

Managing and Monitoring a Composite Application

Objectives

After completing this lesson, you should be able to:

- Deploy and undeploy a composite application
- Test a composite application with Oracle Enterprise Manager and JDeveloper
- Manage SOA composite applications with Oracle Enterprise Manager
- Migrate a composite application to a production environment



Agenda

- Deploying Composite Applications
- Testing and Managing Composite Applications

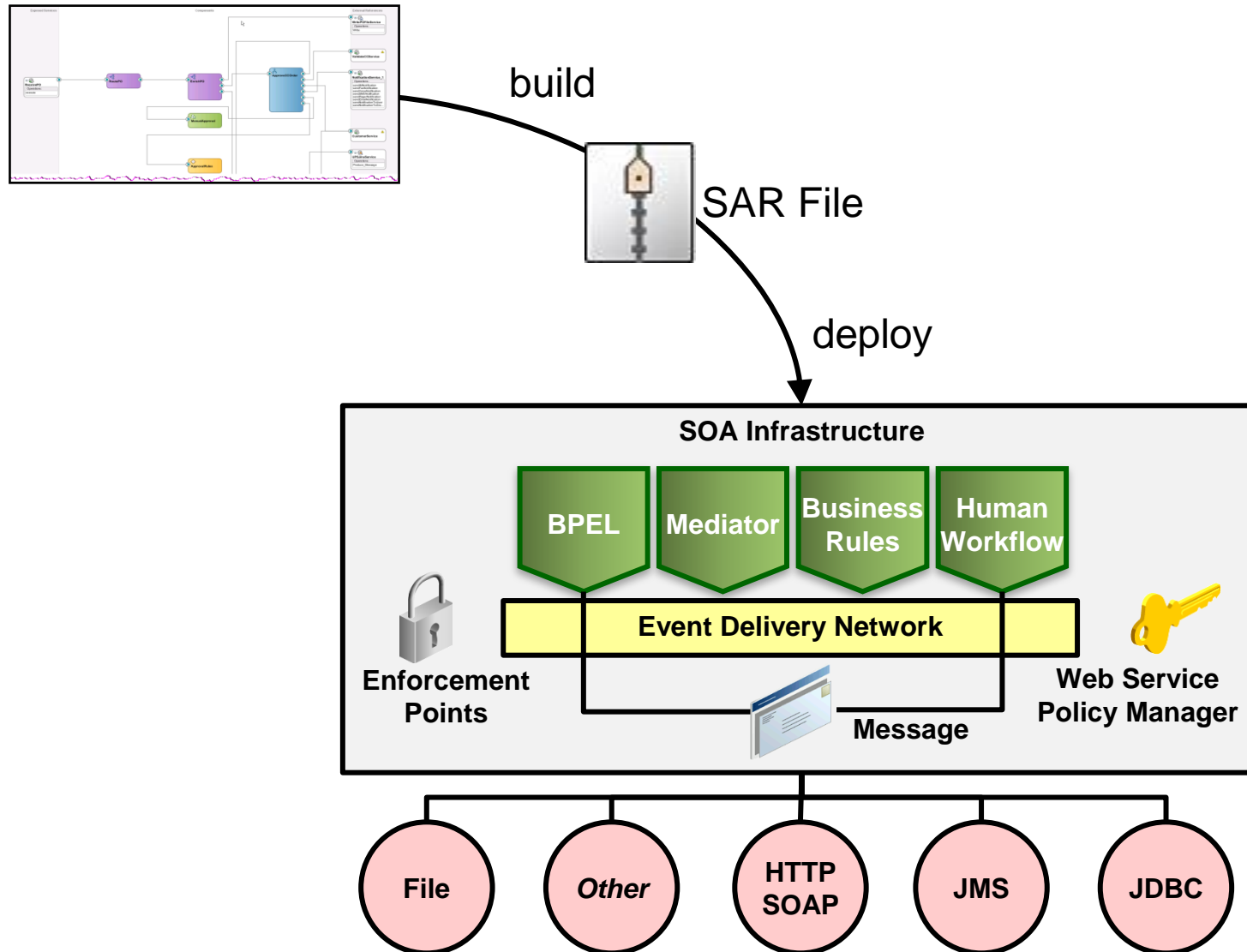


Managing SOA Applications: Overview

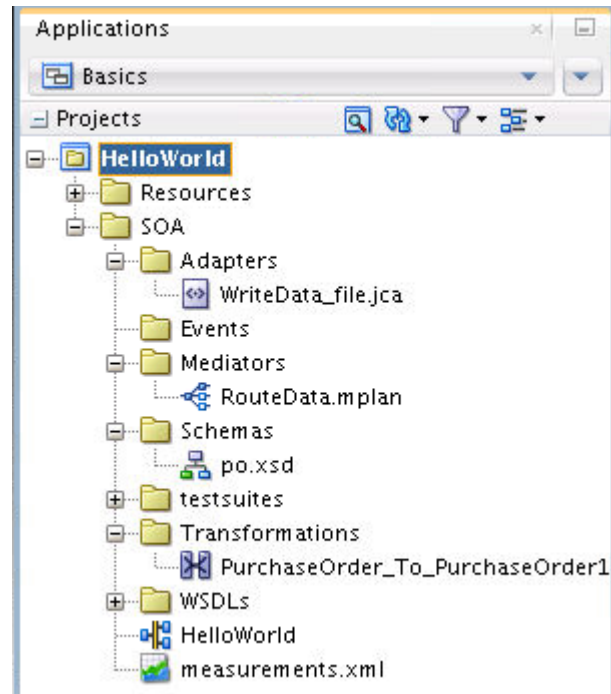
Administration of SOA applications involves using the Enterprise Manager web interface for tasks such as:

- Configuring the runtime environment
- Deploying and managing the state of composite applications
- Redeploying or undeploying applications
- Testing composite applications and viewing the results
- Locating composite application instances
- Tracking and monitoring message flow and events in the system

