiping left/right to move one day at a time. When finished reviewing the Daily Log, touch the DONE button to return to the Duty Status display.

Review and Edit Duty Logs

At times, Drivers may need to edit their Duty Status Log. Editing is started by touching the Hamburger Menu button (see Duty Status display) which opens the side menu as shown in Figure 20.
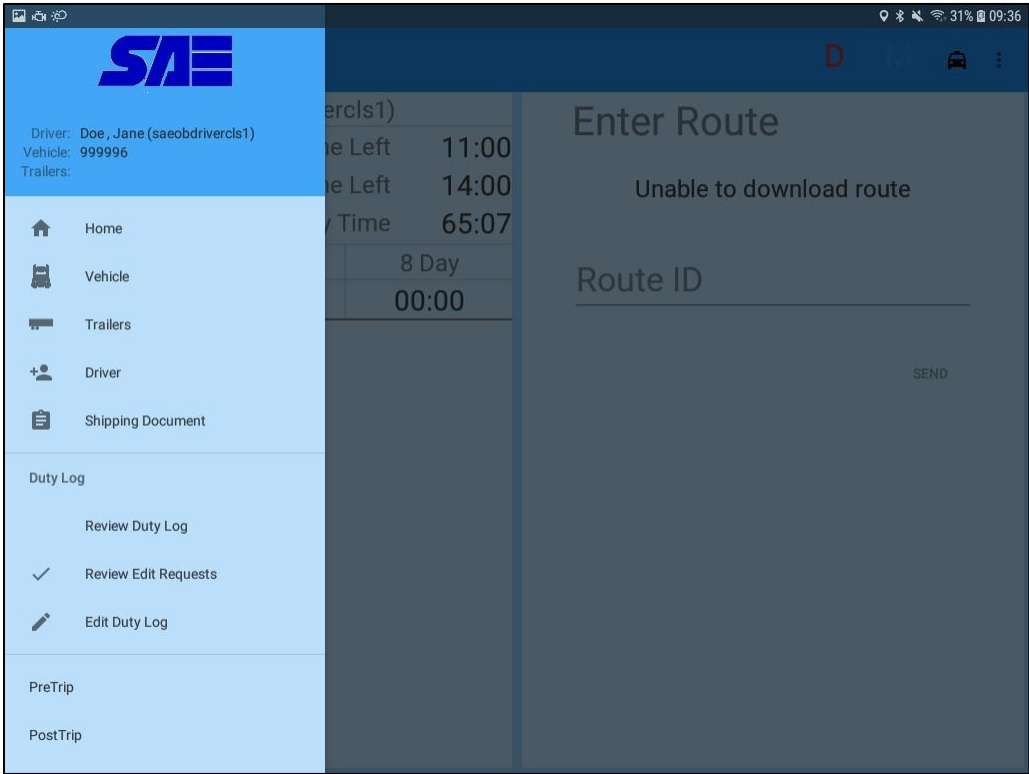

Figure 20: Activating the Edit Driver Log Display

Touch the "Edit Duty Log" button to activate the editing display shown in Figure 21.
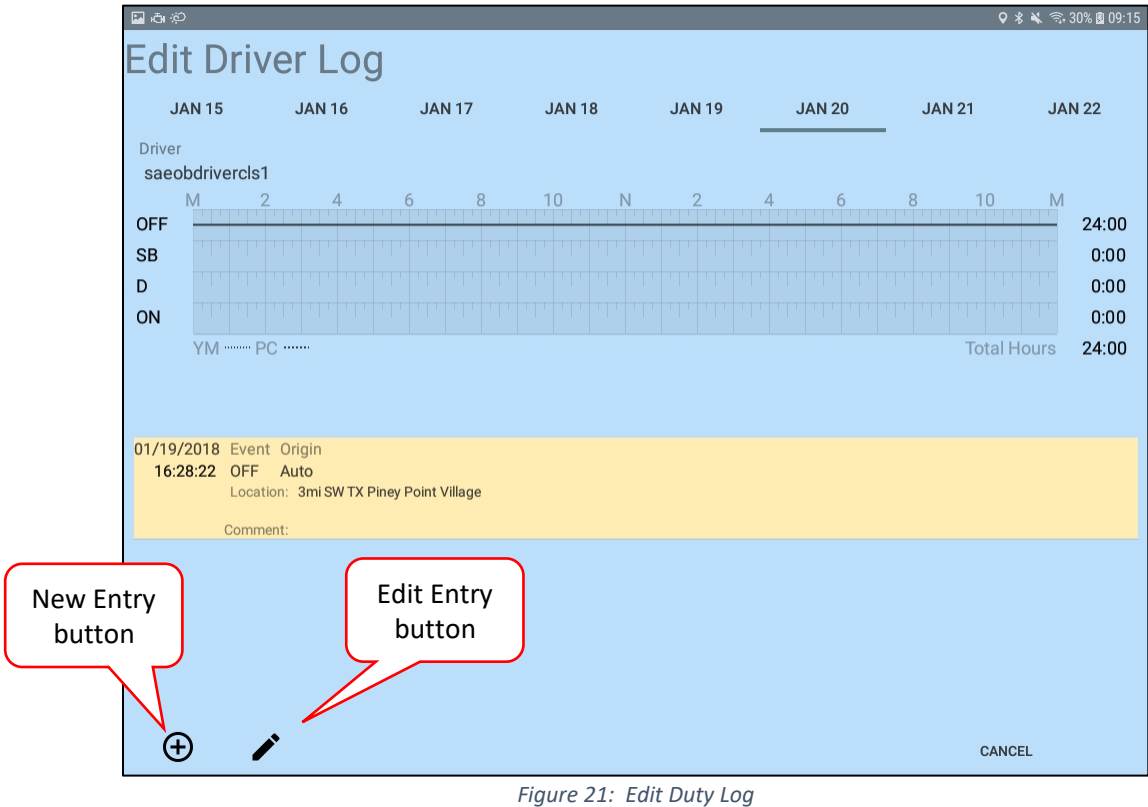

