Electronic Titling Framework

November 2021
## Contents

Executive Summary ................................................................. 2  
Glossary of Terms and Acronyms ................................................. 3  
Chapter 1  Background .............................................................. 4  
Chapter 2  The Need for an E-Titling Solution *(the Why)* .............................................. 6  
Chapter 3  E-Titling Solution Elements Overview *(the What)* ........................................... 8  
Chapter 4  Conclusion and Next Steps *(the How)* ................................................. 13  
Appendix A: Working Group Members ........................................... 14
The American Association of Motor Vehicle Administrators (AAMVA) established the E-Title Working Group to support jurisdictions as they transition from paper-based title processes to an electronic titling solution. In addition to jurisdictions looking for more effective and efficient processes for administering title records, the pandemic of 2020 further influenced jurisdictions to evaluate additional options to perform secure and efficient motor vehicle–related transactions without the requirement to perform the transactions in person. The working group’s purpose is to develop a framework and guidance document to clearly define an e-title and establish standards to support a nationwide interoperable e-titling solution.

The goal of this document is to describe the framework of an e-titling solution that eliminates paper processing in favor of electronic record exchange for all persons and entities involved in vehicle titling transactions. This framework focuses on defining what an e-titling solution is and the purpose it serves and why the jurisdictions need a solution with standards to promote interoperability and reciprocity. The contents of this framework are based on information collected by AAMVA, the working group, and additional stakeholders involved in the various processes of vehicle titling.

Note: The framework serves the purpose to identify and describe the elements of an e-titling solution. Additional elements or components may be identified throughout the process of developing a guidance document with the recommendations and standards to provide information on how an e-titling solution would function.
## Glossary of Terms and Acronyms

For this document, the following definitions and acronyms shall mean:

<table>
<thead>
<tr>
<th>Acronym or Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>AAL</td>
<td>Authentication assurance level</td>
</tr>
<tr>
<td>AAMVA</td>
<td>American Association of Motor Vehicle Administrators</td>
</tr>
<tr>
<td>Credential service provider (CSP)</td>
<td>A trusted entity that issues or registers subscriber authenticators and issues electronic credentials to subscribers. A CSP may be an independent third party or issue credentials for its own use.</td>
</tr>
<tr>
<td>ELT</td>
<td>Electronic Lien and Title system</td>
</tr>
<tr>
<td>Electronic titling (e-titling) solution</td>
<td>A secure solution made up of various elements to electronically transfer vehicle ownership issued and maintained by a jurisdiction. (See detailed information in Section 5, E-Titling Solution Elements Overview.)</td>
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<tr>
<td>Electronic title (e-title)</td>
<td>The electronic record (digital data) of vehicle ownership created and maintained by a jurisdiction</td>
</tr>
<tr>
<td>Electronic title transfer process</td>
<td>Secure electronic method used to validate ownership and facilitate the assignment, reassignment, or transfer of title custody or ownership of a vehicle without reliance on a paper process</td>
</tr>
<tr>
<td>ERT</td>
<td>Electronic Registration and Title system</td>
</tr>
<tr>
<td>EVR</td>
<td>Electronic Vehicle Registration system</td>
</tr>
<tr>
<td>IAL</td>
<td>Identity assurance level</td>
</tr>
<tr>
<td>Jurisdiction</td>
<td>A state, district, or territory of the United States. Canadian jurisdictions are not addressed in this document because they do not issue titles.</td>
</tr>
<tr>
<td>MCO</td>
<td>Manufacturer certificate of origin</td>
</tr>
<tr>
<td>MVA</td>
<td>Motor vehicle agency</td>
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<tr>
<td>NHTSA</td>
<td>National Highway Traffic Safety Administration</td>
</tr>
<tr>
<td>NIST</td>
<td>National Institute of Standards and Technology</td>
</tr>
<tr>
<td>NMVTIS</td>
<td>National Motor Vehicle Title Information System</td>
</tr>
<tr>
<td>Relying party (RP)</td>
<td>An entity that relies on the subscriber’s authenticator(s) and credentials or a verifier’s assertion of a claimant’s identity, typically to process a transaction or grant access to information or a system</td>
</tr>
<tr>
<td>Subscriber</td>
<td>A party who has received a credential or authenticator from a CSP</td>
</tr>
<tr>
<td>TIMA</td>
<td>Truth in Mileage Act of 1986 (49 U.S.C. § 32701), which is sometimes used as a shorthand reference for the statutes requiring odometer disclosure</td>
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<tr>
<td>Transferee</td>
<td>Any person or entity that receives their title of a motor vehicle by sale, gift, or any means other than by the creation of a security interest</td>
</tr>
<tr>
<td>Transferor</td>
<td>Any person or entity that transfers their title of a motor vehicle by sale, gift, or any means other than by the creation of a security interest</td>
</tr>
</tbody>
</table>
The concept of eliminating paper processes used in vehicle titling in favor of electronic record exchange has been a focus for jurisdiction vehicle titling agencies since the early 1990s. Electronic tools have since been created to address specific interactions between motor vehicle agencies (MVAs) and various stakeholders. For example:

