Electronic Logging Devices
Technical Specifications Public Meeting

U.S. Department of Transportation Media Room
May 9, 2017

Our Vision: Making our roads safer

U.S. Department of Transportation
Federal Motor Carrier Safety Administration

Introducing: Our presenters

Facilitator: **Julianne Schwarzer**

Presenters:

Daphne Jefferson, Deputy Administrator, FMCSA

Joe DeLorenzo, Director of the Office of Enforcement and Compliance

- **La Tonya Mimms**, Transportation Specialist, Enforcement Division
- **Danielle Smith**, Transportation Specialist, Passenger Carrier Division
- **Brian Routhier**, Transportation Specialist, Technology Division
- **Ray Henley**, IT Specialist, IT Development Division
- **ELD Technical Team**

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AGENDA/GROUND RULES

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OVERVIEW: THE ELD FINAL RULE

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The ELD Rule

Sets ELD performance and design standards, and requires ELDs to be independently self-certified and registered with FMCSA.

The ELD Rule

Goes into effect **December 18, 2017**.

*Carriers with compliant AOBRDs installed before this date have until **December 16, 2019**, to replace them with ELDs.

The ELD Rule

- ## Compliant ELDs will:
    - Create a consistent electronic file output
    - Display **and** print hours-of-service (HOS) data
    - Transfer ELD data to an inspector or investigator
        - Data transfer options specified in ELD Rule

Roles and Responsibilities

FMCSA	Carrier	Manufacturer
• Inform carriers/drivers and manufacturers about requirements of ELD Final Rule • Maintain Web Services to facilitate data transfer (coming soon) • Train enforcement personnel on how to use ELDs (coming soon) • Remove ELDs known to not meet requirements set forth in Final Rule from list of self-certified ELDs	• Select ELD that best fits their needs • Train drivers on how to use ELDs • Ensure that all non-exempt vehicles and drivers have functioning ELDs	• Register company with FMCSA • Self-certify devices and register devices with FMCSA • Ensure security of devices • Respond to carriers to quickly resolve any ELD malfunctions • Keep ELD self-certification up-to-date with FMCSA

Technical Difficulties

- ## If an ELD malfunctions:
  - Carriers must correct, repair, replace, or service the malfunctioning ELD **within eight days**

8 days

TECHNICAL REQUIREMENTS FOR MANUFACTURERS

Functional Specifications for All ELDs
(Appendix A to Subpart B of Part 395)

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User Account Types

Support Personnel

CMV Driver

Exempt Driver

Unidentified Driver

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ELD Functions

- Powering on/sensing
- Recording data
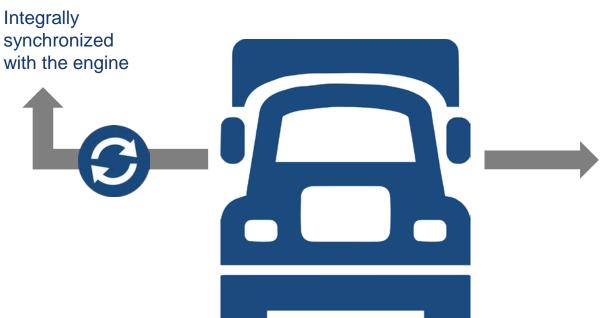- Certifying records

Powering On/Sensing

- ELD must be powered on and become fully functional *within one minute* of the engine receiving power

- Must automatically sense:
  - Motion Status
  - Vehicle Miles
  - Engine Hours
  - CMV Position
  - CMV VIN

  For definition of terms, see Section 7: Data Elements Dictionary

Recording Data

Integrally
synchronized
with the engine

Records electronic
records of duty status
and supporting events

Retains data

Generates a standard
data file output

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Recording Data: Date and Time

Date and time must be captured and tracked in UTC standard to the time standard in effect at **driver's home terminal**

Recording Data: Duty Status Categories

Duty Status	Abbreviation	Data Coding
Off Duty	OFF	1
Sleeper Berth	SB	2
Driving	D	3
On-Duty Not Driving	ON	4

These are the only duty status categories that will be recognized by FMCSA

Recording Data: Automatic Duty Status Selections

Driving	On-Duty Not Driving
Set automatically when the vehicle is in motion, except when: • Driver sets duty status to Off-Duty and indicates personal use • Driver sets duty status to On-Duty Not Driving and indicates yard moves	Set automatically when: • Vehicle is set to driving but has not been in motion for five consecutive minutes, *and* • Driver has not responded to ELD prompt within one minute