Figure 21: Edit Duty Log

The following example adds a missing On-Duty and missing Off-Duty status change to the Driver's log. Touching the New Entry button (i.e., the plus sign) near the lower left corner of the display activates the new status entry display as shown in Figure 22.
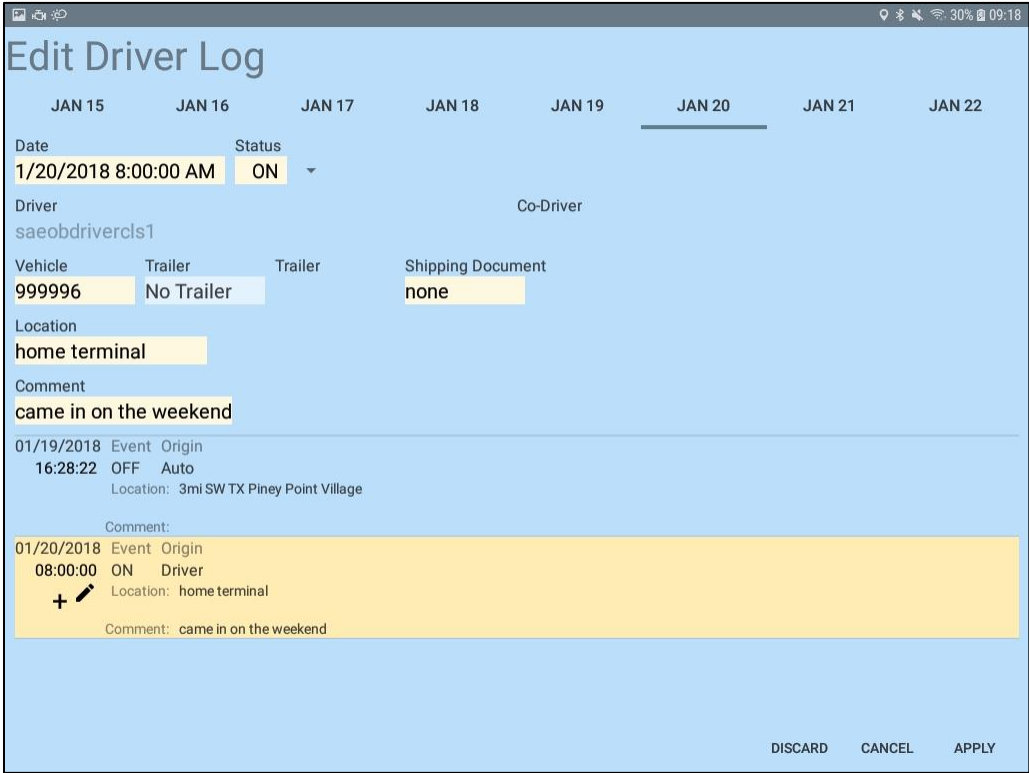

Figure 22: Insert Missing On-Duty Status

The fields have been filled in with appropriate values (e.g., comment, shipping document, etc.) to add an On-Duty status at 8 AM. Touching the APPLY button (near the lower right corner of the display) completes the entry of this status change.

Next, the same process is repeated to add the corresponding Off-Duty entry as of 10 AM as shown below in Figure 23.

