2

Getting Started with Composite Applications

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Objectives

After completing this lesson, you should be able to:

- Describe how services use WSDL files to communicate
- Use Mediator components and File adapters to perform basic receiving, routing, and writing of messages
- Name and describe the contents of some of the files that are created as part of a composite application

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Agenda

- How Services Use WSDL Files to Communicate
- Mediator Components
- File Adapters
- Composite Application Files

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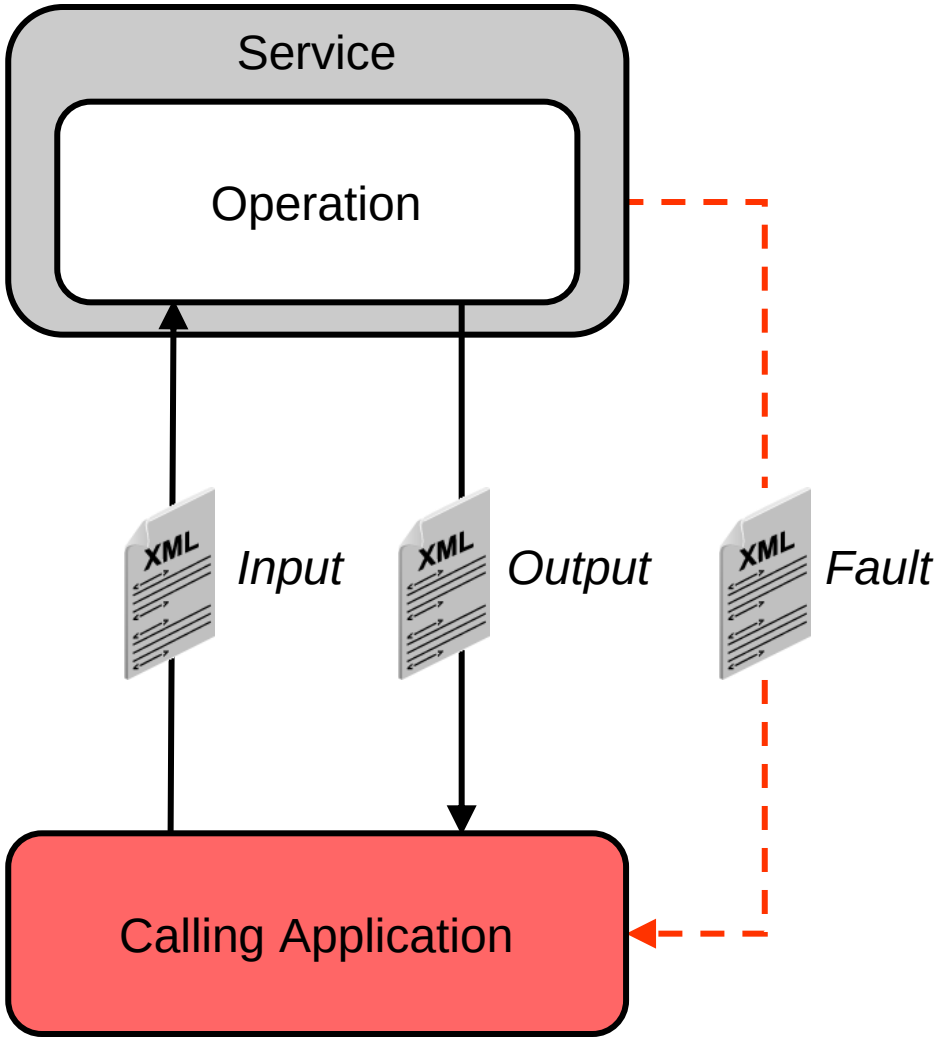
How Services Communicate



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Synchronous and Asynchronous Interactions

Synchronous request/response

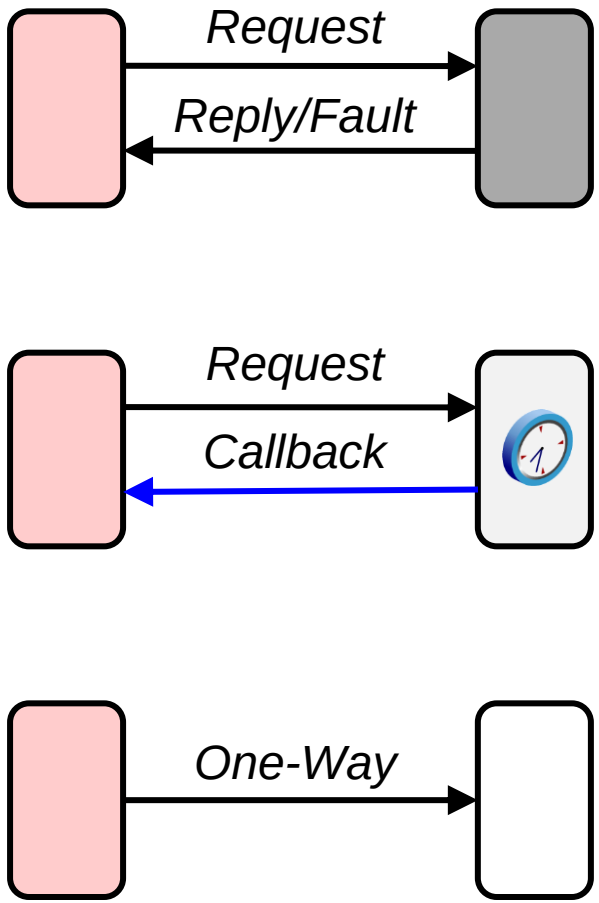
- Real-time response or error feedback
- Client in waiting mode

Asynchronous request/callback

- Client free after request submission
- Separate service invocation for response

Asynchronous request only

- Also known as “fire and forget”
- Client free after request submission
- No response message (ACK only)



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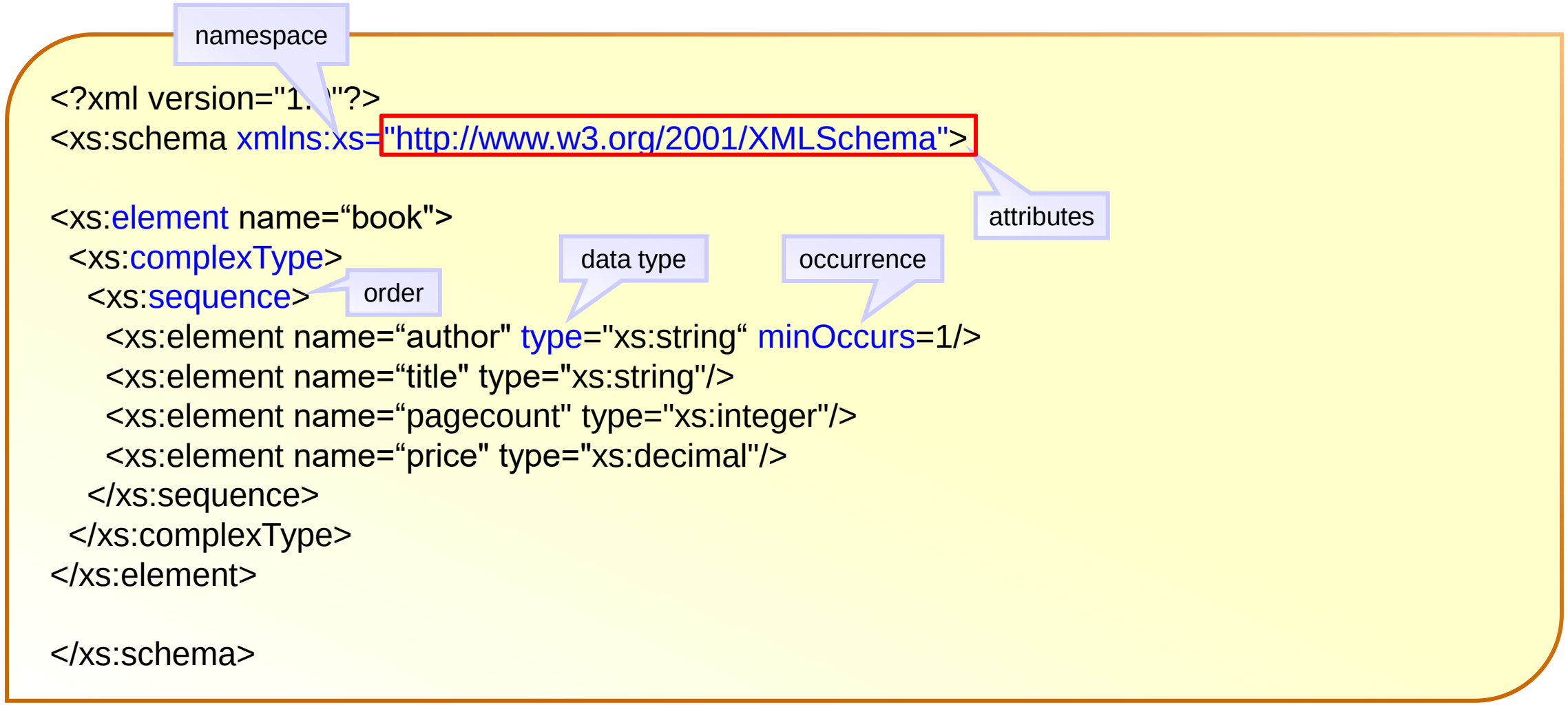
Describing a Message with XSD