- For the interaction between MVAs and lien holders, some jurisdictions implemented various forms of an Electronic Lien & Title System (ELT). An ELT system provides an electronic means of updating lien information on titles between the jurisdiction’s MVA and the lienholder. Some jurisdictions have implemented in-house online ELT applications, while others have allowed third-party vendors to provide ELT services within their jurisdictions. An ELT system may not facilitate an electronic transfer of ownership and is not synonymous with an e-titling solution.

- For the interaction between MVAs and dealers or other third-party agents completing title or registration transactions to be submitted to the MVA, jurisdictions have implemented either an in-house or third-party vendor–provided Electronic Vehicle Registration (EVR) system in which the dealer or agent processes the transaction utilizing an online EVR system, which later requires the supporting documents to be submitted to the MVA. Again, an EVR system may not facilitate an electronic transfer of ownership and is not synonymous with an e-titling solution.

- Jurisdictions have implemented the National Motor Vehicle Title Information System (NMVTIS) to reliably verify the information on the paper title with the electronic data from the jurisdiction that issued the title.

These systems have been developed and are used independently of one another.

In 2010, AAMVA formed a working group, the E-Title Proof of Concept Working Group (POC Working Group) to develop best practices that would assist jurisdictions with the development of uniform procedures and approaches for an electronic titling solution. The POC Working Group developed AAMVA E-Titling Proof of Concept, E-Title Evaluation, E-Title Roadmap Version 1.0.

In October 2013, the POC Working Group, responsible for the development of an E-Title Proof of Concept, closed its project and redirected efforts on solving the e-odometer challenge. The POC Working Group identified the lack of an e-odometer disclosure approach compliant with the Truth in Mileage Act (TIMA) as the major hurdle to the development of a true e-titling environment within the United States. NHTSA has oversight for compliance with TIMA.

In January of 2014, the E-Odometer Task Force (task force) was formed to identify a flexible approach to an e-odometer disclosure the majority of jurisdictions could successfully implement. NHTSA participated in meetings as a technical advisor, and Clerus Solutions, LLC, was a consultant providing project management for the kickoff meetings and initial report. Based on the state task force representatives’ long history and experience with odometer disclosures, the task force identified issues, opportunities, and challenges related to e-odometer disclosure. The task force developed the following two documents: E-Odometer Task Force Report (December 2014) and Roadmap to
E-Odometer Disclosure: Guidance Document from the E-Odometer Task Force (March 2018) and responded to the Notice of Proposed Rulemaking on Odometer Disclosure. They discontinued additional work until NHTSA issued the final rule.

On October 2, 2019, NHTSA issued the final rule on Odometer Disclosure Requirements (49 CFR Part 580).

The AAMVA Board recognized the opportunity for jurisdictions to use the authority in the final rule to transition from paper processes to electronic processes and approved AAMVA to move forward with establishing the 2020 E-Title Working Group. In addition to jurisdictions looking for more efficient methods to perform their functions, the pandemic of 2020 further influenced jurisdictions to evaluate additional options to perform secure motor vehicle-related transactions without the requirement to be in person. The working group’s purpose is to develop a framework and guidance document to clearly define an e-title and establish standards to support a nationwide interoperable e-titling solution.

The following guiding principles were used for the development of the framework:

- Remain a jurisdiction-initiated and jurisdiction-controlled solution.
- Establish minimum standards and consistency to support a nationwide interoperable solution with reciprocity.
  - AAMVA should consider providing an application-agnostic centralized function to exchange data and information between jurisdictions.
- To the extent possible, use or adapt existing tools or systems including those:
  - Under direct jurisdiction control
  - Provided by the jurisdiction or industry vendor or software provider
  - Operated by AAMVA
- Comply with both jurisdiction and federal regulations.
- Collaborate with industry stakeholders to gain their input.
- Deter and detect fraud.
- Leverage existing best practices and standards.