Figure 23: Insert Missing Off-Duty Status

Touching the APPLY button completes the entry of the Off-Duty status change as shown in Figure 24.

Figure 24: Apply Duty Status Edits

Touching the APPLY button again and then the SAVE button (also in the lower right corner of the display) completes the addition of the On-Duty and Off-Duty status changes as shown in Figure 25.
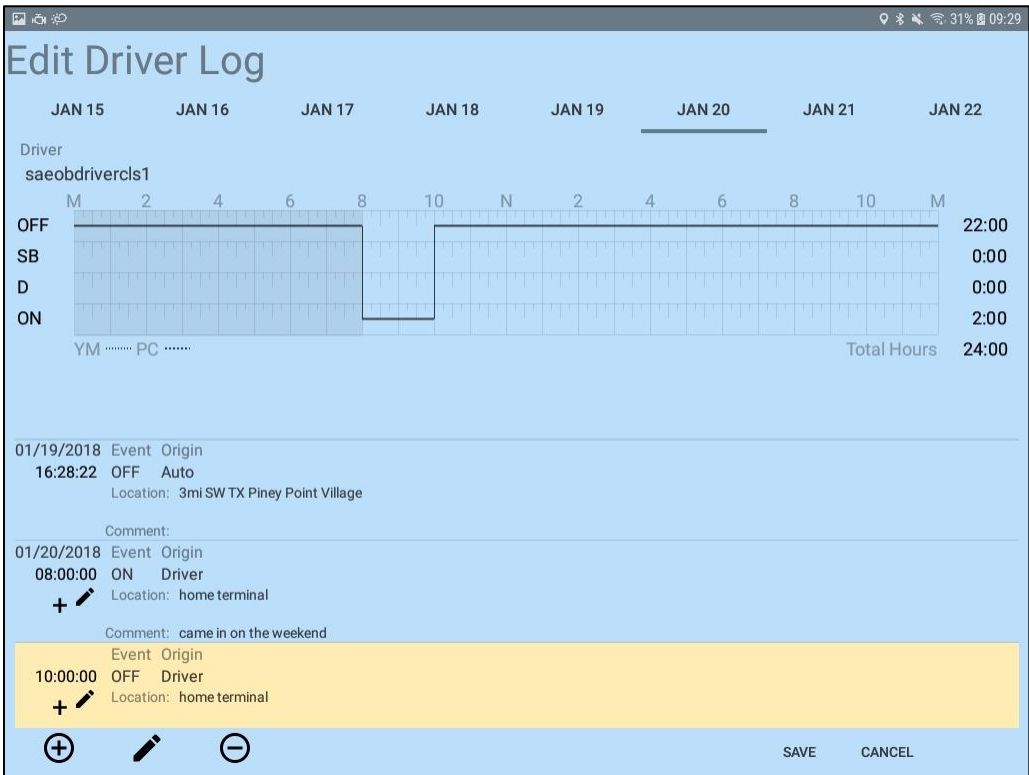
Figure 25: Completed Edits to Duty Day

When the changes are saved, the Driver is prompted to certify this change to a prior duty day as shown in Figure 26.

Figure 26: Certification Prompt for Prior Day Edits

Please refer to the section titled, "Duty Status Log Certification" for descriptions of the Certification displays.

