WSO2CON 2025

New Experiences of Micro Integrator

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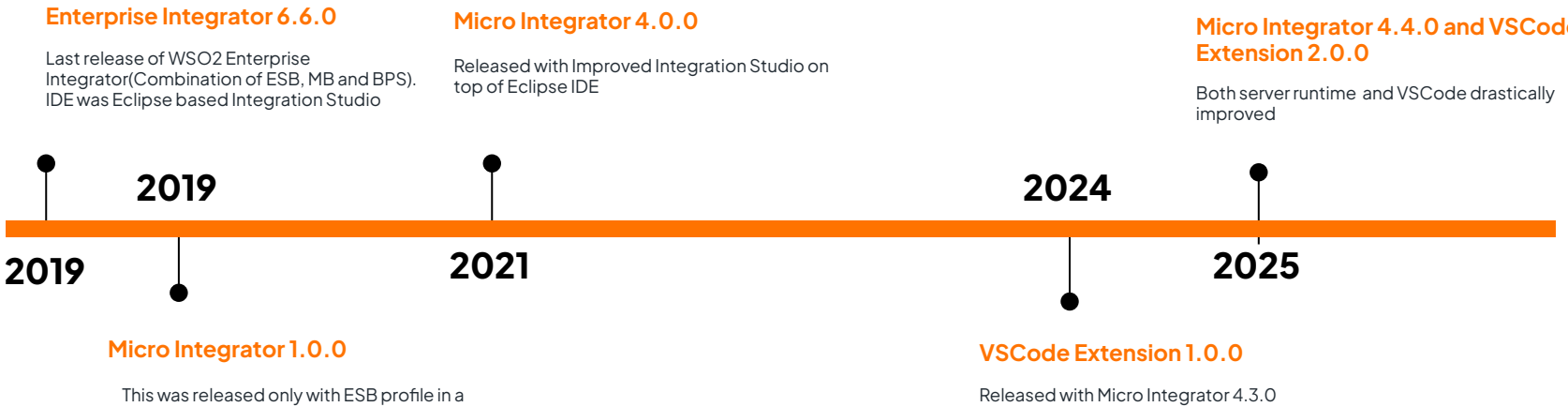
WSO2

Making integration development faster and smarter than ever!

