

Practice 7-1: Configuring the Security Environment

Overview

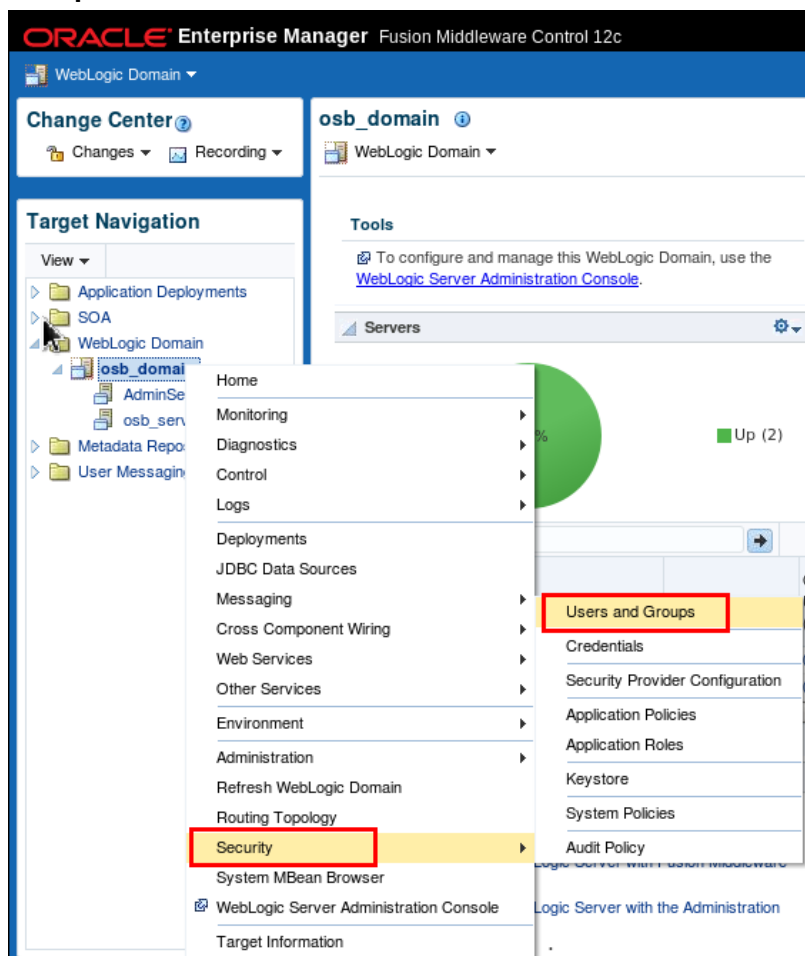
In this practice, you configure Oracle WSM security by configuring the identities.

Assumptions

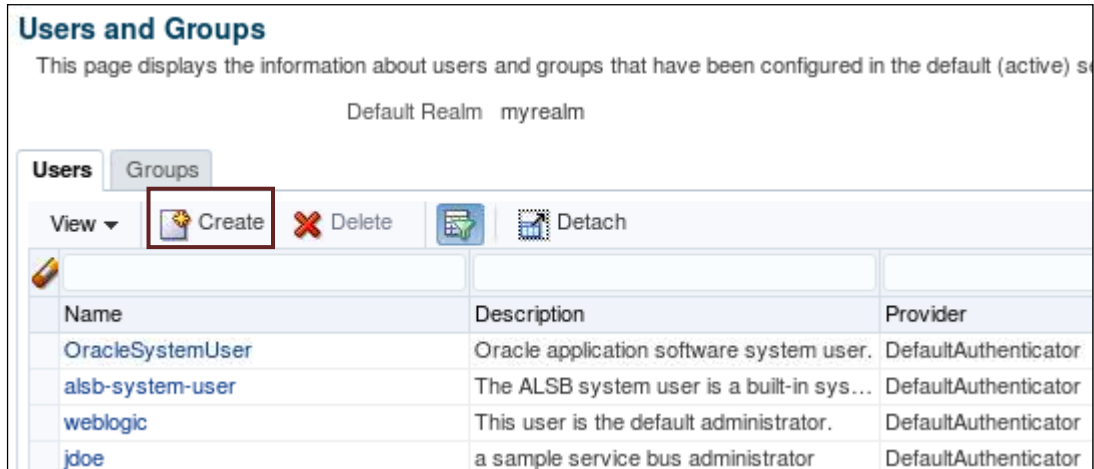
- Oracle Service Bus 12c 12.1.3.0 is installed and is running for the `osb_domain`.
- Oracle Web Services Manager is enabled and configured to work with Service Bus.
- `CreditCardValidationService` web service application is deployed and running on Oracle WebLogic server.

Tasks

1. Create a user in WebLogic Server (WLS) by using Enterprise Manager. The Service Bus proxy service uses the WLS default authenticator to authenticate the username and password in the WS-Security SOAP Headers received from the client. The user created using Enterprise Manager is available to the WLS default authenticator.
 - a. In Enterprise Manager, right-click **osb_domain** and select **Security > Users and Groups**.



- b. In the Users and Groups page, click **Create**.



- c. Create a user by specifying the following, and then click **Create**:

User Name: `joe`

New Password: See `OracleServiceBus12cPassword` File

Confirm Password: See `OracleServiceBus12cPassword` File

Create a New User

User Properties

The following properties will be used to identify your new user.