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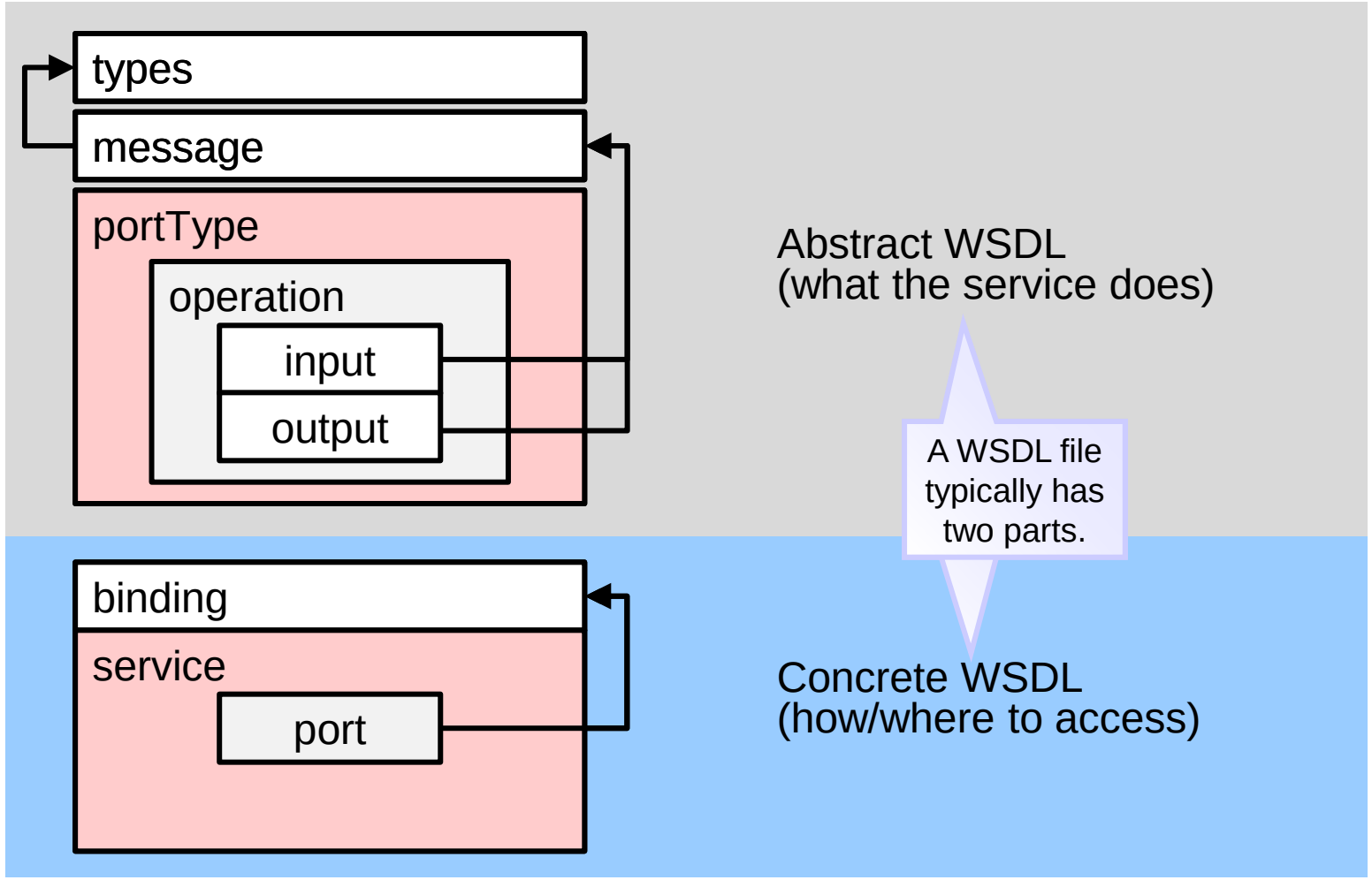
Web Services Description Language



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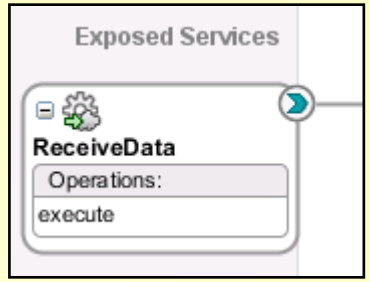
Abstract WSDL

```
<?xml version= '1.0' encoding= 'UTF-8' ?>
<wsdl:definitions
    name="ReceiveData"
    targetNamespace="http://oracle.com/sca/soapservice/Basics/HelloWorld/ReceiveData"
    xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
    xmlns:inp1="http://www.example.org/ns/porder"
    xmlns:tns="http://oracle.com/sca/soapservice/Basics/HelloWorld/ReceiveData"
   >
  <wsdl:types>
    <schema xmlns="http://www.w3.org/2001/XMLSchema" >
      <import namespace="http://www.example.org/ns/porder" schemaLocation="xsd/po.xsd" />
    </schema>
  </wsdl:types>
  <wsdl:message name="requestMessage">
     <wsdl:part name="part1" element="inp1:PurchaseOrder"/>
  </wsdl:message>
  <wsdl:portType name="execute_ptt">
     <wsdl:operation name="execute">
        <wsdl:input message="tns:requestMessage"/>
     </wsdl:operation>
  </wsdl:portType>
</wsdl:definitions>
```

1

2

3



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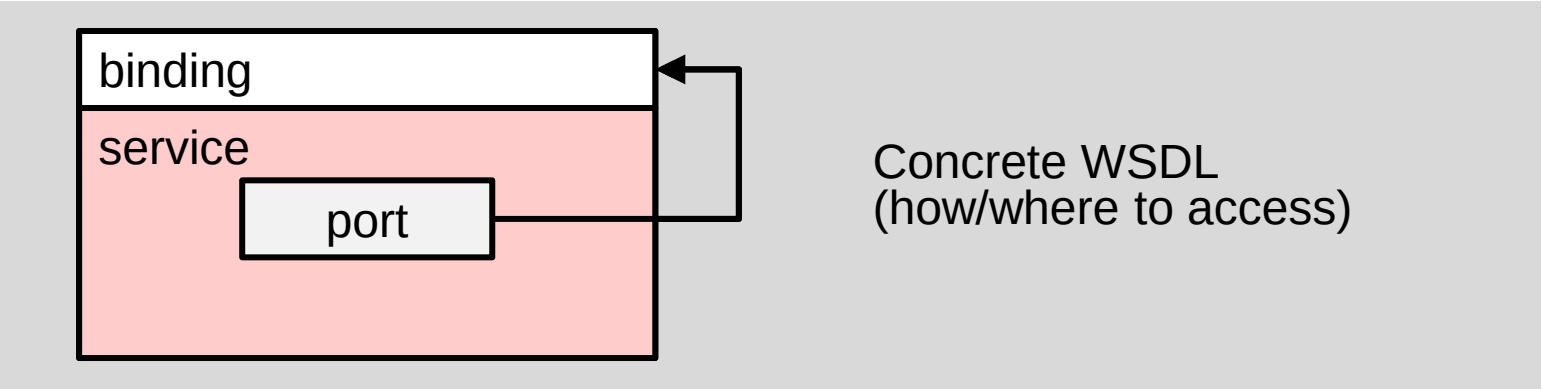
Concrete WSDL



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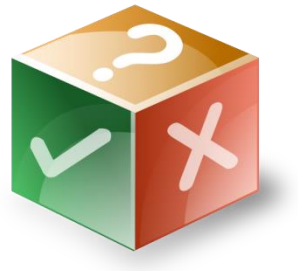
Quiz

Abstract and concrete WSDLs are two separate but related files that describe the conversation between a service and the calling application.

a. True

b. False



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Agenda

- How Services Use WSDL Files to Communicate
- Mediator Components
- File Adapters
- Composite Application Files

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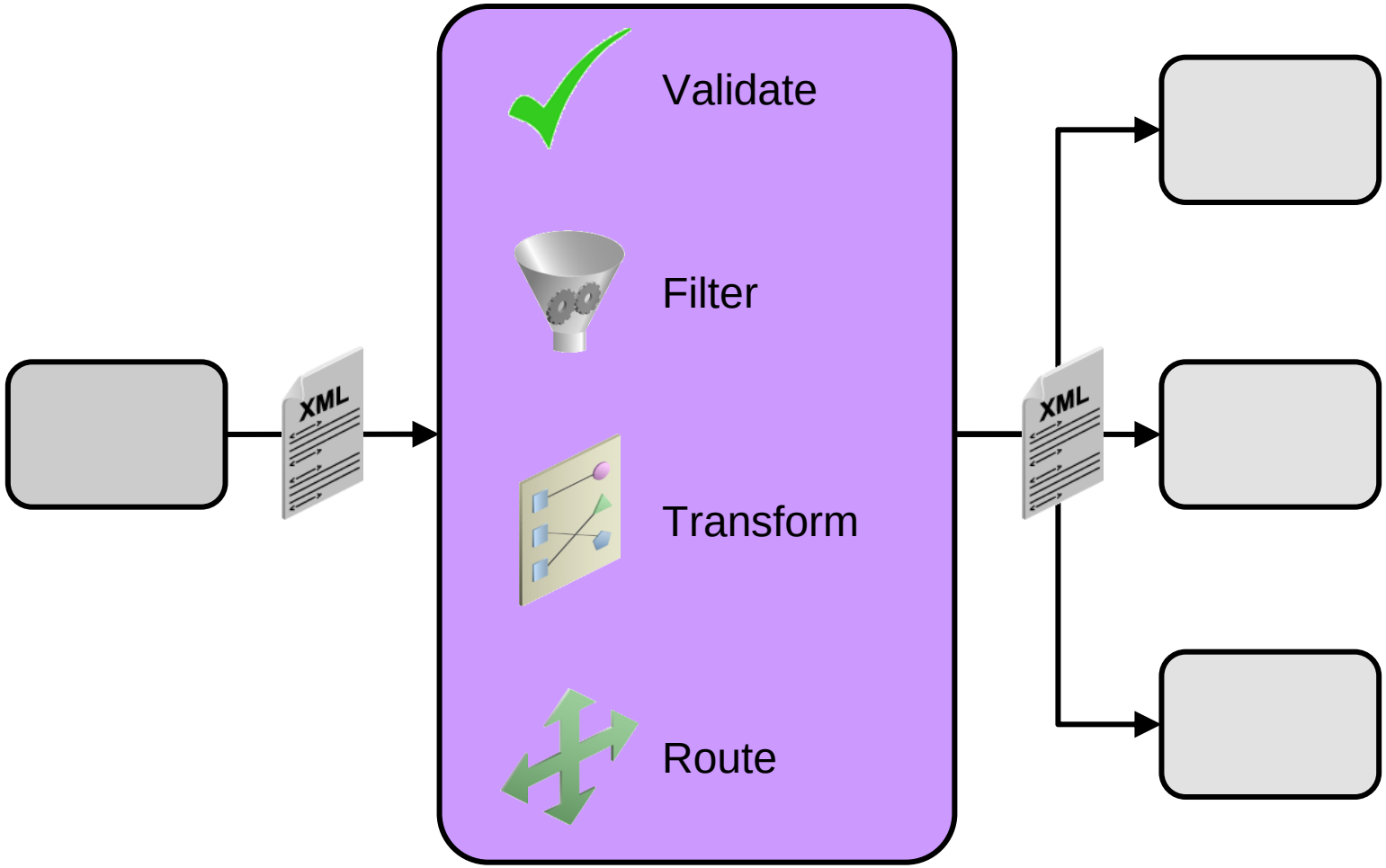
Mediator Components: Introduction