Deploying a Composite Application



Building the Service Archive

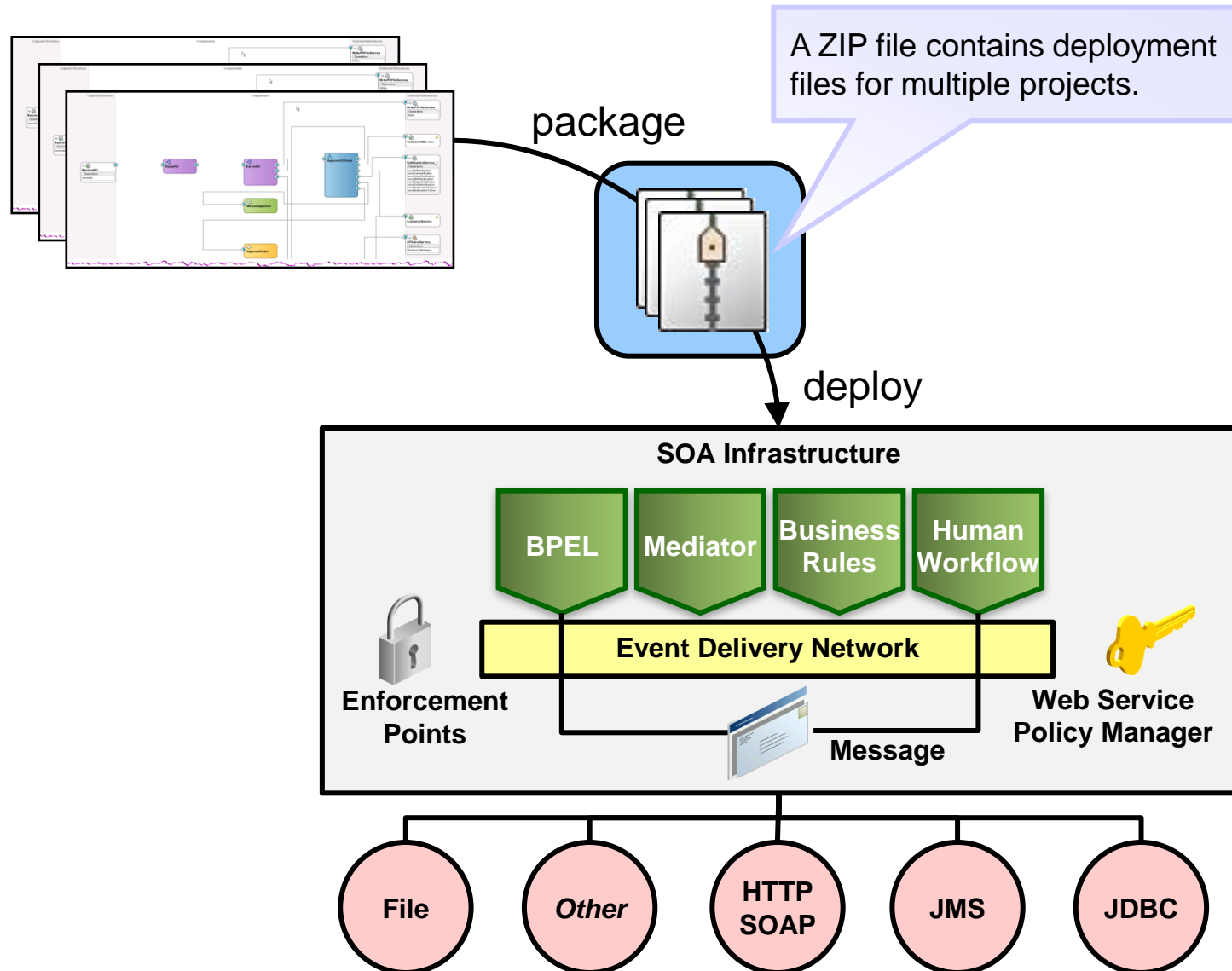


sca_HelloWorld.jar

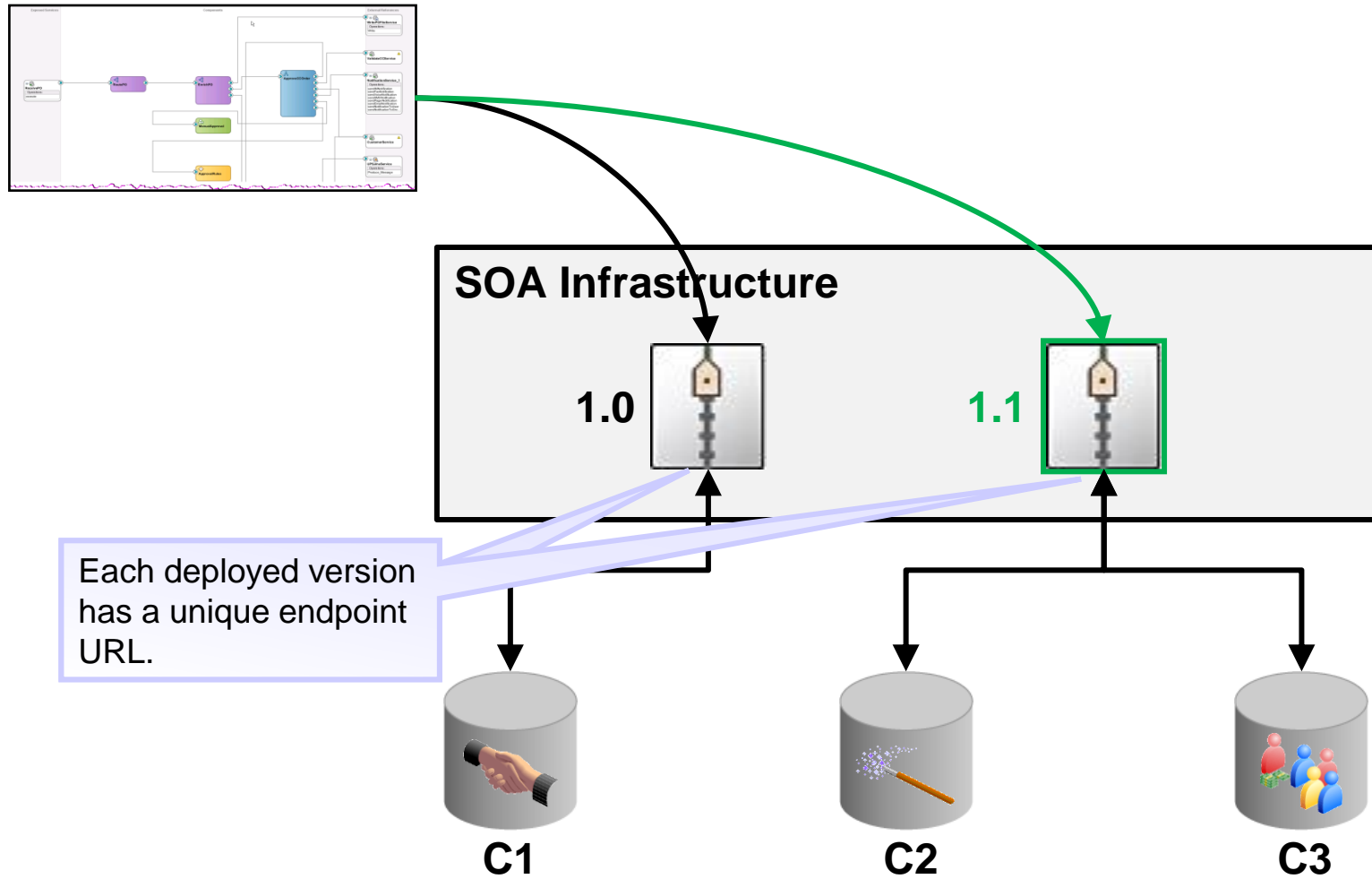


Name	Type
adf-config.xml	XML Document
composite.xml	XML Document
fileList.xml	XML Document
jps-config.xml	XML Document
po.xsd	XSD File
PurchaseOrder_To_PurchaseOrder.xsl	XSL Stylesheet
ReceiveData.wsdl	WSDL File
RouteData.componentType	COMPONENTTYPE File
RouteData.mplan	MPLAN File
WriteData.wsdl	WSDL File
WriteData_file.jca	JCA File

Deploying Multiple SOA Projects



Versioning Applications



Redeploying an Application

Redeploy a composite application if:

- Configuration and updates to the application do not modify the interface definition
- You wish to make an older version of the application the default version

Deployment Options

The screenshot shows a 'Deploy HelloWorld' dialog box with a 'Deploy Configuration' tab selected. The left sidebar contains a tree view with 'Deployment Action', 'Deploy Configuration' (selected), 'Select Server', and 'Summary'. The main area shows configuration for 'HelloWorld' with fields for 'Project' (HelloWorld), 'Current Revision ID' (1.0), and 'New Revision ID' (1.0). Below these are expandable sections for 'SOA Configuration Plan' and checkboxes for 'Mark composite revision as default.', 'Overwrite any existing composites with the same revision ID.', and 'Use the following SOA configuration plan for all composites:'. At the bottom are 'Help', '< Back', 'Next >', 'Finish', and 'Cancel' buttons.

