

Title: Maine Online Sportsman's Electronic System
<https://www.maine.gov/online/moses>

Category: Government to Citizen

State: Maine

Project Initiation: June 23, 2014

Project Completion: March 1, 2016

Executive Summary

The Maine Online Sportsman's Electronic System (MOSES) is a custom-developed, extensible tool that allows sports enthusiasts to purchase licenses and registrations from their local Inland Fisheries and Wildlife agents or from the comfort of their own home. The service was developed by the Maine Department of Inland Fisheries and Wildlife (IFW) in partnership with InforME, the state's digital government portal, and Maine's Office of Information Technology (OIT).

Like many other states, the State of Maine provides an online hunting and fishing license sales service. This service was first developed by IFW and InforME in 2002 and was subsequently updated in 2009. In 2013, Maine legislation spearheaded an opportunity for InforME to simplify the service, redesign it for a mobile-first world, and provide innovative features that sets this system apart from other solutions. Discussed features included completely new and efficient code to communicate with the state's database of licensee information, a streamlined interface design that removed unnecessary steps, the ability for users to purchase gift licenses that can be sent at a date of the purchaser's choosing, and the ability for multiple authorities (licenses) to be purchased for multiple customers in a single payment transaction.

At this time, over 30 items are available for purchase in MOSES for Maine residents and non-residents with new license, permit, and donation options being added annually. Additionally, features continue to be developed and improved to further enhance the user experience for MOSES customers and the government agents that support them.

Project Narrative: Concept, Significance and Impact

Concept

This service was developed in an effort to provide resident and non-resident outdoor enthusiasts with a streamlined accessible platform to obtain licenses and permits and to make donations to IFW's special outdoors programs. In addition, the state sought to create a single solution that could be used by Inland Fisheries and Wildlife agents throughout Maine.

Maine is renowned for its outdoor sporting heritage, and people come from all over to fish in one of the state's many streams or lakes or to hunt in Maine's wilderness. Prior to the MOSES service, individuals had to visit an agent location in person during the agent's normal business hours to obtain a license. In some cases, this process of finding and visiting an agent location resulted in compliance issues, whereby sportsmen just didn't purchase their permits and licenses.

The in-person process also hindered the agents who handled license and permit requests within Maine's IFW offices. Assisting individuals with licenses and permits was a time-consuming process that allocated resources away from other agent duties such as vehicle registrations or hunting lotteries. Additionally, maintaining paper records for hundreds of thousands of licenses annually created a spatial and financial burden on the physical agent locations. As records were not shared in a central location, licenses and permits had to be created from a clean slate, even if the customer had obtained a similar license in prior years.

In response to these challenges, IFW, InforME, and OIT collaborated to create an online service that allowed individuals to obtain licenses and permits online while simultaneously supporting Maine's physical agent locations. This online service provided customers the convenience of obtaining licenses and permits in minutes from the comfort of their home. Information collected by this process was stored in a central location that could be accessed from any state agent location. While effective, changes in technology, customer habits, and emerging media trends highlighted a need for enhancements to the design and efficiency of the service over the years.

Initial solution discussions for what would become MOSES Version 3 (V3) focused on the rules engine and how the existing rules could be maintained while simultaneously being more understandable to the end user. While significant headway was made to repurpose the existing rules engine, it was determined that the complexity inherently deterred other initiatives, such as the ability to purchase multiple items for multiple customers in a single transaction and adapting the application to better accommodate mobile users. After thoroughly exploring the options available to introduce these functions, IFW and InforME decided that the most effective long-term solution would be to restructure the rules engine to provide the end user with an understandable experience while still capturing the necessary information for IFW agents.

Specifications, HTML design, and key details about business rules, application flow, hosting environment, and the coding language were finalized in the winter of 2014. Development of the service occurred throughout 2015, and the system launched in the first quarter of 2016. Throughout 2016, IFW, InforME, and OIT collaborated to continuously maintain and improve the service through a series of coordinated efforts where the back- and front-ends were updated, tested, and deployed in a staggered pattern. This agile approach to development allowed IFW, InforME, and OIT to respond quickly and efficiently to questions and new ideas from users while maintaining specific deployment periods.

The online public front-end service is developed in Perl. All transaction details are stored in a MySQL database for administrative transaction reporting as well as passed to the MOSES back-end database. The regulatory authority that oversees the licensee, Maine's Department of Inland Fisheries and Wildlife, is the custodian of the final data submitted via the online service; the back-end system is held at the Office of Information Technology (OIT).