No other automatic duty-status selections are permitted

Recording Data: Indication of Situations Impacting Driving Time Recording

Category	Abbreviation	Data Coding
Authorized Personal Use of CMV	PC	1
Yard Moves	YM	2
None	---	0

These are the only indicators that will be recognized by FMCSA

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Recording Data: ELD Self-Monitoring

Category	Indicator	Recorded Malfunction
Power Compliance	Device fails to sense power information from ECM or alternate source	Vehicle is in motion for an aggregated 30 minutes or more over a 24-hour period
Engine Synchronization Compliance	Device fails to sense engine information or fails to establish a link to the vehicle ECM	Sensing failure persists for more than an aggregated 30 minutes during a 24-hour period
Timing Compliance	----	Device is unable to verify its timing accuracy
Positioning Compliance	Device fails to acquire a valid position measurement with 5 miles of the CMV's movement	Failure to acquire valid position persists for 60 minutes over a 24-hour period.
Data Recording Compliance	----	Device detects that it can no longer record or retain required events or retrieve recorded logs that are not otherwise stored remotely

Recording Data: Driver Manual Entry

Ex:
- Power unit number
- Trailer number
- Shipping document number

PARKING

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Recording Data Driver Manual Entry for Co-Drivers

Co-driver **must be able to** make entries over records while vehicle is in motion.

Co-drivers **must not be able to** switch driving roles while vehicle is in motion.

Driver's Certification of Own Records

"I hereby certify that my data entries and my record of duty status for this 24-hour period are true and correct."

Agree   **Not Ready**

Time Zone Offset from UTC must be included in the "Driver's Certification of Own Records" event data.

Data Availability

- At any time, the device must be able to display data from **current day** and **previous 7 days**
  - In addition to data transfer, driver must be able to provide either the display or a printout to an authorized safety official on request.

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Data Integrity

- Event data check

- Line data check

- File data check

Q&A

Functional Specifications

TECHNICAL REQUIREMENTS: DATA TRANSFER

Data Transfer Methods

- Web Services
- Email
- USB 2.0
- Bluetooth®
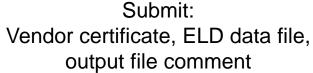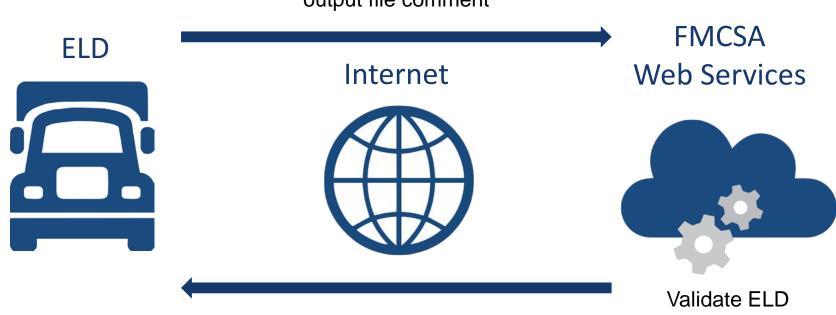
ELD Data File Validation

- Performed on all ELD files during data transfer
- Tests that data file conforms to requirements in Section 4.8.2
- Checks:
  - Required fields
  - Field lengths
  - Line and file data check values
  - Vendor and device registration
  - Invalid characters
  - Date, time, and number validity
- Will provide "Okay" message or details on specific error responses
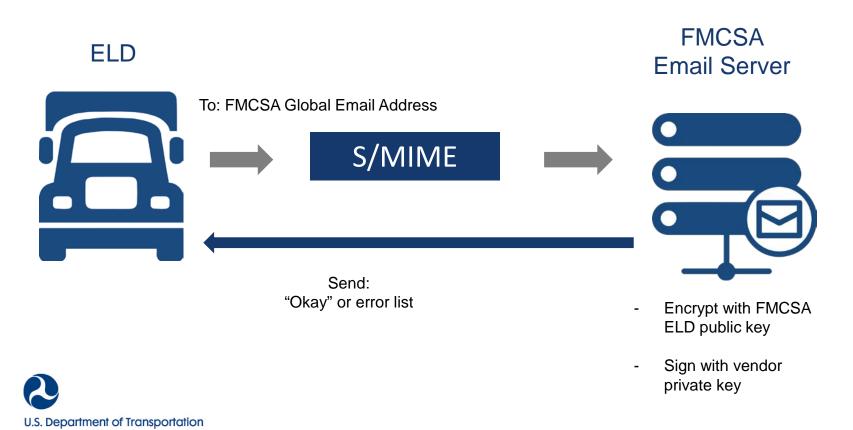
Data Transfer: Web Services