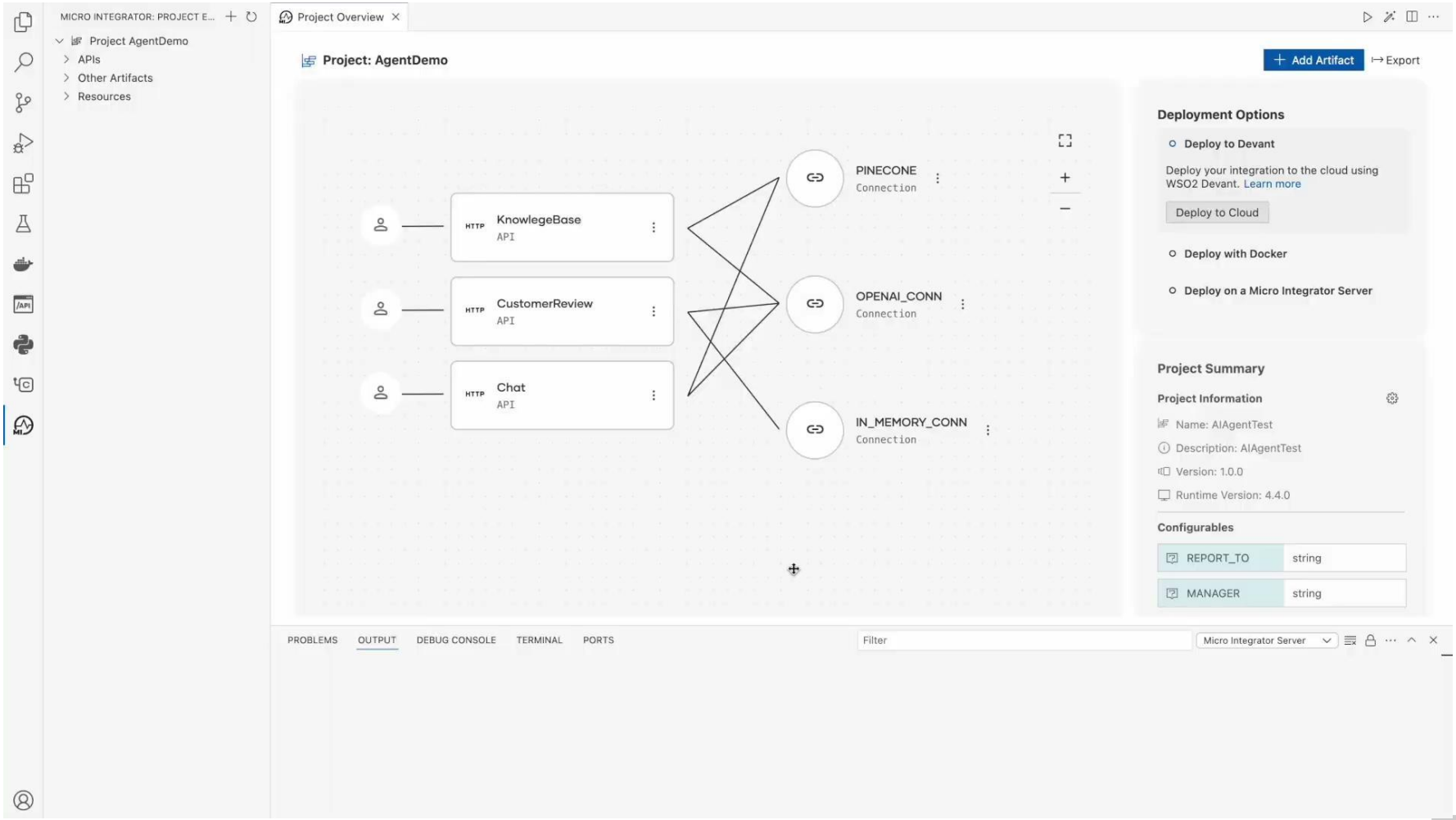
Agenda

- Evolution of Micro Integrator
- New Expression Language
- Data Transformation and Extensions
- Mediator Try-Out Feature
- New Mediators
- Connector Improvements
- JDK 21 Support and More
- AI Features (Co-pilot and AI Module)
- Future of Micro Integrator

Evolution of Micro Integrator



VSCode Editor Experiences


MICRO INTEGRATOR: PROJECT E...
Project AgentDemo
APIs
Other Artifacts
Resources
Project Overview
Project: AgentDemo
Add Artifact
Export
HTTP
KnowlegeBase
API
HTTP
CustomerReview
API
HTTP
Chat
API
PINECONE
Connection
OPENAI_CONN
Connection
IN_MEMORY_CONN
Connection
Deployment Options
Deploy to Devant
Deploy your integration to the cloud using WSO2 Devant. Learn more
Deploy to Cloud
Deploy with Docker
Deploy on a Micro Integrator Server
Project Summary
Project Information
Name: AIAgentTest
Description: AIAgentTest
Version: 1.0.0
Runtime Version: 4.4.0
Configurables
REPORT_TO
string
MANAGER
string
PROBLEMS
OUTPUT
DEBUG CONSOLE
TERMINAL
PORTS
Filter
Micro Integrator Server

New Expression Language for Micro Integrator

WSO2 Synapse Expressions: Faster, Easier, Secure Integrations

- Easy Payload and Variable Access
  - Example: **payload.user, vars.totalPrice**
- Quick Conditional Checks
  - Example: **vars.age > 18 ? 'Adult' : 'Child'**
- Filter Data Effortlessly
  - Example: **payload.orders[?(@.amount > 100)]**
- Built-in Useful Functions
  - Example: **toUpper('wso2'), round(123.456, 2)**
- Secure Secret Access
  - Example: **wso2-vault('db-password')**

Synapse Expression Improve Developer Experience

Using XPath and JSONPath in Integration

```
<!-- Extract firstName and lastName from the incoming JSON payload -->
<property name="firstName" expression="json-eval($.firstName)" scope="default"
type="STRING"/>
<property name="lastName" expression="json-eval($.lastName)" scope="default"
type="STRING"/>

<!-- Concat firstname and last name to get fullName -->
<property name="fullName" expression="fn:concat(get-property(firstName))
,get-property('lastName'))" scope="default" type="STRING"/>
```

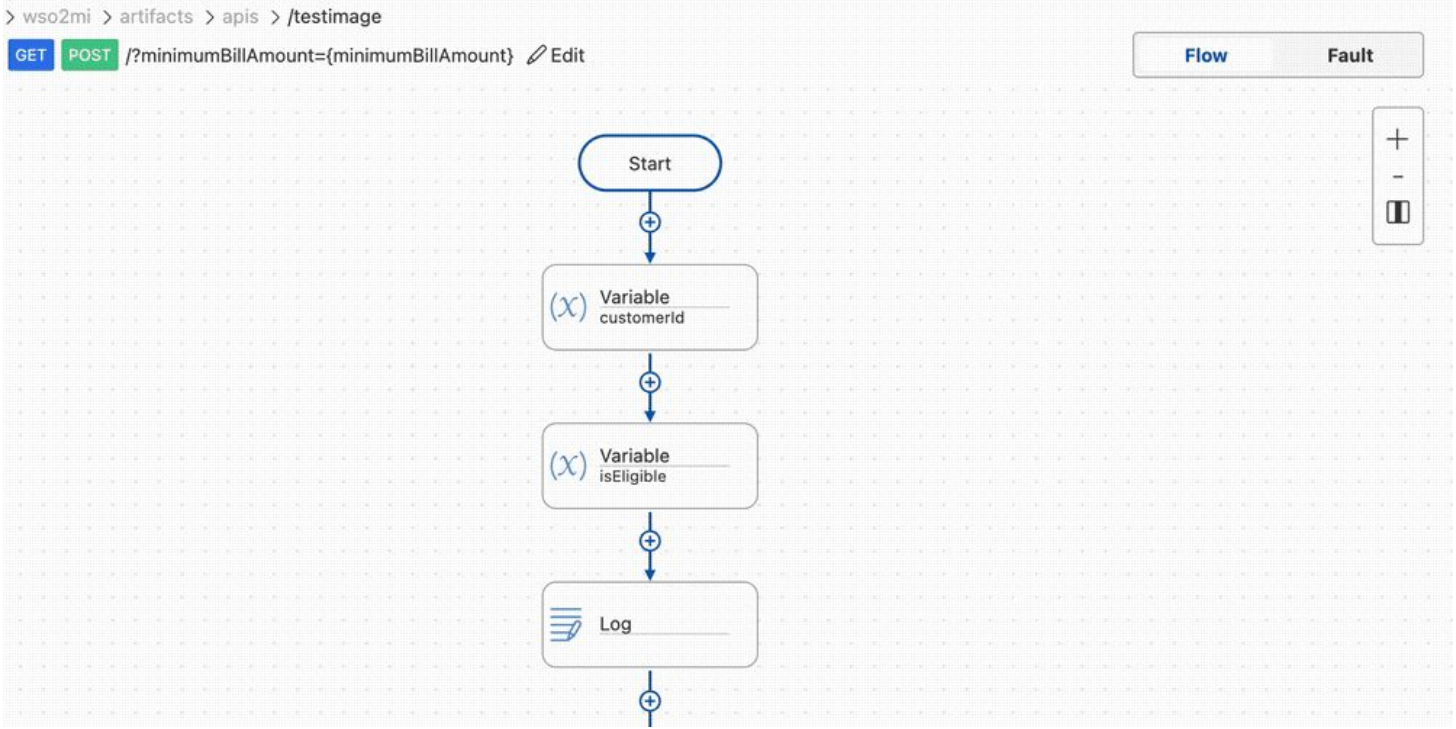
New Synapse Expressions

```
<!-- Get full name using new expression to variable -->
<variable name="fullName" type="STRING" expression="${payload.firstName + payload.lastName}" />
```