Approve Carrier Edits

If there are any Carrier Edits that have been requested prior to the Driver Login process, a prompt is presented as shown in Figure 27 allowing the Driver to review and accept or reject the suggested edits.
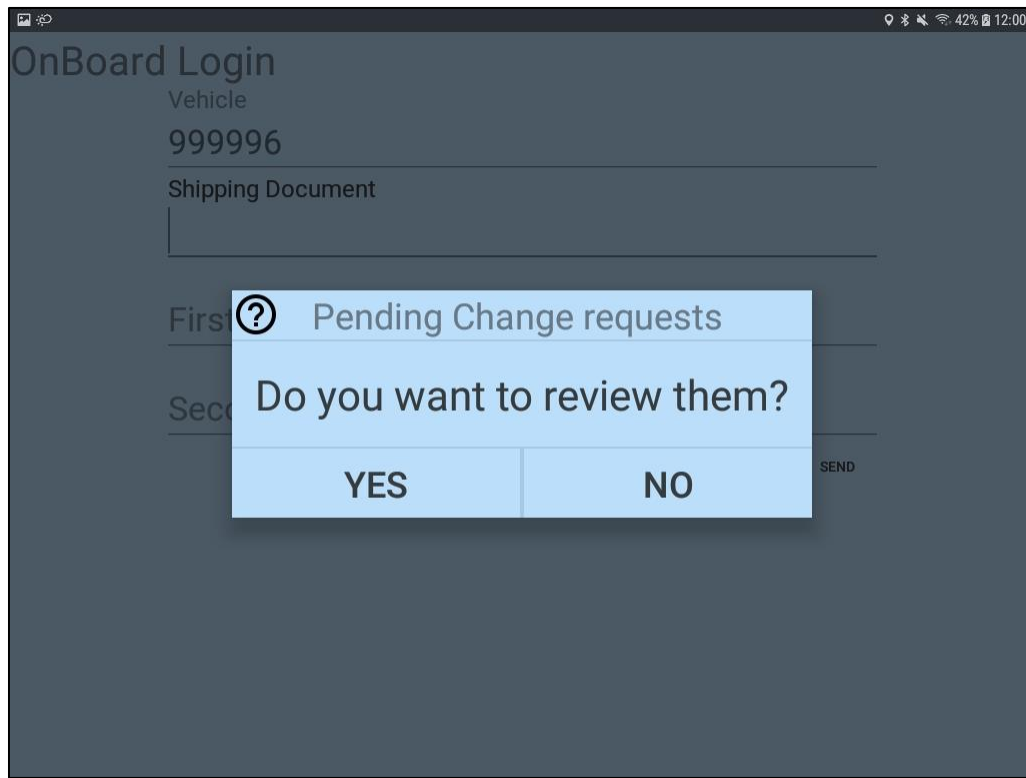
Figure 27: Carrier Edit Request Prompt

Answering YES above allows the Driver to review the Suggested Carrier Edits and accept or reject them as desired as shown in Figure 28.

Figure 28: Carrier Edit Request Review

Touch the ACCEPT button to accept the change, or touch the REJECT button to prevent the change from being applied to the log.

Each suggested change may be skipped by touching the SKIP button, or the entire review process can be terminated by touching the CANCEL button.

Duty Status Log Certification

Each Driver using SAE OnBoard is required by regulations to certify their Daily Duty Status Log at the end of their Duty Day. There are several times when the Driver is asked to review and certify their log with a prompt like the one shown in Figure 29 below.
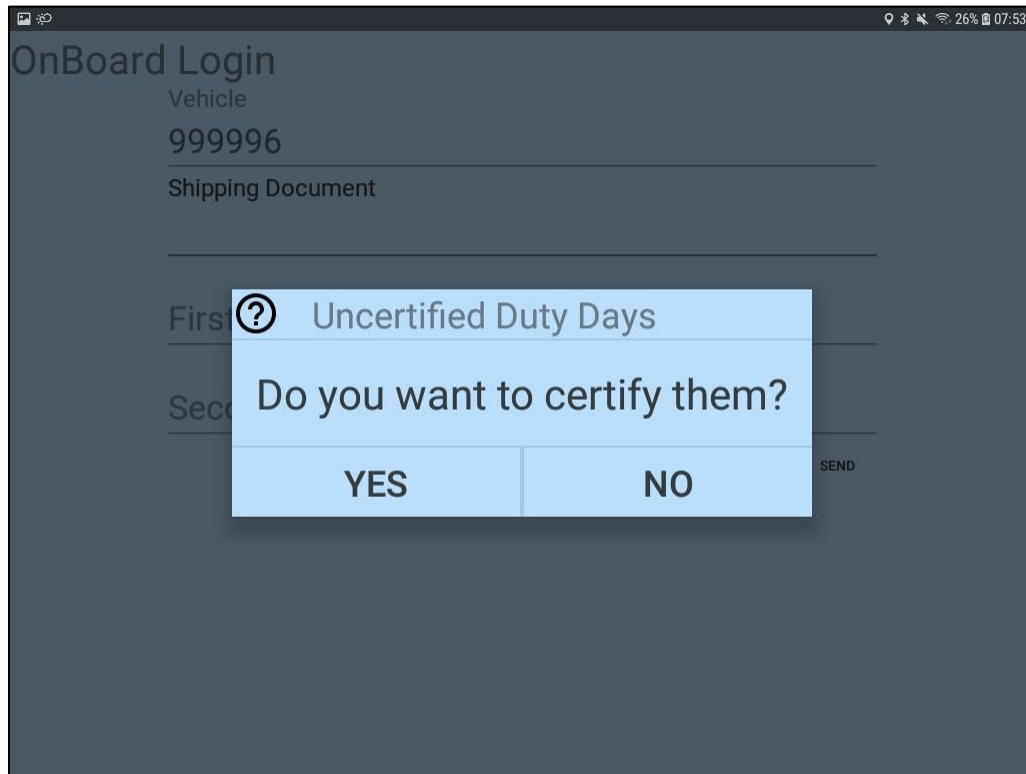

Figure 29: Certify Duty Days Prompt

This question may be presented during the login process if there are prior days that have not been certified, or during the logoff process in order to certify the current or prior Duty Days.

