4

# Working with Data

# Objectives

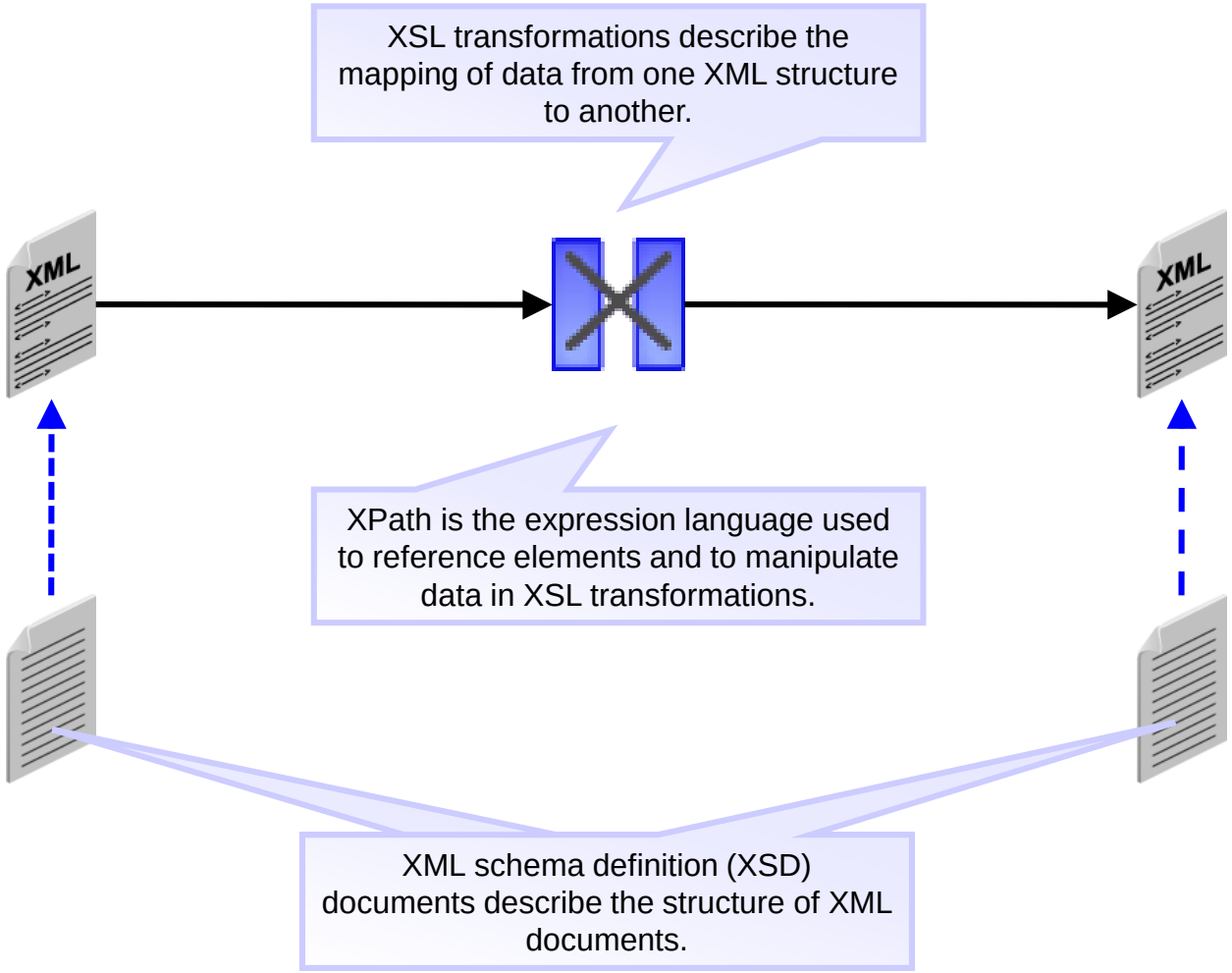
After completing this lesson, you should be able to:

- Describe the role of XML, XSD, XPath, XQuery, and XSLT in the way Oracle SOA Suite 12*c* handles data
- Use the XSLT Mapper to create XSL transformations in a Mediator
- Describe how the XQuery Mapper can be used to create XQuery transformations in a Mediator

# Agenda

- XSLT Transformations in Mediator
- XQuery Transformations in Mediator

# Data Standards



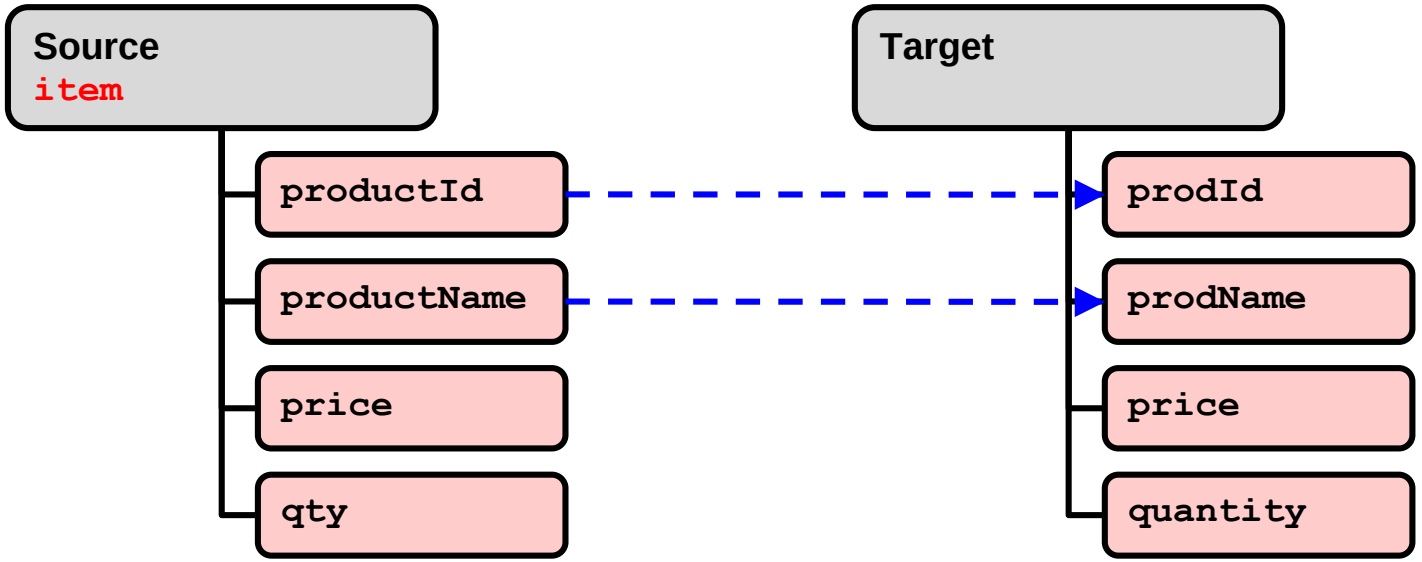
# Role of XSD Attributes

```
<ns0:item>
    <ns0:productId>SKU301</ns0:productId>
    <ns0:name>Music Player 1Gb</ns0:productName>
    <ns0:price>45</ns0:price>
    <ns0:quantity>3</ns0:quantity>
</ns0:item>
```

