NMFTA eBOL API Product Requirements

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Overview

The NMFTA has partnered with leaders across the transportation industry to deliver a digitized method of transferring data between parties. By developing open-source API standards, the NMFTA and its partners will open the door to a more efficient method of data transfer, which today is still accomplished through a variety of more rudimentary processes. Digital API standards will reduce costs to onboard new business partners, improve visibility to shipment information, allow for real time notification on shipment changes, and drive out waste across the industry by eliminating manual processes. API standards will empower technological development, particularly when it comes to process automation.

The Bill of Lading (BOL) is a crucial document that communicates the details and expectations for a specific freight shipment. It is a legally binding document issued by the Carrier to the Shipper that defines the shipment (type, quantity, origin, etc.), and is the basis of the business transaction between a Shipper and a Carrier. The current BOL process consists of a physical document transported between parties that is frequently lost, stolen, or delayed in being documented for all parties to review. This council will create an electronic Bill of Lading API standard that will allow for a more efficient and streamlined BOL process that will reduce or eliminate some of the risks associated with the current BOL process.

Because the BOL sets the expectations for a shipment, it serves as the foundation for processes later in the shipment lifecycle. Similarly, the eBOL defined by the Digital Council will provide the foundation for the other APIs that will be defined to handle other business processes. An eBOL will act as a digital twin of a physical BOL document, containing the same crucial shipment information and carrying the same importance.

Value Proposition

- **Shipper:** The eBOL API will allow a Shipper to more easily share the official details of a shipment, reducing opportunities for misunderstanding, human error, and theft. With existing BOL processes, particularly for a LTL shipment, a Shipper does not have visibility to the PRO number or shipment status until Pickup occurs. With the eBOL API, the Shipper will receive the PRO number pre-pickup, and in conjunction with other standard APIs, will be able to receive pre-pickup visibility on their loads.

Additionally, current processes leave open the possibility for theft when bad actors manipulate physical BOL's to hide evidence of theft, and makes it difficult for Shippers to prove otherwise. An electronic BOL process will reduce these opportunities and give Shipper's peace of mind.

A Shipper will initiate the eBOL process by sending the details of their shipment to a Carrier using the standard API format. They will receive back from the Carrier a completed BOL and shipping label. The response will also include a unique shipment identifier (PRO in the case of an LTL shipment) that can be used to reference the shipment in future interactions with the Carrier, including tracking update requests.

- **Carrier:** The eBOL API will be especially beneficial to the Carrier community by outlining the standard communication protocol for sharing BOL information, greatly simplifying the connectivity required to do business with a large number of shippers, customers, and third parties. Among other things this will improve billing accuracy, reduce opportunity for manual errors, and allow Carriers to provide better service to customers.

  A Carrier will receive details of a shipment via the eBOL API from the Shipper, store the information in their system, and return the official BOL back to the Shipper. They will also return a shipping label that the Shipper can print and attach to their shipment. As part of this, they will also return a unique load identifier (in the case of an LTL shipment, it will be the PRO number) back to the Shipper that can be used to reference their load going forward.

- **3rd Party:** The eBOL API will allow third parties of all kinds to receive and send the necessary shipment information to ensure a seamless flow through the life cycle of a shipment. Due to the nature of 3rd parties' business and having to interact with multiple parties in the transportation industry, 3rd parties stand much to gain by simplification of their business processes, which the eBOL will enable.

LTL

In the LTL industry, the BOL is a particularly valuable document due to the inherent complexities of an LTL shipment. Not only does an LTL BOL contain general shipment information (such as origin, destination, billing info), but it also contains very detailed information on the freight being shipped, down to the commodity information of each individual line item. Because of this, any eBOL solution for an LTL shipment must be very detailed, while still allowing for significant variations from shipment to shipment.

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The NMFTA LTL Digital Council has already defined and released standards for eBOL in the LTL industry. Its usage is being adopted by Shippers, Carriers, and 3PLs, and is being put to use to drive efficiency and automation for LTL shipments.

FTL
The BOL for a Full Truckload shipment serves the same purpose and contains similar information to that of an LTL shipment. The main difference between a FTL and LTL is the level of detail is usually less for a FTL shipment. A FTL BOL may not include a PRO number, NMFC Codes, Classification, and often will not include pallet counts and reliable dimensions.

The NMFTA FTL Digital Council will be coordinating with their LTL Council counterparts to look to find an opportunity for a single, combined eBOL standard that meets the needs of both the LTL and FTL use cases. The synergy between the two will help drive adoption throughout the transportation industry, where many organizations are involved in both FTL and LTL transportation.