When a Driver chooses to review and certify days in their log, a display similar to that shown in Figure 30 is presented.
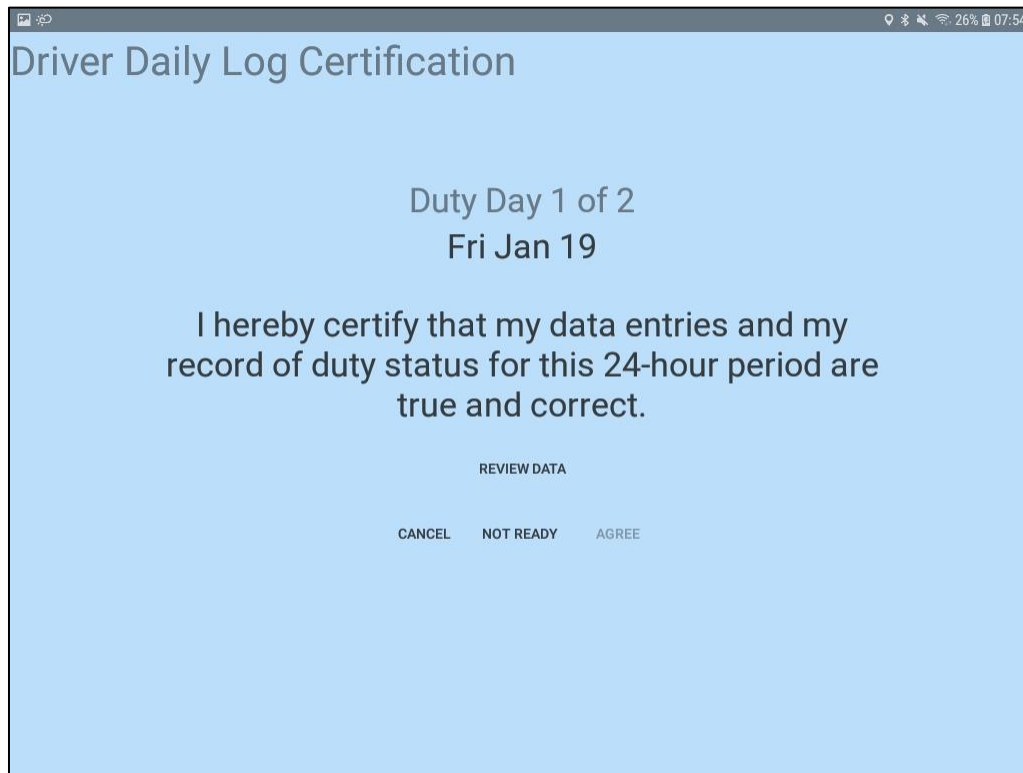
Figure 30: Certify Duty Day

The Driver must review the day's log by touching the REVIEW DATA button before the AGREE button is enabled. Once the day's log has been reviewed and is correct, touching the AGREE button provides the Driver's certification of the Duty Status Log for that day.

Touching the NOT READY button allows the Driver to continue on with the current process (e.g., Login, Logout, Certification of another Duty Day).

Touching the CANCEL button allows the Driver to cancel the current process (e.g., Login, Logout, Certification of another Duty Day) completely.