These guiding principles are further explained in Chapter 2: The Need for an E-Titling Solution.
The jurisdictions are increasingly looking for opportunities to transition from paper processes to a fully electronic process that eliminates issuing paper titles. In modernizing their motor vehicle titling systems and processes, they are eager to implement an e-titling solution for the opportunities it offers to increase efficiency and accuracy and to mitigate opportunities for fraud, including odometer fraud. In addition, many factors raised the priority to pursue and implement an e-titling solution because of the pandemic of 2020. Jurisdictions were forced to consider unconventional methods to serve their customers. In addition to the impact on jurisdictions, industry stakeholders and customers were also looking for opportunities to conduct business while limiting in-person and close contact, as well as to complete transactions while jurisdictions may have limited operating hours and availability.

**Remain Jurisdiction-Initiated and Jurisdiction-Controlled**

As jurisdictions determine the requirements to transition to an e-titling solution, it is important for the jurisdictions to initiate the priority and actions required instead of waiting to implement solutions required by other parties. The latter approach could impede interoperability and limit jurisdictions’ control over long-term goals, requirements, and nationwide use. Framing the e-titling solution within jurisdiction control also ensures the MVAs are better able to implement the solution in a timeframe that is both reasonable and meets the needs of the jurisdiction, stakeholders, and customers.

To the extent possible, the solution should use or adapt existing tools or systems including those:

- Under direct jurisdiction control
- Provided by the jurisdiction or industry vendor or software provider
- Operated by AAMVA

Considerations for the administrative requirements needed to transition to an e-titling solution should also be initiated by the jurisdiction to cover all administrative and legislative analysis, requirements, and agreements needed.

**Minimum Standards and Consistency to Support Interoperability**

If individual jurisdictions move forward with implementing individual e-titling solutions, there is a risk of variable processes that could hinder efforts for a nationwide solution that promotes interoperability and reciprocity. By developing minimum standards early in the process, jurisdictions will have a basis on which to develop initial e-titling solutions that will be compatible with a future nationwide approach as it is envisioned. The goal is for a nationwide solution to enable efficient and secure transfer of vehicles between jurisdictions and the reciprocity to accept authentication and transactions from other jurisdictions and across industry stakeholder platforms. The standards are not intended to be prescriptive but would allow for flexibility in how jurisdictions implement an e-titling solution, providing minimum standards are consistently applied by other jurisdictions, third-party agents, vendors, and software.
providers, as well as other stakeholders to allow for interstate transactions. AAMVA should consider providing an application-agnostic centralized function to facilitate the exchange of data and information between jurisdictions.

**Comply with Both Jurisdiction and Federal Regulations**

The jurisdiction may need to identify and then obtain regulatory or legislative authority to transition and implement an e-titling solution. Jurisdictions should aim to comply with both jurisdiction and federal regulations regulating vehicle ownership and title issuance requirements. A thorough analysis of the jurisdiction’s authority in statutes and regulations may need to be completed to ensure all references to paper documents are amended to allow for electronic processes.

**Collaboration with Industry Stakeholders**

Industry stakeholders and vendors also have a vested interest in the implementation and success of an e-titling solution. This guidance should take into consideration the solutions and perspectives from industry stakeholders and collaborate to gain their input. Industry stakeholders play an important role in assisting the jurisdictions as they determine the method used to implement an e-titling solution. They may offer great insights and possible solutions that could be valuable to the jurisdiction.

**Deter and Detect Fraud**

In addition to maintaining current fraud deterrence measures, jurisdictions should strive to strengthen fraud prevention measures. It is anticipated that the conversion to an e-titling solution will improve the integrity of the title and the data collection process. Further, the electronic process should support investigators and law enforcement officers in their role and provide them with all the information needed to conduct investigations and gather proper evidence for prosecution.