Definitions

Application Programming Interface (API): A set of rules and protocols that enable software applications to communicate to one another; facilitating the exchange of information between systems.

Appointment: A scheduled agreement between two parties for a specific time to transfer goods. Most commonly this is between a Carrier and Shipper for the pickup of goods at the origin, or between a Carrier and Consignee for the delivery of goods at the destination.

Bill of Lading (BOL): Legally binding document issued by the Carrier to the Shipper that defines the shipment (type, quantity, origin, etc.), and is the basis of the business transaction between a Shipper and a Carrier.

Carrier: Business entity charged with the physical move of goods.

Consignee/Receiver: The entity that receives the goods from the Carrier at the destination location.

Equipment: The type of transport device used to haul goods within a shipment. (Ex. Flatbed, DryVan, Refrigerated, Intermodal Container)

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Full Truckload (FTL): A shipment where the entire truck or container is used to ship the goods of a single Customer.

Less Than Truckload (LTL): A shipment where a single truck contains the goods from different Shippers, often picking up and delivering at different locations.

Shipment: A quantity of goods or merchandise that is being, or has been, transported from one location to another by a Carrier. It represents the collective items included in a single act of transportation.

Shipper: The entity that provides the goods being shipped to the Carrier at the origin location.

Tender: A formal request from a Shipper to a Carrier to move a specific shipment

Best Practices

Unique Shipment Identifiers
Within the requirements, you may notice that it is required for Carriers to provide a way for Shippers/3rd Parties to uniquely identify their shipment via a reference number identifier. The API defines these identifiers as follows:
- The shipment's pro number
  - LTL only
- The shipment's quote ID
- The shipment's load number
- The shipment's master BOL
- The shipment's trailer ID
- The shipment's manifest ID
- The shipment's BOL number
- The shipment's purchase order (PO) number
- The shipment's additional reference number
  - Available to capture any reference number not provided for in the specification

However, it is not required to include any one particular identifier. This is intentional as NMFTA does not want to prescribe for a system what information they may or may not need. Ultimately, it will be up to the discretion of the system to clearly define via their own documentation if specific identifiers laid out by the NMFTA are required or optional for their

specific implementation. As a rule of thumb, you should provide additional information about the shipment if you are uncertain if the information you originally planned to provide will adequately identify the shipment.

Optional Information
Many value fields in the API requirements are optional and are not required to constitute a valid Bill of Lading. However, NMFTA recommends a Shipper/3rd Party provide as much information as possible to enable a more robust and effective digital process. More information usually results in a better experience by all parties involved.

Requirements

Create BOL: Request
As a Shipper/3rd Party, I want to Create an Electronic Bill of Lading and send shipment information for a particular shipment to a Carrier.

- In a request, the Shipper/3rd Party MUST identify themselves so the Carrier is aware of who is sending the BOL information
    - Types of Roles: Shipper, Third Party, Consignee
- In a request, the Shipper/3rd Party MUST provide a requested pickup date. The requested pickup date MUST be in date/time format. The API will allow for a Pickup Begin and Pickup End date/time.
    - LTL Consideration: The requested pickup date is NOT a formal LTL Pickup Request
- In a request, the Shipper/3rd Party MUST designate the origin and destination for the shipment. This can be via a location id understood by both parties, or via the address of the location.
- In a request, the Shipper/3rd Party MAY designate whether or not they want an image of the BOL and/or Shipping Labels returned in the response.
- In a request, the Shipper/3rd Party MAY designate a reference number associated with their shipment.
- In a request, the Shipper/3rd Party MUST specify freight Billing terms for the shipment.
- In a request, the Shipper/3rd Party MUST specify the Billing information for the shipment, including name, address, and contact information.
- In a request, a Shipper/3rd Party MAY provide special shipment requirements that would indicate if accessorials are needed.
    - Examples Include, but not limited to:
        - Limited Access
        - Time Critical

- Lift Gate Required
- Expedite
- In a request, the Shipper/3rd Party MUST specify the commodity of the freight being shipped.
    - LTL Consideration: The classification of LTL commodities MUST be included for an LTL shipment
- In a request, additional details on the shipment MAY be included. The API will allow for information to be provided at both the commodity level, as well as at the total shipment level.
    - LTL Consideration: The weight, handling units, and dimensions of an LTL shipment MUST be included
    - Examples include:
        - Weight
        - Handling Units
        - Linear Length
        - Overall Dimensions
- Shipper/3rd Party SHOULD provide details for a HAZMAT shipment. This information with be conditionally required based on U.S. Department of Transportation's (DOT) Hazardous Materials Regulations (49 CFR Parts 171-180). This includes:
    - Hazardous Description
    - Total Quantity
        - Weight or Volume (i.e. lbs, kilograms, liters, etc.)
    - Hazard class or Division
    - Identification Number (UN/NA)
    - Proper Name
    - Technical Name
    - Packaging Group
    - Emergency Response
        - 24-Hour Emergency Response
        - Emergency Response Guidebook (ERG) Guide Number
    - Marine Pollutant Marking
    - Contact Number
- Shipper/3rd Party SHOULD provide Total Shipment Value in a designated currency (USD as an option) for high value shipments that may require additional considerations by the Carrier.