Roadside Inspection

When a Driver is involved in a Roadside Inspection, there are audit displays that can be activated and shown to the Inspecting Officer. These displays are activated by touching the Roadside Inspection button (i.e., the "police car" icon) near the upper right corner of the main Duty Status display. After entering the Driver's PIN for confirmation, the following display in Figure 31 is presented.
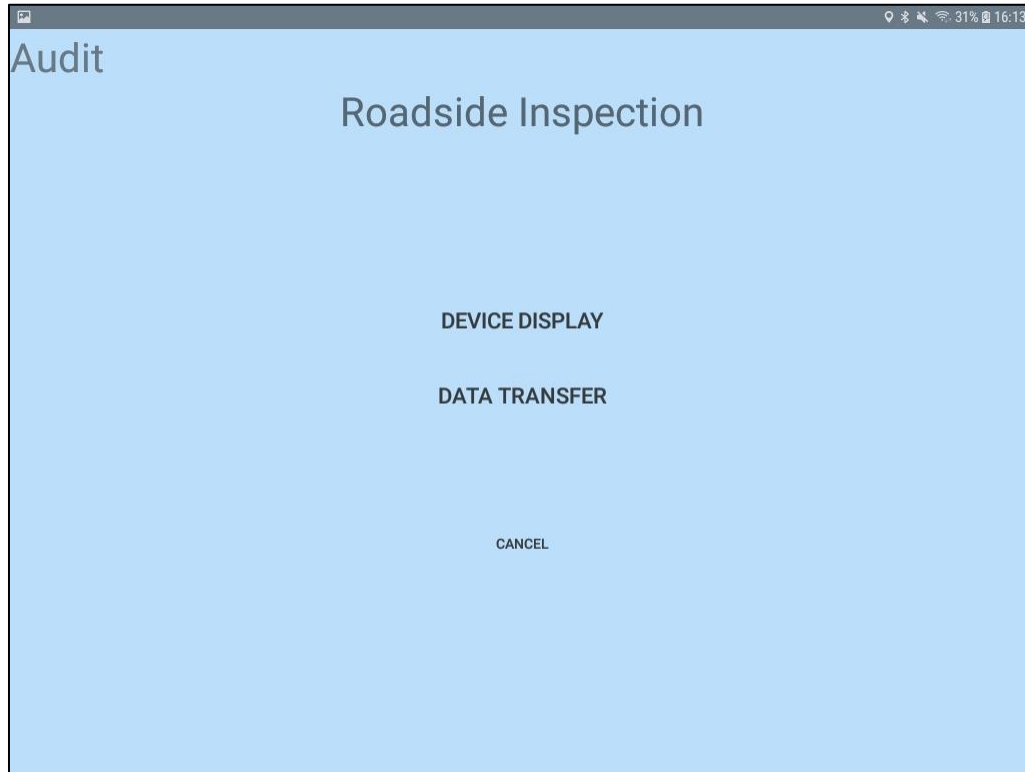
Figure 31: Roadside Inspection

Touching the DEVICE DISPLAY button activates the Audit display of the Driver's Duty Status Log. Touching the DATA TRANSFER button allows the Driver to select the type of data transfer preferred to send.

Touching the CANCEL button returns to the main Duty Status display.

Display Driver Duty Status Log

When the DEVICE DISPLAY button is touched on the Roadside Inspection display, the Audit Duty Status Log display is activated and a screen similar to that shown in Figure 32 is presented.

Figure 32: Roadside Inspection – Audit Duty Log

This display initially shows the current Duty Day and may be scrolled up and down by swiping your finger up and down on the screen. Prior duty days may be selected by touching the Date button across the top of the display, or by swiping left/right to move one day at a time.

When the inspecting Officer is finished reviewing the Duty Log, touch the DONE button to return to the Duty Status display. Again, the Driver's PIN will be required to return to normal operation of the SAE OnBoard device.

Transfer Driver Duty Status Log

When the Roadside Inspection Officer requests the transfer of the Driver's Duty Status Log, the data may be sent using either Email or Web Services as the transport mechanism by touching the appropriate button on the display as shown on the Data Transfer Select display in Figure 33.

Figure 33: Roadside Inspection – Data Transfer Selection

The Driver or the Officer may enter a comment for the data transmission. Once a comment has been entered, touch the TRANSFER button to initiate the data transfer to the Federal Motor Carrier Safety Administration (FMCSA) using the selected transfer mechanism.

Touch the CANCEL button to return the main Duty Status display without performing the data transfer.

The Driver's PIN is always required in order to return to the main Duty Status display.

Logout

To logout of SAE OnBoard, touch the Menu button and then touch the Driver button to activate the Add/Remove Drivers Display as shown in Figure 34.

Figure 34: Add/Remove Driver Display

Touch the Remove button (⊖) to the right of the Driver's name to begin the logoff process.