*XSD describes XML.*

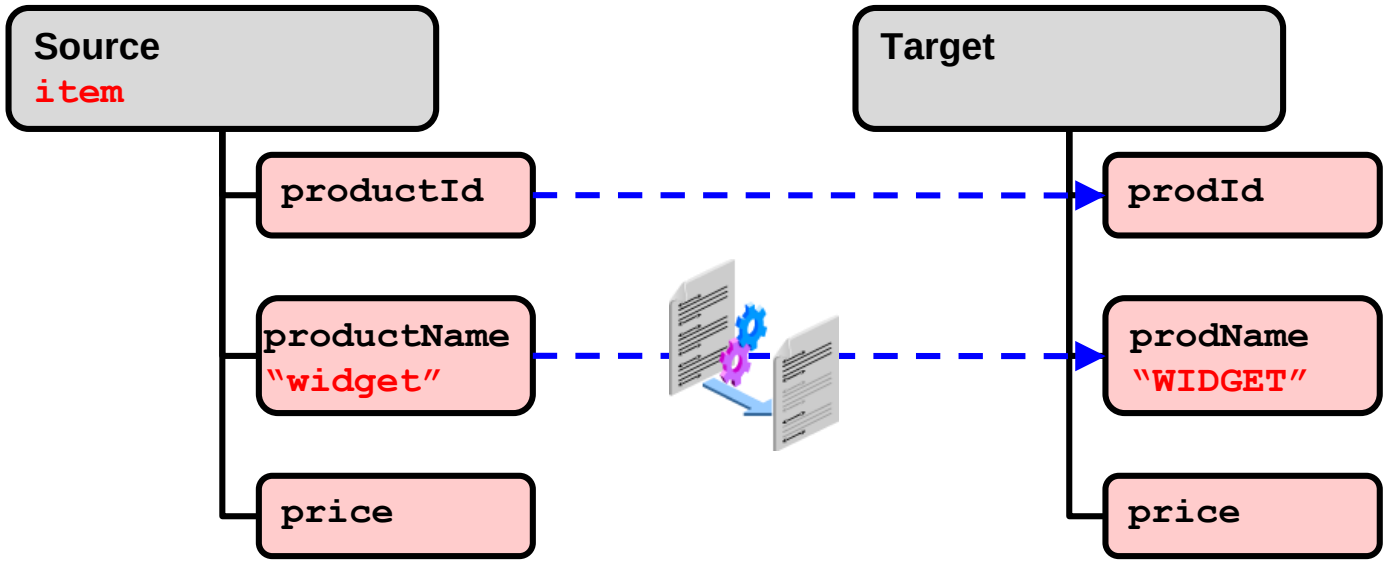
```
<xsd:complexType name="OrderItemType">
    <xsd:sequence>
        <xsd:element name="productId" type="xsd:string" minOccurs="1"/>
        <xsd:element name="name" type="xsd:string"minOccurs="1"/>
        <xsd:element name="price" type="xsd:decimal" minOccurs="1"/>
        <xsd:element name="quantity" type="xsd:int" minOccurs="1"/>
    </xsd:sequence>
</xsd:complexType>
```

# XSL Transformations



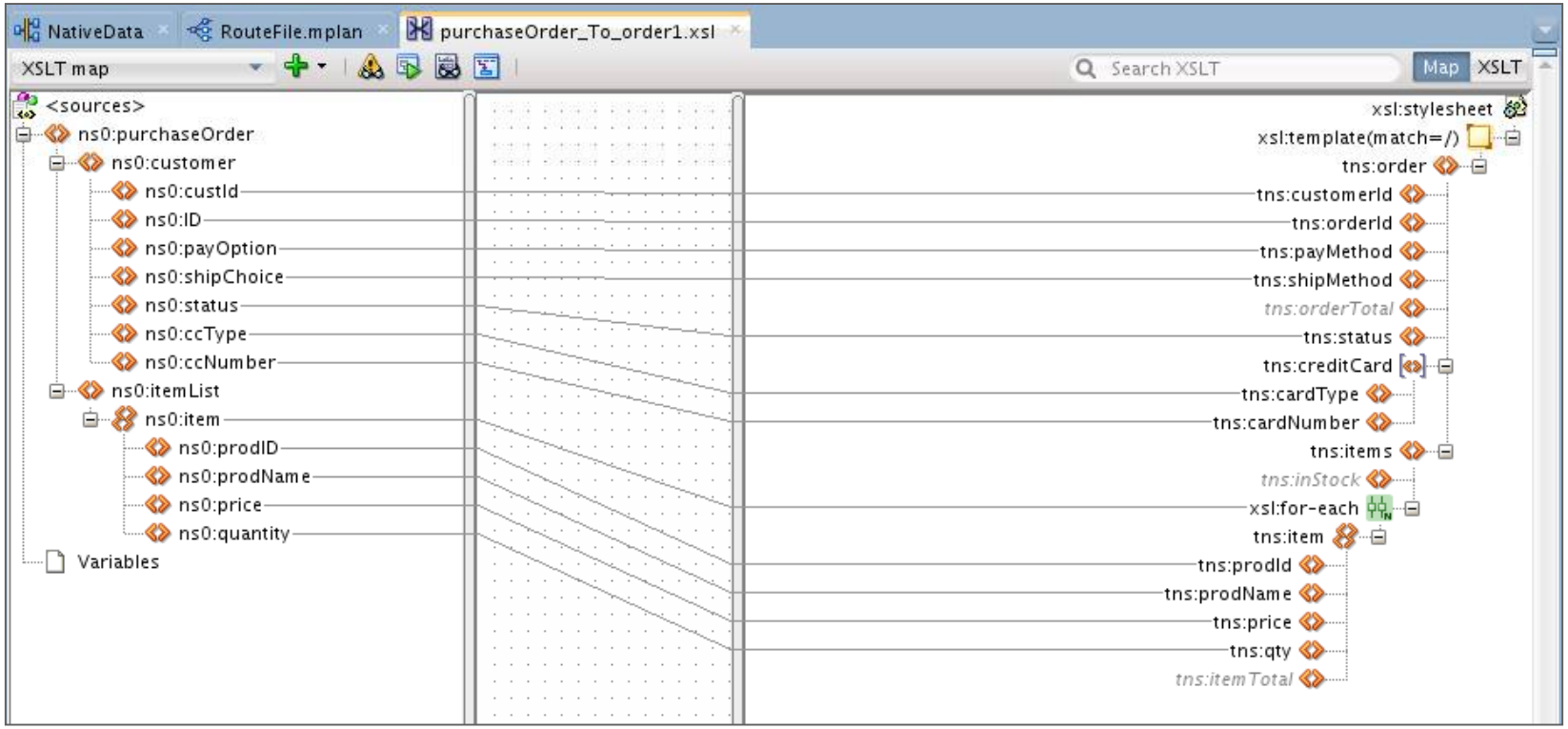

```
<ns1:item>
      <ns1:prodId>
            <xsl:value-of select="imp1:productID"/>
      </ns1:prodId>
      <ns1:prodName>
            <xsl:value-of select="imp1:productName"/>
      </ns1:prodName>
</ns1:item>
```