**Leverage Existing Best Practices and Standards**

Many best practices and standards have been developed around components of the titling and identification authentication processes. Jurisdictions should leverage these existing resources. Applicable best practices and standards identified by the working group will be identified in the guidance document.
Summation of an E-Titling Solution

An e-titling solution has multiple elements that make up the solution to transition from a paper titling process to an electronic titling process. Jurisdictions issue paper titles today to serve two purposes: to provide physical proof of ownership and existing liens and to facilitate the transfer of ownership. An e-titling solution aims to facilitate a secure electronic titling process that no longer relies on physical paper, yet it is anticipated there will remain a need for jurisdictions to have the ability to print paper titles when an e-title will not satisfy a need for either the jurisdiction or their customers. The following definitions have been identified as the initial definitions to define the solution:

Electronic title (e-title) – The electronic record (digital data) of vehicle ownership created and maintained by a jurisdiction

Electronic title transfer process – Secure electronic method to validate ownership and facilitate the assignment or reassignment of a vehicle without reliance on a paper process

This includes:
- identity management (verification, validation, and authentication),
- electronic reassignment (including dealer reassignments),
- odometer disclosure when required, and
- addition and release of liens.

Ability to access title information – Electronic method for an owner or owner’s designee to view title information recorded on the electronic title for the vehicle. This access would be used to provide proof of ownership, if necessary.

Electronic Lien and Title (ELT) and Electronic Vehicle Registration (EVR) or Electronic Registration and Title (ERT) Systems Related to E-Titling Solutions

It is important to note that an ELT and EVR system are not a complete e-titling solution. ELT systems are designed to provide an electronic means of updating only lien information on titles between the motor
vehicle agency (MVA) and the lienholder. The initial application for title and recording of the title by the MVA is typically not within the scope of an ELT system. ELT covers notifications relating to perfecting, updating, and releasing liens that are applied to a vehicle title.

EVR systems are designed to provide an electronic means of processing title or registration transactions by a third party on behalf of the jurisdiction. While the transaction is performed electronically, the transfer of ownership is not performed electronically because supporting documents are required.

After a jurisdiction transitions from a paper title solution to an e-titling solution, the functionality of an ELT and EVR or ERT systems may be one element of the e-titling solution. The ELT and EVR or ERT systems may still serve some functionality, and there may be a need to keep them in place; this will depend on how each jurisdiction implements their full e-titling solution.

### Standards for an E-Titling Solution

Standards for an e-titling solution are needed to facilitate long-term interoperability. Multiple nonstandardized e-title processes by jurisdictions or stakeholders could make it harder to adopt a unified solution later, hindering interoperability and reciprocity. Additional details regarding specific standards are shown below.

### Stakeholder Participation

Stakeholder participation is essential to understand the benefits and challenges the e-titling standard will have on their industry and potential solutions they may be able to offer. It is also important to understand the stakeholder’s role in the titling process and the role industry stakeholders play in the vehicle lifecycle from the point it is manufactured until its only value is for parts or scrap metal (from cradle to grave). The working group recognizes the importance of the input and feedback from the stakeholder community to ensure the standard for a nationwide solution considers their perspective, processes, and requirements to conduct business. Failure to do so may result in a low adoption rate by industry stakeholders and will impact the success of an e-titling solution.

### Identity Management

A vital element of an e-titling solution is the identity management component. The federal rule Odometer Disclosure Requirements (49 CFR Part 580) sets a minimum identification level of certainty for electronic odometer disclosures. The working group is adopting the same standard to be applied for all e-titling transactions because it is essential to provide consistent assurance and set a standard to promote reciprocity.
from one jurisdiction to another. The framework adopts the minimum standard for identity proofing and authentication level for odometer disclosures, and all electronic titling transactions, to adopt and satisfy the requirements set by the National Institute of Standards and Technology (NIST) at a moderate level (IAL2 and AAL2). The standard is based on NIST Special Publication 800-63-3, Revision 3, Digital Identity Guidelines (including parts A, B, and C) with a revision date of June 2017. Additional information and resources for the Digital Identity Guidelines can be found on the NIST Identity and Access Management Resource Center. This includes FAQs, implementation resources, and conformance criteria.

Interpreting What Complies as a Signature or to Sign for an E-Title

Under federal requirements, a signature1 for an e-title, including electronic odometer disclosure; power of attorney or other supporting documents; and an electronic sound, symbol, or process must meet one of the following:

- Use a secure authentication system identifying a specific individual with a degree of certainty equivalent to or greater than Level 2 as described in NIST Special Publication 800–63–3, Revision 3, Digital Identity Guidelines (including sub-parts 800–63–3A, 800–63–3B and 800–63–3C), June 2017; or

- Be completed in person before a bona fide employee of the jurisdiction or statutory agent under a surety bond with the jurisdiction.