The Driver must answer the Post Trip Inspection prompt with "YES" in order to continue the logoff process as shown in Figure 35.
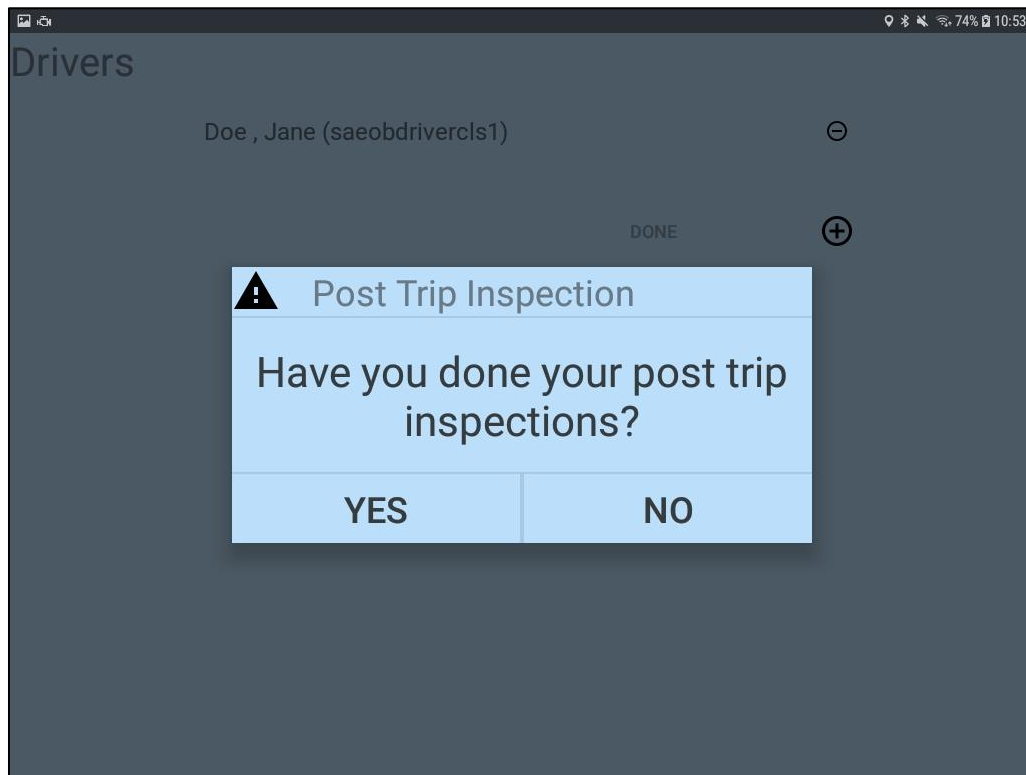

Figure 35: Post Trip Inspection Prompt

Next, the Driver is allowed to review their log for today as shown in Figure 36.
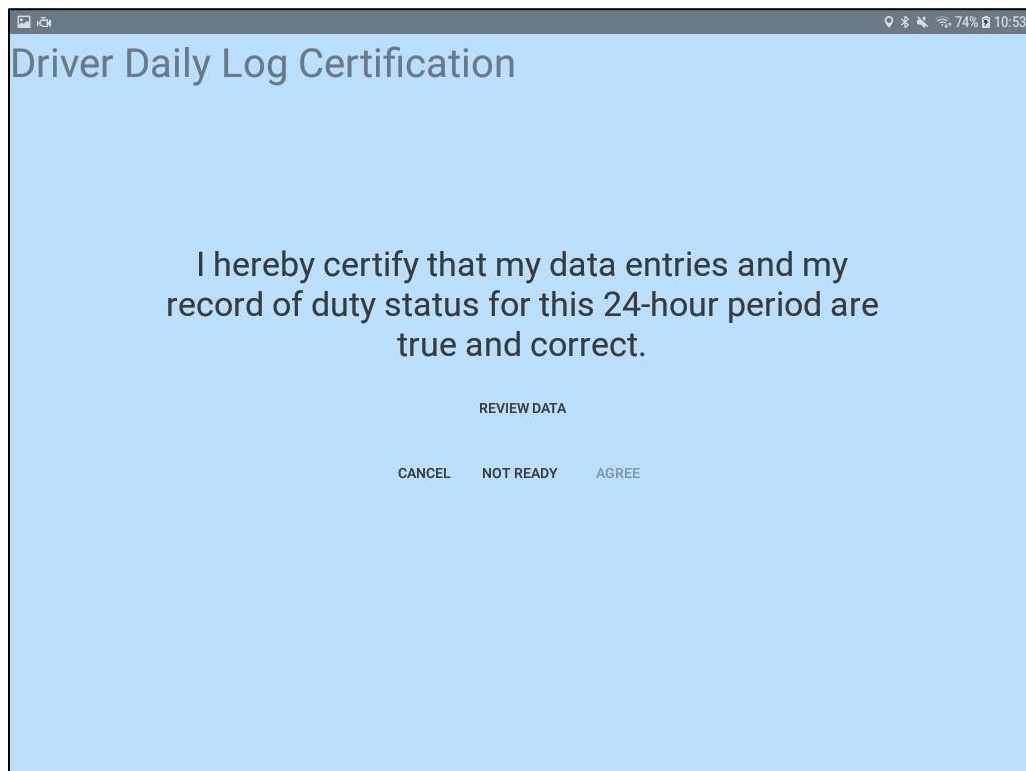