# Using XPath Functions

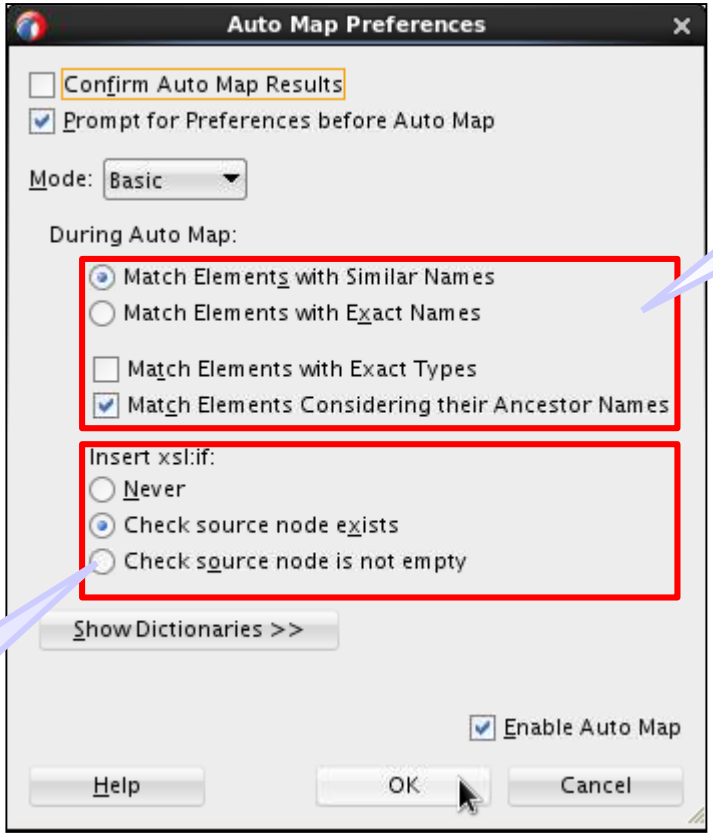



```
<ns1:item>
    <ns1:prodId>
        <xsl:value-of select="imp1:productID"/>
    </ns1:prodId>
    <ns1:prodName>
        <xsl:value-of select ="xp20:upper-case(imp1:productName)"/>
    </ns1:prodName>
</ns1:item>
```

