




WSO2 API Manager 4.1.0 Fundamentals - Integration Profile

Data Integration



WSO2 Training

CC by 4.0



Module Objective

At the end of this module, attendees will be able to:

- Understand how WSO2 Micro Integrator facilitates data integration.
- Create a data service using WSO2 Integration Studio.
- Deploy and run a data service in WSO2 Micro Integrator.





Data Integration Capabilities

Expose data as SOAP/REST

Support Datasources OOTB

Support Custom Datasources

Batch Requests





Data Integration Capabilities

Data Federation

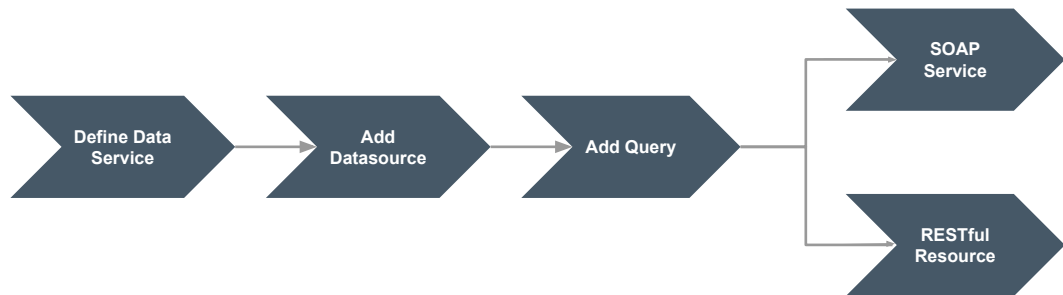
Transactional Data Access

Transform and Validate Data

Secured and Managed Data Access



Creating a Data Service



Data Service Definition

General Details

This section contains the basic details about this Data Service

Service group

Provide a Service Group ID

Namespace

http://ws.wso2.org

Provide namespaces for the data service

Publish Swagger

Provide a Swagger definition

Description

Exposing the data service as a REST service.

Provide a basic description about the Data Service

Data Sources

Data sources are created and listed in this section. We support an array of different DB management systems

Configure Data Sources

Queries

Create and configure Queries with input and output mappings

Configure Queries

Operations

Operations expose data sources as SOAP services. Use this section to create and configure operations.

Configure Operations

Resources

Expose data sources as REST services by creating and configuring Resources in this section

Configure Resources

Advanced Configurations

Advance properties related to the Data Service

☐ Enable Batch Requests

☐ Enable Service Status

☐ Enable Batch Requests

☐ Enable Boxcarring

☒ Enable Streaming



Add Datasource

Supported Datasources:

- RDBMS
- MongoDB
- CSV files
- Carbon Datasources

Create Datasource

Datasource Identifier

Datasource Type: ☒ RDBMS, ☐ MongoDB, ☐ CSV, ☐ Carbon Datasource

Database Engine:

Driver Class

URL

Username

Password ☐ Use as Secret Alias

☐ Enable OData

Close Save

Write Queries









- Define SQL queries.
- Map query results to required format (JSON, XML, or RDF).
- Trigger notifications for query results.

The screenshot displays a web application interface for managing queries. At the top, a 'Configure Queries' window contains a table with columns 'Query ID' and a settings icon. The table lists three queries: 'ReadStudents', 'CreateStudents', and 'Configure Queries'. Each row has edit and delete icons. An 'Add New' button is located at the bottom right of this window. Overlaid on top is an 'Edit Query' modal for the 'ReadStudents' query. This modal includes a 'Query ID' field with the value 'ReadStudents', a 'Datasource' dropdown set to 'default', and an 'SQL Query' text area containing the text 'SELECT id, name, school, grade FROM students'. Below the text area are three expandable sections: 'Input Mappings', 'Result (Output Mappings)', and 'Advanced Properties'. At the bottom of the modal are 'Close' and 'Save' buttons.

Expose as SOAP Service (Operation)

- Define operations to expose the data service as a SOAP service.
- Individual operations to trigger each query.

Configure Operations

Operation Name	Query	
CreateStudents	CreateStudents	 
UpdateStudents	UpdateStudents	 
ReadStudents	ReadStudents	 
DeleteStudents	DeleteStudent	 

[Add New](#)





Add Operation

Operation Name
UpdateStudents

Description

Query ID UpdateStudents

Operation Parameters

Query Parameter Name	Operation Parameter Name	
name	name	
school	school	
grade	grade	
id	id	









[Add New](#)

[Close](#) [Save](#)

Expose as REST Resource

- Define resources to expose the data service restfully.
- Individual resources to trigger each query.

Configure Resources

Resource Path	Resource Method	Query	
student	GET	ReadStudents	 
student	POST	CreateStudents	 
student	PUT	UpdateStudents	 
student	DELETE	DeleteStudent	 

[Add New](#)

Edit Resource

Resource Path *
student

Description

Resource Method * POST

Query ID * CreateStudents

Query Parameters

☒ Enable Streaming

☐ Return Request Status

[Close](#) [Save](#)

Invoke Data Service Operations

- The Data Service Call Mediator is used to invoke data service operations.
- This is a direct call without the HTTP transport.
- The following is the syntax of the service call.

```
<dataServiceCall serviceName="data-service-name">
  <source [type="inline" | "body"]/>
  <operations [type="single" | "batch" | "request-box"] >
    <operation name="operation-name">
      <param name="param-name" value="param-value"/>
    </operation>
  </operations>
  <target [type="body" | "property"] name="target-property-name"/>
</dataServiceCall>
```

See <https://apim.docs.wso2.com/en/4.1.0/reference/mediators/dss-mediator/> for more information.



Let's try it out!

Data Integration