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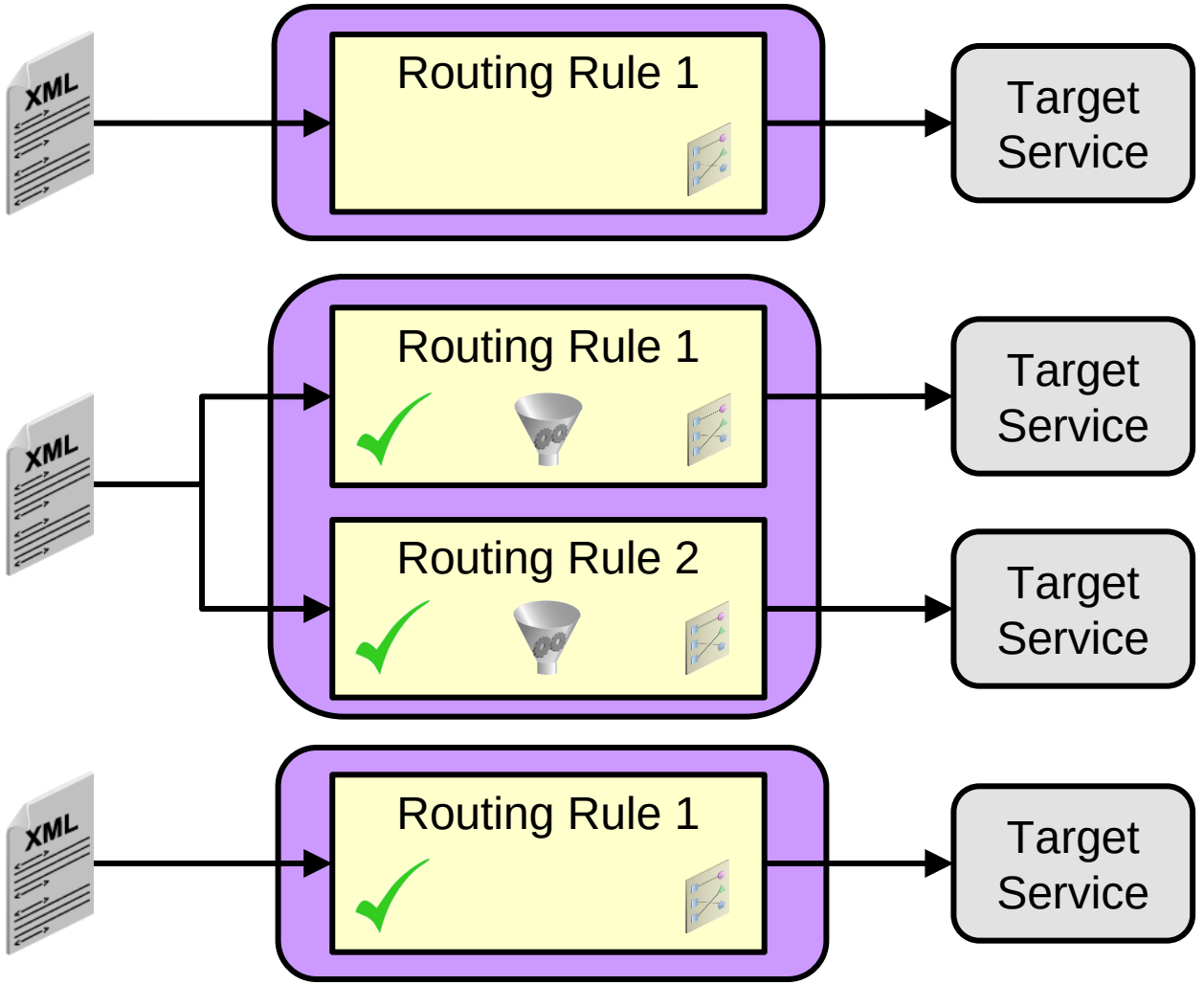
Routing Data



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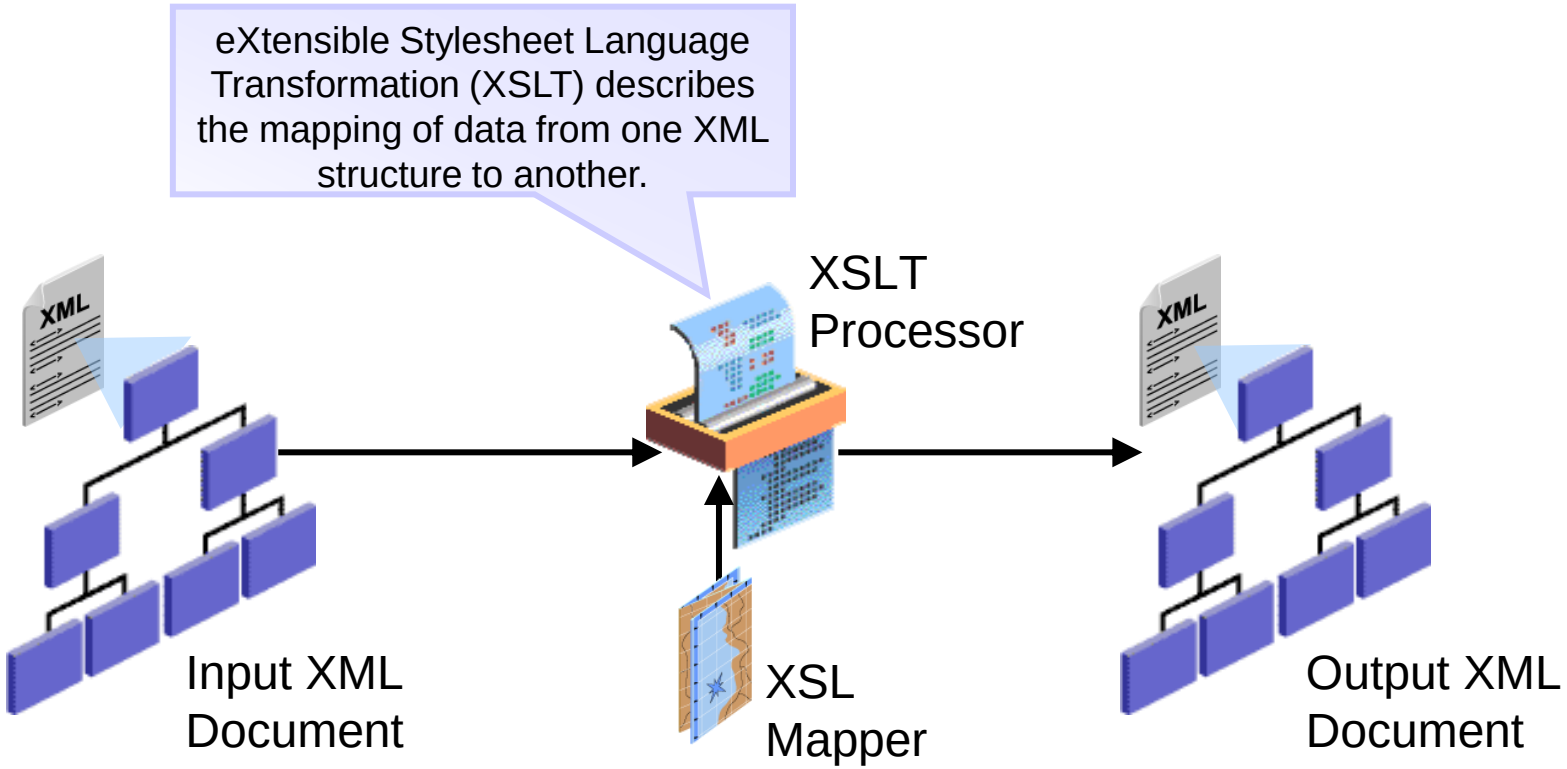
Transforming Data



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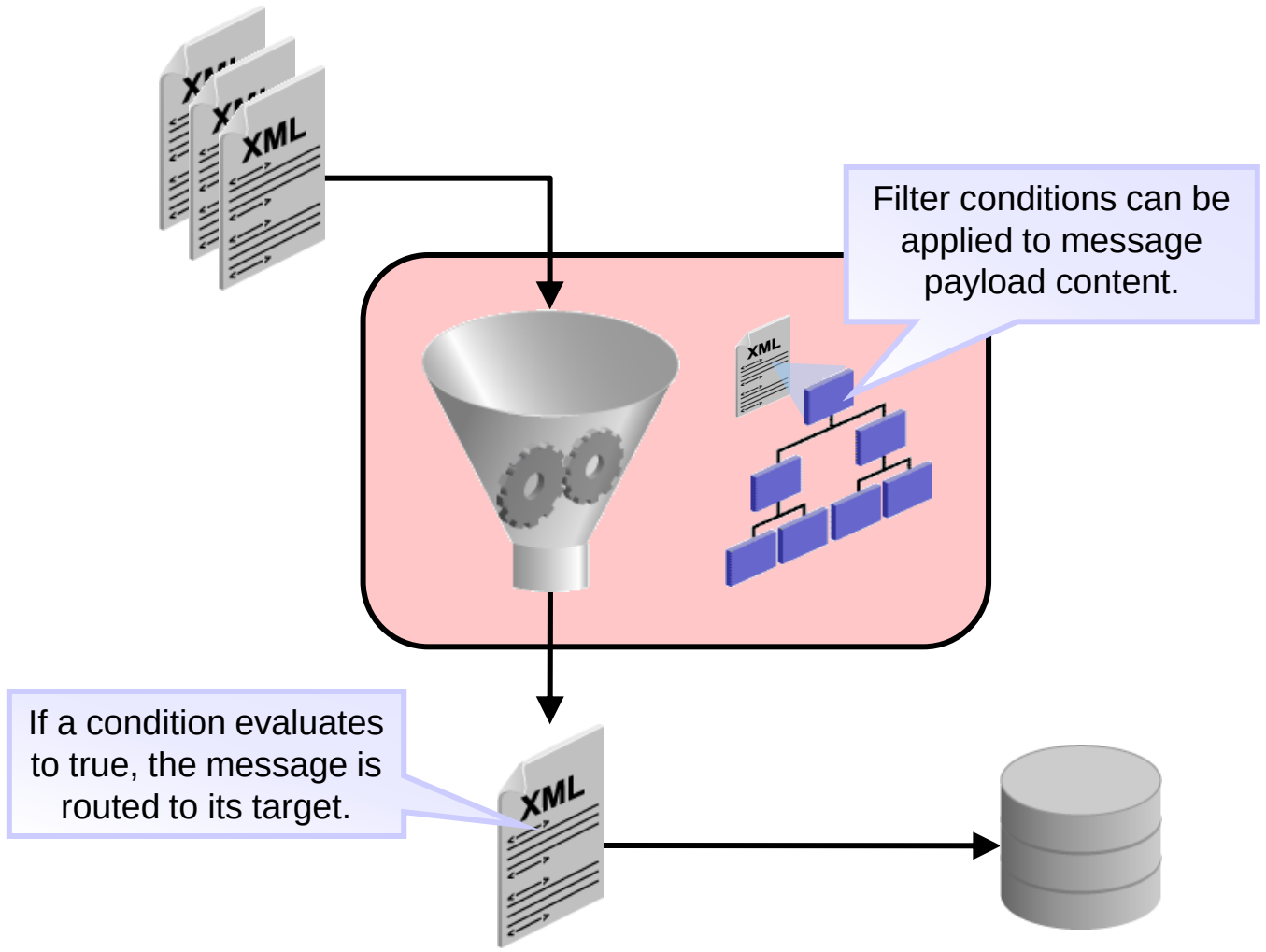
Filtering Data