# Using the Mapper in JDeveloper



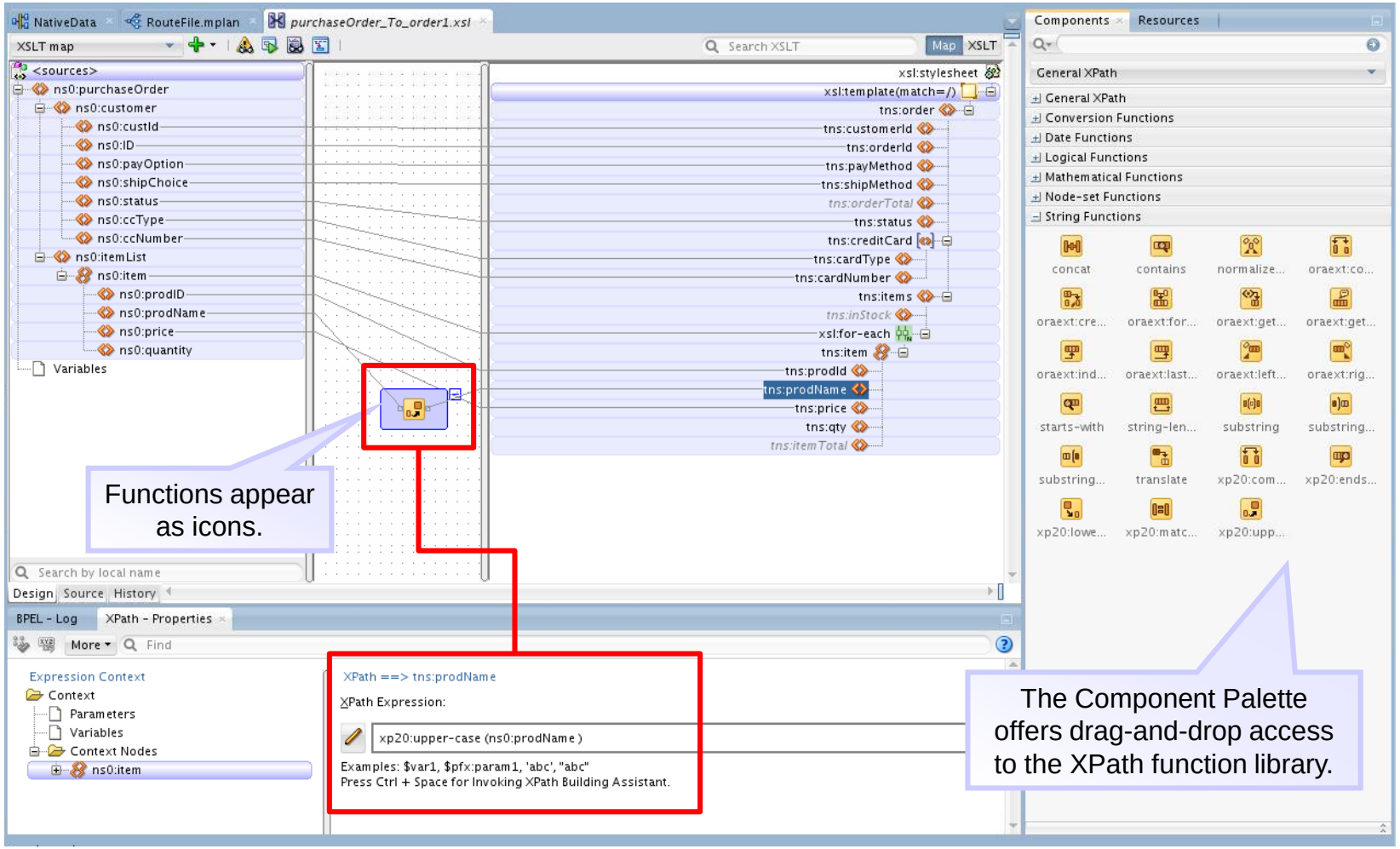
# Auto Map



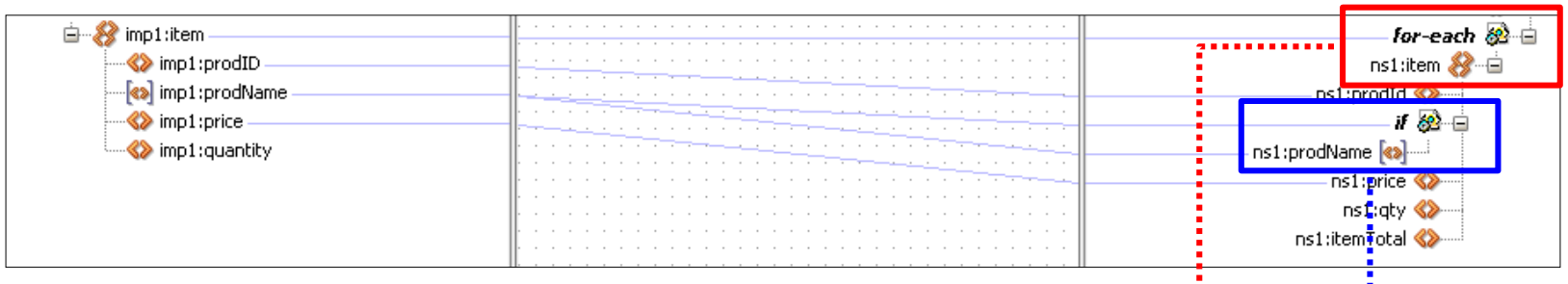

These control how Auto Map matches node names.

These control how Auto Map treats optional data.

# XPath Functions

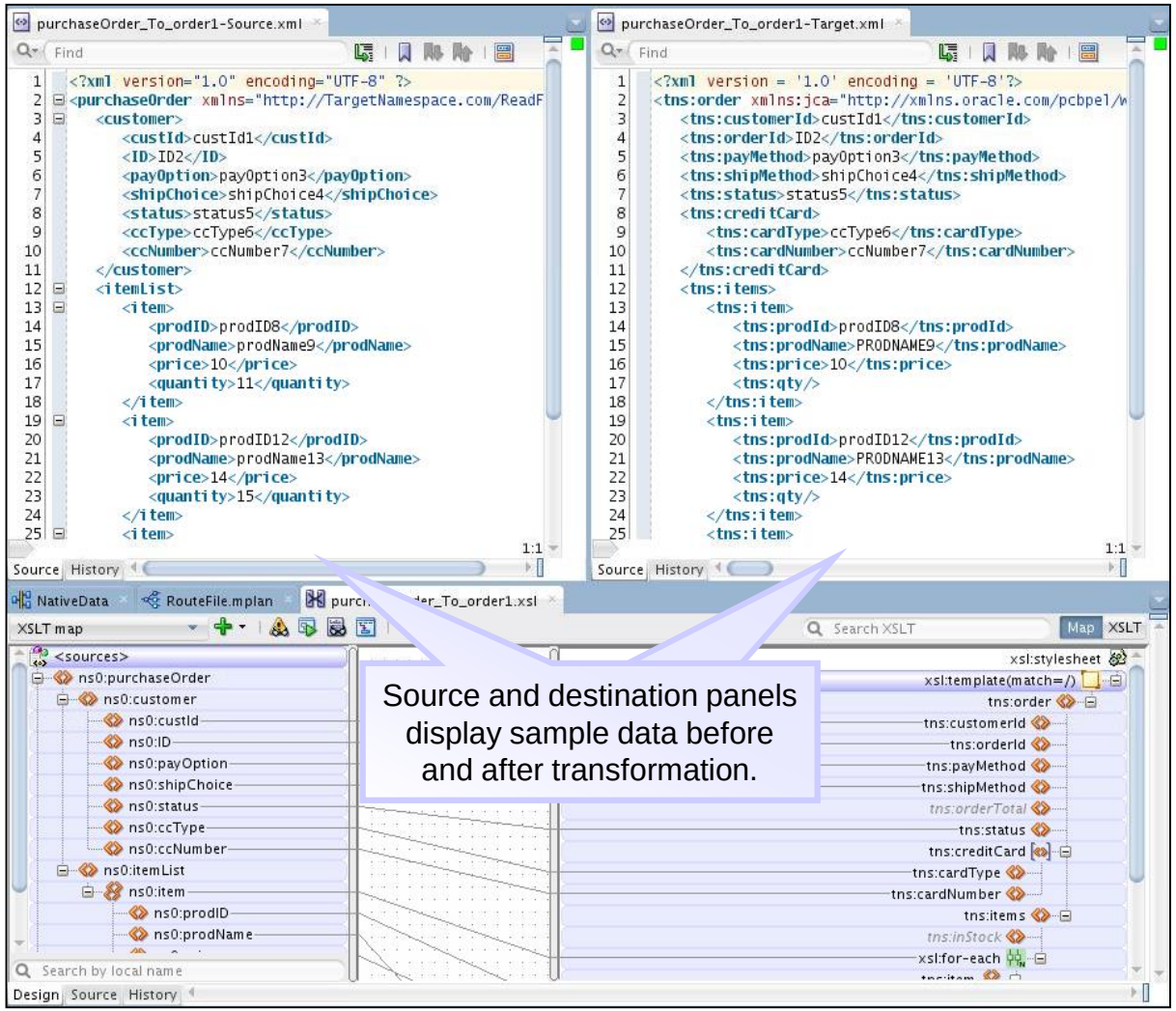


# Optional and Repeating Data




```
<xsd:element name="item" type="tns:itemType" maxOccurs="unbounded" />
<xsd:element name="prodName" type="xsd:string" minOccurs="0"/>
```

# Testing Transformations

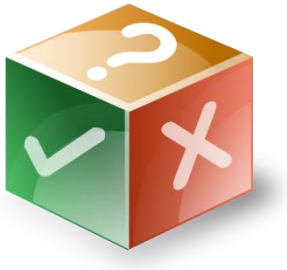


# Quiz

The Mediator can apply XSLT mappings to message structures that are processed in routing rules.