Deploy HelloWorld

Deploy Configuration

Deployment Action
Deploy Configuration
Select Server
Summary

HelloWorld

Composite Revision ID

Project: HelloWorld

Current Revision ID: 1.0

New Revision ID: 1.0

SOA Configuration Plan

☒ Mark composite revision as default.

☐ Overwrite any existing composites with the same revision ID.

☐ Use the following SOA configuration plan for all composites:

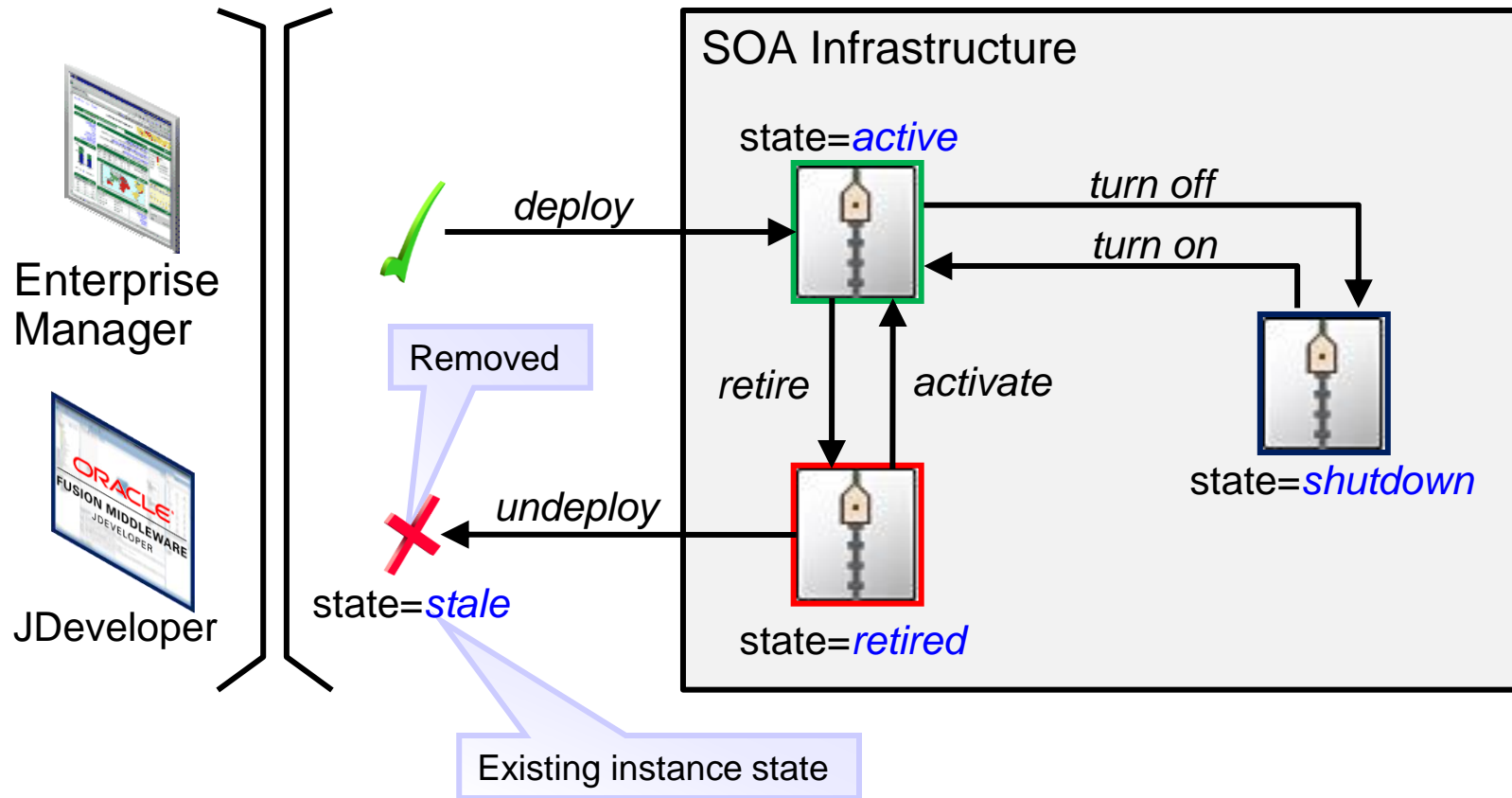
Browse

Help < Back Next > Finish Cancel

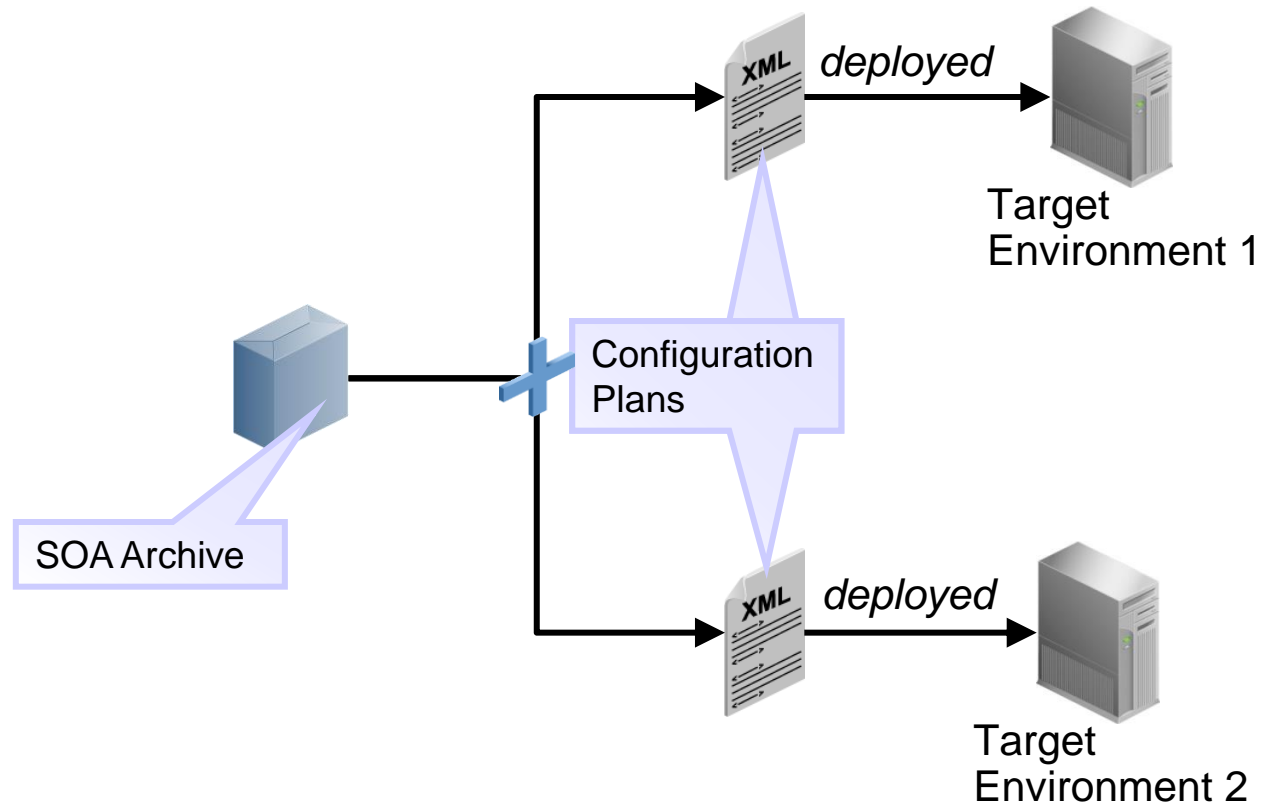
Examining the Deployment Log

```
[04:19:27 PM] ---- Deployment started. ----
[04:19:27 PM] Target platform is (Weblogic 12.x).
[04:19:27 PM] Running dependency analysis...
[04:19:27 PM] Building...
[04:19:33 PM] Deploying profile...
[04:19:33 PM] Wrote Archive Module to
/u01/app/fmw12c/domains/myWork/mywork/Basics/HelloWorld/deploy/sca_HelloWorld.jar
[04:19:33 PM] Deploying sca_HelloWorld_rev1.0.jar to partition "default" on
server DefaultServer [http://soa12c.example.com:7101]
[04:19:33 PM] Processing
sar=/u01/app/fmw12c/domains/myWork/mywork/Basics/HelloWorld/deploy/sca_HelloWorld
_rev1.0.jar
[04:19:33 PM] Adding sar file -
/u01/app/fmw12c/domains/myWork/mywork/Basics/HelloWorld/deploy/sca_HelloWorld_rev