Create BOL: Response

As a Carrier, I want to respond to the Shipper/3rd Party who created the electronic Bill of Lading and either accept or reject, as well as provide a unique shipment identifier associated with the shipment.

- In a response, the Carrier must indicate if the eBOL was successfully accepted
  - Reasons an eBOL request would be rejected:
    - Not enough information provided in eBOL request
    - Internal error in Carrier system (example: PRO number Shipper sent already associated with a different shipment)
- In a response, the Carrier MUST provide the timestamp of the transaction date for the electronic bill of lading.
- In a response, the Carrier MUST designate a reference number to uniquely identify the shipment, if one was not provided in the request.
  - If a reference number was provided in the request, then it MUST be provided in the response.
  - Reference Best Practices for list of available reference number types.
- The Carrier MUST provide BOL details in the response, and MUST provide a PDF image of the BOL and Shipping labels if requested in the Request body.

Update BOL: Request

As a Shipper/3rd Party, I want to update some or all of the shipment information on an Electronic Bill of Lading that I had previously provided to a Carrier.

- Similar to the Create BOL schema, a Shipper/3rd Party MAY provide updated information related to their shipment that will be used to update an existing BOL
- A Shipper/3rd Party MUST provide the reference number designated to uniquely identify the shipment whose BOL needs updating
  - LTL Consideration: For an LTL shipment, the unique shipment number MUST be the PRO Number

Update BOL: Response

- The Carrier MUST provide updated BOL details in the response, and MUST provide a PDF image of the BOL and Shipping labels if requested in the Request body.

Delete BOL: Request

As a Shipper/3rd Party, I want to completely cancel an Electronic Bill of Lading that I had previously provided to a Carrier.

- Shipper/3rd Party MUST provide the reference number designated to uniquely identify the shipment, so that the Carrier clearly understands the appropriate BOL to cancel.
  - LTL Consideration: For an LTL shipment, the unique shipment number MUST be the PRO Number.

Delete BOL: Response

- The Carrier MUST respond to the Shipper confirming cancellation of the BOL.

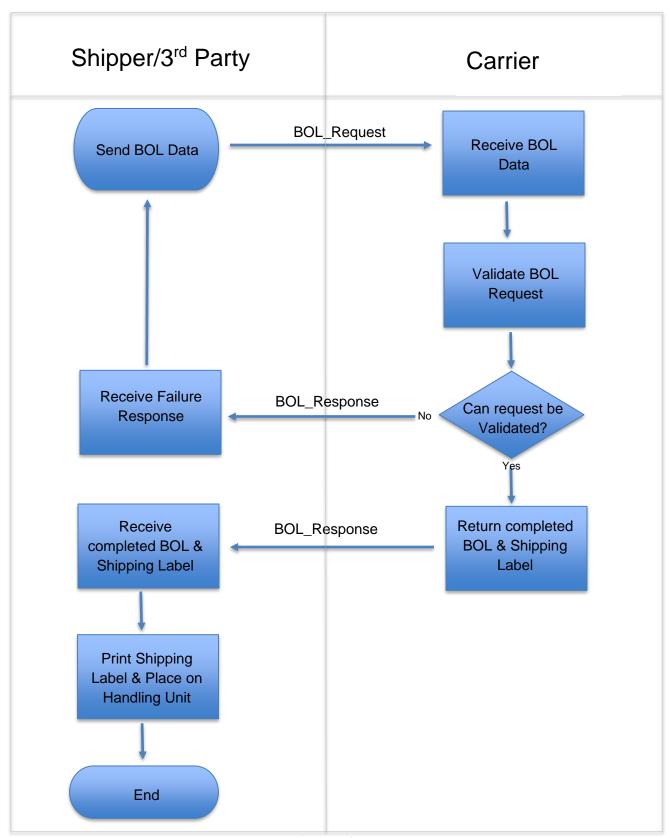J.B. Hunt Business

References

Dates & Date/Times

This API Standard will reference ISO 8601 for all dates and date-times

Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14 , RFC 2119 , and RFC 8174 when, and only when, they appear in all capitals, as shown here.

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Figure 1: BOL_Request Typical Flow

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