* Name:

Description:

* Provider:

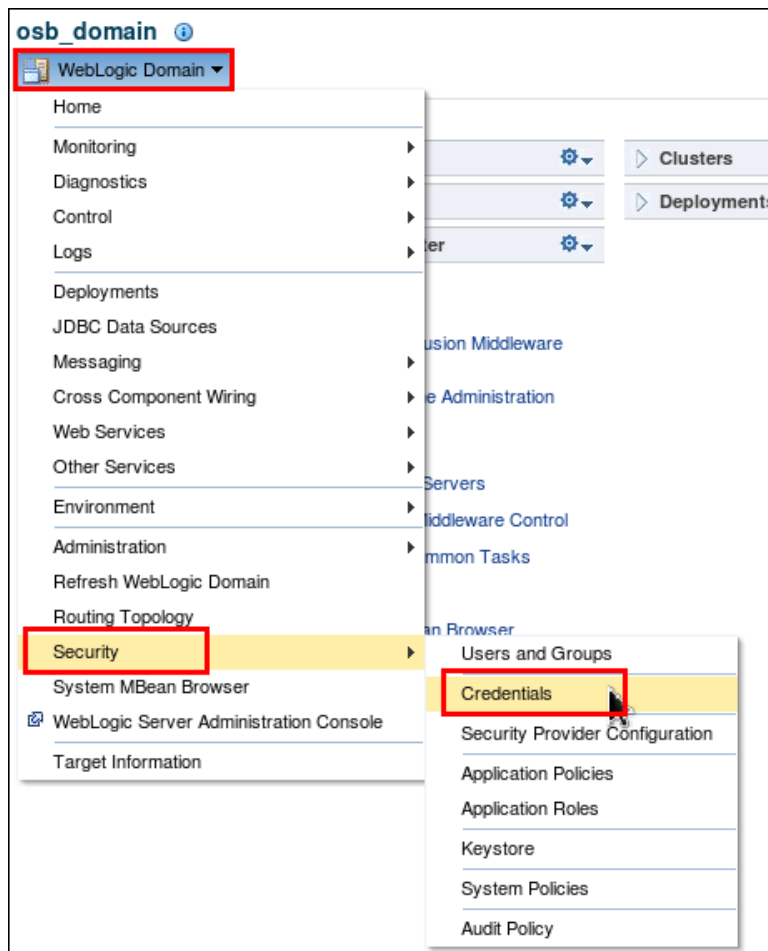
* Password:

* Confirm Password:

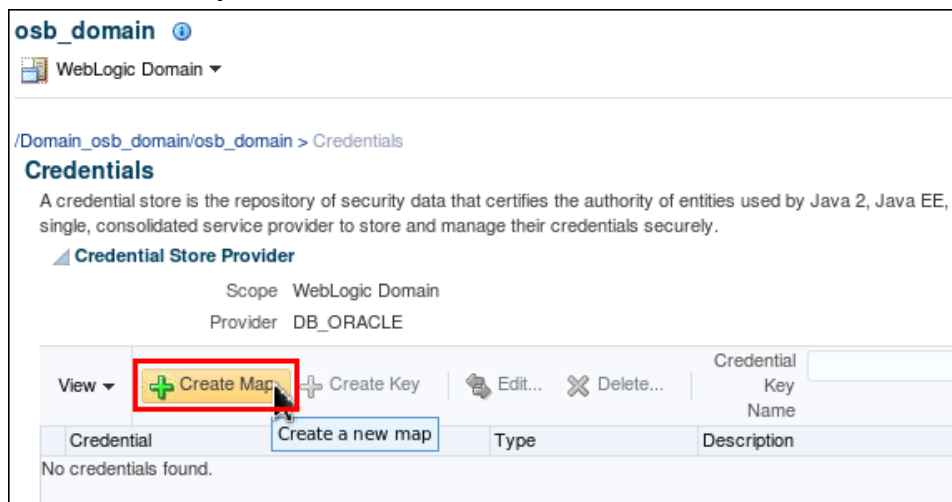
Create **Cancel**

2. Add a csf-key for the user `joe` in Enterprise Manager. This step is required for the Service Bus Test Console to look up the username and password using the csf-key.
- a. In Enterprise Manager, expand **WebLogic Domain**, and click **osb_domain**.

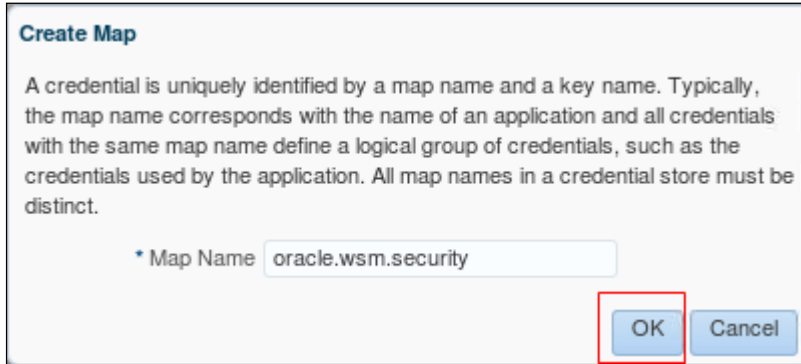
- b. In the `osb_domain` page, from the **WebLogic Domain** drop-down menu, click **Security** > **Credentials**.



- c. Click **Create Map**.



- d. Add the following name: `oracle.wsm.security` and click **OK**.



Create Map

A credential is uniquely identified by a map name and a key name. Typically, the map name corresponds with the name of an application and all credentials with the same map name define a logical group of credentials, such as the credentials used by the application. All map names in a credential store must be distinct.

* Map Name

OK **Cancel**

- e. Select the `oracle.wsm.security` map and click **Create Key**.



osb_domain ⓘ

WebLogic Domain ▼

Information

The credential map, oracle.wsm.security, has been created.