1.0.jar
[04:19:33 PM] Preparing to send HTTP request for deployment
[04:19:33 PM] Creating HTTP connection to host:soa12c.example.com, port:7101
[04:19:33 PM] Sending internal deployment descriptor
[04:19:33 PM] Sending archive - sca_HelloWorld_rev1.0.jar
[04:19:35 PM] Received HTTP response from the server, response code=200
[04:19:35 PM] Successfully deployed archive sca HelloWorld.jar with 0
warning/severe messages to partition "default" on server DefaultServer
[http://soa12c.example.com:7101]
[04:19:35 PM] Elapsed time for deployment: 8 seconds
[04:19:35 PM] ---- Deployment finished. ----
```

Application State



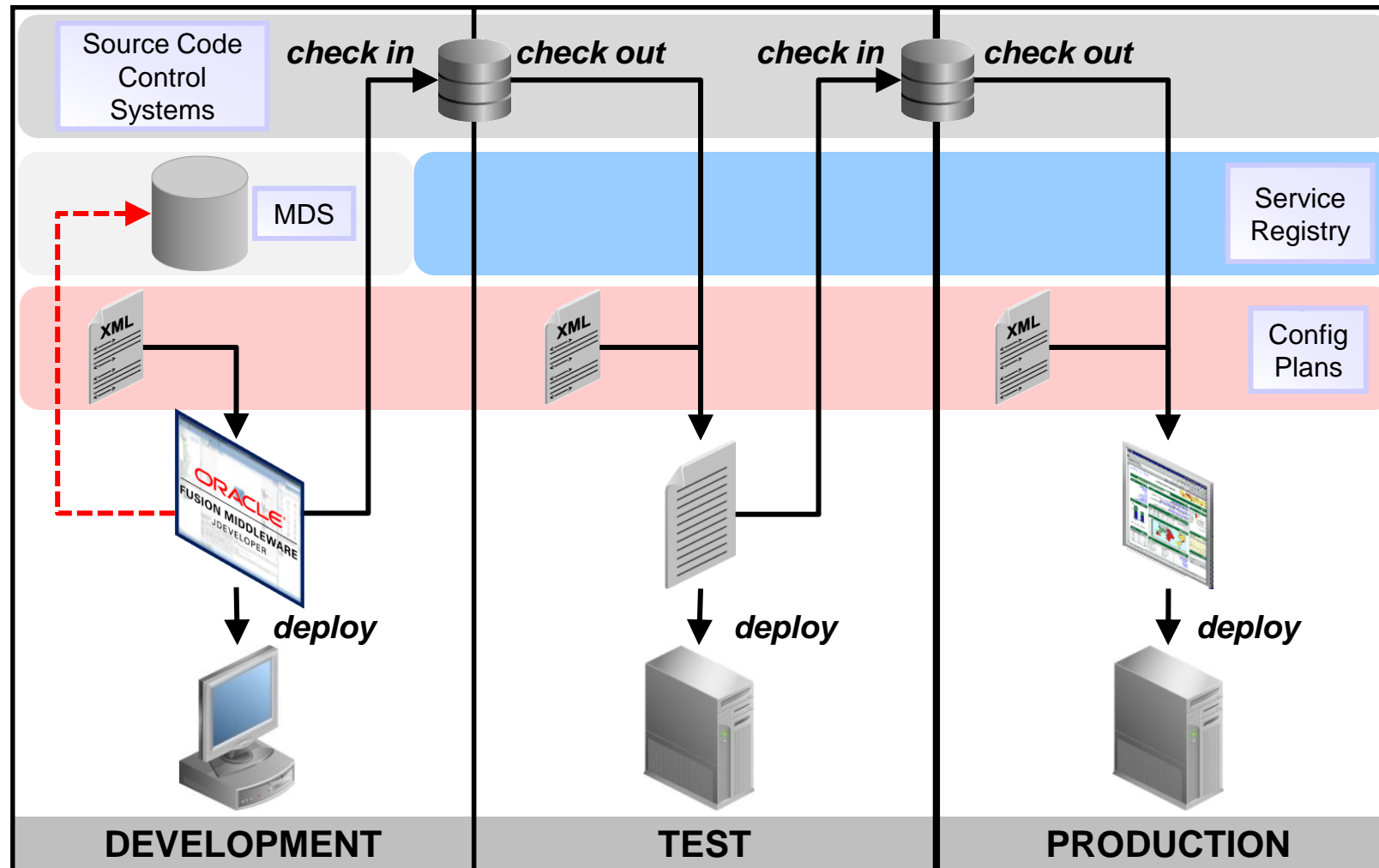
Configuration Plans: Overview



Modifying a Configuration Plan

```
<SOAConfigPlan ...>
  <composite name="EchoMediatorComposite">
    <import>
      <searchReplace>
        <search>soa12c_dev.example.com</search>
        <replace>soa12c.example.com</replace>
      </searchReplace>
    </import> ...
  </composite>
</SOAConfigPlan>
```

Managing the Life Cycle of a Composite Application



Quiz



After an application is deployed, its state must be set to active before it is executed by the application server.

