MEF LSO API Onboarding & Interop Test Service

Frequently Asked Questions

October 2023, v3

Summary

This FAQ addresses key questions about MEF's LSO API Onboarding & Interop Test (OIT) Service, which is designed to accelerate adoption of standards-based LSO APIs for automation of business functions between communications service providers and their partners and customers. A comprehensive set of LSO Sonata APIs automate business functions between service provider buyers and sellers, and a similar set of APIs known as LSO Cantata APIs automate functions between service providers and enterprises.

The MEF OIT Service entered general availability in October 2021 and has been widely adopted by the industry and used by numerous service providers and vendors since then.

Individuals interested in the MEF OIT Service are encouraged to read MEF's *State of the Industry Report: Paradigm Shift – Automating Business Functions Between Service Providers* (May 2023). The report and a companion slide deck can be downloaded at www.MEF.net/report.

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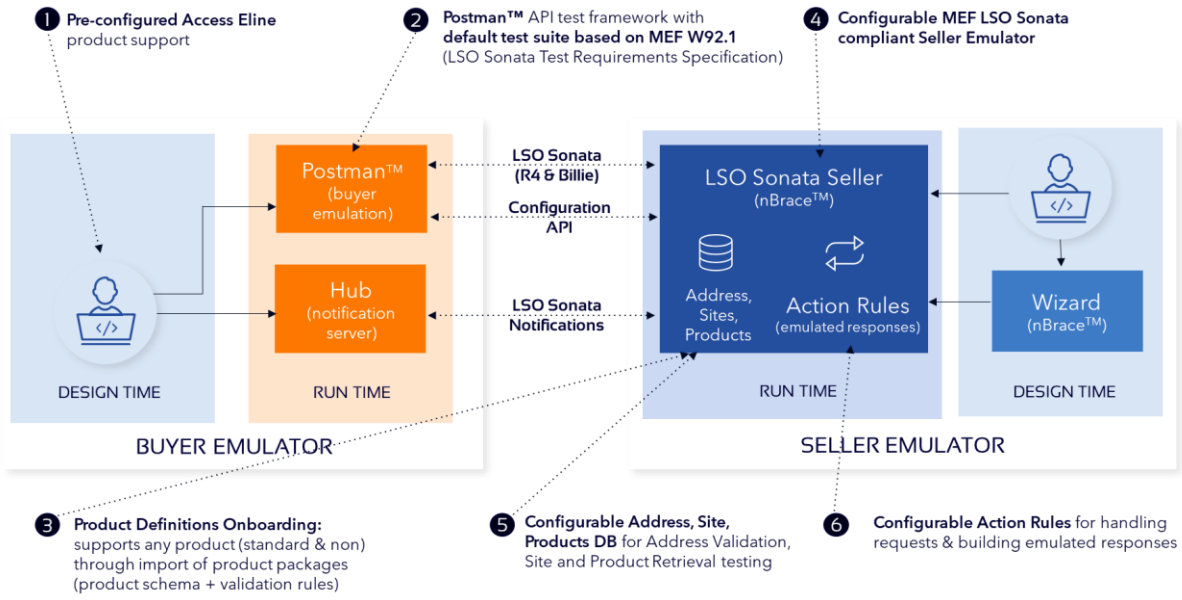
MEF LSO API Onboarding & Interop Test (OIT) Service

1. What is the MEF LSO API Onboarding & Interop Test (OIT) Service?

The MEF LSO API Onboarding & Interop Test (OIT) Service provides an efficient, predictable, and scalable solution that service providers can use to test compliance of their implementation of LSO Sonata / Cantata APIs and to perform pre-interop testing with partners. It consists of LSO Sonata / Cantata software-based buyer and seller emulators hosted on a dedicated public cloud server for a subscriber.