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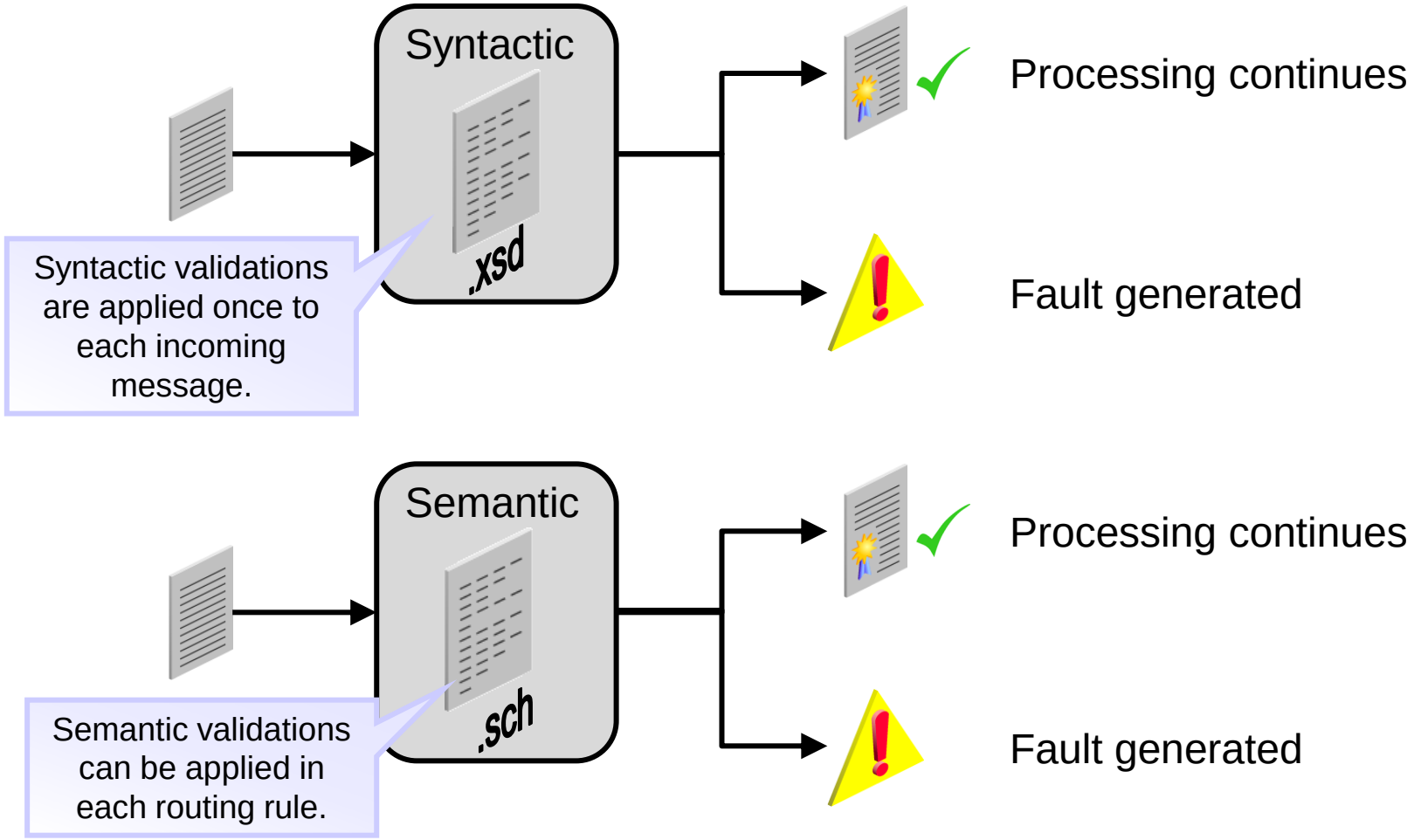
Validating Data



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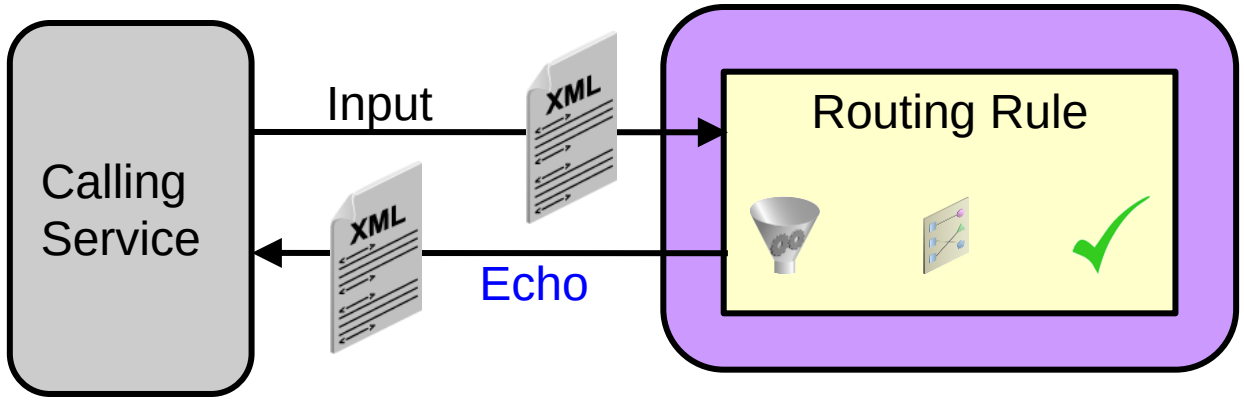
Mediator as a Callable Service



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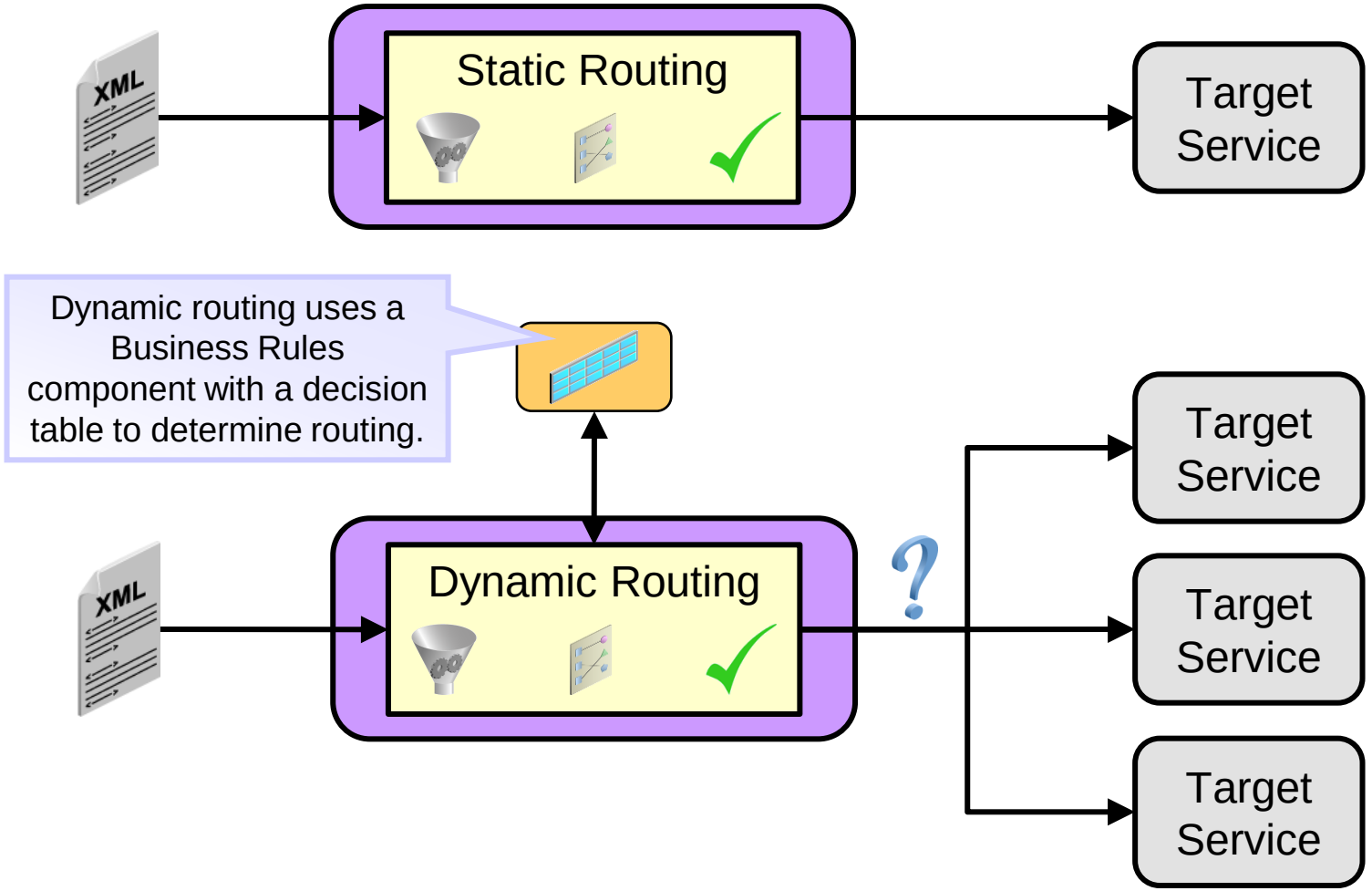
Dynamic and Static Routing Rules



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Additional Features of Mediators

Mediators provide the following additional features, which are covered in later lessons:

- Error routing and management
  - Mediator components support fault policy–based error handling. A fault policy consists of conditions and actions. Conditions specify the action to be carried out for a particular error condition.
- Event Handling
  - Mediator components provide support for subscribing to or raising business events that are delivered through the Oracle SOA Suite 12*c* Event Delivery Network (EDN).