/Domain_osb_domain/osb_domain > Credentials

Credentials

A credential store is the repository of security data that certifies the authority of entities used by Java 2, Java EE, single, consolidated service provider to store and manage their credentials securely.

Credential Store Provider

Scope WebLogic Domain
Provider DB_ORACLE

View ▼ + Create Map + **Create Key** Edit... Delete... Credential Key Name

Credential	Type	Description
oracle.wsm.security	Create a new credential key	

- f. In the Create Key page, specify the following options and then click **OK**.
- Map: `oracle.wsm.security`
- Key: `joe-key`
- Type: **Password**
- User Name: `joe` (same as entered in Service Bus Console)
- Password: See `OracleServiceBus12cPassword` File (same as entered in Service Bus Console)
- Confirm Password: See `OracleServiceBus12cPassword` File

Create Key

Select Map

oracle.wsm.security

* Key

joe-key

Type

Password

* User Name

joe

* Password

* Confirm Password

Description

OK

Cancel

You should see the message: **"The credential key, joe-key, has been created."**

- g. Expand **oracle.wsm.security** and you should see joe-key.

osb_domain

WebLogic Domain

Information

The credential key, joe-key, has been created.

/Domain_osb_domain/osb_domain > Credentials

Credentials

A credential store is the repository of security data that certifies the authority of entities used by Java 2, Java EE, single, consolidated service provider to store and manage their credentials securely.

Credential Store Provider

Scope WebLogic Domain

Provider DB_ORACLE

View

Create Map

Create Key

Edit...

Delete...

Credential Key Name

Credential	Type	Description
oracle.wsm.security		
joe-key	Password	

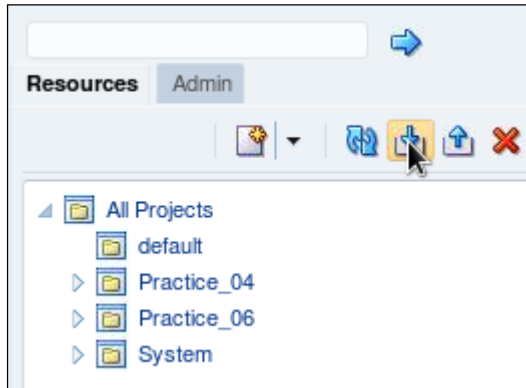
Practice 7-2: Applying a Security Policy to Proxy Services

Overview

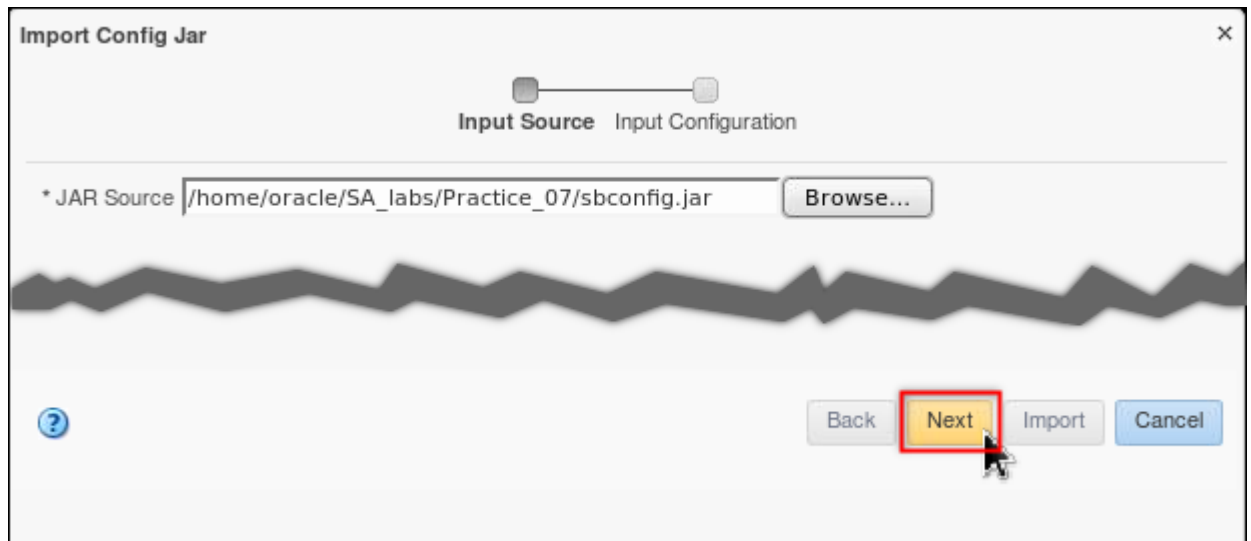
In this practice, you add oracle/wss_username_token_service_policy Oracle WSM policy, at run time to the CreditCardService_Proxy proxy service by using the Service Bus Console.