- a. True
- b. False



Agenda

- Deploying Composite Applications
- Testing and Managing Composite Applications

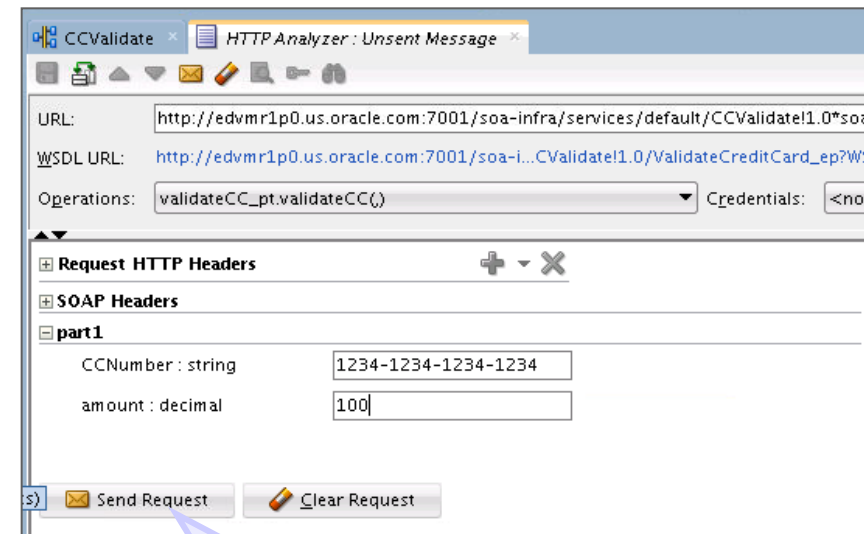
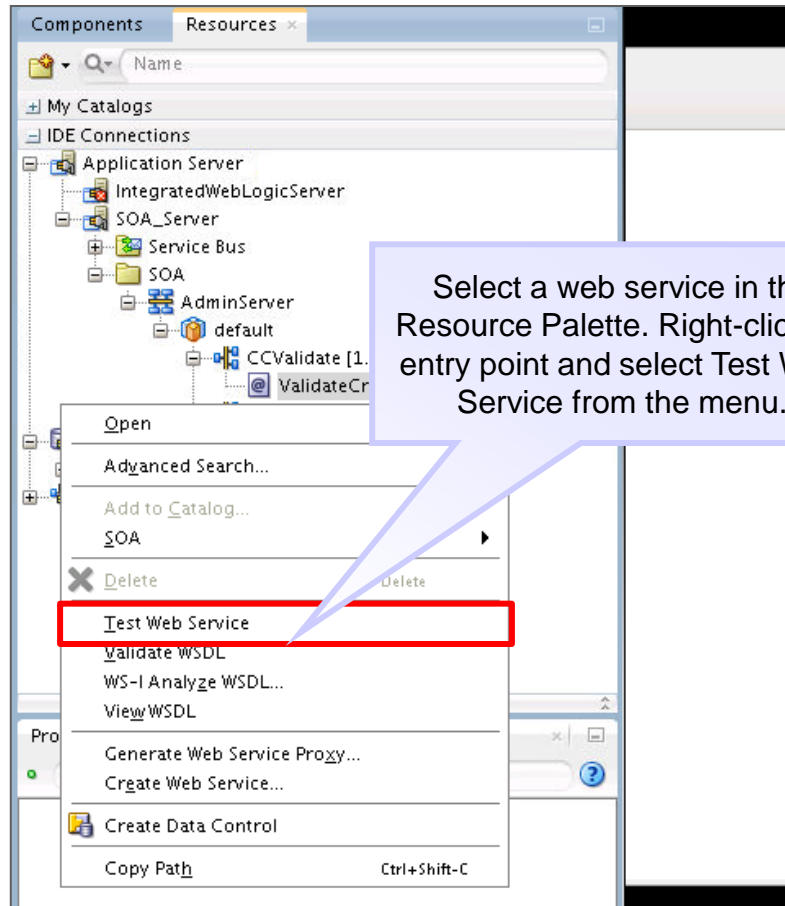


Testing a Composite Application

Composite applications can be tested by using:

- Oracle Enterprise Manager Fusion Middleware Control, which enables:
 - Initiating composite application instances
 - Viewing responses for synchronous requests
 - Tracking message flow through a composite application
 - Viewing faults and log files
 - Managing fault conditions
- Oracle JDeveloper Web Service Test tool, which enables:
 - Initiating composite applications
 - Viewing responses for synchronous requests
 - Examining the HTTP request and response headers

Initiating a Test in JDeveloper



Viewing Responses in JDeveloper

The screenshot displays the JDeveloper HTTP Analyzer interface. The top section shows the URL, WSDL URL, and the selected operation: `validateCC_pt.validateCC()`. The left pane shows the request details, including the SOAP headers and the request body with parameters: `CCNumber : string` (1234-1234-1234-1234) and `amount : decimal` (100). The right pane shows the response details, including the response headers and the response body, which is a SOAP message with a status of `VALID`.

A text box with a purple background and black text is overlaid on the right pane, stating: "Synchronous response message payloads are displayed here."

Below the main view, there is a table showing the HTTP request and response details. The table has columns: ID, Date, Method, URL, Query, Cookie / Key, Status, Set-Cookie, Type, and Size. The first row shows a successful GET request to the WSDL URL, with a status of 200 OK and a size of 2663 bytes.

A red box highlights the first row of the table, and a red line connects it to the bottom pane. The bottom pane shows the raw HTTP content of the request and response. The request is an XML SOAP message, and the response is an XML SOAP message with a status of `VALID`.

A text box with a purple background and black text is overlaid on the bottom pane, stating: "The HTTP Content view of requests and responses"