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Agenda

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- Mediator Components
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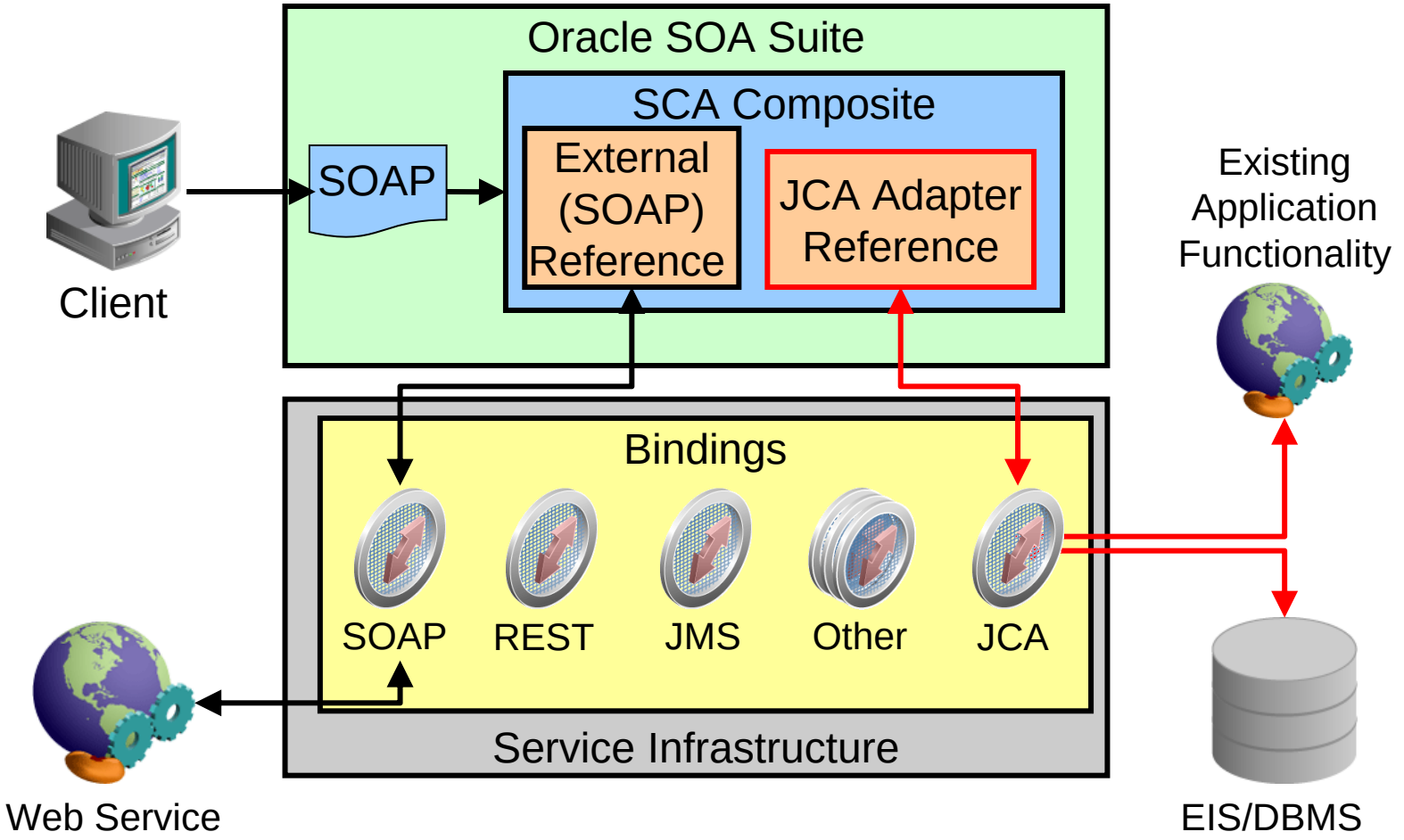
Adapters: Introduction



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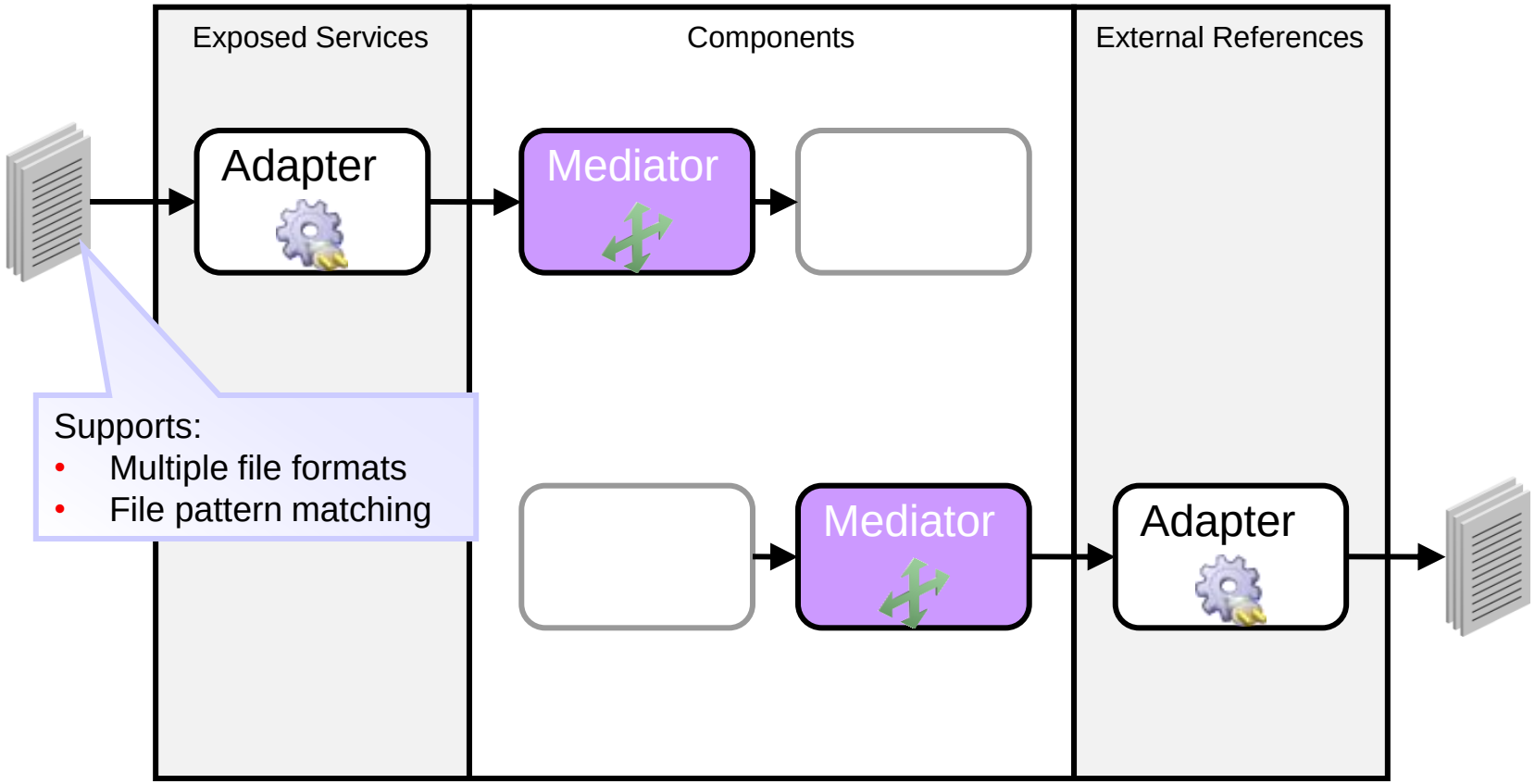
File Adapter



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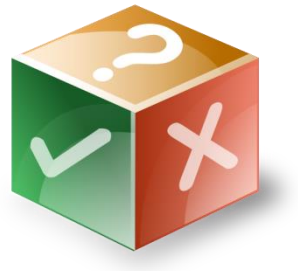
Quiz

Which Mediator component feature enables target services to receive data in their desired format?

a. Filter expression
b. XSL transformation
c. Validation
d. Routing rule



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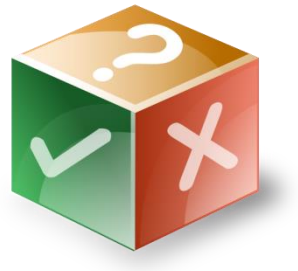
Quiz

The File adapter is capable of representing many file formats as XML data.

a. True

b. False



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Agenda

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- Mediator Components
- File Adapters
- Composite Application Files

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Examining the `composite.xml` Source

```
[header]
<composite [attributes]>
  <import namespace=[namespace] location="ReceiveData.wsdl" importType="wsdl"/>
  <import namespace=[namespace] location="WriteData.wsdl" importType="wsdl"/>

  <service name="ReceiveData" ui:wsdlLocation="ReceiveData.wsdl">
    <interface.wsdl interface=[path]ReceiveData#wsdl.interface(execute_ptt)"/>
    <binding.ws port=[path]ReceiveData#wsdl.endpoint(ReceiveData/execute_pt)">
      <property [config properties]>
    </binding.ws>
  </service>
  <component name="RouteData">
    <implementation.mediator src="RouteData.mplan"/>
  </component>
  <reference name="WriteData" ui:wsdlLocation="WriteData.wsdl">
    <interface.wsdl interface=[path]WriteData#wsdl.interface(Write_ptt)"/>
    <binding.jca config="WriteData_file.jca"/>
  </reference>
  <wire>
    <source.uri>ReceiveData</source.uri>
    <target.uri>RouteData/RouteData</target.uri>
  </wire>
  ...
</composite>
```

1 2 3 4 5

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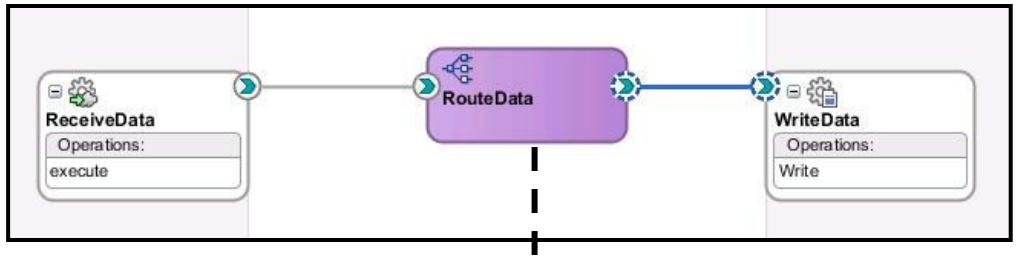
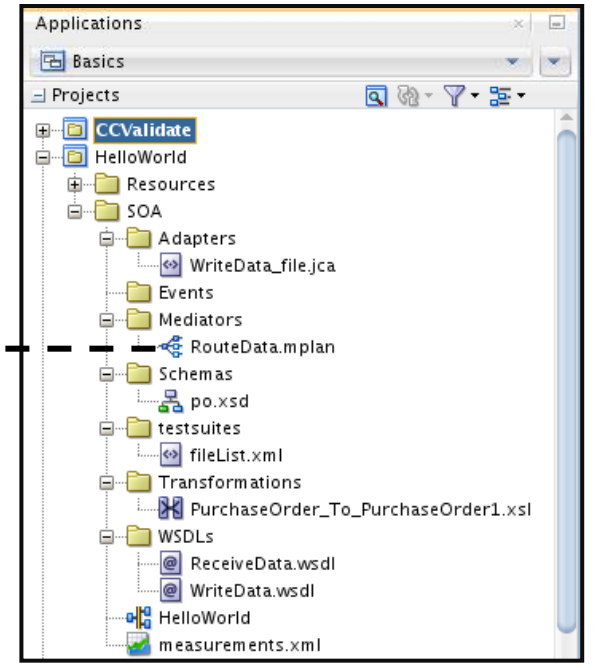
Creating a Mediator





composite.xml

```
<component name="RouteData">
    <implementation.mediator src="RouteData.mplan"/>
  </component>
```