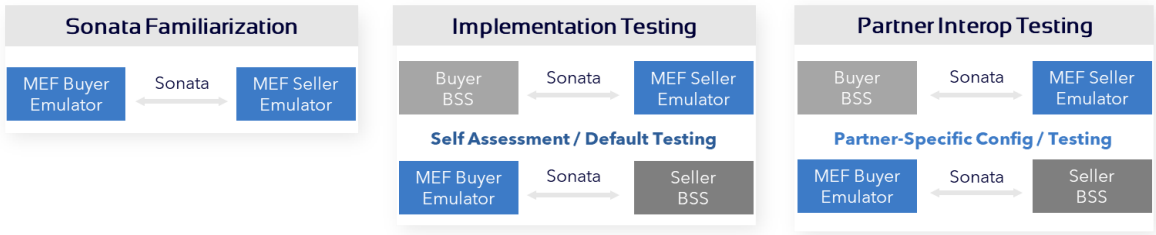
MEF OIT Service Components



2. What roles are performed by the MEF OIT Service in the LSO adoption lifecycle?

The MEF OIT Service supports development/test and production stages of the LSO Sonata / Cantata adoption lifecycle for both buyers and sellers. Below, we primarily refer to LSO Sonata-related roles because the hottest area of market activity involves automation of business functions between service providers.

MEF OIT Service Roles



The MEF OIT Service performs the following roles, with testing aligned to the MEF 92.1 LSO Cantata/Sonata Test Requirements draft standard.

1. **LSO Sonata familiarization**. Run buyer and seller emulators with default configurations (test requests/response and product payloads) to familiarize with LSO Sonata APIs.
2. **Implementation testing**. Perform self-assessment by testing against MEF's reference implementations of LSO Sonata.
3. **Partner interop testing**. (1) Prepare an emulator configuration to match specific scenarios/configurations so this can be shared with partners and (2) Load partner-specific configurations shared by partners for interop testing.

3. How does the MEF OIT Service support sellers?

The MEF OIT Service supports sellers throughout their LSO Sonata adoption journey, starting with providing developers the capability to test their LSO implementation against "gold standard" emulators to achieve compliance with the standard. Following this, sellers are then able to test with partners.

Phase	Savings / Benefits	How?
Implementation		
Familiarization	Eliminate need to work only from documentation	Use MEF OIT buyer and seller emulators with working reference implementation and executable examples
Testing	No need to build your own MEF LSO buyer emulator	Use proven MEF OIT buyer emulator for testing your seller implementation
Partner Onboarding & Interop		
Load partner-specific buyer emulator configs	Avoid spending precious time on developing buyer configs and test suites; there is no need to build own mock buyer Reduce time of executing pre-interop testing	Use MEF OIT buyer emulator to load partner-specific buyer configs shared by the partner buyer for independent pre-interop testing Overcome time zone difference; work with more partners in parallel
Prepare own default seller emulator configs and test scenarios	Eliminate need to spend precious QA resources and time on partner pre-interop testing	Use own seller configs to prepare partner-specific seller emulator configs to share with your buyer partners for their independent testing prior to engaging in interop testing Overcome time zone difference; work with more partners in parallel

4. How does MEF OIT support buyers?

The MEF OIT Service supports buyers throughout their LSO Sonata adoption journey, starting with providing developers the capability to test their LSO implementation against "gold standard" emulators to achieve compliance with the standard. Following this, buyers are then able to test with partners.

Phase	Savings / Benefits	How?
Implementation		
Familiarization	Eliminate need to work only from documentation	Use MEF OIT buyer and seller emulators with working reference implementation and executable examples
Testing	No need to build your own MEF LSO seller emulator	Use proven MEF OIT seller emulator for testing your buyer implementation
Partner Onboarding & Interop		
Prepare own default buyer emulator configs and test scenarios	Eliminate need to spend precious QA resources and time on partner pre-interop testing	Use MEF OIT buyer emulator to quickly build own default buyer emulator configs to share with seller partners for their independent testing prior to engaging in pre-interop testing Overcome time zone difference; work with more partners in parallel
Load partner specific seller emulator configs	Avoid spending precious time on developing seller configs and test suites; no need to build own mock seller Reduce time of executing pre-interop testing	Use MEF OIT service seller emulator to load partner-specific seller configs shared by the partner seller for independent pre-interop testing. Overcome time-zone difference, Work with more partners in parallel

5. What features are available today and in the future for the MEF OIT Service?

The purpose of the MEF OIT Service is to help service providers achieve and maintain interoperability for their LSO Sonata implementation with those of their partners. Providers who implement the APIs typically choose a subset of core behaviors defined in MEF W92.1. The service aims to prioritize support for those core behaviors identified in consultation with members on an ongoing basis.