Managing SOA Applications with JDeveloper

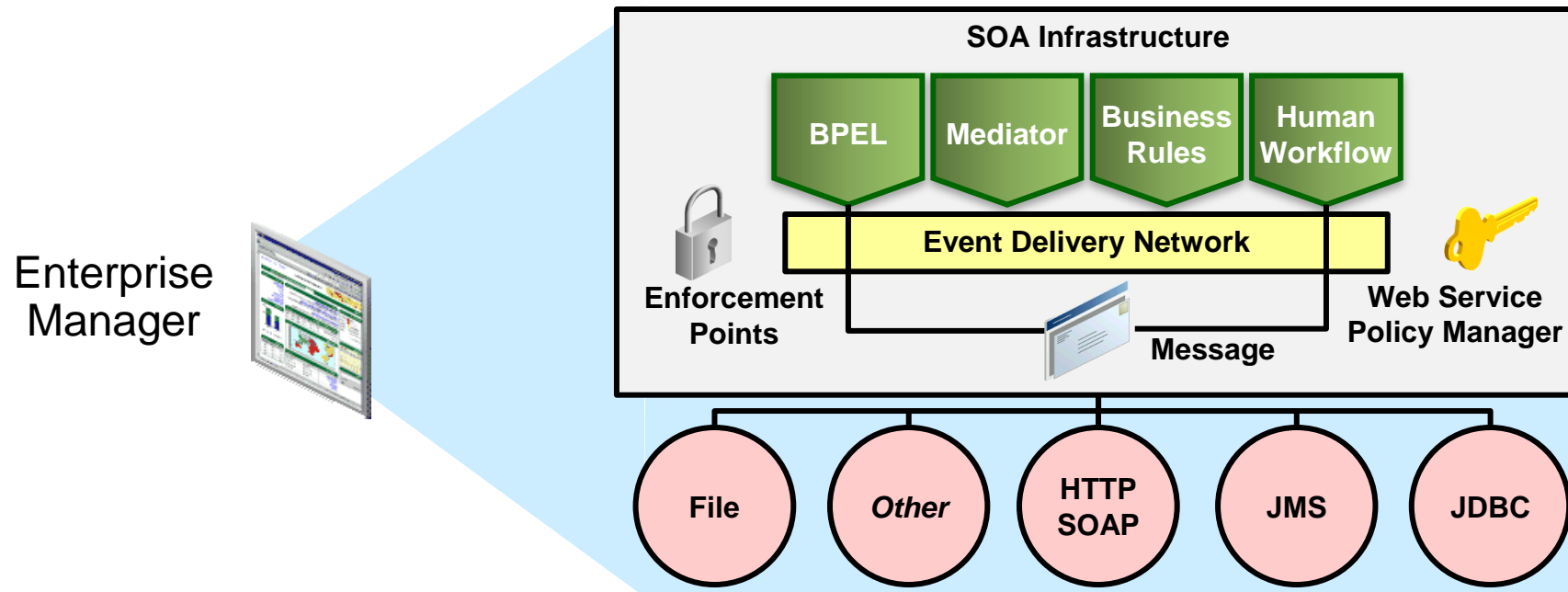
The Application Server Navigator in JDeveloper enables you to perform the following actions on SOA applications:

- Deploy a SOA archive.
- Retire an existing revision.
- Turn an application OFF and ON.
- Set the default revision.
- Undeploy the application.

Enterprise Manager

Enterprise Manager provides tools for many purposes, including:

- Deploying and undeploying applications
- Managing the state of applications
- Testing applications



Oracle Enterprise Manager: SOA Dashboard

The screenshot displays the Oracle Enterprise Manager SOA Dashboard for Fusion Middleware Control 12c. The interface includes a top navigation bar with the Oracle logo, product name, and version. A breadcrumb trail shows the current location: SOA Infrastructure > Dashboard. The dashboard is divided into several sections:

- Key Configuration:** Displays the profile (SOA FOUNDATION), instance tracking (Production), and default query duration (Last 24 Hours).
- SOA Runtime Health:** Shows the status of the AdminServer, indicating it is initialized successfully.
- Business Transaction Faults:** A section for monitoring faults, with a filter set to AdminServer.
- Composites and Adapters Availability:** A section showing the availability of composites and adapters, with a filter set to AdminServer.
- Resiliency - Suspended Services:** A section showing the resiliency of services, with a filter set to AdminServer.
- System Backlogs:** A section for monitoring system backlogs.
- Recent Instances - Last 24 Hours:** A section showing recent instances, with a filter set to AdminServer.

The dashboard also includes a search bar and a 'Search Instances' button. The status of various components is indicated by green checkmarks, signifying that all services are running successfully.

Enterprise Manager Fusion Middleware Control

The screenshot displays the Oracle Enterprise Manager Fusion Middleware Control 12c interface. On the left, the 'Target Navigation' pane shows a tree structure with 'SOA' expanded, revealing 'service-bus (DefaultServer)' and 'soa-infra (DefaultServer)'. The 'soa-infra (DefaultServer)' target is selected, and a right-click context menu is open. The menu lists various options, with 'Home' and 'Deployed Composites' highlighted by red boxes. A purple callout box points to the 'soa-infra (DefaultServer)' target with the text: 'Right-click soa-infra to access Home > Deployed Composites'. The main area shows the 'Server' details for 'DefaultServer' on host 'soa12c.example.com'. Below the server details, a table is partially visible with a green up arrow icon and the text 'Columns Hidden 34'.

ORACLE® Enterprise Manager Fusion Middleware Control 12c

Target Navigation

View ▾

- ▶ Application Deployments
- ▶ SOA
 - service-bus (DefaultServer)
 - soa-infra (DefaultServer)**
- ▶ WebLogic Domain
 - DefaultDomain
 - DefaultServer
 - Coherence Clusters
 - Metadata Repositories
 - User Messaging Service

Server

Name DefaultServer

Host soa12c.example.com

Context Menu Options:

- Home
- Monitoring
- Logs
- SOA Deployment
- Manage SOA Folders
- Work Manager Groups
- Resequencing Groups
- Service Engines
- Services and References
- Business Events

Dashboard

SOA Folders

Deployed Composites

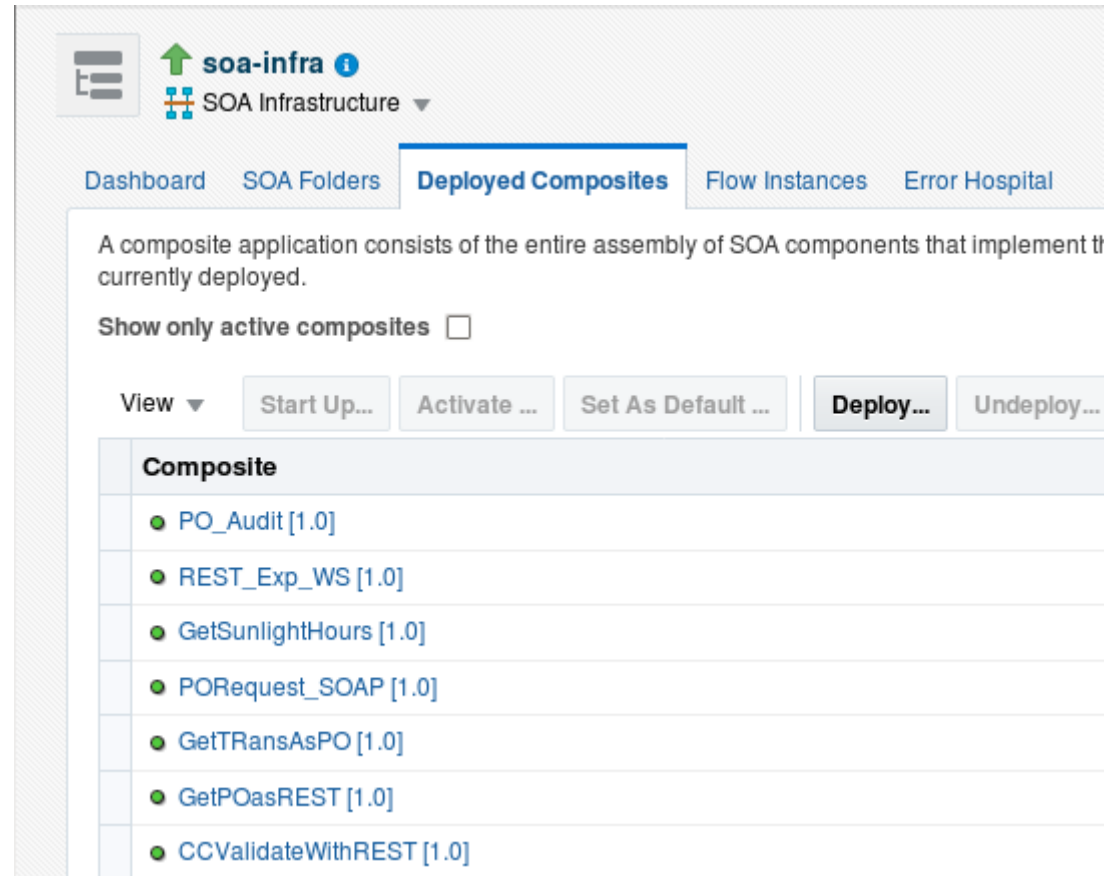
Flow Instances



Error Hospital

Columns Hidden 34

Right-click soa-infra to access Home > Deployed Composites

Deployed Composites










 **soa-infra** 
SOA Infrastructure ▼

Dashboard SOA Folders **Deployed Composites** Flow Instances Error Hospital

A composite application consists of the entire assembly of SOA components that implement the currently deployed.