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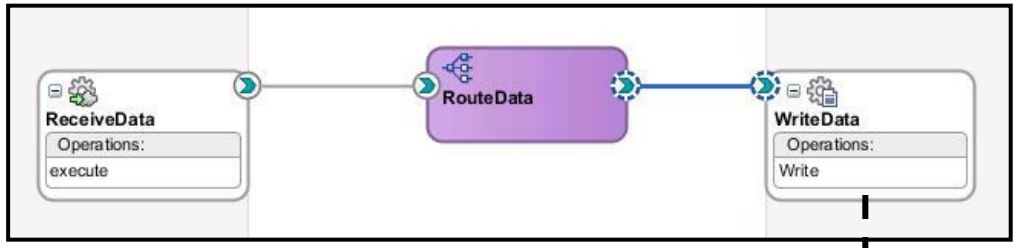
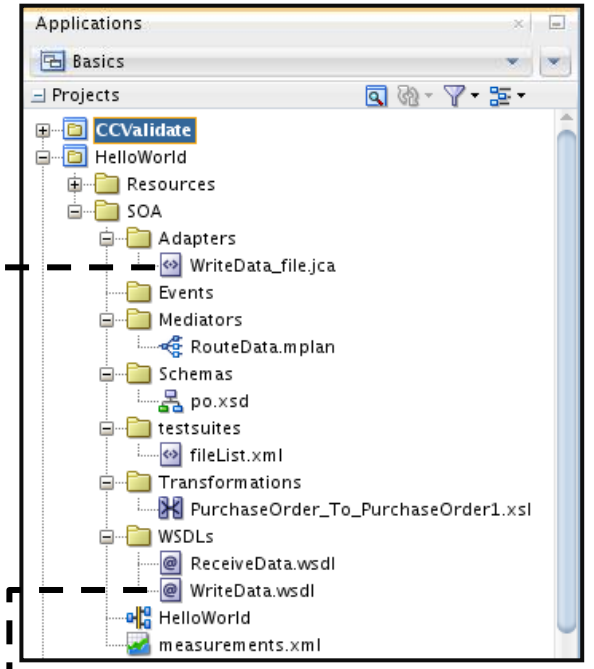
Creating an Adapter





composite.xml

```
<composite [attributes]>
      . . .
  <reference name="WriteData" ui:wsdlLocation="WriteData.wsdl">
    <interface.wsdl interface="[path]WriteData#wsdl.interface(Write_ptt)"/>
    <binding.jca config="WriteData_file.jca"/>
  </reference>
      . . .
</composite>
```

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Summary

In this lesson, you should have learned how to:

- Describe how services use WSDL files to communicate
- Use Mediator components and File adapters to perform basic receiving, routing, and writing of messages
- Name and describe the contents of some of the files that are created as part of a composite application

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Practice 2 Overview

This practice covers the following topics:

- Creating a Composite Application
- Adding a Mediator Component to a Composite Application
- Adding a File Adapter to a Composite Application
- Examining Composite Application Files

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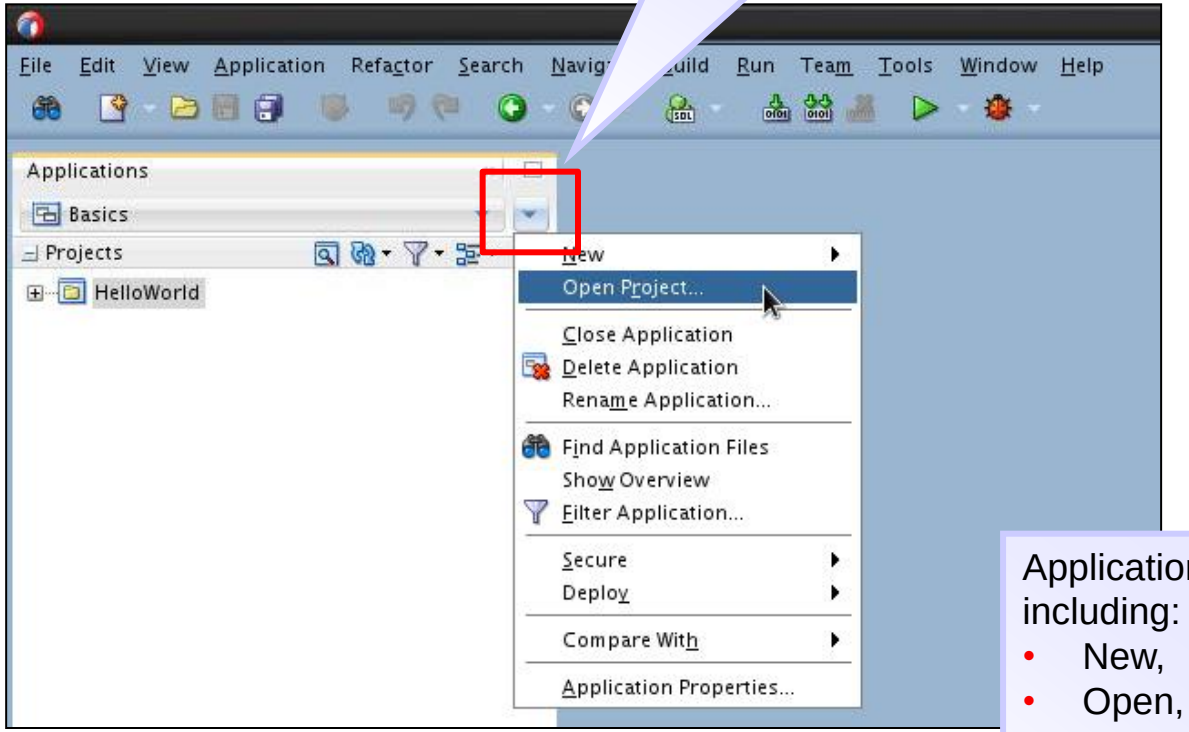
Application Navigator

The Application Menu is accessed from this icon.



Application-level functions, including:

- New,
- Open,
- Close,
- Delete,
- Rename,

and more are available.

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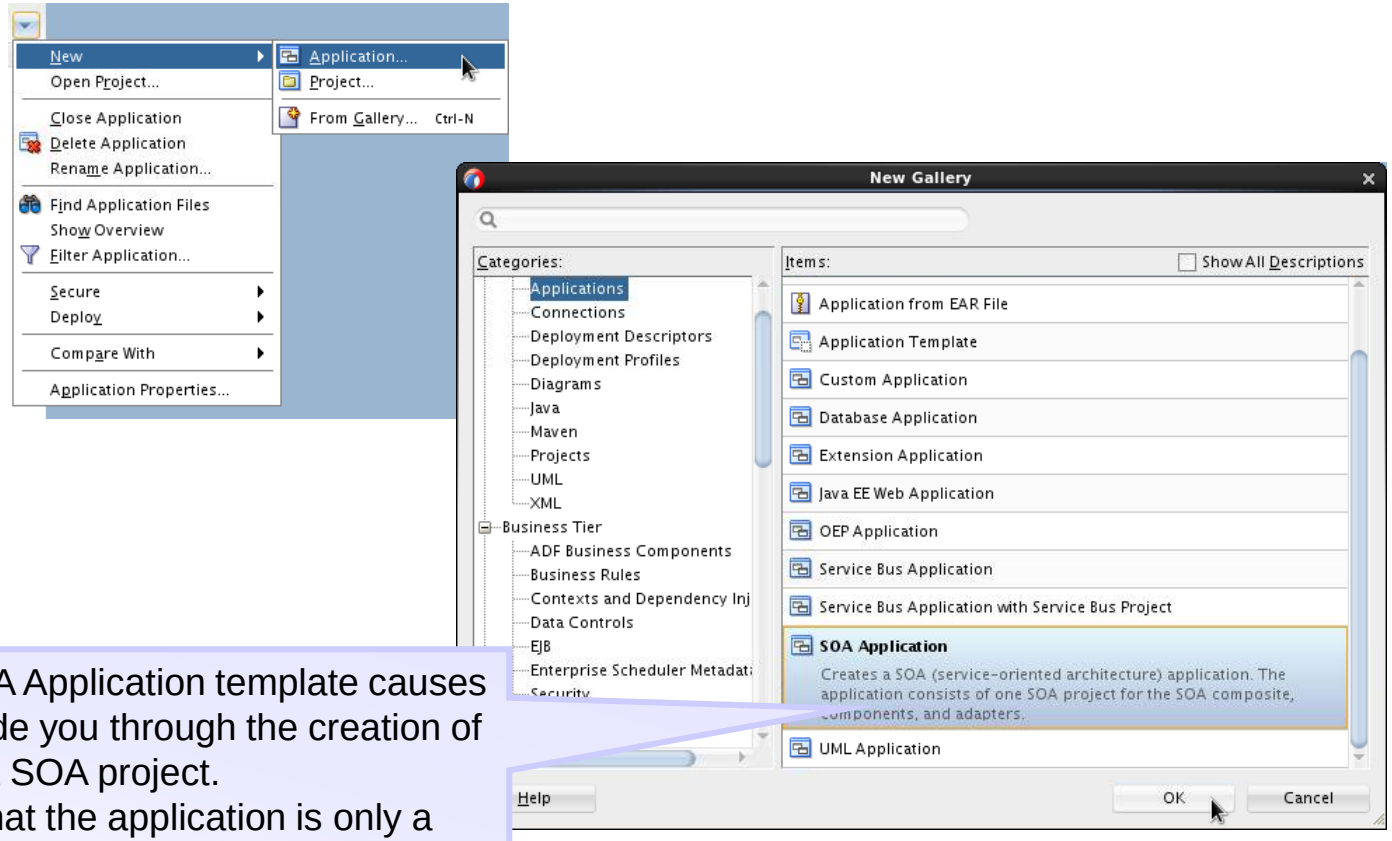
Creating a SOA Application



Selecting the SOA Application template causes the wizard to guide you through the creation of a SOA project.
(Remember that the application is only a container. The “real work” is defined in the projects that you add to that container.)

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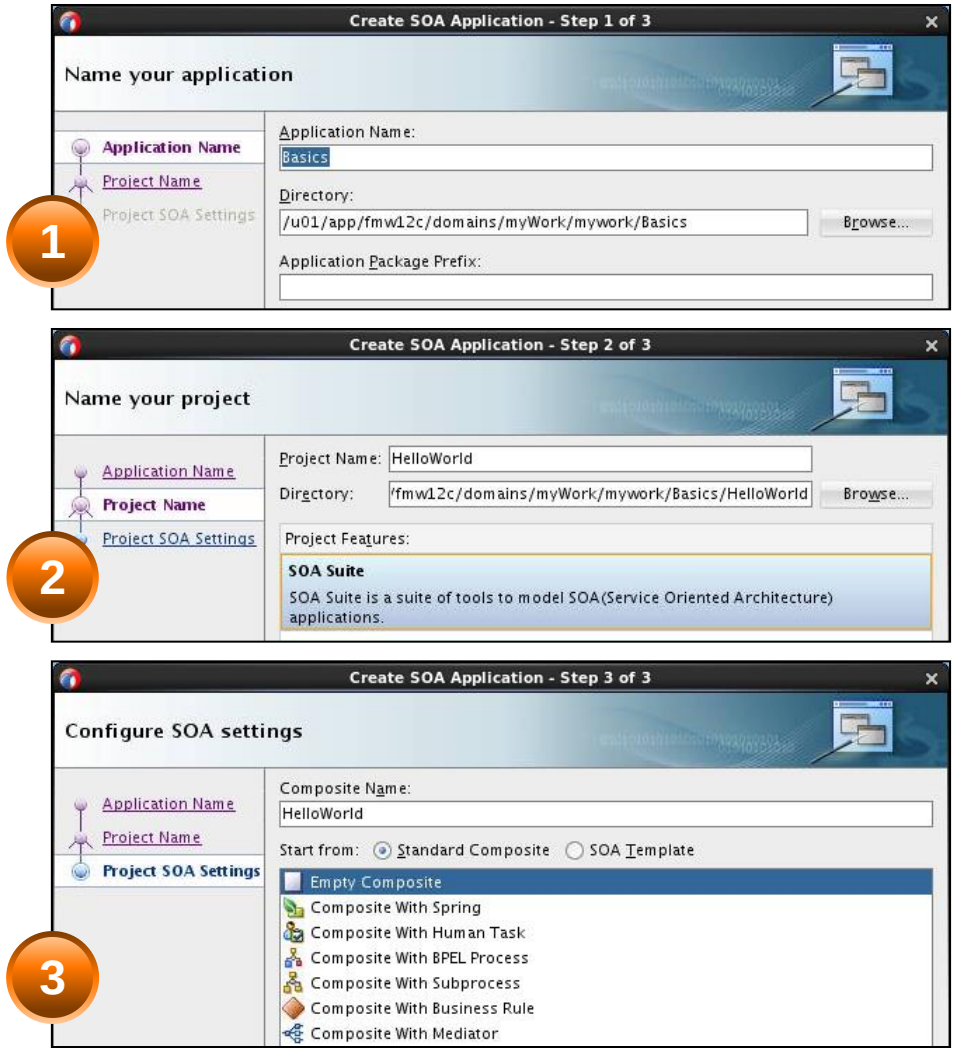
Creating a SOA Application



The first steps in building a new application are to assign it a name and to specify the directory in which to save the source files.