The online service communicates back and forth with the OIT MOSES back-end system through web services. Business rule logic, including but not limited to item availability and eligibility, is shared between the front- and back-end systems.

Multiple features have been developed to take advantage of the opportunities granted via an online platform. After obtaining a license or permit, users may authorize MOSES to remember their information, substantially cutting down the time required to obtain a future license. Users may use this same information to immediately reprint previously purchased, active licenses – a feature that practically eliminates the burden caused by a lost license.

MOSES is unique in its enterprise approach to sportsman licensing, designed to provide several different licensing and permitting options, scalable to serve multiple physical agency locations, and flexible enough to handle a wide variety of business rules. The application data submitted online and transmitted to the web service requires a complex arrangement of user personal information, license and permit information, and other relevant details. However, this back-end complexity does not come at the cost of a tedious and confusing front-end. Rather, the service affords users a more streamlined and effective way of obtaining licenses than previous versions of the service allowed.

The online service was implemented using the latest Maine.gov web application interface design. The interface template utilizes cascading style sheets (CSS) media queries (the heart of responsive design) to adapt to varying device screen sizes, such as smartphones and tablets (e.g., iPhone, iPad, Android) and/or desktop or laptop computer environments. This means that all of the MOSES functions are now available on mobile devices as well.

To improve the success rate of individual transactions, the service utilizes inline live validation and masking. By providing users with real-time feedback (live validation) as

they input form data, we greatly improved the accuracy of the data entered. Some form elements, such as date of birth or phone number, can have a specific format - mm/dd/yyyy or (123) 456-7890. When masking these form elements, we ensure users will enter data in a predefined format.

Significance

The MOSES service provides a fast, paperless method for any customer to obtain hunting and fishing licenses and permits, and to store information for use by their local Inland Fisheries and Wildlife location. The online service includes functionality to issue a new license or permit, to purchase multiple licenses for multiple customers through a single payment step, and to purchase gift licenses that can be emailed alongside a personalized message. All of this is accomplished through a simplified, mobile-friendly interface that can be accessed anywhere the customer has an internet connection, saving sportsmen approximately 30 minutes of time when compared to traveling to and from a physical agent location.

This service benefits outdoor enthusiasts who need to interact with the State of Maine to obtain their hunting and fishing licenses, as well as the state's regulatory agencies. Many individuals wait to purchase licenses and permits until they know they will be engaging in an outdoor activity and this allows them to obtain a license on time without fear of missing out on a spur of the moment hunting or fishing trip. Customers now have a one-stop site where they can quickly and easily obtain personal hunting and fishing licenses and permits and purchase licenses and permits for others. The online service is convenient, fast, user-friendly, and secure, and allows for credit card payments therefore increasing compliance with Maine state laws.

Impact

The Maine Department of Inland Fisheries and Wildlife has seen significant cost savings and efficiencies from the service. Online transactions result in better data, save on manual printing and mailing expenses, and save staff time. The online service integrates with their back-end system, and ensures that the data flowing into their system is accurate, secure, and complete.

Over 40% of statewide license and permit sales are processed online. IFW saves an estimated \$0.16 in printing costs per purchase online, resulting in a savings of over \$66,000 annually. Additionally, each online transaction saves the IFW agents an average of 2 minutes in staff processing time for a total time savings of over 50,000 staff hours, or \$1,300,000 of staff time, since the service was originally launched.

In addition to the cost savings, revenue has also been generated for many of IFW's outdoors programs. Through an online donation option, more than \$200,000 in donations have been contributed through the online service to the various state wildlife

and sporting programs including the deer predation fund and the outdoor partners program.

IFW has spent \$0 out-of-pocket to fund the online service. The MOSES service build, maintenance, hosting, customer support, infrastructure, and enhancements are funded by statutory agent fees paid by the end-user to InforME.

As an application, MOSES is one of the most sophisticated services in InforME's portfolio. This is primarily due to the variety and volume of users that access the system daily, the complexity of the business rules, the interaction between the front-end and back-end web services, and the collaboration between multiple state agencies and departments. As such, many of the functions developed for this service have influenced numerous other projects both within InforME and at the state level. With such a solid foundation of support, MOSES continues to serve as a platform for new, experimental functionality.

The online service was created in partnership with InforME, the State of Maine's digital government portal. InforME is managed by Maine Information Network, LLC, a subsidiary of NIC. InforME was created by Maine state legislation to be the Internet gateway to government services and information under a self-funded, no appropriations model.