Learn more…

Search: **Synapse Expressions** in https://mi.docs.wso2.com/

New Expression Graphical Tooling Support



1. Simplicity favors regularity
2. Smaller is faster
3. Good design demands compromise

- ISA Design Principles -

Data Transformation and Extensions

Extend Complex Integration Using

Ballerina Module for MI

- Language built by WSO2
- 100% Tooling Support
- Flexible, Powerful, Beautiful
- Integrations as Code

Java Class Mediator

- Leverage from wider Java ecosystem
- Easily Develop from MI VSCode Plugin

JavaScript or TypeScript

- Runs on Graal JS
- Java like performance. Faster than all previous script engines
- Create using single click from MI VSCode Plugin

Ballerina Module for MI

Mediator Try Out

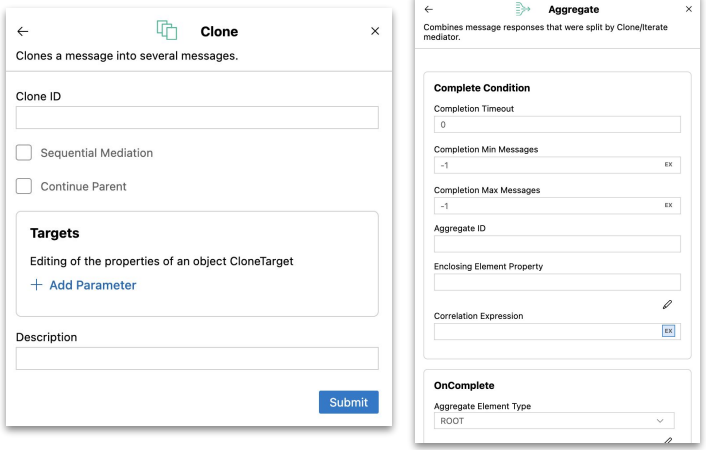
Try-out Feature

New Mediators

Enhancing WSO2 MI Mediators

- New Scatter Gather Mediator
  - Previously, users need to use two mediators(Clone and Aggregate).
  - Having a Call mediator in each clone path is a must.
  - Introduce a new single mediator while removing the Call mediator requirement.

Old



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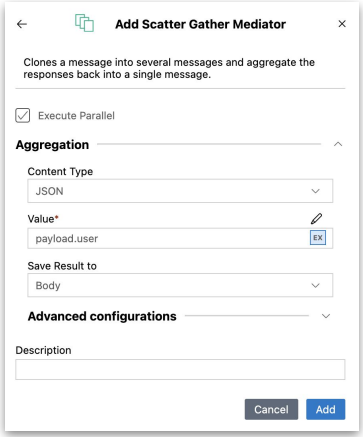
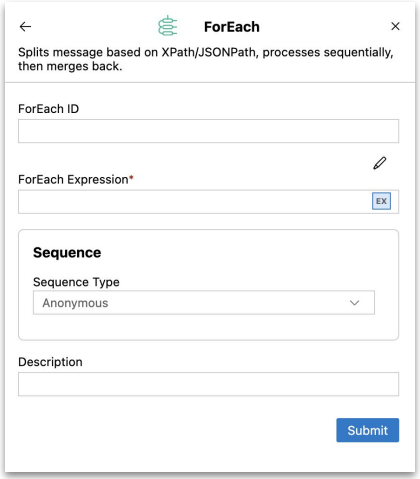
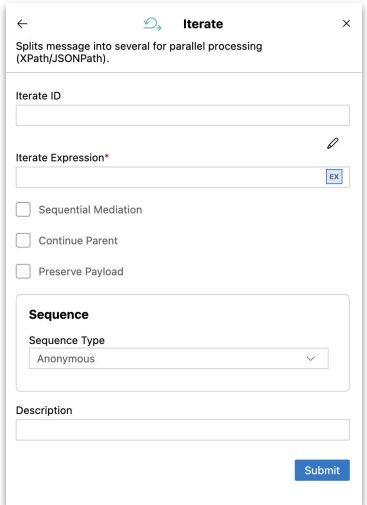


Enhancing WSO2 MI Mediators

- New Foreach Mediator
  - Currently we have two mediators, Foreach and Iterate to loop over a list.
  - Foreach for transformations and Iterate if the user needs to have Call mediators.
  - Need to have an Aggregate mediator after Iterate mediator.
  - Single Foreach mediator to cater all the above requirements.