Submit:
Vendor certificate, ELD data file,
output file comment

ELD

Internet

FMCSA
Web Services

→

←

Validate ELD

Send: "okay" or error list

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Data Transfer: Email

ELD

FMCSA Email Server

To: FMCSA Global Email Address

S/MIME

Send:
"Okay" or error list

- Encrypt with FMCSA ELD public key

- Sign with vendor private key

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Data Transfer: USB 2.0

ELD

USB stick

Inspector laptop
(file validated locally)

Data Transfer: Bluetooth®

ELD

Submit:
Vendor certificate, ELD data file,
output file comment

FMCSA
Email Server

Bluetooth
Internet
(shared connection)

Send "okay" or error list

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Data Transfer Requirements

A compliant ELD must meet at least one of the following data transfer options:

- Option 1: Telematics
  - Web Services *and* Email

- Option 2: Local Transfer
  - USB 2.0 *and* Bluetooth

Standardized single-step driver interface to initiate data transfer
- Allow the driver to select the data transfer method

Q&A

Data Transfer

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BREAK

REGISTRATION PROCESS

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Manufacturer Registration

1. Visit FMCSA ELD website
2. Create an account
3. Provide company and contact information
   – See Section 5.1.1 (b)
4. Add users

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https://3pdp.fmcsa.dot.gov/ELD/

Registering Your Device

1. Visit ELD home page and login to your account
2. Click on "Register device"
3. Provide details about device(s)
   - Provide required product information, see: Section 5.2.1 (b)
4. Self-certify device compliance

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Temporary Suspension

Data Transfer and Web Services Test Steps

Due to the fact that data transfer cannot be trialed with an actual authorized safety official and that the Web Services portal at FMCSA is not yet operational, the following test steps* are not currently available:

- ELD-FUNC-4.3.2.5-2
- ELD-FUNC-4.9.1-2
- ELD-FUNC-4.9.2-5
- ELD-FUNC-4.10.1.1-2
- ELD-FUNC-4.10.1.1-3
- ELD-FUNC-4.10.1.1-4
- ELD-FUNC-4.10.1.2-2
- ELD-FUNC-4.10.1.2-3
- ELD-FUNC-4.10.2-1

*Data transfer via e-mail accounts, USB, and Bluetooth can still be tested in the manufacturer's test environment. If the required output file can be generated per the technical specifications, it will work in FMCSA Web Services. FMCSA can implement the ELD rule without Web Services. If we have not delivered Web Services and eRODs before Dec. 18, the rule will go ahead and the roadside officer will use one of the other methods, either the printing or display requirement. Our delivery of Web Services does not stand in the way of certifying a device as being compliant.

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Keeping Your Device Current

- When vendors modify their products, they must return to the registration site and update their product information.

  – Depending on the significance of the changes, this may result in new configuration files vendors will incorporate into their products

Removal from List of Self-Certified ELDs

- Complete list of self-certified ELDs is on the FMCSA ELD website
  - If FMCSA finds a device does not conform to the ELD Rule, manufacturer will receive written notice and given opportunity to take corrective actions, if necessary
  - If not corrected after 60 days, ELDs will be removed from the list
  - Manufacturer will have opportunity to appeal
- Goal: Make sure carriers are using compliant ELDs

Coming Soon:
Enhanced Registration

- To collect:
  - Supplemental company information (required by ELD Rule)
  - ELD's public key

- To provide:
  - FMCSA's public key
  - FMCSA's email address for email submissions
  - WSDL/XSD for (Web Services submission)
  - Interface Control Document & Development Guide
  - File validator to test ELD file compliance
  - Data Transfer test
    - Test Web Service Process
    - Test Email Process

Q&A

Registration Process

Next steps

- Enhanced registration site coming soon
  - File Validator
  - Set up user account to receive updates on registration enhancements
- Meeting notes and recording will be available at the link below
- Further questions?
  - Contact: ELD@dot.gov
  - Visit: https://www.fmcsa.dot.gov/hours-service/elds/electronic-logging-devices

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Closing remarks

Thank You