Identity Assurance Level 2 (IAL2)

IAL2 allows for remote or in-person identity proofing. IAL2 supports a wide range of acceptable identity proofing techniques to increase user adoption, decrease false negatives (legitimate applicants that cannot successfully complete identity proofing), and detect to the best extent possible the presentation of fraudulent identities by a malicious applicant.

Authentication Assurance Level 2 (AAL2)

AAL2 provides high confidence that the claimant controls authenticator(s) bound to the subscriber’s account. Proof of possession and control of two distinct authentication factors is required through secure authentication protocol(s). Approved cryptographic techniques are required at AAL2 and above.

Vehicles Within an E-Titling Solution

Any new or used vehicle that will be issued a title as an ownership document could be considered a component of an e-titling solution. In some cases, a jurisdiction does not issue a title but issues a registration in place of the title as the ownership document. Those vehicles would also be considered within the framework of an e-titling solution.

The following list is an example of vehicles defined as being within the framework for an e-titling solution. This list is not meant to be comprehensive but to provide examples. The intent of the working group is that any vehicle2 an MVA issues a title for as the ownership document would be eligible to be part of the e-titling solution. While a vehicle included on this list of examples of vehicles within scope might apply to one jurisdiction, another jurisdiction may consider it to be out of scope.

- Passenger vehicles, SUVs, and trucks
- Motorcycles
- All-terrain vehicles (ATVs)
- Mopeds
- Boats and motors (vessels)
- Recreational vehicles (RVs)
- Trailers
- Commercial motor vehicles
- Multi-stage (conversion vans, handicap vans)
- Low-speed vehicles

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1 The working group is adopting the definition of sign or signature as written in CFR Part 580.3.

2 The framework reflects “vehicle,” but the working group acknowledges MVAs may issue a title for a unit other than a motor vehicle, such as watercraft. The intent of the framework is to support all titling transactions for the MVA.
intention of the working group to limit the inclusion of transferor and transferee and entities within an e-titling solution.

Interaction Between Entities

The intent of an e-titling solution is to address all transfers of ownership and make the entire chain of ownership visible on an e-title record, including the individual and entity that processes each transaction. The electronic information needed by the MVA regarding a vehicle sale (and therefore vehicle titling) is not substantially different based on which entity is buying the vehicle and which entity is selling the vehicle. The intent is to capture a complete chain of ownership, including dealer-to-dealer transactions and transactions involving dealers and auctions, as well as any other entity in the chain of ownership. Any differences that do exist, that are dependent on the transferor or transferee entities but have not been identified, will be identified as jurisdictions expand their e-titling solution to additional stakeholders.

Vehicles Considered Outside the Framework of an E-Titling Solution

Not every jurisdiction issues a title for all types of the example vehicles mentioned above. Any vehicle to which a title or registration is not issued and ownership is transferred on something other than a title or registration (e.g., a bill of sale or other supporting documents) would not be considered within scope of the e-titling solution.

Transferee and Transferor and Any Entities Involved in the Transfer of Vehicle Ownership

The following entities have been identified:

- Manufacturers that sell to retail customers
- Franchise dealers (sell both new and used vehicles)
- Used vehicle dealers
- Auto auction houses
- Software providers (e.g., dealer management systems)
- Fleet owners
- Fleet management companies
- Consumers (private party sales)
- Insurance companies
- Leasing companies
- Holding companies
- Rental companies
- Salvage companies
- Government agencies or military bases
- Lien holders and flooring companies
- Those who make or sell homemade vehicles

Additional entities may be added to this list in the future by the working group. It was not the intention of the working group to limit the inclusion of transferor and transferee and entities within an e-titling solution.

The Intra-jurisdiction and Inter-jurisdiction Nature of the Data Exchanges

The components of the framework include both transfers that take place within the same jurisdiction and those in which the transferor and transferee reside in different jurisdictions and data and information will need to be transferred between jurisdictions. Also, the e-titling solution will need to have a method for an owner to transfer their current title record from one jurisdiction to another without an ownership change.