The MEF OIT Service is offered as a subscription-based, one-click public cloud hosted service (AWS) where each member who subscribes to the service will be given their own dedicated server with LSO Sonata buyer and seller emulators installed. The subscription will provide set up, support, and maintenance of the service.

Key features in the GA release are summarized below and elaborated upon on the next page. The aim beyond the GA release is to extend support to keep pace with new SDK releases and features based on the LSO roadmap.

MEF OIT Service – Summary of Features Available in October 2023

Entity	Business Functions
Buyer, Seller	Address validation Site query Product offering qualification Quote Product Order Product Inventory
LSO Sonata SDK Release Support	
Fergie, Ella, Dolly, Billie	
Product Payload	
CE Access E-Line	

MEF OIT Service – Detailed Features Available in October 2023

Buyer Emulator	Seller Emulator
LSO Sonata SDK Release Support (Fergie, Ella, Dolly, Billie)	
Address validation – fielded address format	
Site query – site inventory imported into emulator	
Product offering qualification – mode: synchronous & asynchronous with state change notifications	
Quote – mode: synchronous & asynchronous with state change notifications	
Product Order – mode: synchronous & asynchronous with state change notifications - Create Product Order (add, modify, delete) - Cancel in-flight Product Order - Initiate charge (Billie, Dolly, Ella) - Respond to charge (Billie ,Dolly, Ella) - Register for notifications - Send notifications - Get Product Orders' list - Get Product Order by ID	

<table>
<tr><td colspan="2">- Product inventory</td></tr>
<tr><td colspan="2">Product Payload Support</td></tr>
<tr><td colspan="2">Run-time onboarding & config of Product Packages (Product Schema + Validation logic) to be exposed as products over LSO Sonata APIs</td></tr>
<tr><td colspan="2">MEF CE Access E-Line product reference example</td></tr>
<tr><td colspan="2">Product Payload Builder</td></tr>
<tr><td colspan="2">Guided UI wizards for step-by-step building of product payloads for use in LSO Sonata test requests for both positive and negative tests</td></tr>
<tr><td>Request Template Builder</td><td>Test Data Management</td></tr>
<tr><td>Guided UI wizards for wrapping user defined product payloads into LSO Sonata Request Envelope (POQ, Quote, Order) and generation of JSON document, which can be incorporated into Postman test scripts</td><td>Ability to import and manage an inventory of test data including product types, addresses, sites and ENNIs</td></tr>
<tr><td>Test Data Management</td><td>Action Rules & Workflow Customization</td></tr>
<tr><td>Ability to manage inventory & relationships for Product, Site, Address, PQO, Quote and Order</td><td>Easy means to introduce Provider specific behaviors (emulation scripts) for processing and responding to incoming API requests</td></tr>
<tr><td>MEF W92.1 Test Case Support</td><td rowspan="2">Set of matching, pre-defined emulator scripts for processing and responding to the default suite of test request supported in the Buyer emulator</td></tr>
<tr><td>Ability to generate test case requests using Product Payload/Request builders</td></tr>
<tr><td>Example suite of tests – subset of MEF W92.1 test requirements test cases</td><td>API Security</td></tr>
<tr><td>Postman™ Test Tool Execution Environment</td><td rowspan="2">Support for OAuth 2.0, Basic HTTP</td></tr>
<tr><td>For executing test requests and managing results</td></tr>
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MEF OIT Service Market Demand & Benefits

6. What is the market demand for LSO Sonata APIs?

MEF's proprietary research reveals 135+ service providers worldwide are now in some stage of the LSO Sonata adoption lifecycle, with at least 63 companies already in commit, plan, development, test, or production stages.