Show only active composites ☐

View ▼ Start Up... Activate ... Set As Default ... **Deploy...** Undeploy...

Composite
 PO_Audit [1.0]
 REST_Exp_WS [1.0]
 GetSunlightHours [1.0]
 PORequest_SOAP [1.0]
 GetTRansAsPO [1.0]
 GetPOasREST [1.0]
 CCValidateWithREST [1.0]

Flow Instances

The screenshot displays the 'Flow Instances' page in the SOA Infrastructure console. The top navigation bar includes 'Dashboard', 'SOA Folders', 'Deployed Composites', 'Flow Instances' (selected), and 'Error Hospital'. The page title is 'Search Results - Instances Created (24 Hours)'. Below the title, there are tabs for 'Actions', 'View', and 'Error Hospital'. A table with columns 'Flow ID', 'Initiating Composite', 'Flow State', 'Created', and 'Last Updated' is shown, but it contains no data, with the message 'No flow instances found.' below it. A sidebar on the right titled 'Search Options' contains filters for 'Instances Within a Time Range' (with a 'Search' button), 'Time' (set to 'Last 24 Hours'), and 'Composite' (set to 'Initiating'). A 'Search' button is at the bottom of the sidebar. A message at the bottom of the table area says 'Select a specific instance to see its details here.'

soa-infra SOA Infrastructure

Jan 29, 2018 5:43:59 PM GMT

Dashboard SOA Folders Deployed Composites **Flow Instances** Error Hospital

Search Results - Instances Created (24 Hours)

Actions View Error Hospital

Flow ID	Initiating Composite	Flow State	Created	Last Updated
No flow instances found.				

Select a specific instance to see its details here.

Search Options

Instances Within a Time Range Search

Add/Remove Filters

Time (Options...) Custom time period

Instance Created

Last 24 Hours

Composite Initiating

Search

Error Hospital

soa-infra

SOA Infrastructure

Jan 29, 2018 5:43:59 PM GMT

Dashboard

SOA Folders

Deployed Composites

Flow Instances

Error Hospital

Fault Statistics - No search performed

Select a row or right-click the data for bulk actions. Click the data to drill in to the instance details.

View

Bulk Recovery Options

>>

Legend

Nonrecoverable

Recovery R

Group By: Fault Name

Total Faults

Reco
Req

Conduct a search to display the aggregated faults.

Report Filters

Instances With Faults

Search

Time (Options...)

Instance Created

Last 24 Hours

Fault Occurred

Search

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Oracle Enterprise Manager: Composite Dashboard

View flow instance traces, and composite definition

- Manage and monitor the application.
- Retire, shut down or start up, and test
- Access WSDL URLs.
- Examine composite.xml definition
- Access log files.

Jan 3, 2018 1:46:44 AM GMT

SOA Infrastructure > SOA Folder > Composite

HelloWorld [1.0] (SOA Composite Application) Active Retire ... Shut Down... Test Settings...

Dashboard Composite Definition Flow Instances Unit Tests Policies

▲ Components

Name	Component Type
RouteData	Mediator

▲ Services and Reference

Name	Type	Usage	Total Messages	Average Processing Time (sec)
ReceiveData	Web Service	Service	0	0.000
WriteData	JCA Adapter	Reference	0	0.000

Drill down into monitoring and performance data for application instances, components, and services.

Testing a Composite Application

The screenshot displays the 'Test Web Service' interface in the SOA Infrastructure console. The breadcrumb path is 'SOA Infrastructure > default (SOA Folder) > HelloWorld (Composite) > Test Web Service'. The 'Endpoint URL' is 'http://edvnr1p0.us.oracle.com:7001/soa-infra/services/default/HelloWorld/ReceiveData'. The 'Request' tab is active, showing a SOAP envelope. A red box highlights the XML payload, and a callout bubble points to it with the text 'Modify test parameters and supply sample data.'.

soa-infra
SOA Infrastructure

SOA Infrastructure > default (SOA Folder) > HelloWorld (Composite) > Test Web Service

Endpoint URL Edit Endpoint URL ☐

Request Response

Security
Quality of Service
HTTP Header
Additional Test Options
Input Arguments

XML View ☐ Enable Validation ☒ Load Payload

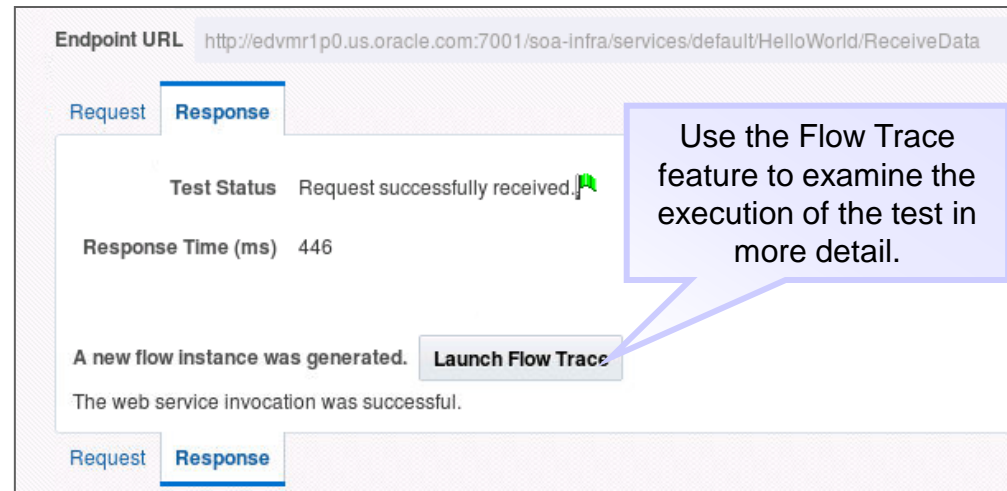
```
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/">
  <soap:Body xmlns:ns0="http://www.example.org/ns/porder">
    <ns0:PurchaseOrder>
      <ns0:custID>2</ns0:custID>
      <ns0:ID>102</ns0:ID>
      <ns0:payOption>credit</ns0:payOption>
      <ns0:shipChoice>two_day</ns0:shipChoice>
      <ns0:status>initial</ns0:status>
      <ns0:ccType>VISTA</ns0:ccType>
      <ns0:ccNumber>1234-1234-1234-1234</ns0:ccNumber>
      <ns0:items>
        <ns0:item>
          <ns0:productId>SKU304</ns0:productId>
          <ns0:productName>Music Player 8Gb</ns0:productName>
          <ns0:price>140</ns0:price>
          <ns0:quantity>10</ns0:quantity>
        </ns0:item>
        <ns0:item>
          <ns0:productId>SKU303</ns0:productId>
          <ns0:productName>Music Player 4Gb</ns0:productName>
          <ns0:price>99</ns0:price>
        </ns0:item>
      </ns0:items>
    </ns0:PurchaseOrder>
  </soap:Body>
</soap:Envelope>
```

Modify test parameters and supply sample data.