Tasks

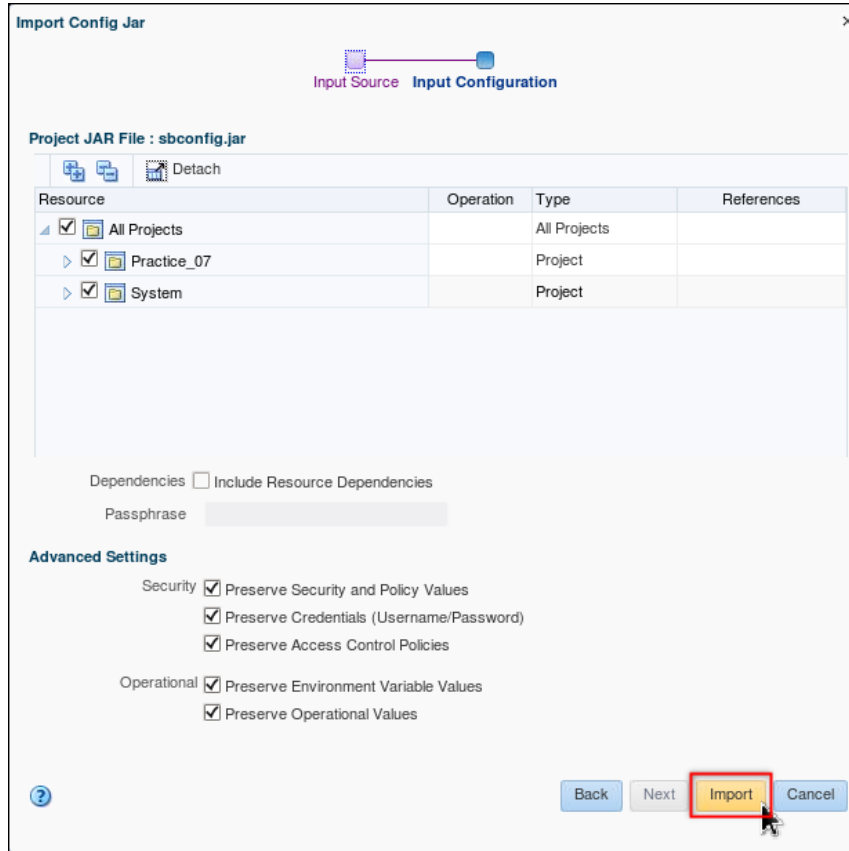
1. Import the sample Service Bus project by using the Service Bus console.
 - a. In Service Bus Console, create a new session.
 - b. In the Resources tab, click **Import Config Jar**.



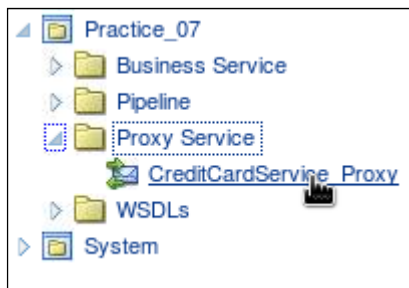
- c. On the Import Config Jar page, browse and navigate to `/home/oracle/labs_SA/Practice_07` directory, and open the `sbconfig.jar` file. Click **Next**.



- d. On the Import Config Jar > Input Configuration page, click **Import**.



- e. You should see the message indicating the import was successful, and then click **Close**.
- f. Activate the changes with an appropriate description.
2. Add User Name Token Service Oracle WSM policy to the proxy service.
- Create a new session in Service Bus.
 - Expand **Project Explorer**, and click **Practice_07 > Proxy Service**.
 - On the Proxy Service page, click **CreditCardService_Proxy**.



- d. On the Proxy Service Definition page, click the **Security** tab.

CreditCardService_Proxy x

Proxy Service Definition

Configuration **Security** SLA Alert Rules

General

Transport

Transport Details

Message Handling

Description

Protocol http

Service WSDL Based Service - SOAP 1.1

Type

- e. Under the Security tab, select **From OWSM Policy Store**, and then click **Attach Policies**.

Policies

☐ No Policies

☒ From OWSM Policy Store

☐ From WSDL (WLS9)

☐ From Pre-defined Policy (WLS 9) or WS Policy Resource (WLS 9)

Service Level Policies

Name	Category	Status	Description
No OWSM Policies to display			

- f. In the **Security Policies – CreditCardService_Proxy** dialog box, enter **oracle/wss_username_token_service_policy** in the Name field, and then click **Search**.