Example Use Case of the Elements of an E-Titling Solution Process

The following chart was developed to help explain the vision for an e-titling solution. The intent is to provide a high-level comparison between the paper titling process and the potential for an e-titling solution. The chart does not provide information on how each step would be accomplished, which needs to be further developed.
The steps in the chart represent an example scenario in which a vehicle dealer obtains a vehicle, either new or used, resells it to another dealer, and the second dealer sells the vehicle to a consumer all within the jurisdiction. The scenario involves many stakeholders, including, but not limited to, manufacturers, dealers, MVAs, lien holders, and software providers that support the systems to these entities.

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<tr>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Dealer A takes possession of vehicle</td>
<td>Dealer obtains a manufacturer certificate of origin (MCO) for the new vehicle. For a used vehicle, dealer verifies the prior title and lien information.</td>
<td>For a new vehicle, dealer obtains electronic record of right to possession of vehicle. For a used vehicle, dealer verifies the vehicle and ownership information with MVA titling system.</td>
</tr>
<tr>
<td>2</td>
<td>Prior lien satisfied</td>
<td>Financial institution releases lien on paper title and mails the title to the dealer or releases the lien through an electronic lien process with MVA.</td>
<td>Financial institution submits lien release to MVA.</td>
</tr>
<tr>
<td>3</td>
<td>Odometer disclosures for required transfers</td>
<td>Odometer disclosure is included in each paper reassignment.</td>
<td>Electronic odometer disclosure completed and retained in an MVA titling system. It may be within the reassignment record.</td>
</tr>
<tr>
<td>4</td>
<td>MCO or prior title assigned to dealer</td>
<td>Assignment made to dealer on paper MCO or prior title with odometer disclosure, if applicable.</td>
<td>Dealer creates a record in the MVA titling system indicating they have taken possession of the vehicle and submits assignments and odometer disclosure, if applicable.</td>
</tr>
<tr>
<td>5</td>
<td>Dealer A transfers vehicle to dealer B</td>
<td>Dealer A reassignment vehicle to dealer B on the back of MCO/prior title; the odometer disclosure is included in each reassignment, if applicable.</td>
<td>Electronic reassignment and odometer disclosure, if applicable, are completed and retained in MVA titling system. Identity proofing requirements are met.</td>
</tr>
<tr>
<td>6</td>
<td>Dealer B initiates sale to new owner</td>
<td>Dealer confirms identity of purchaser.</td>
<td>Transferors and transferees’ identity proofing requirements are met.</td>
</tr>
<tr>
<td>7</td>
<td>Dealer B transfers vehicle to new owner</td>
<td>Dealer creates reassignment on back of MCO or prior title; odometer disclosure included if applicable (wet ink signatures).</td>
<td>Electronic reassignment and odometer disclosure completed and retained in MVA titling system. Transferors and transferees’ identity proofing requirements are met.</td>
</tr>
<tr>
<td>8</td>
<td>Title application submitted to MVA</td>
<td>Paper application (includes all required documents, lien information, and fees) with MCO or prior title submitted to MVA.</td>
<td>Application for title in new owner’s name submitted electronically and retained in MVA titling system. This information is tied to the electronic documents and reassignments already in MVA titling system.</td>
</tr>
<tr>
<td>9</td>
<td>New title recorded</td>
<td>Paper application reviewed, NMVTIS inquiry performed, and lien recorded.</td>
<td>Electronic application reviewed, NMVTIS inquiry performed, and lien recorded.</td>
</tr>
<tr>
<td>10</td>
<td>New title issued</td>
<td>Paper title issued, NMVTIS record updated, title mailed to owner or lienholder, and title record on file with MVA.</td>
<td>Electronic title issued, NMVTIS record updated, and title record on file with MVA. Owner and lienholder receive electronic notification that the title record and lien are on file, and they can verify the record in MVA titling system.</td>
</tr>
</tbody>
</table>
This framework will be updated as the working group continues to deepen their knowledge and understanding of the many factors that have a role in an interoperable e-titling solution. The working group will continue to develop the framework and review the feedback obtained from the jurisdictions and stakeholders as they complete their review. After the working group has determined the major elements have been identified, they will use this framework to further develop the details and requirements of an e-titling solution. The framework will be the outline to create a more detailed document, including the recommended standards to implement an interoperable e-titling guidance document.
Appendix A  Working Group Members

MEMBERS

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Saving lives!

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