a. True

b. False



# Agenda

- XSLT Transformations in Mediator
- XQuery Transformations in Mediator

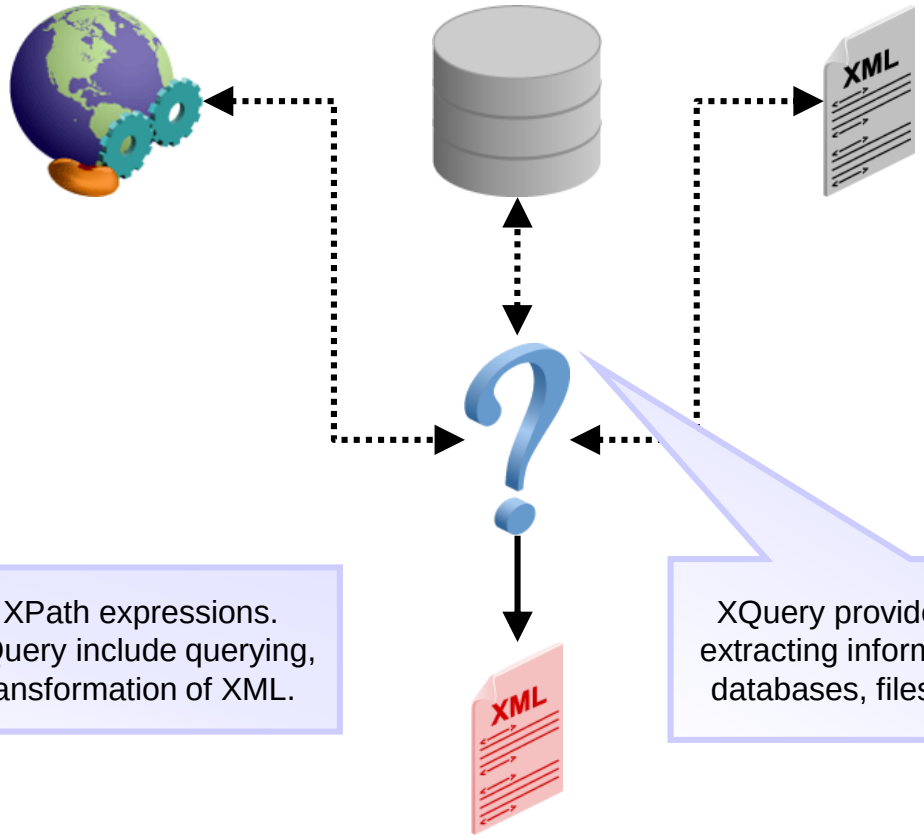
# XQuery: Introduction

According to the W3C standards body that oversees the development of the XQuery standard:

- XQuery is a standardized language for *combining documents, databases, web pages,* and almost anything else.
- XQuery is replacing proprietary middleware languages and web application development languages. XQuery is *simpler to work with and easier to maintain than many other alternatives*.

XQuery is designed to work with the XML data model and be a comprehensive query language for data that is expressed in XML.

# XQuery



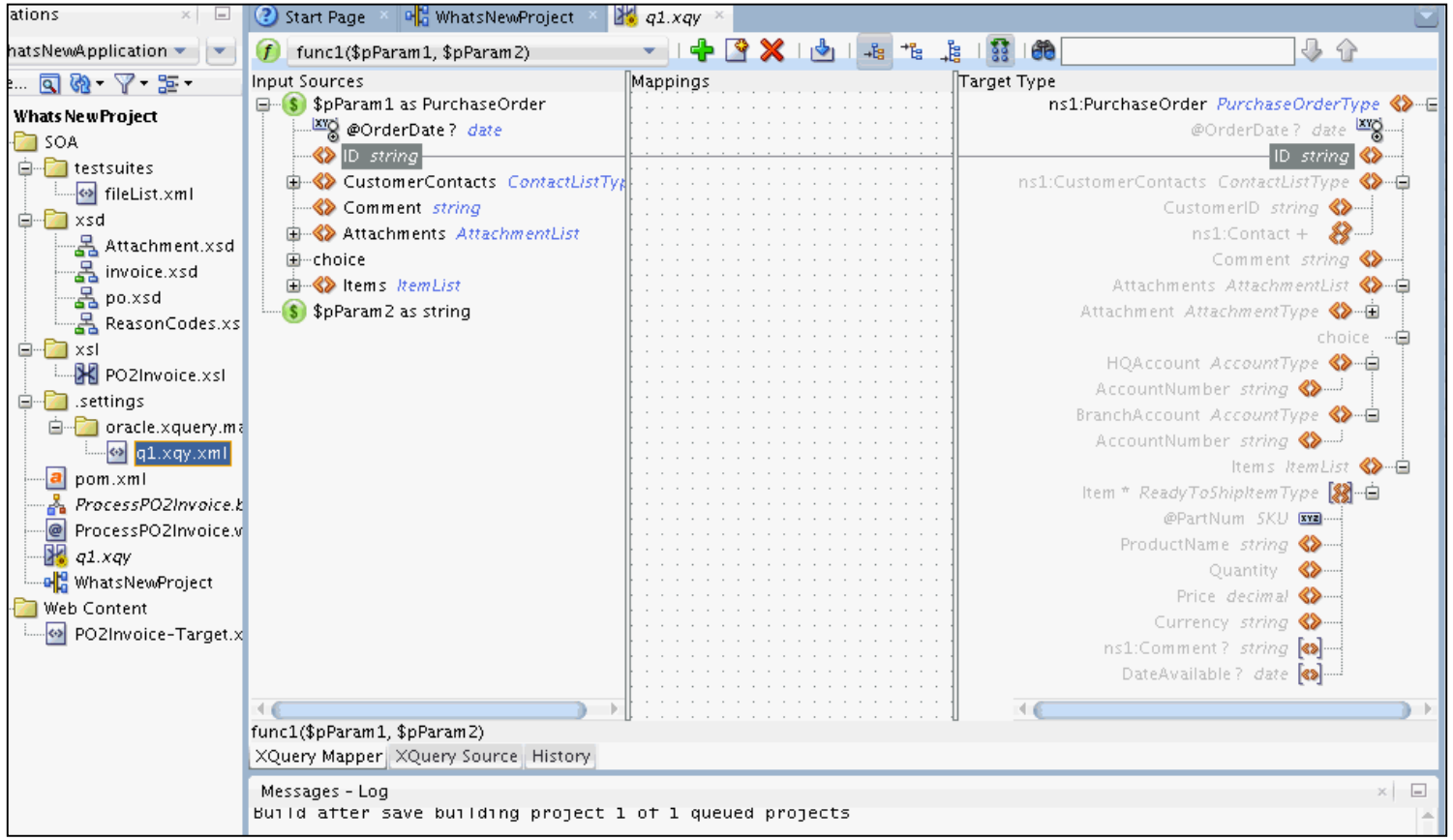

- XQuery is built on XPath expressions.
- Applications of XQuery include querying, generation, and transformation of XML.

XQuery provides a mechanism for extracting information from relational databases, files, and web services.

# XSLT Versus XQuery

- Similarities:
  - XPath
  - Data model
  - Functions and operators
- Differences:
  - Syntax
    - XQuery is similar to SQL.
    - XSLT stylesheets use XML syntax.
  - Performance
    - XSLT loads the entire input document in memory.
    - XQuery loads only the objects that need to be used by the current statement.