MEF forecasts the number of companies in production will increase rapidly from 30 today to 69+ by the end of 2024 before continuing to surge ahead to 94 to 103+ by the end of 2025.

See MEF's *State of the Industry Report* for more information.

7. How many companies have used the MEF OIT service?

In 2022, more than 13 companies subscribed to the service to test compliance of their implementation and get to production with their partners more rapidly. These represent the majority of the companies who were actively developing their MEF LSO Sonata API implementations in 2022.

8. What are the benefits of the MEF OIT Service?

MEF research indicates a strong majority of surveyed respondents see high value across multiple OIT Service benefits. Key benefits include:

1. Comprehensive support for validating compliance of your own MEF LSO implementation against "gold standard" emulators.
2. Developer can see working Buyer and Seller implementation and quickly begin developing against the 'Gold Standard' emulators form day 1
3. Successful results of E2E testing with emulators give the high degree of confidence the LSO implementation is in-line with the standard.
4. Avoid the time / effort associated with developing your own test suite / emulations, share the costs with other users of MEF OIT
5. Faster time to production with Partners (days not months) with greatly reduced partner inter-op test cycle times from months / years to days.
6. Significantly reduce the cost and effort of onboarding a partner (75% - 90% savings compared to turn-key implementations, both: in-house or outsourced)
7. Test using MEF standardized (currently and future) and non-standardized payloads
8. Test partner-specific configurations (including products)
9. Test with emulators – including partner-specific configs – at any time, not limited by time zone differences
10. Scale the number of partners that can be onboarded in parallel to speed up adoption
    - More quickly build a network of automated partners
    - More easily predict, plan, and schedule partner onboarding
    - Engage with a broader range of partners – including a larger number of smaller providers – than would be otherwise possible
11. Possibility to create and share your own default config with partners allowing them to test in their own time before engaging you for final interop testing (for UAT, fine tuning)
12. Possibility to import default configs of partners and test against them in your own time before needing to engage your partner in final interop testing (for UAT, fine tuning)
13. Get timely support for new LSO API releases – learn, develop and test against them
14. It helps to maintain your MEF LSO implementation with your Partners (finetune, expand it, add new products) as well as onboard new Partners as they adopt the standard.

9. What are the downsides of not using the OIT Service?

Service providers without the OIT Service need to work from MEF's standard specification documents, API definitions, and developer guides, which can lead to different interpretations and basic coding errors. This makes it time intensive for both partners who end up with prolonged cycles to resolve differences and issues. The OIT Service allows each partner to work independently to get their respective implementations in good shape before engaging in interop.

OIT Service Offerings, Subscription Fees & Activation

10. What are the OIT Service offerings and related subscription fees?

Below is a summary of the OIT Service offerings. Contact LSOOIT@mef.net for additional pricing information and to order the service.

OIT Service Offerings & Subscription Fees

Offerings	Description	Fees & Options
Access to Default Emulators – Buyer & Seller Pair	Right to use default emulator(s) for LSO Sonata implementation testing Right to use emulators to prepare specific scenarios/configurations so this can be shared with partners for interop testing	$12,000 for 12 months
Use of Emulators for Partner-Specific Emulator Configuration(s)	Right to share or use partner-specific emulator configurations for interoperability testing with partners	$5,000 for a single partner emulator config access for 12 months $21,250 for pack of 5 partner emulator configs for 12 months each $35,000 for pack of 10 partner emulator configs for 12 months each
• Fees do not include AWS server hosting cost (estimated $1,200 per year), MEF fee of 7.5%, and applicable taxes. • Each partner config must be registered within 12 months of purchase and can be used for 12 months starting from the time of first registration, provided that the subscriber remains a MEF Member in good standing for that period. • Partner config right to use allows for use of all upgrades and updates to the config a partner may provide within the 12-month period. • Use of emulators for partner-specific configs requires an active default emulator subscription.		

11. How do companies subscribe to the OIT Service?

The following describes the steps for subscribers to register for and purchase the OIT Service.