Security Policies - CreditCardService_Proxy x

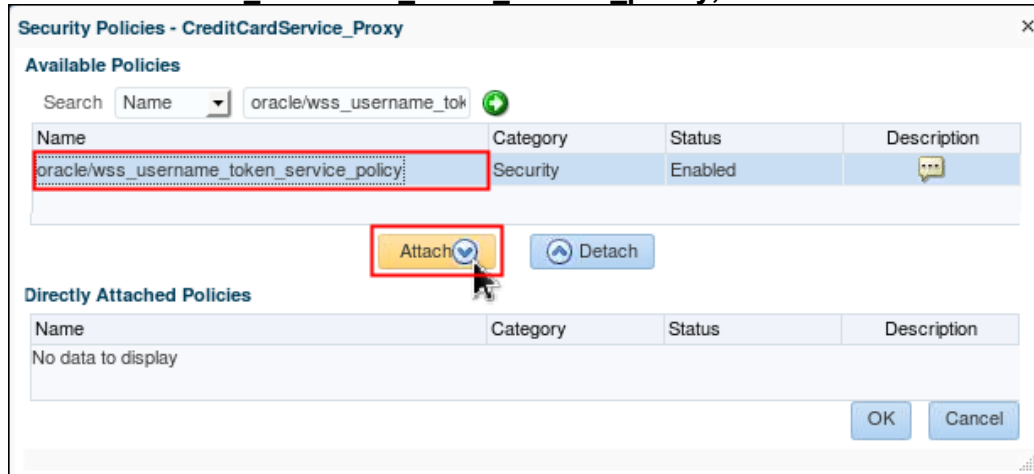
Available Policies

Search Name ame_token_service_policy

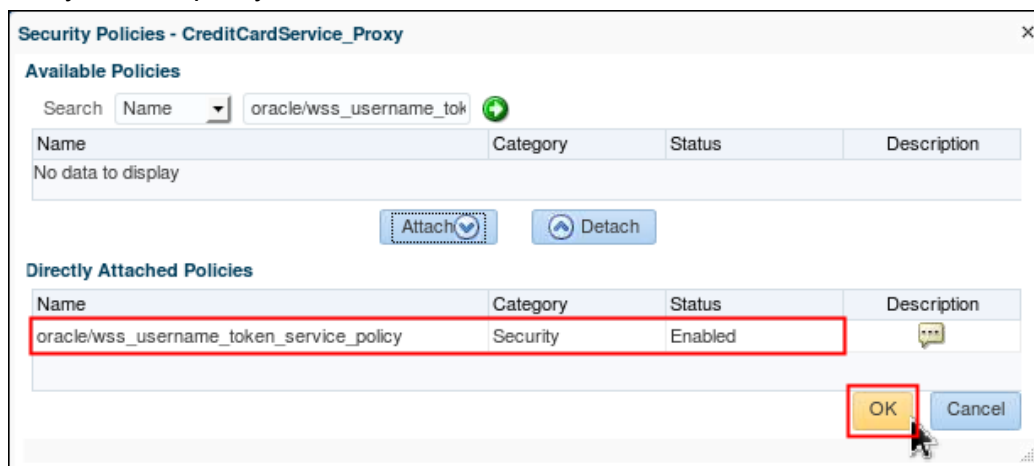
Search

Name	Category	Status	Description
oracle/async_web_service_policy	Other	Enabled	
oracle/atomic_transaction_policy	Other	Enabled	

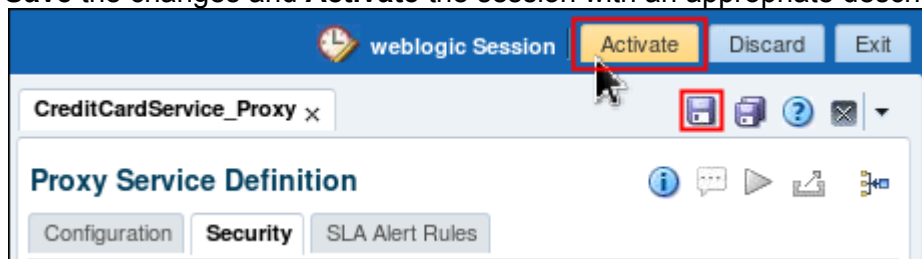
- g. Select **oracle/wss_username_token_service_policy**, and then click **Attach**.



- h. Verify that the policy is attached, and then click **OK**.



- i. **Save** the changes and **Activate** the session with an appropriate description.



Practice 7-3: Testing the Proxy Service Security Implementation

Overview

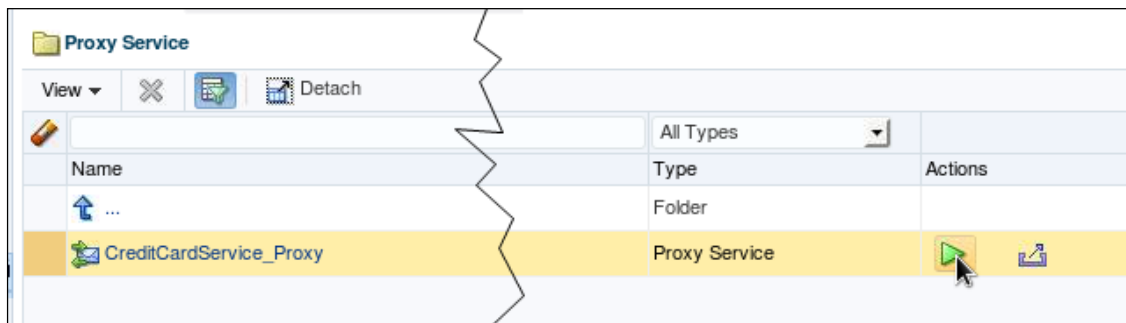
In this practice, you perform a positive test and a negative test to confirm the Oracle WSM security (User Name Token policy) implementation on the proxy service by using the Service Bus Test Console.

Assumptions

- The Oracle WSM security environment is configured to protect Service Bus services.
- Respective Oracle WSM key is defined.
- Respective user identities are created in Oracle WebLogic Server.
- The Service Bus proxy service is secured with the `oracle/wss_username_token_service_policy` Oracle WSM policy.

Tasks

1. Perform a positive test to verify that the proxy service is securely invoked successfully.
 - a. In Service Bus Console, navigate to the **Practice_07 > Proxy Service** folder.
 - b. Click the green arrow button in the Actions section to launch the Test Console for the **CreditCardService_Proxy** proxy service.



- c. In the Test Console, enter values in the Payload field. Specify the card number as `1234-1234-1234-1234` and the card type as **AMEX** as shown in the screenshot below.

Because the `CreditCardService_Proxy` proxy service is attached with the User Name Token Oracle WSM policy, you notice a Security section in the Test Console with an `oracle/wss_username_token_client_policy` policy name and with a `csf-key` property.

- d. In the Test section, specify **joe-key** as the override value. The username and password have already been created, and a mapping joe-key csf-key with the same credentials has already been created by using the OEM Console.

Proxy Service Testing - CreditCardService_Proxy

Execute Execute-Save Reset Close

Service Operation

Operation: validate

Request Document

Form XML

SOAP Header: <soap:Header xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"></soap:Header>

* Payload: Browse...