Old





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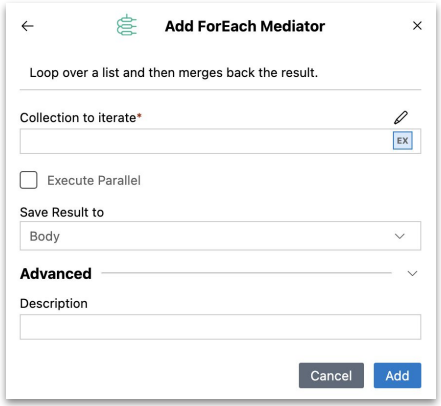

Enhancing WSO2 MI Mediators

- New Variable Mediator
  - Currently, we need to use the Property mediator to set variables.
  - Scopes and other configurations in Property mediator will lead to confusion for new users.

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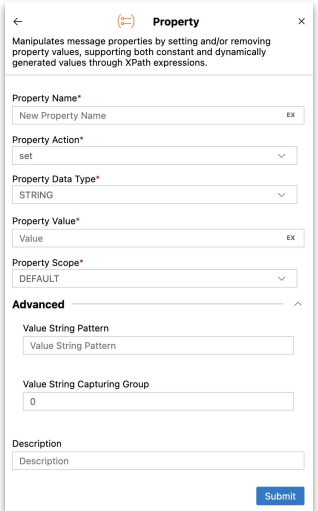

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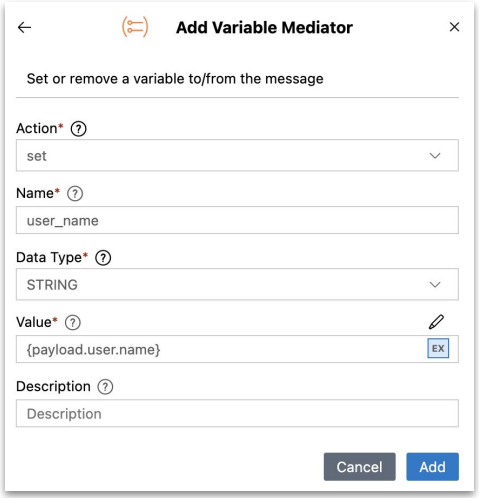
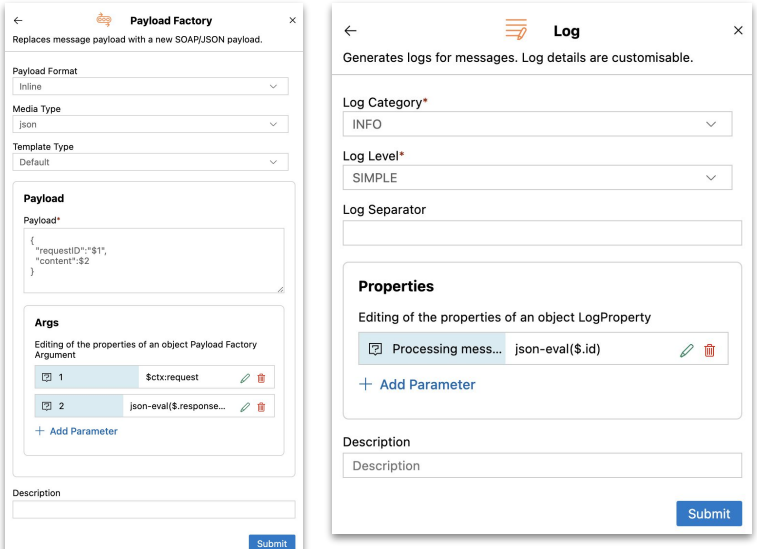


Enhancing WSO2 MI Mediators

- Limitations in Payload and Log mediators
  - Need to use an argument list in the Payload Mediator template.
  - Need to add multiple properties to construct a log message.
- Introduce Inline expression support for Payload and Log mediators

Old



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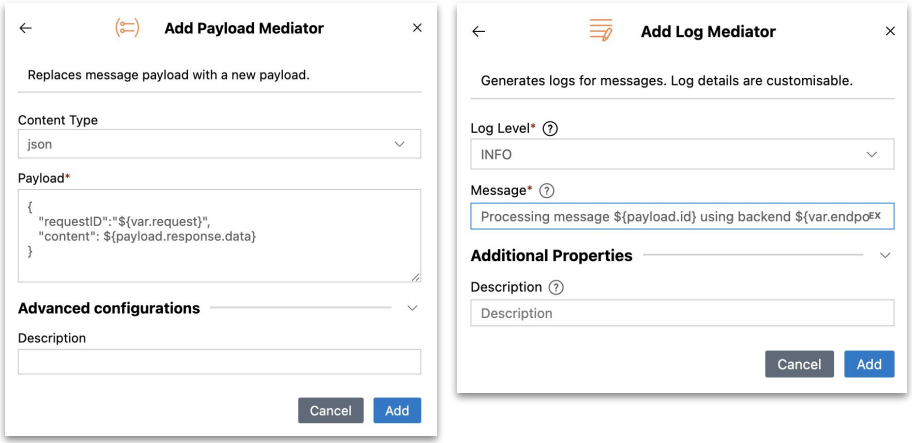
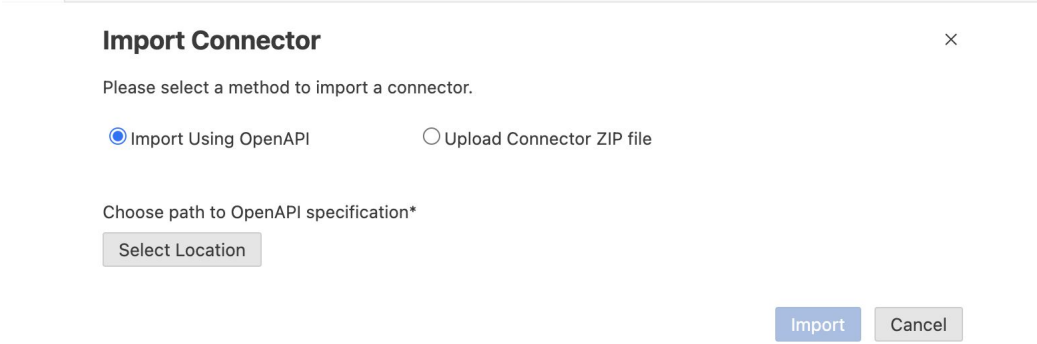