# Using XQuery Transformations

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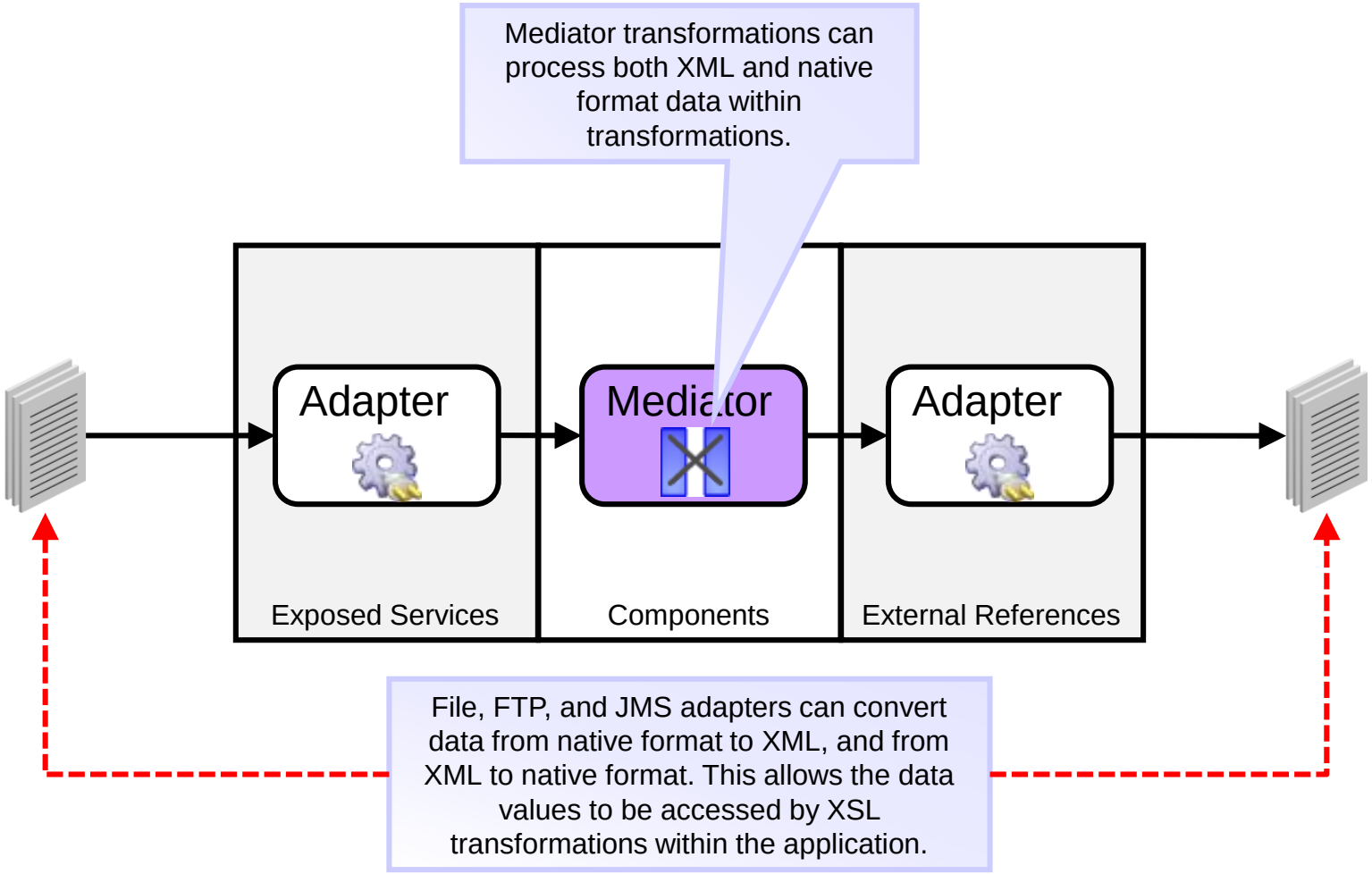
# Agenda

- XSLT Transformations in Mediator
- XQuery Transformations in Mediator
- Adapters and Native Format Data

# Working with Native Format Data



# Native Data Transformation

```
2,100,credit,two_day,initial,VISTA,1234-1234-1234-1234
SKU301|Music Player 1Gb|45|3
SKU305|Music Player 160Gb|250|20
```

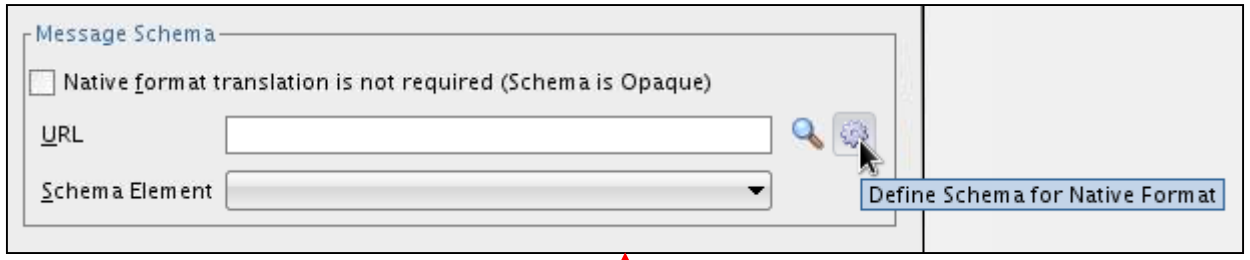
Header Information

Transformation

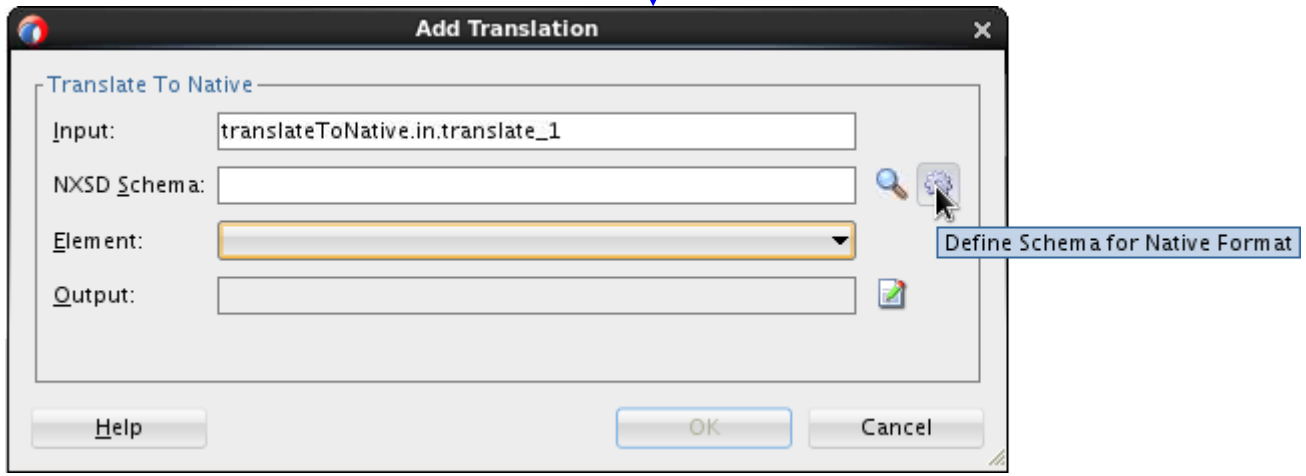
Order Detail

```
<customer>
        <custID>2</custID>
        <ID>100</ID>
        ***
<itemlist>
        <item>
                <prodID>SKU301</prodID>
                <prodName>Music Player 1Gb</prodName>
                <price>45</price>
                <quantity>3</quantity>
        </item>
        ***
```