Add a project to the application, assigning it a name and directory as well.

Specify the starting point for the project.

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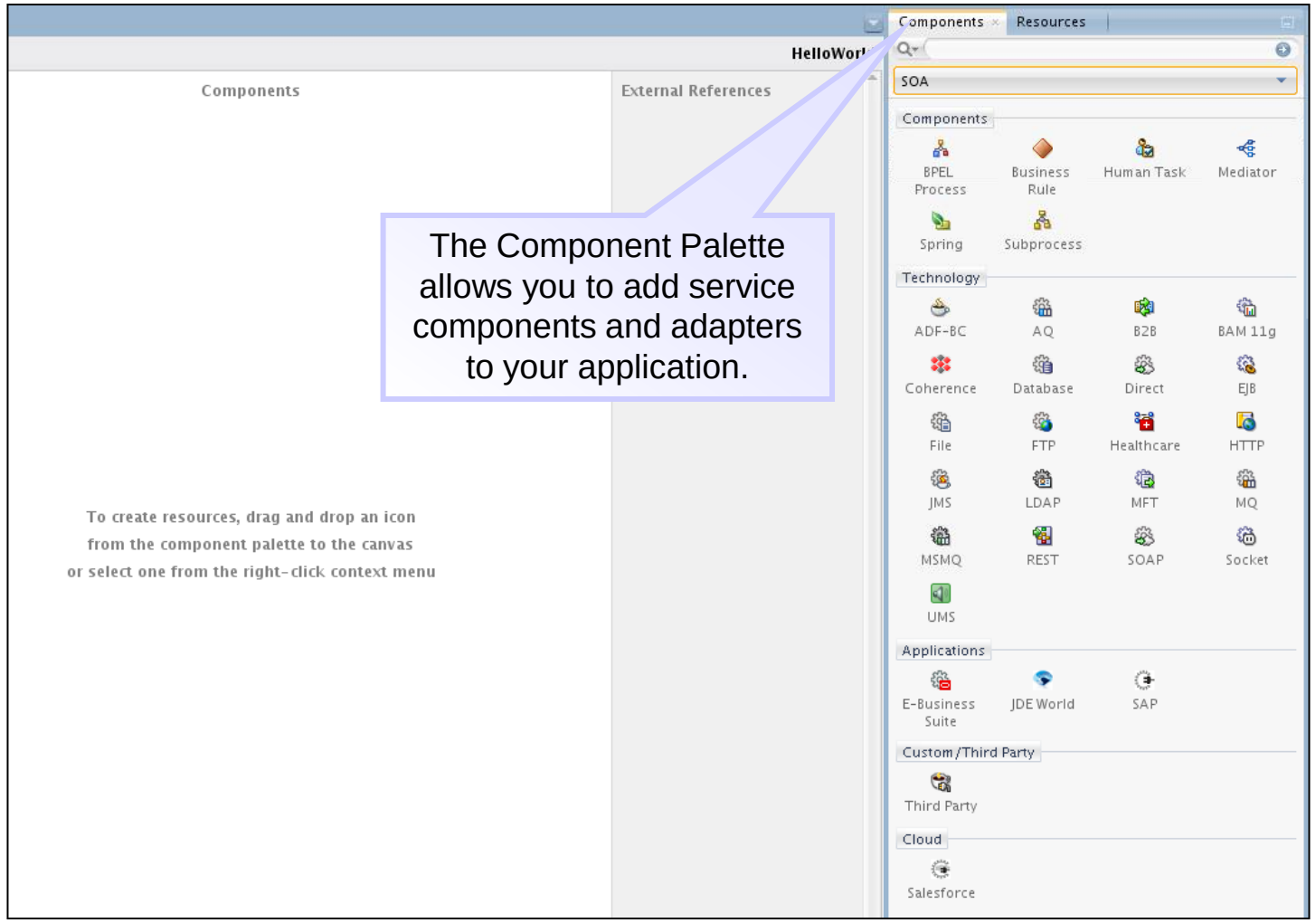
Component Palette



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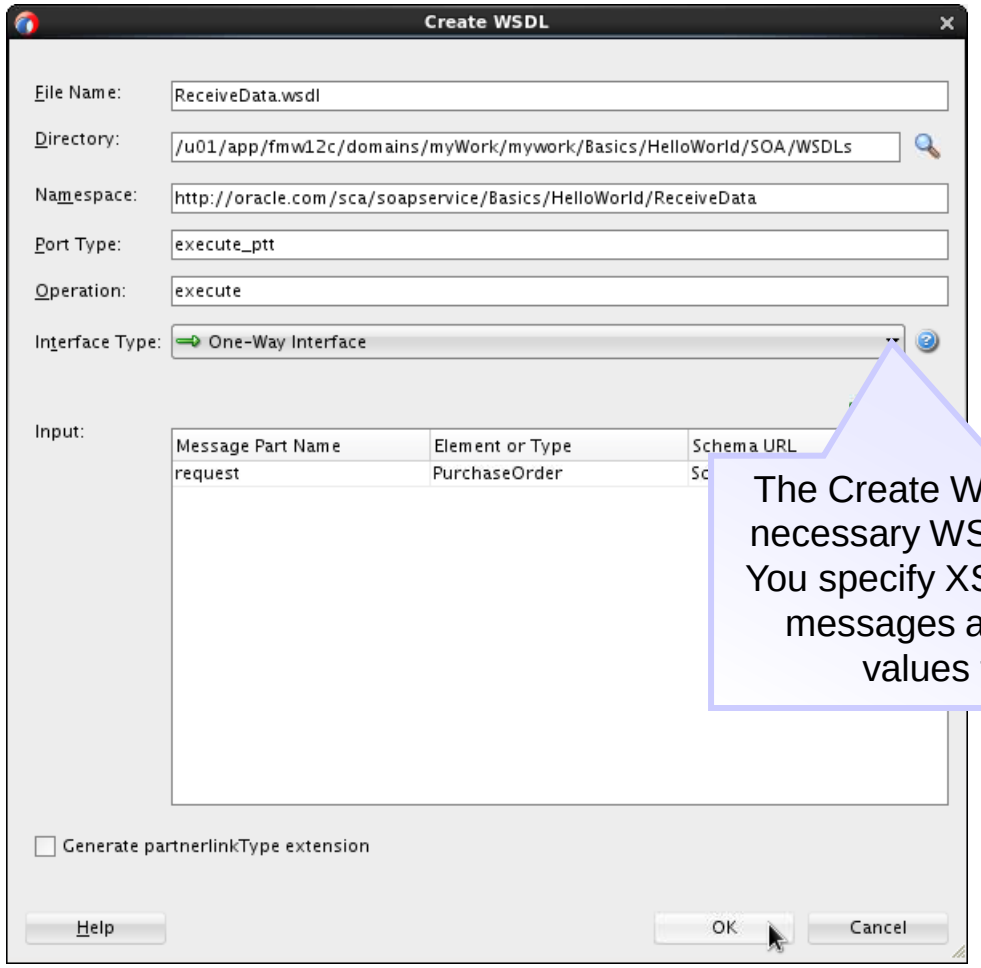
Creating a WSDL



The Create WSDL wizard builds the necessary WSDL files automatically. You specify XSD files to describe the messages and modify any other values that you desire.

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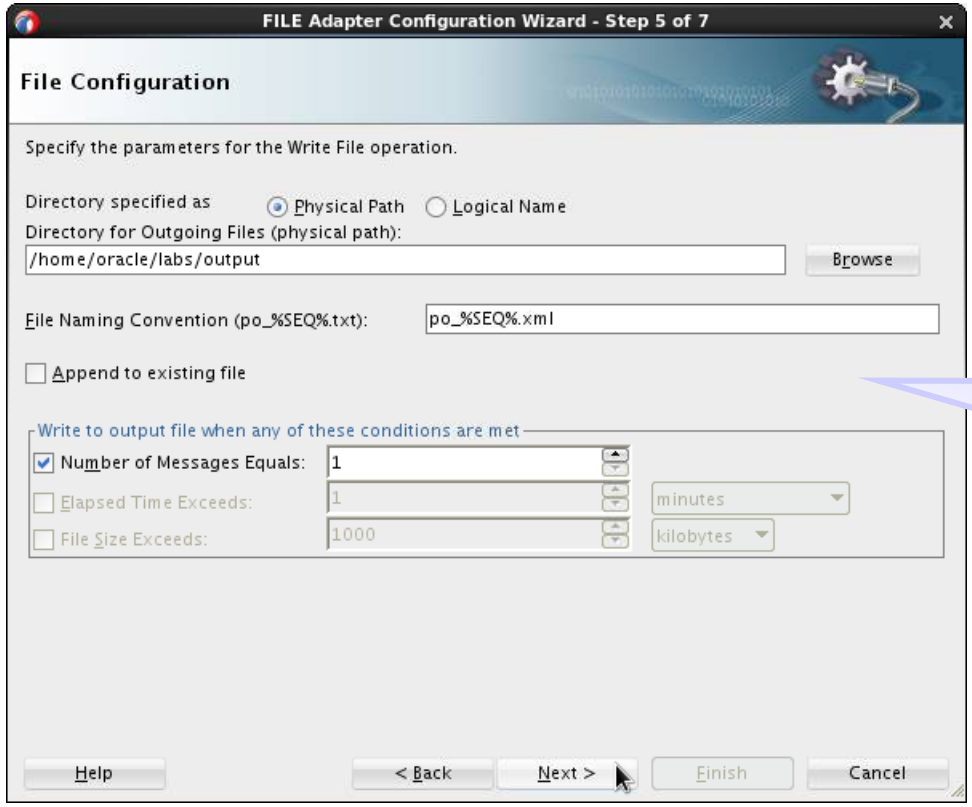
Creating a File Adapter



The File Adapter wizard guides you through the configuration of an adapter.