Connector Improvements

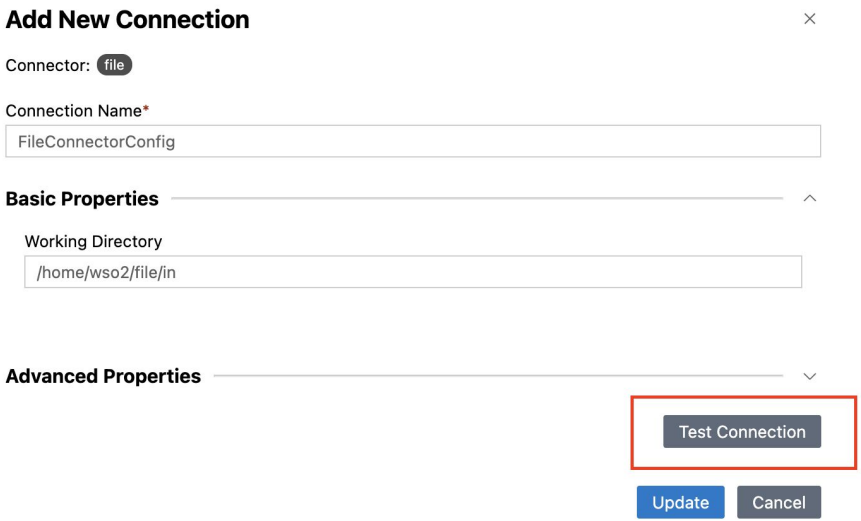
Simplify connector creation and connector generation tool

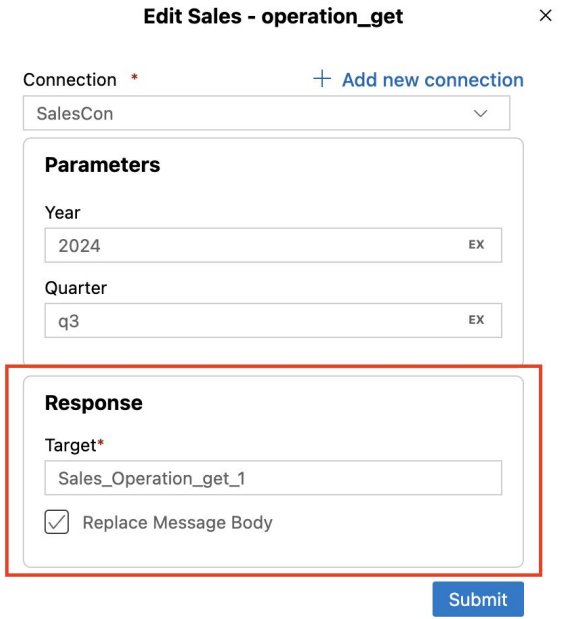
- A new connector plugin to simplify connector development to auto-generate connector using OpenAPI specification.
- Connector generator tool has been integrated with the VSCode extension to generate connector within the project.



Improved Connector Usage Experience

- New button to test the connection of the connector in the VSCode extension
- New option to store connector response (payload, headers, attributes) inside a variable.