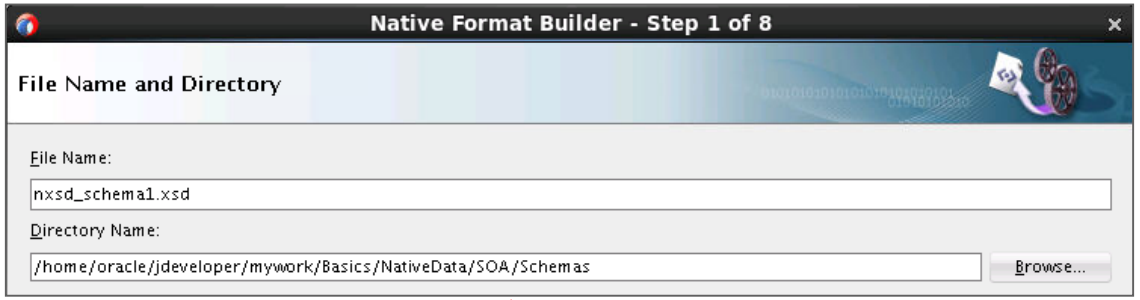
# Invoking the Native Format Builder



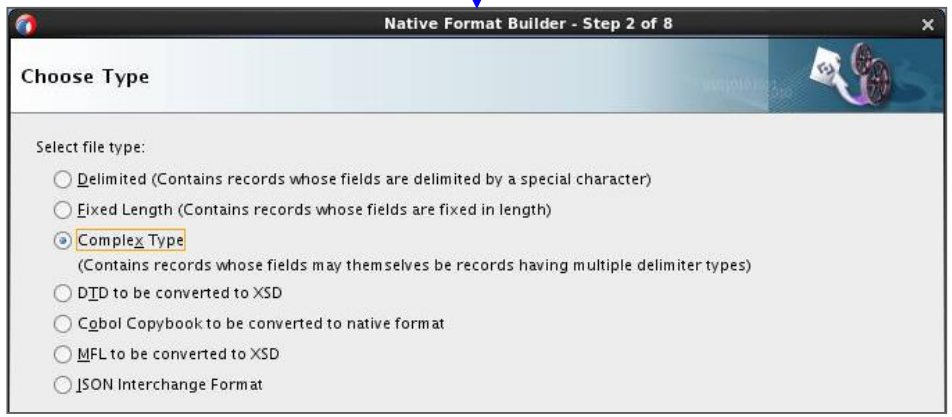

Invoke the Native Format Builder from either the Adapter Wizard or via the Mediator Translate to Native option.



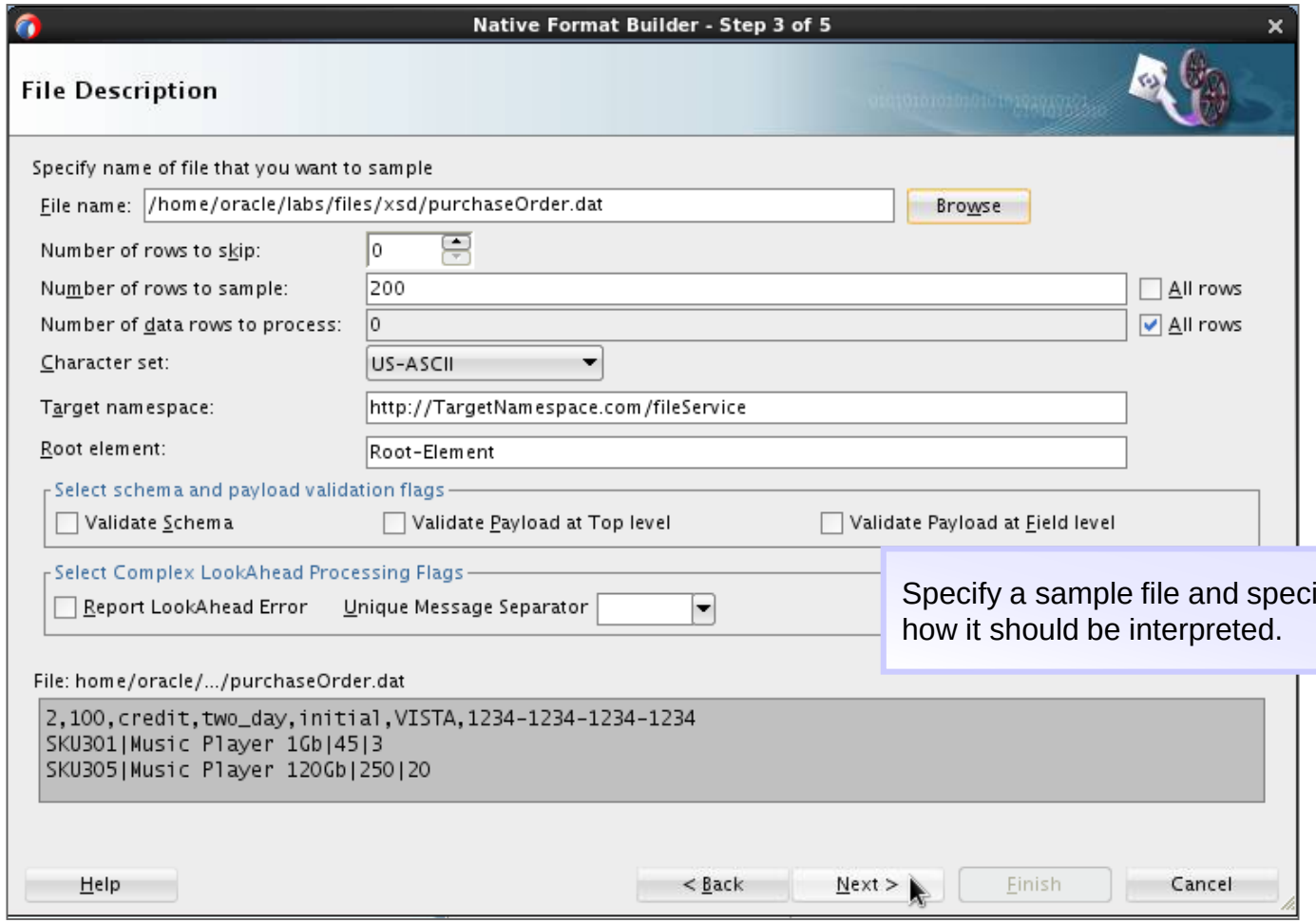
# Specifying File Name and Native Data Format




Specify the name of the file to create, and the type of native data to process.