<cred:validate xmlns:cred="http://creditcardvalidationservice/"><arg0>1234-1234-1234-1234</arg0><arg1>AMEX</arg1></cred:validate>

Security

Override Values

Policy Name	Property	Default Value	Override Value	Actions	
oracle/wss_username_token_client_policy	reference.priority	[No Policy Default]			
	csf-key	basic.credentials	joe-key		
	user.tenant.name	[No Policy Default]			

Add

Transport

Attachment

Execute Execute-Save Reset Close

Top Run the test.

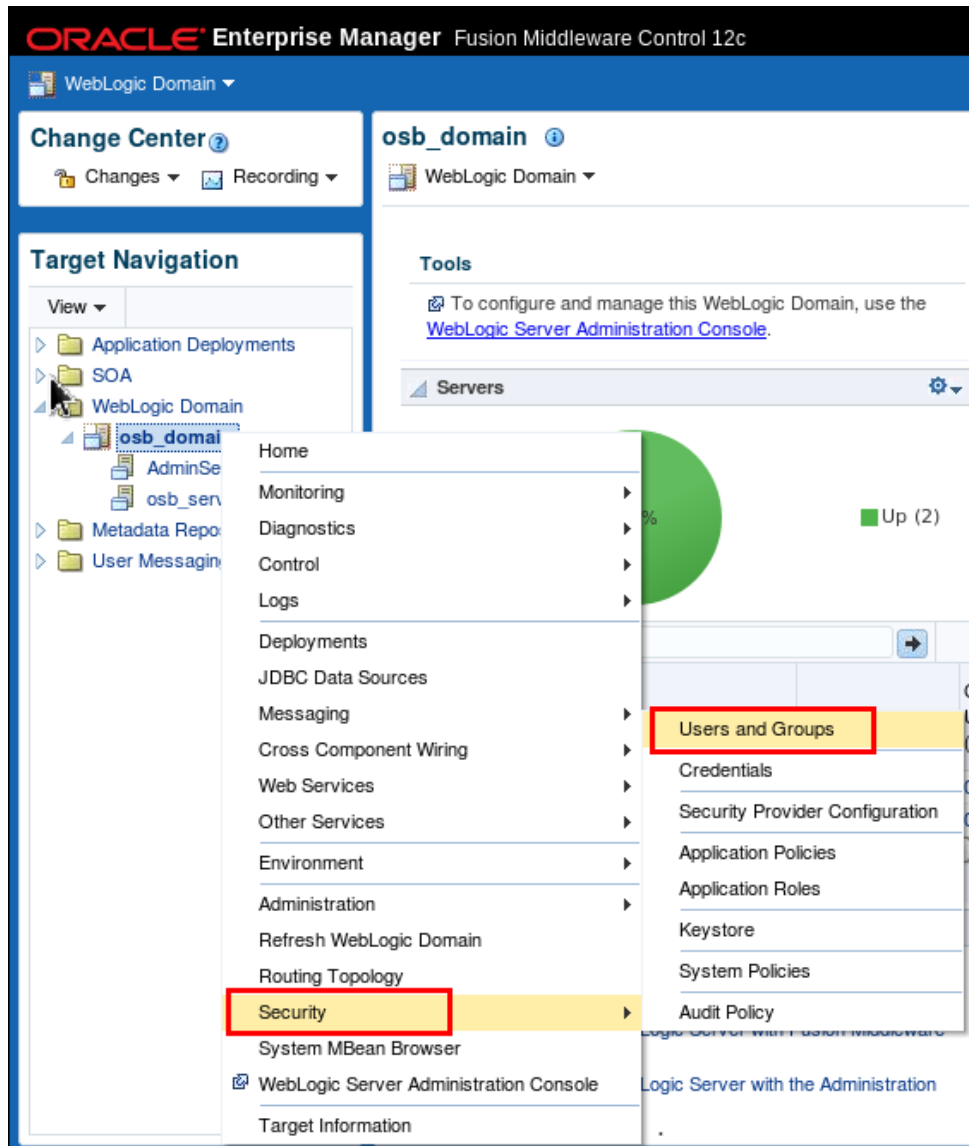
- e. Click **Execute** to test the proxy service.
- f. You should see the following response (in addition to SOAP headers).

Response Document

<S:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" xmlns:S="http://schemas.xmlsoap.org/soap/envelope/"><S:Header/><S:Body><ns0:validateResponse xmlns:ns0="http://creditcardvalidationservice/"><return>VALID</return></ns0:validateResponse></S:Body></S:Envelope>

- g. Close the Test Console.

2. Perform a negative test by modifying the password of user `joe` to a different value, and then invoking the proxy service.
 - a. In Enterprise Manager, right-click `osb_domain` and select **Security > Users and Groups**.



- b. On the Users and Groups page, click **joe**.

osb_domain ⓘ
WebLogic Domain ▼

/Domain_osb_domain/osb_domain > Users and Groups

Users and Groups

This page displays the information about users and groups that have been configured in the default (active) security

Default Realm myrealm

Users Groups

View ▼ Create Delete Detach

Name	Description	Provider
OracleSystemUser	Oracle application software system user.	DefaultAuthenticator
alsb-system-user	The ALSB system user is a built-in sys...	DefaultAuthenticator
weblogic	This user is the default administrator.	DefaultAuthenticator
joe		DefaultAuthenticator

- c. On the “Settings for User: joe” page, click the **Passwords** tab.