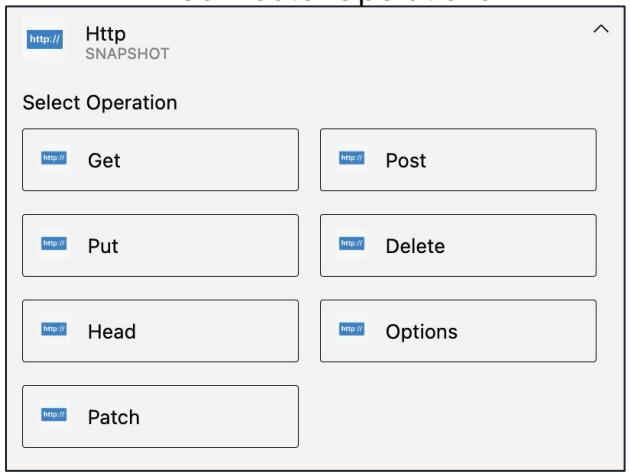




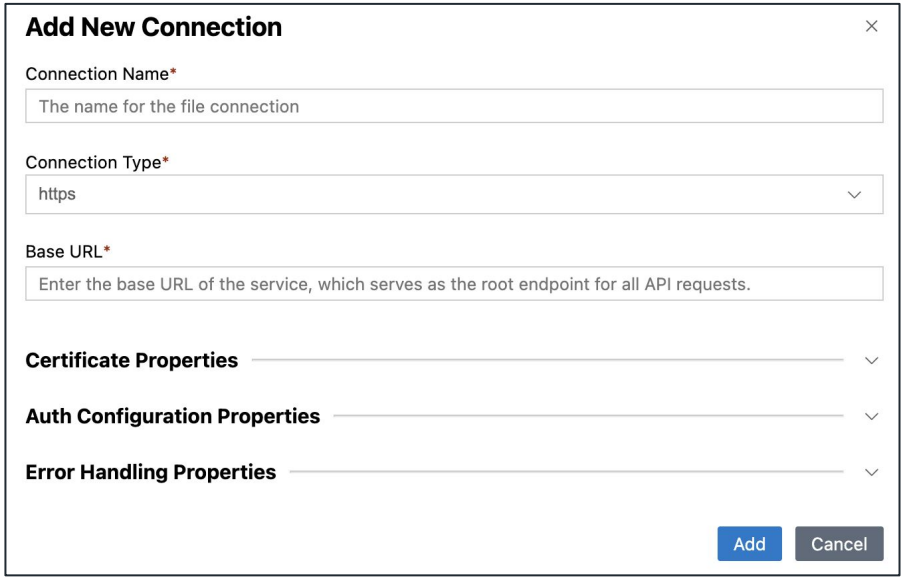
Introduce new connectors (HTTP connector)

- HTTP connector supports operations for sending HTTP requests.
- During connection creation, we handle certificates, authentication configurations and error handling properties.

HTTP Connector Operations



HTTP Connector New Connection



Connector dependency management

- Problem
  - When working with connectors, users has to manually add the libs required by the connector to the libs directory of the MI server.
- Solution
  - When building an Integration project, the connector and its dependencies are packed into the CAR file so that user does not need to care about manually adding libs to the server.

JDK 21 Support and More

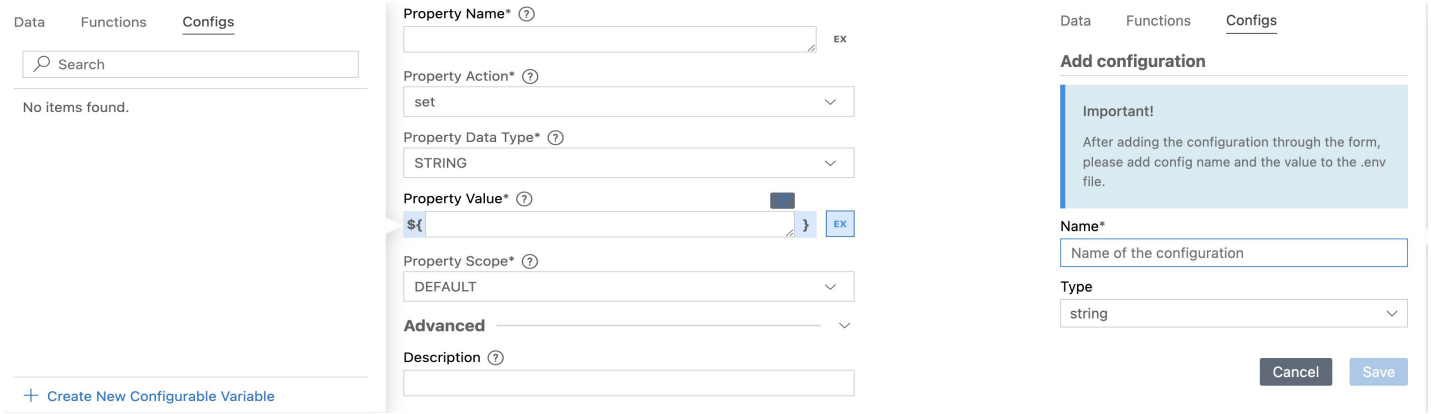
JDK 21 Support

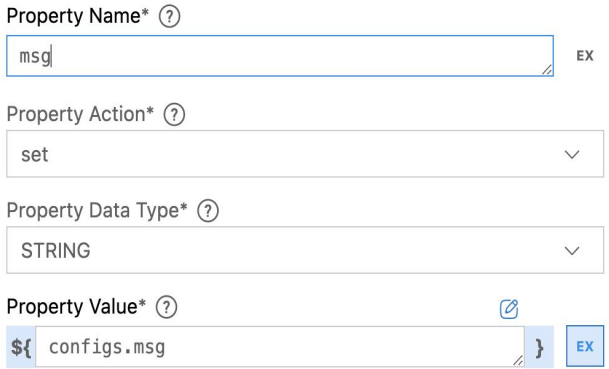
- WSO2 MI is now fully compatible with JDK 21, enabling users to run integrations on the latest Java platform.
- Comprehensive testing and validation ensure smooth runtime operations with JDK 21 without additional configuration.

Environment variable injection for all environment-specific parameters

- Problem
  - No unified template to manage external configurations effectively.
  - This leads to inconsistent handling and increased complexity across different environments.
- Solution
  - Introduced a new unified template to manage external configurations effectively.
  - Users can now configure values in multiple ways. The value of a configurable parameter will be resolved in the following order of precedence at runtime:
    - Environment Variables
    - System Properties
    - File Properties

Environment variable injection for all environment-specific parameters



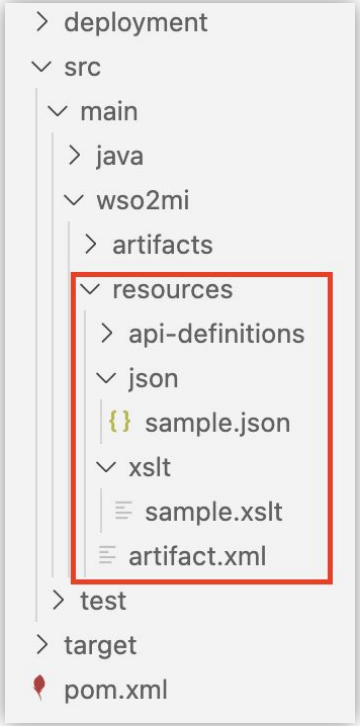


Registry Resource UX improvements

Project structure gets complexed after adding resources.