- Subscribe online via a secure dedicated page in a customer portal. Additionally, the Amartus sales team will be available to support the process and answer questions.
- Subscriber will be asked to provide details, such as contact details, as well as information required for billing, including name, address, tax ID, and authorized signatory.
- Subscribers will be presented with the Terms & Conditions of the service in a "Click to Agree" form, a legal agreement between Amartus and the subscriber company. This agreement covers all standard terms for accessing a hosted service of this nature.
- After checking the box to accept the T&Cs, subscribers will be able to select the specific offering they wish to subscribe to (see answer to previous question).
- Each subscriber purchase will be recorded.
- The invoicing and billing process will be initiated.

12. How do companies access the OIT Service as a subscriber?

Below are the steps to activate the subscription and start using the OIT Service. Subscribers will request activation of the service offerings on-line via a dedicated page within a customer portal. Once the purchase is confirmed, the subscriber will be able to activate the purchased service and the 12-month subscription period will begin (i.e., 12 months begins when the service is activated, not when it is ordered). Activation steps will be different depending on the service offering.

Access to Default Emulators (Initial)
The following are the steps for subscribers who have purchased access to the default emulators and do not already have a hosted instance:

- On the Ordered Services page of the portal, the subscriber will see all the services that they have ordered.
- Once the purchase has been confirmed by the OIT Service, the subscriber will see a button to "activate" the service.
- This will trigger a request to deploy a dedicated, hosted OIT Service instance for the subscriber.
- Once deployment is complete:
    - Instructions will be sent via e-mail to the subscriber with details for how to access and configure their instance (set password, etc.).
    - Activation of the instance will be registered with Amartus to track the period of use.
- Subscriber will be entitled to use the service.

Access to Default Emulators (Renewal)
The following are the steps for subscribers who have purchased access to the default emulators and already have a hosted instance (renewal):

- On the Ordered Services page of the portal, the subscriber will see all the services that they have ordered.
- Once the purchase has been confirmed by the OIT Service, the subscriber will see a button to "activate" the service.
- Activation of the instance will be registered with Amartus to track the period of use.
- Subscriber will be entitled to use the service.

Access to Partner-Specific Emulator Configurations
The following are the steps for subscribers who have purchased access to partner-specific emulator configurations:

- On the Ordered Services page of the portal, the subscriber will see all the services that they have ordered.
- Once the purchase has been confirmed by the OIT Service, the subscriber will see a button to "activate" the service.
- Subscriber will separately register each partner's details and activate their right to use a config for each partner, which gives them 12 months from time of activation to use a partner's config. Where a provider has purchased a pack of 5 or 10 partner

configs they must activate their right to use for each of those partners within 12 months of the purchase date of the pack.
- Subscriber will be entitled to use the partner-specific configuration and any updates or upgrades to the partner configs for a period of 12 months from the date of activation, as long as they maintain their subscription to the OIT Service and remain a MEF Member in good standing.

Subscription offering durations will be tracked, and subscribers will be notified via e-mail at 90, 60, and 30 days in advance before expiry.

OIT Service Use Scenarios

13. How will providers use the OIT Service, and what are the main scenarios?

Once registration and activation are complete, a subscriber can begin using the OIT Service.

LSO Sonata Familiarization
The Buyer & Seller emulators are initially configured with the following:

- A default Buyer test suite (subset of MEF W92.1 test cases, CE Access E-Line MEF W106 Product Definition, and mock test data) for generating LSO Sonata requests
- Matching default Seller emulation scripts that provide responses.

This allows the subscriber to run emulated requests to become familiar with the workings of LSO Sonata and the emulators.

Implementation Testing / Self-Assessment
The subscriber can use the same default emulations for testing their own LSO Sonata implementation, using the Buyer emulator Postman scripts to test their Seller implementation or the Seller emulator for testing their Buyer implementation. Subscribers can run the test cases in the default test suite or develop new test cases for their specific scenarios using the emulators' tooling.