osb_domain ⓘ
WebLogic Domain ▼

/Domain_osb_domain/osb_domain > Users and Groups > Settings for User : joe

Settings for User : joe

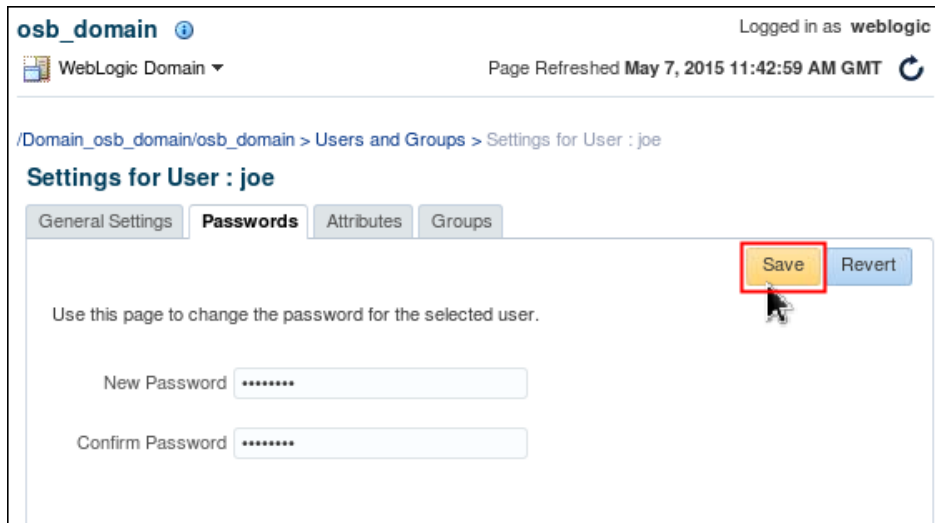
General Settings Passwords Attributes Groups

Use this page to change the description for the selected user.

Name joe

Description

- d. Modify the password to (See `OracleServiceBus12cPassword` File), and then click **Save**.



osb_domain WebLogic Domain Page Refreshed May 7, 2015 11:42:59 AM GMT Logged in as weblogic

/Domain_osb_domain/osb_domain > Users and Groups > Settings for User : joe

Settings for User : joe

General Settings **Passwords** Attributes Groups

Use this page to change the password for the selected user.

New Password

Confirm Password

Save Revert

- e. Execute the same test case (the one you performed for the positive test) using the Service Bus Test Console. You see the request fail with the following response, because `joe`'s password does not match the value used in the Credential Map.



Response Document

The invocation resulted in an error: .

```
<soapenv:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/" xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
  <soapenv:Header/>
  <soapenv:Body>
    <soapenv:Fault>
      <faultcode>soapenv:Server</faultcode>
      <faultstring>
        OSB-386200: General web service security error
      </faultstring>
      <detail>
        <con:stack-trace xmlns:con="http://www.bea.com/wli/sb/context">
          com.bea.wli.sb.service.handlerchain.HandlerException: General web service security error
        </con:stack-trace>
      </detail>
    </soapenv:Fault>
  </soapenv:Body>
</soapenv:Envelope>
```

3. Reset the password of user `joe` back to (See `OraScleServiceBus12cPassword` File).

Practice 7-4: Propagating Identity from Service Bus to Secured Web Service

Overview

In this practice, you propagate the identity of the user authenticated in Oracle Service Bus to the web service application. As a part of this practice, you perform the following steps:

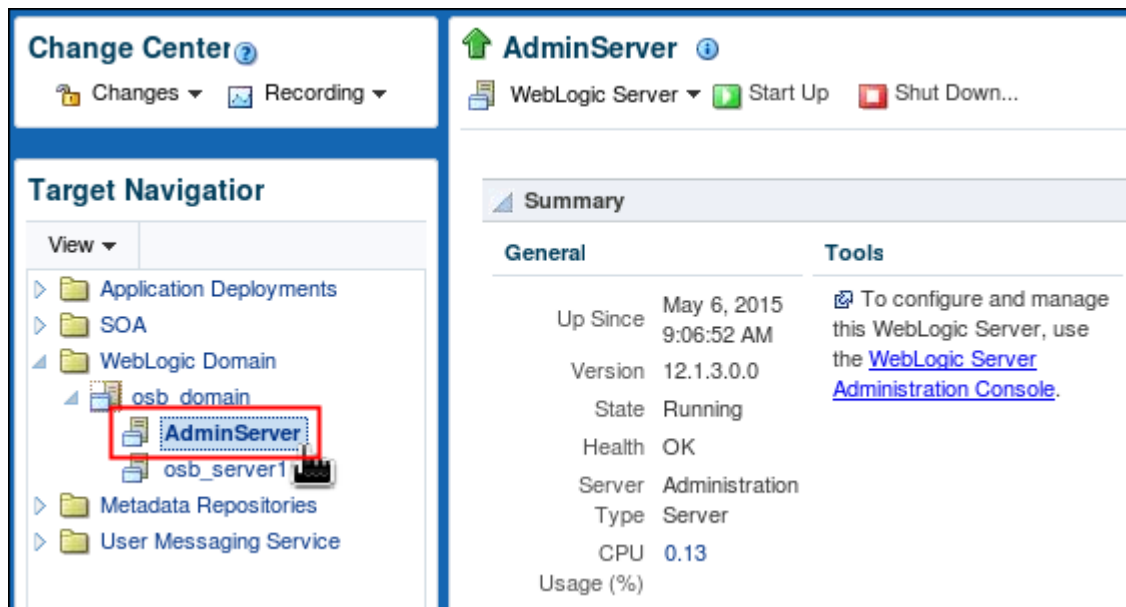
- Protect the CreditCardValidationService Java EE web service application deployed to the WebLogic Server by using the oracle/wss10_saml_token_service_policy service Oracle WSM policy.
- Update and attach the CreditCardService business service in Oracle Service Bus with the oracle/wss10_saml_token_client_policy client Oracle WSM policy.
- Test the security implementation.