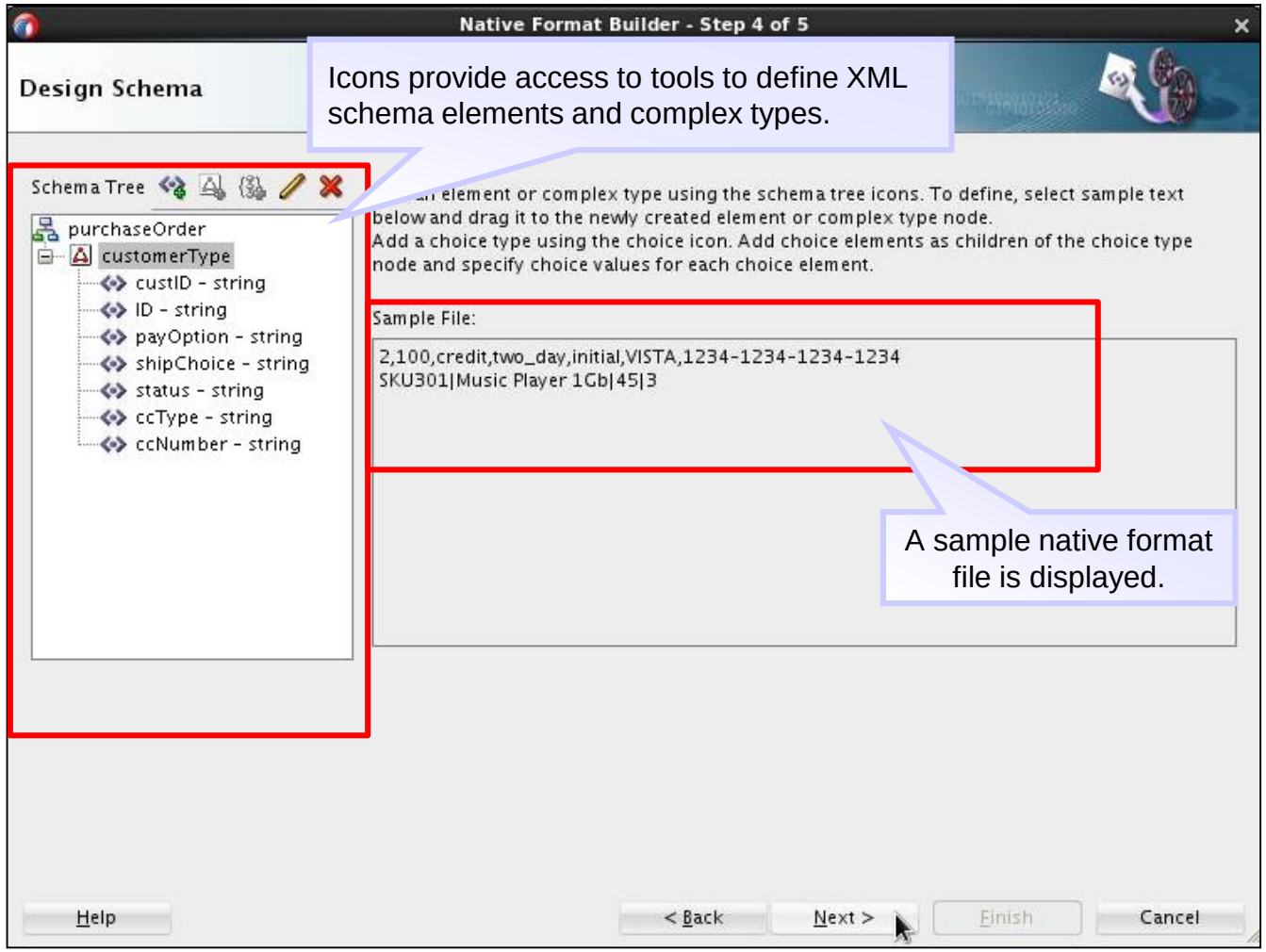


# Specifying a Sample File




Specify a sample file and specify how it should be interpreted.

# Defining a Schema for a Native Format



# Summary

In this lesson, you should have learned how to:

- Describe the role of XML, XSD, XPath, and XSLT in the way Oracle SOA Suite 12*c* handles data
- Use the XSLT Mapper to create XSL transformations in a Mediator
- Test XSL transformations

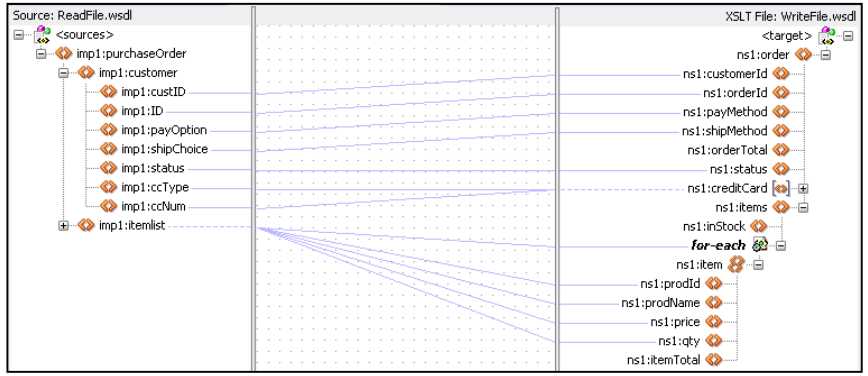
# Practice 4 Overview

This practice covers the following topics:

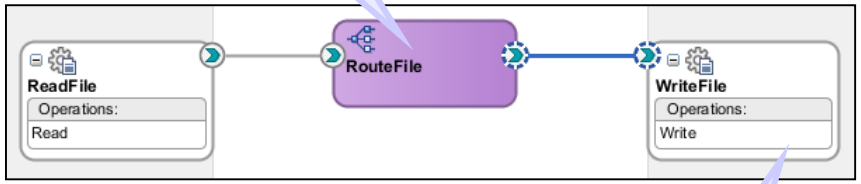
- Using the XSLT Mapper

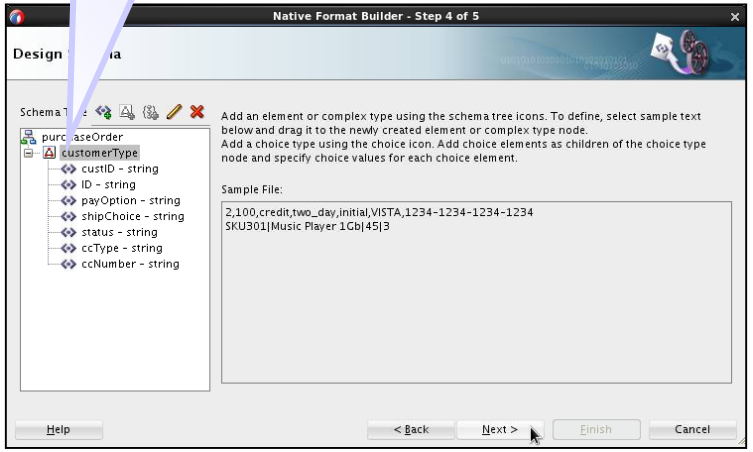
# Practice 4 Overview

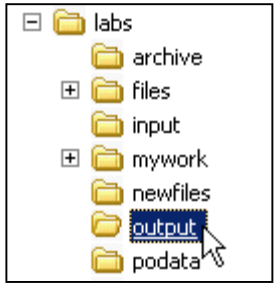
The Mediator will perform an XSL transformation of data.




The inbound File adapter will convert the delimited data to XML format.




The outbound File adapter will write the data to the file system.