Response Tab

The webpage is refreshed with the Response tab displaying either of the following:

- The synchronous response data or fault message
- The fact that no response was possible because it was an asynchronous request (regardless of whether it was a one-way or two-way operation), because the web client cannot receive a response as an asynchronous callback message



Flow Trace

Flow Trace ⓘ

This page shows the flow of the message through various composite and component instances.

Data Refreshed Jan 3, 2018 1:48:58 AM ⓘ

Flow ID 10004

Started Jan 3, 2018 1:48:42 AM

Faults Composite Sensor Values Composites

Recover ▾ View ▾ Flow Instance 10004

Error Message	Fault On
No faults found.	

Trace

View ▾ Show Info ⓘ IDs ⓘ [Show XML](#)


Instance	Type	Usage	State	Time	Composite
ReceiveData	Web Service	Service	✓ Completed	Jan 3, 2018 1:48:42 ...	HelloWorld [1.0]
RouteData	Mediator		✓ Completed	Jan 3, 2018 1:48:42 ...	HelloWorld [1.0]
WriteData	JCA Adapter	Reference	✓ Completed	Jan 3, 2018 1:48:42 ...	HelloWorld [1.0]

Execution of the application instance is logged on a per-component basis.

Detailed audit information is available by clicking a component name.


Instance Details


Flow Trace > Instance of RouteData Data R

 **Instance of RouteData** ⓘ
This page shows Mediator component instance details.

Audit Trail

View ▼

▲  **onMessage**

▲  Jan 3, 2018 1:48:42 AM **onCase "WriteData.Write"**

Jan 3, 2018 1:48:42 AM	Evaluation of xpath condition "No Filter" resulted true
Jan 3, 2018 1:48:42 AM	Transformed message part "body" using "../Transformations/PurchaseOrder_To_PurchaseOrder1.xsl"
Jan 3, 2018 1:48:42 AM	Invoked 1-way operation "Write" on target service "WriteData"

Quiz



The Flow Trace logs the execution of an application instance on a per-component basis.

- a. True
- b. False



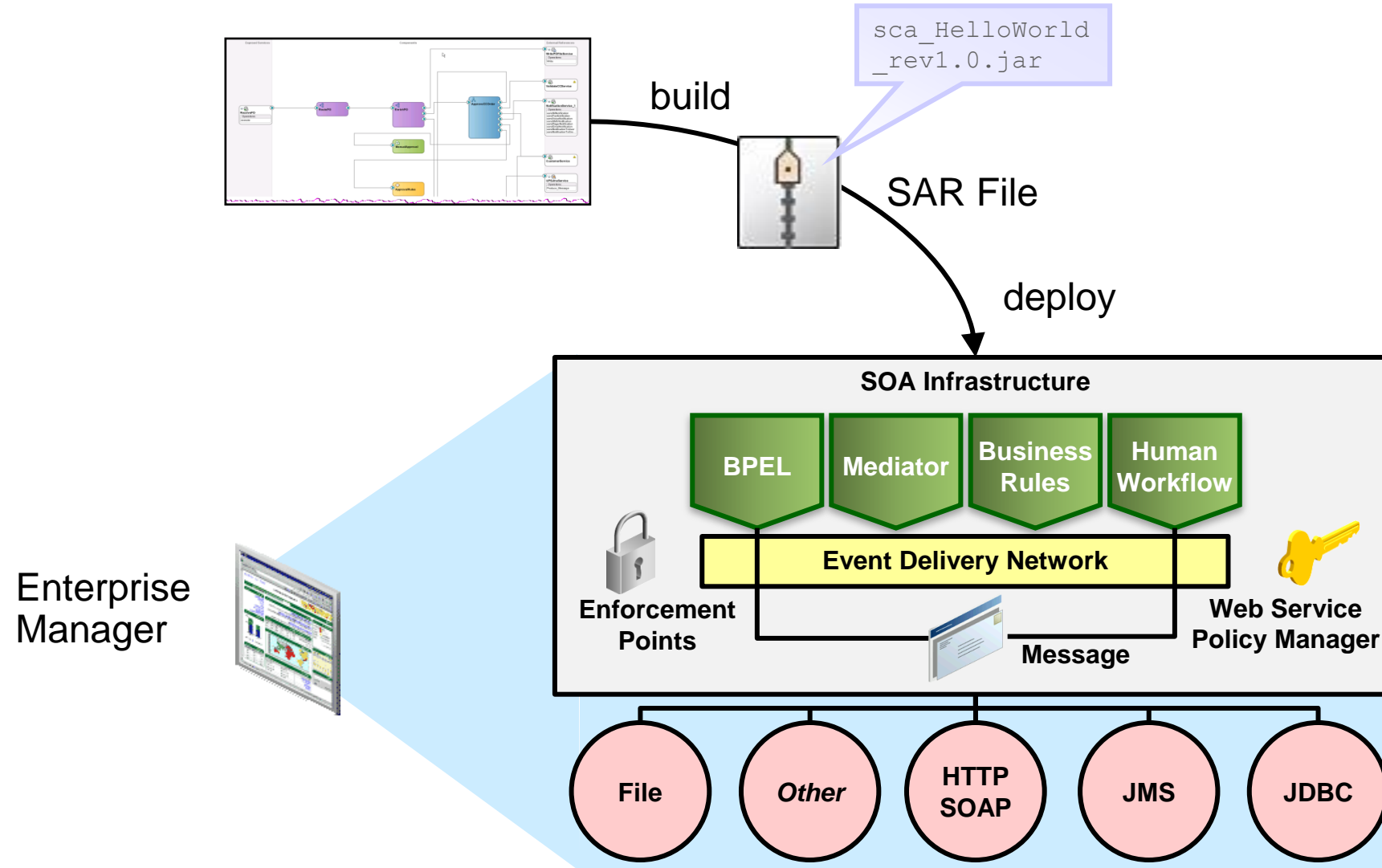
Summary

In this lesson, you should have learned how to:

- Manage SOA composite applications by using Oracle Enterprise Manager
- Track messages through SOA composite applications by using Oracle Enterprise Manager
- Deploy a composite application
- Undeploy a composite application
- Migrate a composite application to a production environment



Practice 3-1 Overview



Practice 3-2 Overview

In this practice, you modify the HelloWorld File adapter to use a logical name. Your tasks are to:

- Modify the File adapter definition of the HelloWorld application to use a logical name instead of a physical directory name for the location to write files in
- Set a reference property of the File adapter to define the logical name value
- Deploy the updated HelloWorld application and test that the order file is saved in the directory that is specified for the logical name

Practice 3-3 and 3-4 Overview

