

4.8.2 ELD Data File

An ELD must have the capability to generate a consistent electronic file output compliant with the format described herein to facilitate the transfer, processing, and standardized display of ELD data sets on the authorized safety officials' computing environments.

4.8.2.1 ELD Output File Standard

(a) Regardless of the particular database architecture used for recording the ELD events in electronic format, the ELD must produce a standard ELD data output file for transfer purposes, which must be generated according to the standard specified in this section.

(b) Data output must be provided in a single comma-delimited file outlined in this section using American National Standard Code for Information Exchange (ASCII) character sets meeting the standards of ANSI INCITS 4-1986 (R2012) (incorporated by reference, see § 395.38). It must include:

- (1) A header segment, which specifies current or non-varying elements of an ELD file; and
- (2) Variable length comma-delimited segments for the drivers, vehicles, ELD events, ELD malfunction and data diagnostics records, ELD login and logout activity, and unidentified driver records.
- (3) Any field value that may contain a comma (“,”) or a carriage return (<CR>) must be replaced with a semicolon (“;”) before generating the compliant CSV output file

4.8.2.1.1 Header Segment

This segment must include the following data elements and format:

ELD File Header Segment: <CR>

<{Driver's} Last Name>,<{Driver's} First Name>,< ELD username{for the driver} >,< {Driver's} Driver's License Issuing State>,<{Driver's} Driver's License Number>,<Line Data Check Value> <CR>

<{Co-Driver's} Last Name>,<{Co-Driver's} First Name>,<ELD username {for the co-driver} >,<Line Data Check Value> <CR>

<CMV Power Unit Number>,<CMV VIN>,<Trailer Number(s)>,<Line Data Check Value> <CR>

<Carrier's USDOT Number>,<Carrier Name>,<Multiday-basis Used>,<24-Hour Period Starting Time>,<Time Zone Offset from UTC>,<Line Data Check Value> <CR>

<Shipping Document Number>,<Exempt Driver Configuration>,<Line Data Check Value> <CR>

<{Current} Date>,< {Current} Time>,< {Current} Latitude>,<{Current} Longitude>,< {Current} {Total} Vehicle Miles>,< {Current} {Total} Engine Hours>,<Line Data

Check Value> <CR>

<ELD Registration ID>,<ELD Identifier>,<ELD Authentication Value>,<Output File Comment>,<Line Data Check Value> <CR>

4.8.2.1.2 User List

This segment must list all drivers and co-drivers with driving time records on the most recent CMV operated by the inspected driver and motor carrier's support personnel who requested edits within the time period for which this file is generated. The list must be in chronological order with most recent user of the ELD on top, and include the driver being inspected, the co-driver, and the unidentified driver profile. This segment has a variable number of rows depending on the number of profiles with activity over the time period for which this file is generated. This section must start with the following title:

User List: <CR>

Each subsequent row must have the following data elements:

<{Assigned User} Order Number>,<{User's} ELD Account Type>,<{User's} Last Name>,<{User's} First Name>,<Line Data Check Value> <CR>

4.8.2.1.3 CMV List

This segment must list each CMV that the current driver operated and that has been recorded on the driver's ELD records within the time period for which this file is generated. The list must be rank ordered in accordance with the time of CMV operation with the most recent CMV being on top. This segment has a variable number of rows depending on the number of CMVs operated by the driver over the time period for which this file is generated. This section must start with the following title:

CMV List: <CR>

Each subsequent row must have the following data elements:

<{Assigned CMV} Order Number>,<CMV Power Unit Number>,<CMV VIN>,<Line Data Check Value> <CR>

4.8.2.1.4 ELD Event List for Driver's Record of Duty Status

This segment must list ELD event records tagged with event types 1 (a change in duty status as described in section 4.5.1.1 of this appendix), 2 (an intermediate log as described in section 4.5.1.2), and 3 (a change in driver's indication of conditions impacting driving time recording as described in section 4.5.1.3). The segment must list all event record status types and all event record origins for the driver, rank ordered with the most current log on top in accordance with the date and time fields of the record.