Old

New



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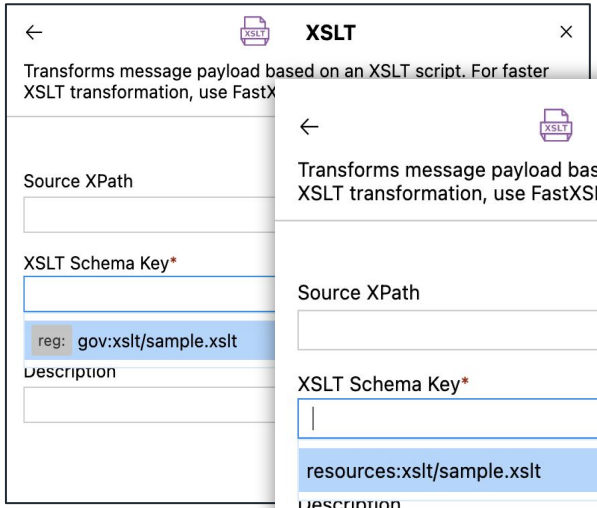

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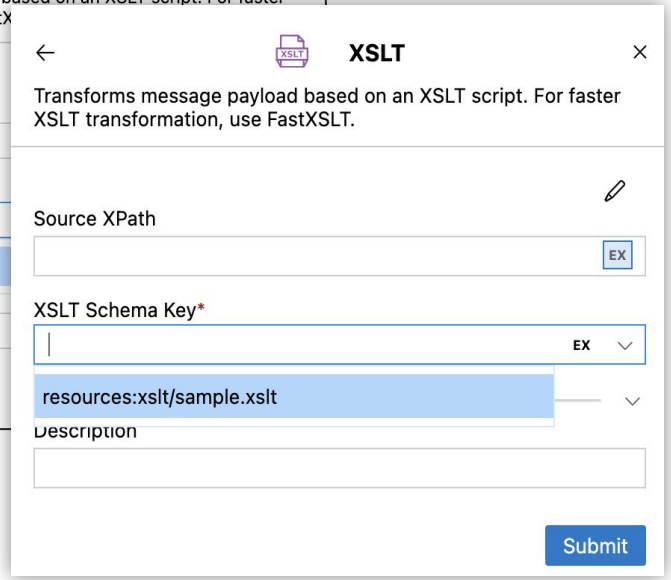
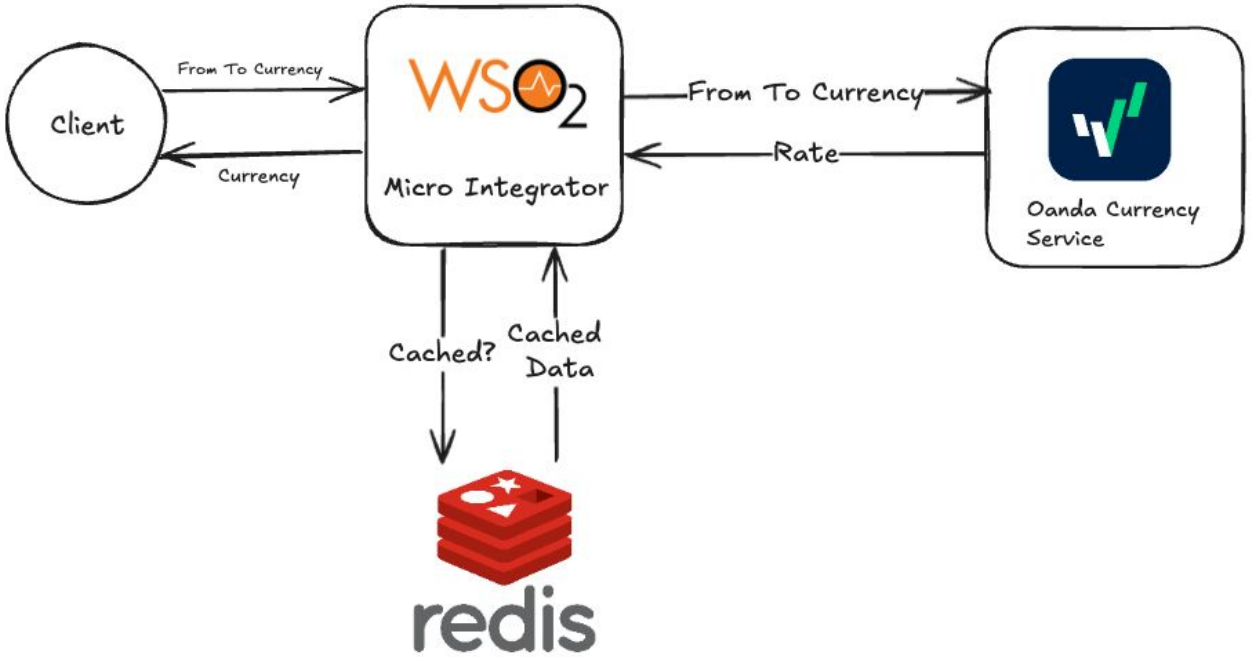
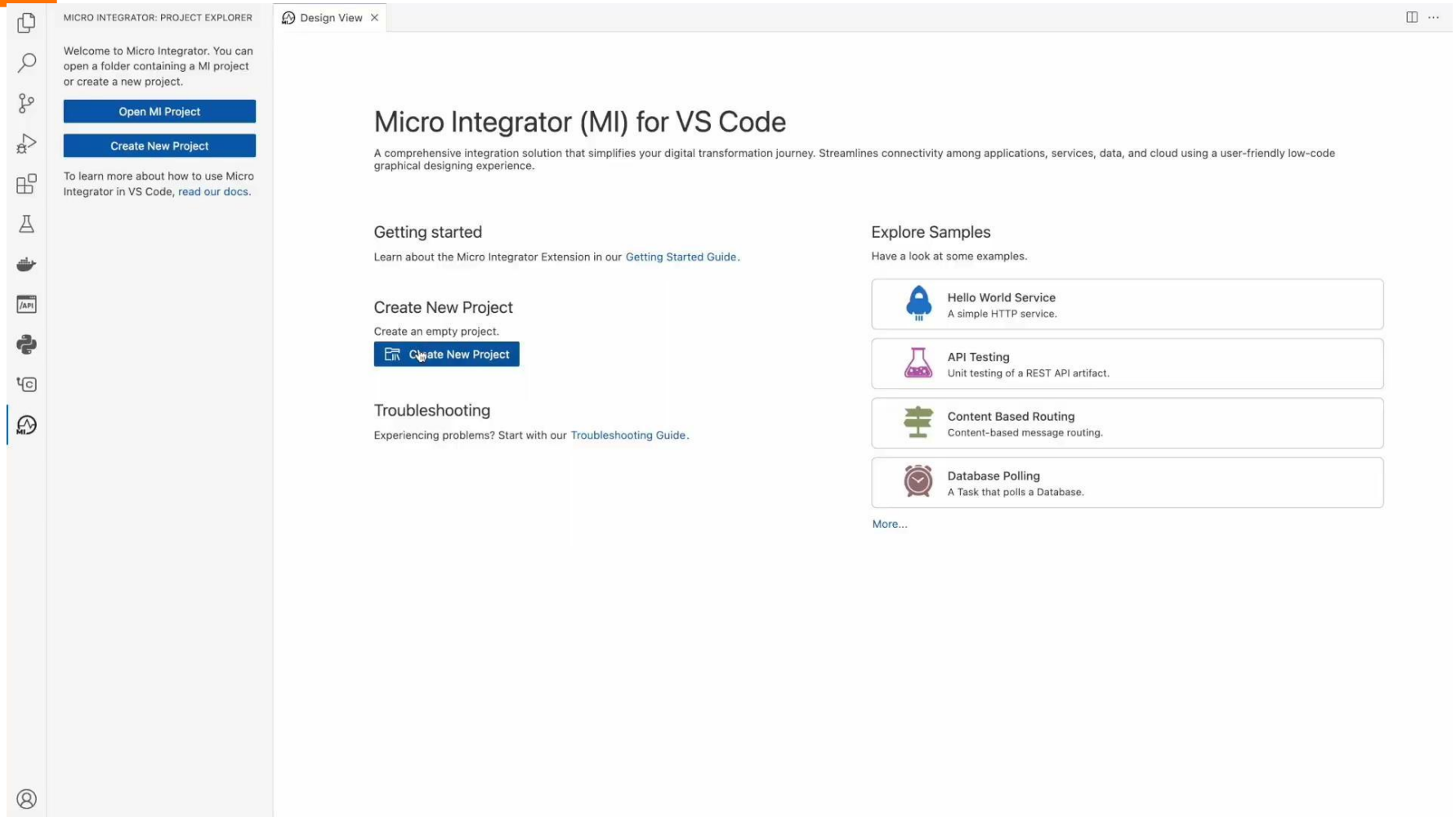