Figure 36: Driver Daily Log Certification Display

If there are any additional uncertified Duty Days for the Driver, a prompt appears to certify those days, too.
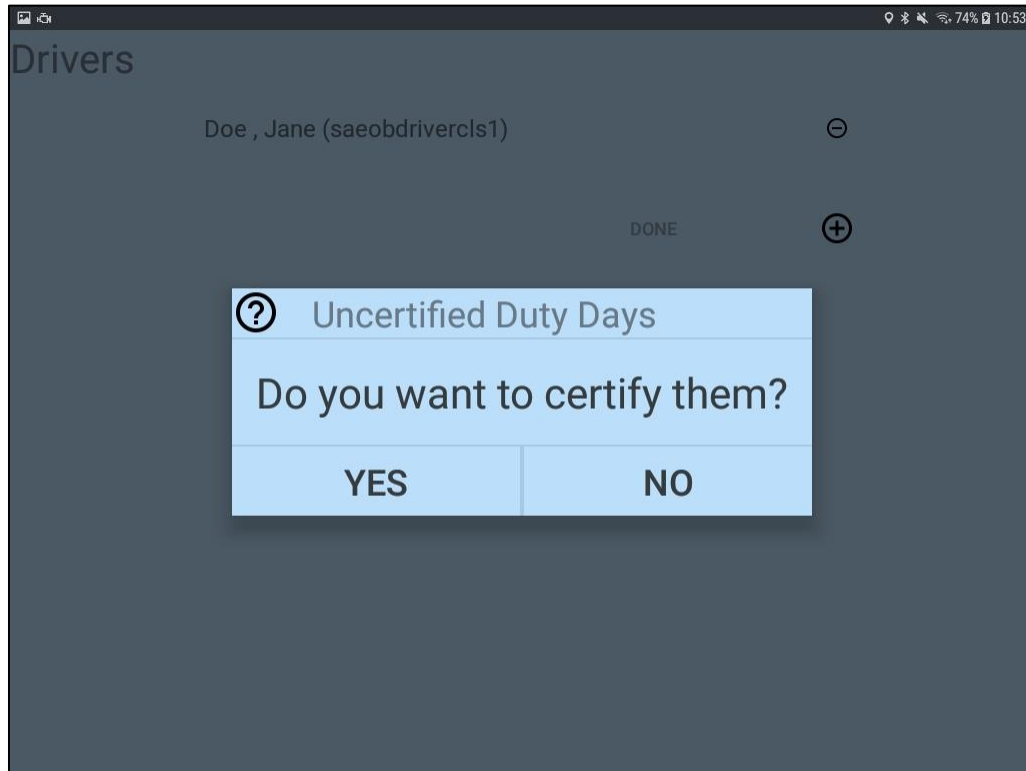

Figure 37: Uncertified Duty Days Prompt

Once certification of prior Duty Days is complete, the Start display appears.
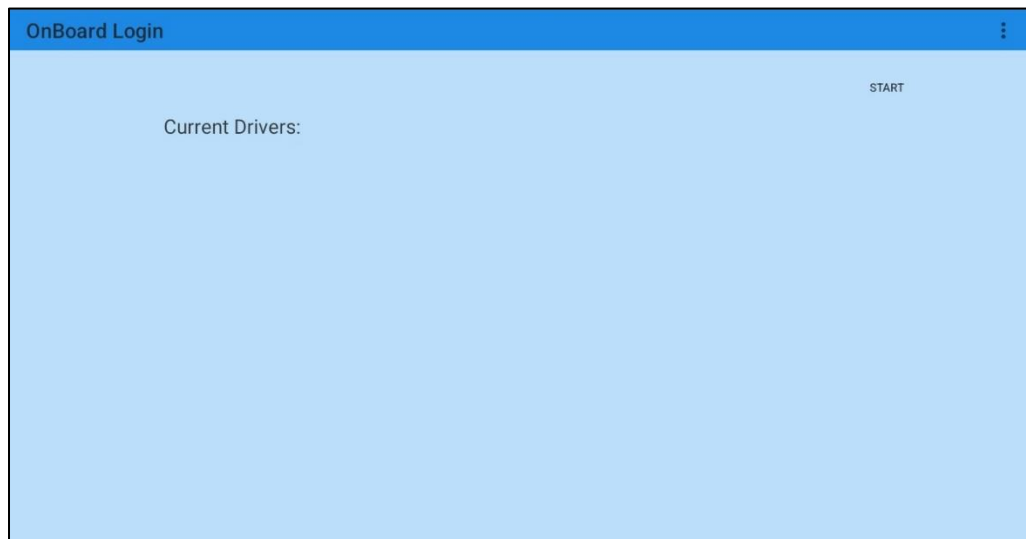

Figure 38: Start Display