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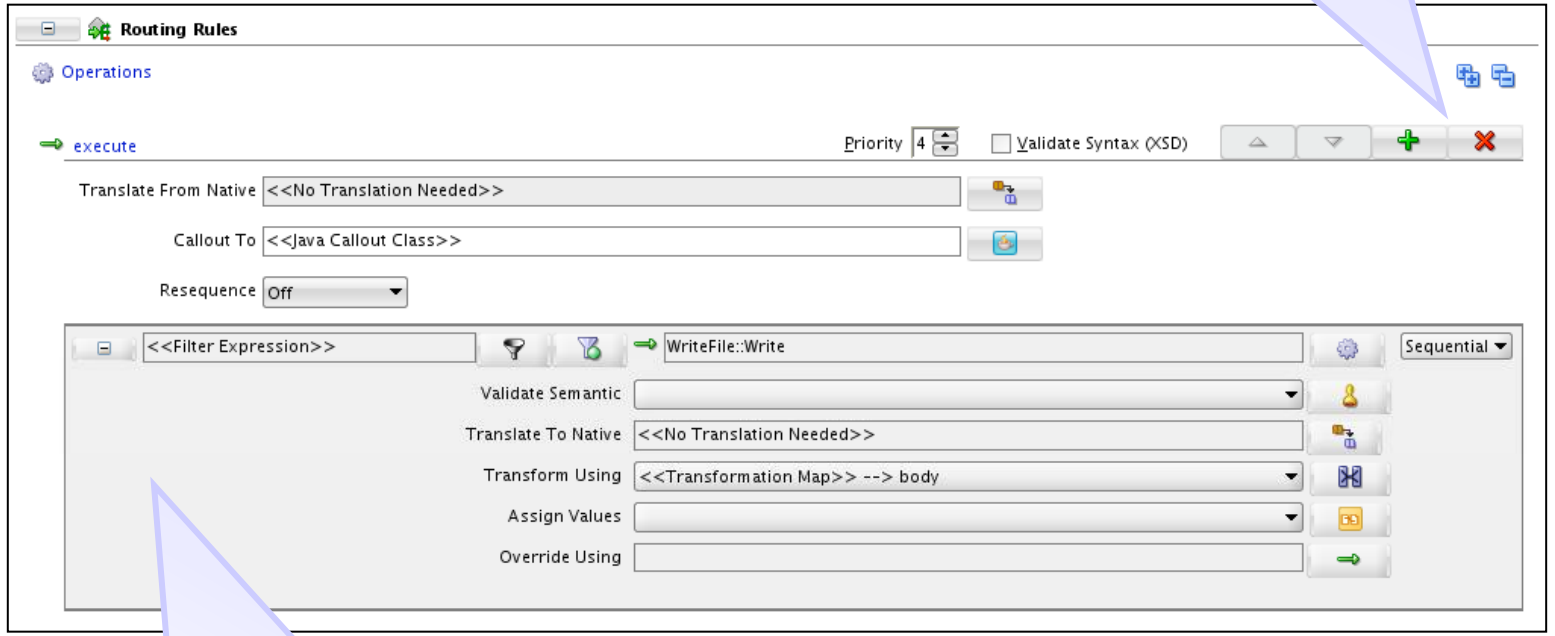
Configuring Mediator Routing Rules

Add or delete routing rules as needed.



Specify the validation, filtering, and transformation details for each Mediator routing rule.

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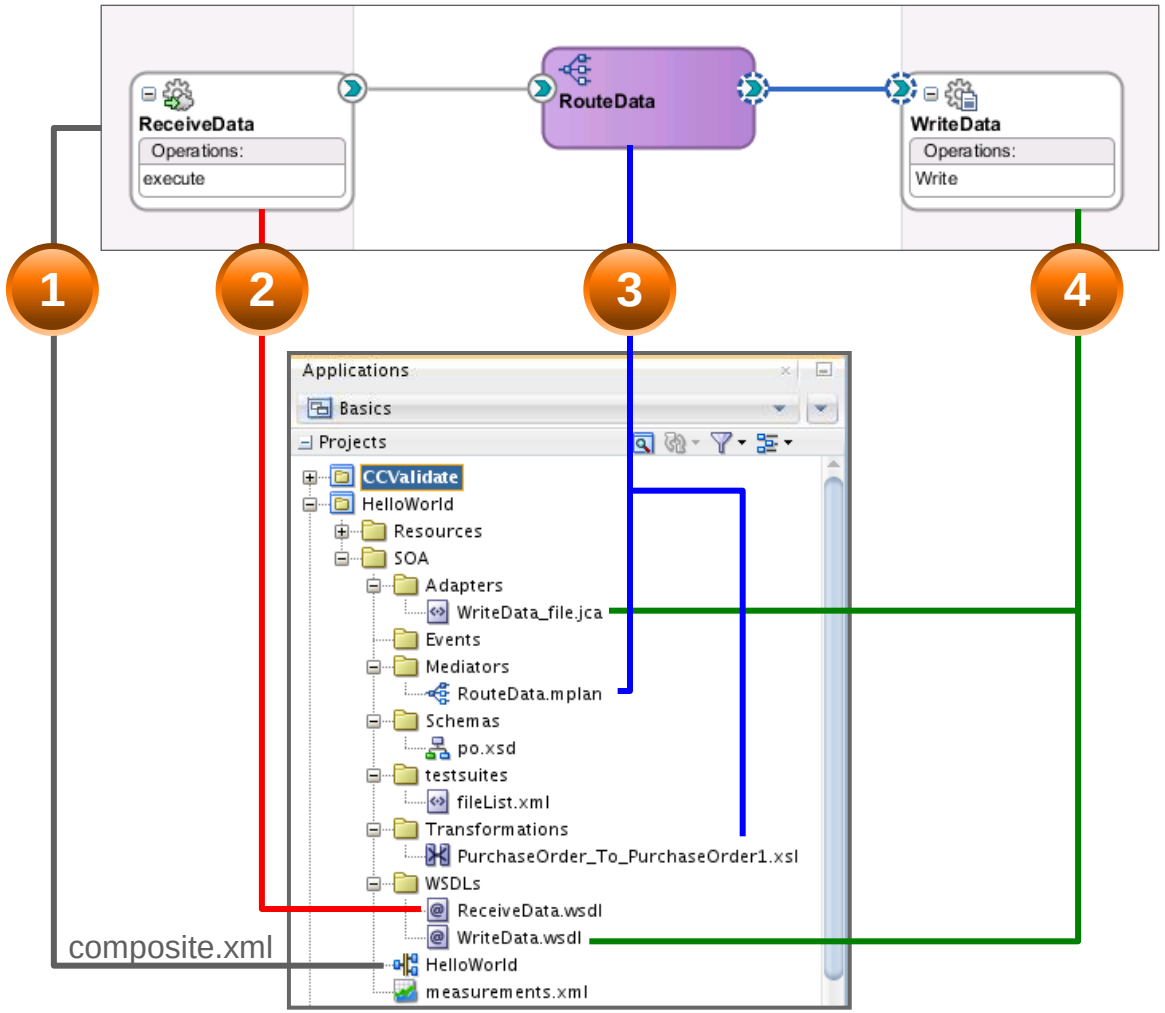
Project Files



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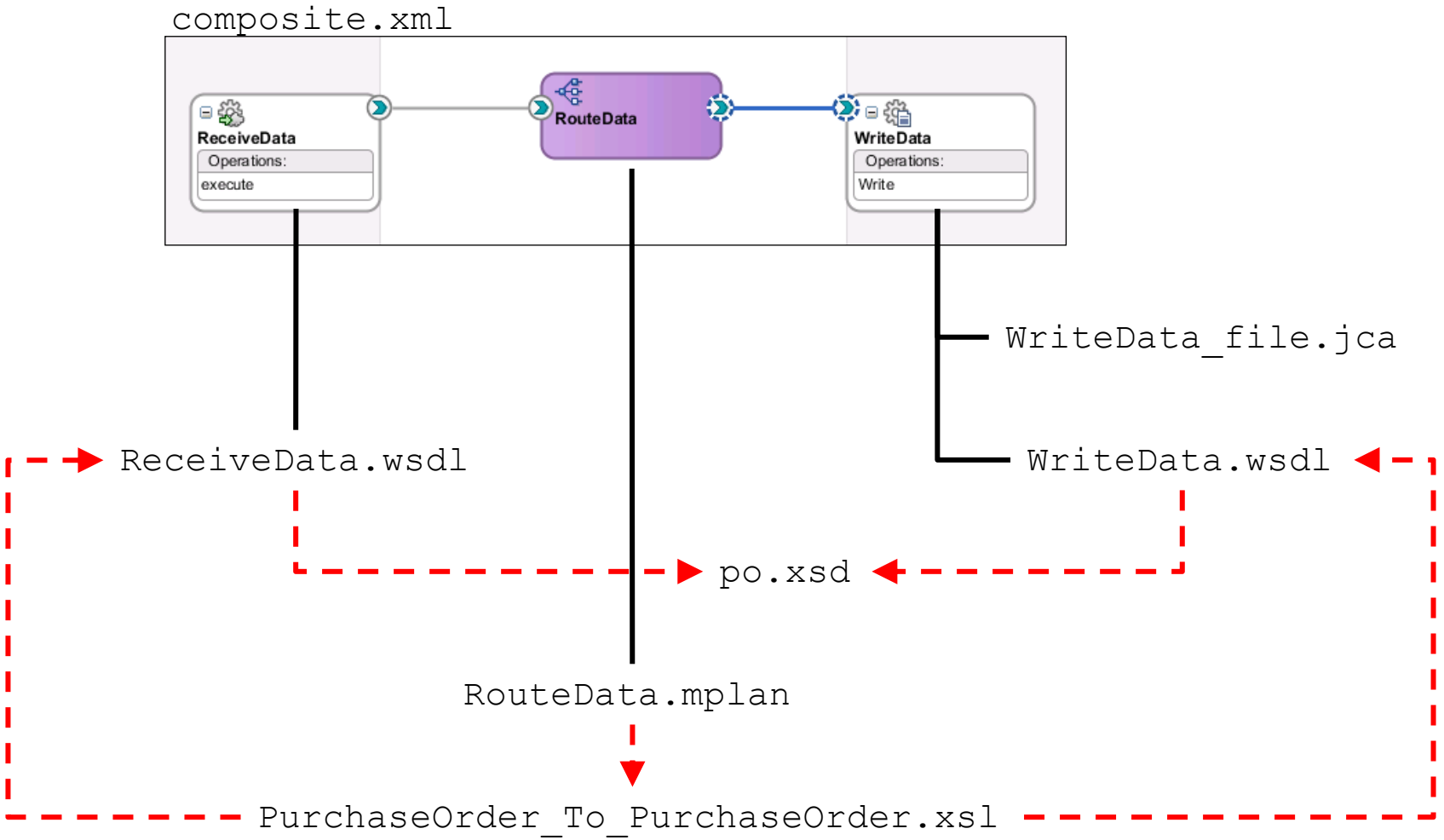
Project Files



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