Co-Pilot Demo

Scenario


Client
From To Currency
Currency
WSO2
Micro Integrator
From To Currency
Rate
Oanda Currency Service
Cached?
Cached Data
redis


MICRO INTEGRATOR: PROJECT EXPLORER
Welcome to Micro Integrator. You can open a folder containing a MI project or create a new project.
Open MI Project
Create New Project
To learn more about how to use Micro Integrator in VS Code, read our docs.
Design View
Micro Integrator (MI) for VS Code
A comprehensive integration solution that simplifies your digital transformation journey. Streamlines connectivity among applications, services, data, and cloud using a user-friendly low-code graphical designing experience.
Getting started
Learn about the Micro Integrator Extension in our Getting Started Guide.
Create New Project
Create an empty project.
Create New Project
Troubleshooting
Experiencing problems? Start with our Troubleshooting Guide.
Explore Samples
Have a look at some examples.
Hello World Service
A simple HTTP service.
API Testing
Unit testing of a REST API artifact.
Content Based Routing
Content-based message routing.
Database Polling
A Task that polls a Database.
More...

Future of Micro Integrator

Roadmap for Micro Integrator

- GenAI App Building Support
- Seamless integration with API Manager: Discoverability of APIs available in the API Manager from the WSO2 Integrator
- File Processing, ETL, EDI
- Connectors and Protocol Support
    - gRPC, GraphQL, HTTP/2 support in MI
    - Salesforce Marketing, SAP HANA, JD Edwards, Magento Connectors
    - B2B (AS2, AS4) support in MI
- Make runtime further lightweight
- MI on GraalVM

Question Time!


Thank you!
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