This segment has a variable number of rows depending on the number of ELD events recorded for the driver over the time period for which this file is generated. This section must start with the following title:

ELD Event List: <CR>

Each subsequent row must have the following data elements:

<Event Sequence ID Number>,<Event Record Status>,<Event Record Origin>,<Event Type>,<Event Code>,<{Event} Date>,<{Event} Time>,< {Accumulated} Vehicle Miles>,< {Elapsed} Engine Hours>,<{Event} Latitude>,<{Event} Longitude>,<Distance Since Last Valid Coordinates>,<{Corresponding CMV} Order Number>,<{ User} Order Number {for Record Originator}>,<Malfunction Indicator Status {for ELD}>,<Data Diagnostic Event Indicator Status {for Driver}>,<Event Data Check Value>,<Line Data Check Value> <CR>

4.8.2.1.5 Event Annotations, Comments, and Driver's Location

This segment must list only the elements of the ELD event list created in section 4.8.2.1.4 of this appendix that have an annotation, comment, or a manual entry of location description by the driver. This segment has a variable number of rows depending on the number of ELD events under section 4.8.2.1.4 that feature a comment, annotation, or manual location entry by the driver. This section must start with the following title:

ELD Event Annotations or Comments: <CR>

Each subsequent row must have the following data elements:

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<Event Sequence ID Number>,< ELD username {of the Record Originator} >,<{Event} Comment Text or Annotation>,<{Event} Date>,<{Event} Time>,<Driver's Location Description>,<Line Data Check Value> <CR>

4.8.2.1.6 ELD Event List for Driver's Certification of Own Records

This segment must list ELD event records with event type 4 (driver's certification of own records as described in section 4.5.1.4 of this appendix) for the inspected driver for the time period for which this file is generated. It must be rank ordered with the most current record on top. This segment has a variable number of rows depending on the number of certification and re-certification actions the authenticated driver may have executed on the ELD over the time period for which this file is generated. This section must start with the following title:

Driver's Certification/Recertification Actions: <CR>

Each subsequent row must have the following data elements:

<Event Sequence ID Number>,<Event Code>,<{Event} Date>,<{Event} Time>,<Date {of the certified record}>,<{Corresponding CMV} Order Number>,<Line Data Check Value> <CR>

4.8.2.1.7 Malfunction and Diagnostic Event Records

This segment must list all malfunctions that have occurred on this ELD during the time period for which this file is generated. It must list diagnostic event records related to the driver being inspected, rank ordered with the most current record on top. This segment has a variable number of rows depending on the number of ELD malfunctions and ELD diagnostic event records recorded and relevant to the inspected driver over the time period for which this file is generated. This section must start with the following title:

Malfunctions and Data Diagnostic Events: <CR>

Each subsequent row must have the following data elements:

<Event Sequence ID Number>,<Event Code>,<Malfunction/Diagnostic Code>,<{Event} Date>,<{Event} Time>,<{Total} Vehicle Miles>,<{Total} Engine Hours>
,<{Corresponding CMV} Order Number>,<Line Data Check Value> <CR>

4.8.2.1.8 ELD Login/Logout Report

This segment must list the login and logout activity on the ELD (ELD events with event type 5 (A driver's login/logout activity)) for the inspected driver for the time period for which this file is generated. It must be rank ordered with the most recent activity on top. This section must start with the following title:

ELD Login/Logout Report: <CR>

Each subsequent row must have the following data elements:

<Event Sequence ID Number>,<Event Code>,<ELD username>,<{Event} Date>,<{Event} Time>,<{Total} Vehicle Miles>,<{Total} Engine Hours>,<Line Data Check Value> <CR>

4.8.2.1.9 CMV's Engine Power-Up and Shut Down Activity

This segment must list the logs created when a CMV's engine is powered up and shut down (ELD events with event type 6 (CMV's engine power up/shut down)) for the time period for which this file is generated. It must be rank ordered with the latest activity on top. This section must start with the following title:

CMV Engine Power-Up and Shut Down Activity: <CR>

Each subsequent row must have the following data elements: <Event Sequence ID Number>,<Event Code>,<{Event} Date>,<{Event} Time>,<{Total} Vehicle Miles>,<{Total} Engine Hours>,<{Event} Latitude>,<{Event} Longitude>,<CMV Power Unit Number>,<CMV VIN>,<Trailer Number(s)>,<Shipping Document Number>,<Line Data Check Value> <CR>

4.8.2.1.10 ELD Event Log List for the Unidentified Driver Profile

This segment must list the ELD event records for the Unidentified Driver profile, rank ordered with most current log on top in accordance with the date and time fields of the logs. This segment has a variable number of rows depending on the number of Unidentified Driver ELD records recorded over the time period for which this file is generated. This section must start with the following title:

Unidentified Driver Profile Records: <CR>

Each subsequent row must have the following data elements:

<Event Sequence ID Number>,<Event Record Status>,<Event Record Origin>,<Event Type>,<Event Code>,<{Event} Date>,<{Event} Time>,< {Accumulated} Vehicle Miles>,< {Elapsed} Engine Hours>,<{Event} Latitude>,<{Event} Longitude>,<Distance Since Last Valid Coordinates>,<{Corresponding CMV} Order Number>,<Malfunction Indicator Status {for ELD}>,<Event Data Check Value>,<Line Data Check Value> <CR>

4.8.2.1.11 File Data Check Value

This segment lists the file data check value as specified in section 4.4.5.3 of this appendix. This part includes a single line as follows:

End of File: <CR>

<File Data Check Value><CR>

4.8.2.2 ELD Output File Name Standard

If the ELD output is saved in a file for transfer or maintenance purposes, it must follow the 25 character-long filename standard below:

- (a)The first five position characters of the filename must correspond to the first five letters of the last name of the driver for whom the file is compiled. If the last name of the driver is shorter than five characters, remaining positions must use the character “_” [underscore] as a substitute character. For example, if the last name of the driver is “Lee”, the first five characters of the output file must feature “Lee__”.
- (b)The sixth and seventh position characters of the filename must correspond to the last two digits of the driver’s license number for the driver for whom the file is compiled.
- (c)The eighth and ninth position characters of the filename must correspond to the sum of all individual numeric digits in the driver’s license number for the driver for whom the file is compiled. The result must be represented in two-digit format. If the sum value exceeds 99, use the last two digits of the result. For example, if the result equals “113”, use “13”. If the result is less than 10, use 0 as the first digit. For example, if the result equals “5”, use “05”.
- (d)The tenth through fifteenth position characters of the filename must correspond to the date the file is created. The result must be represented in six digit format “MMDDYY” where “MM” represents the month, “DD” represents the day, and “YY” represents the last two digits of the year. For example, February 5, 2013, must be represented as “020513”.
- (e)The sixteenth position character of the filename must be a hyphen “-”.
- (f) The seventeenth through twenty-fifth position characters of the filename must, by default, be “000000000” but each of these nine digits can be freely configured by the motor carrier or the ELD provider to be a number between 0 and 9 or a character between A and Z to be able to produce distinct files—if or when necessary—that may

otherwise be identical in filename as per the convention proposed in this section. ELD providers or motor carriers do not need to disclose details of conventions they may use for configuring the seventeenth through twenty-fifth digits of the filename.

Event Type and Event Code

Event Type	Event Code	Event Code Description
1	1	Driver's duty status changed to "Off Duty"
1	2	Driver's duty status changed to "Sleeper Berth"
1	3	Driver's duty status changed to "Driving"
1	4	Driver's duty status changed to "On duty not driving"
2	1	Intermediate log with conventional location precision
2	2	Intermediate log with reduced location precision
3	1	Driver indication for personal use and yard move cleared
3	1	Driver indicates "Authorized Personal Use of CMV"
3	2	Driver indicates "Yard Moves"
4	1	Driver's first certification of a daily record
4	n	Driver's nth certification of a daily record (when recertification necessary). "n" is an integer between 1 and 9. If more than 9 certifications needed, use 9 for each new re-certification record.
5	1	Authenticated driver's ELD login activity
5	2	Authenticated driver's ELD logout activity
6	1	Engine power-up with conventional location precision
6	2	Engine power-up with reduced location precision
6	3	Engine shut down with conventional location precision
6	4	Engine shut down with reduced location precision
7	1	An ELD malfunction logged
7	2	An ELD malfunction cleared
7	3	A data diagnostic logged

7	4	A data diagnostic cleared
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Event Record Origin

Event Record Origin Code	Event Record Origin
1	Automatically recorded by ELD
2	Edited or entered by the Driver
3	Edit requested by an Authenticated User other than the Driver
4	Assumed from the Unidentified Driver profile

Event Record Status

Event Record Status Code	Event Record Status
1	Active
2	Inactive - Changed
3	Inactive - Change Requested
4	Inactive - Change Rejected