In terms of the Buyer emulator, the user can configure their specific product offerings, test data, mode of operations (sync, async), LSO Sonata releases, security settings, etc. They can then use the Buyer emulator's guided product payload and request builder wizards that are part of the Buyer design time UI. These guide the user in generating LSO Sonata request payloads needed to test their implementation. This includes support for building positive test requests (validated LSO Sonata requests) as well as negative testing (invalid LSO Sonata requests). These request payloads are then incorporated into Postman test scripts for execution.

In terms of the Seller emulator, the user can configure their specific product offerings, test data, mode of operations (sync, async), LSO Sonata releases, security settings, etc. The Seller emulator offers the ability to develop emulation scripts that are the primary means for the Seller emulator to respond to Buyer requests; these are developed using Groovy scripting language via a standard development IDE and are registered with the Seller emulator against the matching request handler.

Partner Interop Testing

It is expected that providers will have a common and consistent approach for dealing with all partners. Therefore, subscribers will develop their own default suite of Buyer test request scripts and matching Seller response emulation scripts for each of their test cases over time that can be reused for all partners.

When a partner requests the subscriber to provide an emulator configuration, the subscriber will create a partner-specific configuration by selecting the appropriate test case configurations from their default test suite and optionally will develop any additional ones they may need for that partner. The subscriber would then package up that set to share with the partner.

The partner in turn can import the test suite package into their own emulator instance for their independent testing. The packaging of the partner-specific test suite config will differ for Buyer and Seller emulators.

OIT Service Relation to MEF 3.0 LSO Sonata Certification

14. How does the OIT Service relate to MEF 3.0 LSO Sonata certification?

The OIT Service is a tool that supports the establishment and operation of standard LSO Sonata APIs between partners.

The goal of MEF 3.0 LSO Sonata certification is to provide MEF member service providers with a structured way to validate that their APIs strictly conform to the same well-defined standards implemented by their certified partner providers. Certification aims to build a community of certified providers based on the same official MEF standards. The OIT Service and LSO Sonata certification differ in that they address different stages of the LSO Sonata adoption lifecycle, and they complement each other in that they both support the same test requirements in the MEF 92.1. draft standard.

At the same time, using OIT service greatly prepares for a smooth passing through LSO certification process.

15. Do you expect companies to use the OIT Service before starting the certification process or could a company certify before entering production with a specific partner?

Some service providers may use the OIT Service prior to certification, while other providers may pursue certification before using the OIT Service and/or entering production with a partner.

A provider could use the OIT Service to test their implementation against the default configurations that ship with the service as well as partner-specific configurations. This ensures a high degree of confidence in aligning to MEF standards before embarking on certification.

On the other hand, LSO Sonata certification could be used first to validate a service provider's API implementation based on MEF standards before using the OIT Service and engaging with specific partners.

Regardless of the path, MEF's intention is to provide options to help service providers achieve their implementation and marketing goals.

16. How much work is required for certification if a company has successfully used the OIT Service to enter production?

Providers typically only implement a subset of functionalities defined by the MEF 92.1 draft standard (e.g., specific LSO Sonata features/APIs, specific sub-features, specific product offerings). This subset is determined based on what is needed to support pairwise negotiation with partners. The OIT Service aims to support significant coverage for this same subset of functionalities for pairwise interop testing. Therefore, testing carried out using the OIT Service should provide significant coverage for the same test cases a provider needs to pass to achieve certification. Additional effort should only be needed for test cases not tested using OIT, but which are supported in a provider's implementation.

OIT Service Support & Information

17. What support is provided for the OIT Service?

Subscribers will have access to Amartus OIT online support via email or a web portal (based on JIRA Service Manager & Confluence). Both e-mail and the portal can be used to log issues, and the portal is used to track status. In addition, a subscriber can look for related issues and fixes and access support documentation, videos, etc. for configuring and using the OIT Service. Maintenance windows for updates/upgrade of the service will be coordinated with the subscriber to take place at an appropriate time.

18. Who should I contact for more information?

Contact *LSOOIT@mef.net* for more information on the OIT Service.

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