Assumptions

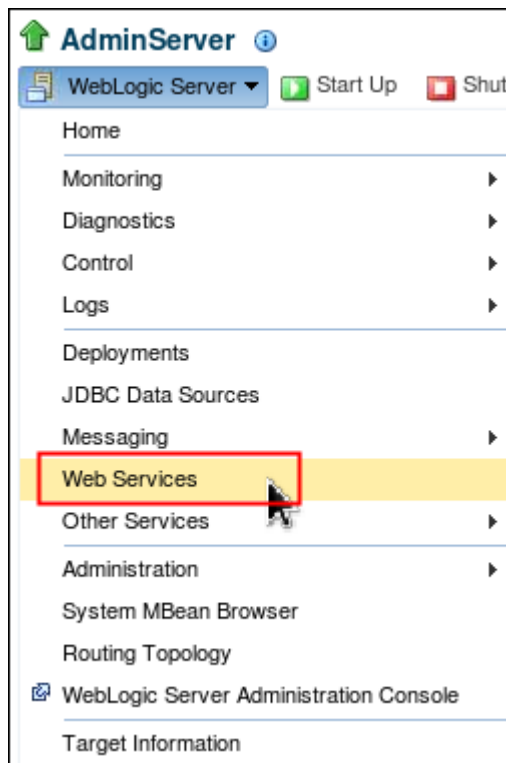
- The CreditCardService_Proxy proxy service is secured with the User Name Token Oracle WSM policy.
- The password of user joe is reinstated to See `OracleServiceBus12cPassword` File.

Tasks

1. Add a SAML service Oracle WSM policy to the CreditCardValidationService web service application.
 - a. In the Target Navigation panel of Enterprise Manager, expand **WebLogic Domain** > **osb_domain** and click **AdminServer**.



- b. On the AdminServer page, from the **WebLogic Server** drop-down menu, click **Web Services**.



- c. On the Web Services page, click **CreditCardValidationPort**.

Java EE		
Oracle Infrastructure Web Services		RESTful Services
Web Service Name	Application Name	Endpoint Name
CCService_A	ServiceA_App-Service_B-context-root	CCService_A_Port
CCService_A	ServiceA_App-Service_C-context-root	CCService_A_Port
CCService_A	ServiceA_App-Service_A-context-root	CCService_A_Port
CreditCardService	PaymentServices	CreditCardServiceSoapPort
CreditCardValidationService	CreditCardValidationService_WS	CreditCardValidationPort
FedExShippingServiceService	ShippingServices	FedExShippingServiceSoapPort
LocalShippingServiceService	ShippingServices	LocalShippingServiceSoapPort

- d. On the Web Service Endpoint page, select **WSM Policies** tab, and click **Attach/Detach**.

CreditCardValidationService_WS

Application Deployment Start Up Shut Down...

Web Services > Web Service Endpoint

CreditCardValidationPort (Web Service Endpoint)

Web Service Type JAX-WS 2.1

Endpoint URI /CreditCardValidationServiceContextRoot
/CreditCardValidationPort

Operations Invocations **WSM Policies**

Select an expression from the constraint dropdown to view the corresponding effective policy reference validation error details. For security policy references, click the violations count link to view violations are recalculated.

Constraint None

Globally Attached Policies

Policy Name	Category	Policy Set
No rows yet		

Directly Attached Policies

View **Attach/Detach** ☒ Enable ☐ Disable ☐ Effective Only ☒ All

Policy Name	Category	Effective	Ena
No rows yet			

- e. On the Attach/Detach Policies page, select `oracle/wss10_saml_token_service_policy` and click **Attach**.

Note: You need to filter by entering the policy name or scroll down to select this policy.

CreditCardValidationService_WS ⓘ

Application Deployment ▼ Start Up Shut Down...

Attach/Detach Policies(CreditCardValidationPort)

Globally Attached Policies

Name	Category
No rows yet	

Directly Attached Policies

Name
No rows yet

Attach

Available Policies

View ▼ [Icons] Detach

oracle/wss10_saml_token_service_policy

Name	Category	Enabled	Description
oracle/wss10_saml_token_service_policy	Security	✓	This policy authenticates ...

- f. On the Attach/Detach Policies page, verify that the policy is attached and click **OK**.

Attach/Detach Policies(CreditCardValidationPort)

OK Validate Cancel

Globally Attached Policies

Name	Category	Policy Set	Enabled	Description
No rows yet				

Directly Attached Policies

Name	Category	Enabled	Description
oracle/wss10_saml_token_service_policy	Security	✓	This policy authenticates ...

Attach Detach

Available Policies

View Detach

oracle/wss10_saml_token_service_policy			
Name	Category	Enabled	Description

- g. You should see the policy information attached to the service.

CreditCardValidationService_WS Logged in as weblogic | localhost

Application Deployment Start Up Shut Down... Page Refreshed May 7, 2015 1:20:31 PM GMT

Web Services > Web Service Endpoint

CreditCardValidationPort (Web Service Endpoint)

[Web Services Test](#)

Web Service Type JAX-WS 2.1 Transport http

Endpoint URI /CreditCardValidationServiceContextRoot WSDL Document [CreditCardValidationPort](#)
/CreditCardValidationPort

Operations Invocations **WSM Policies**

Select an expression from the constraint dropdown to view the corresponding effective policy references. For policy set flagged as "Not Valid", click the link to view the validation error details. For security policy references, click the violations count link to view violation details. When policies are attached/detached, effective policy references are recalculated.

Constraint None Status Secure

Globally Attached Policies

Policy Name	Category	Policy Set	Enabled	Total
No rows yet				

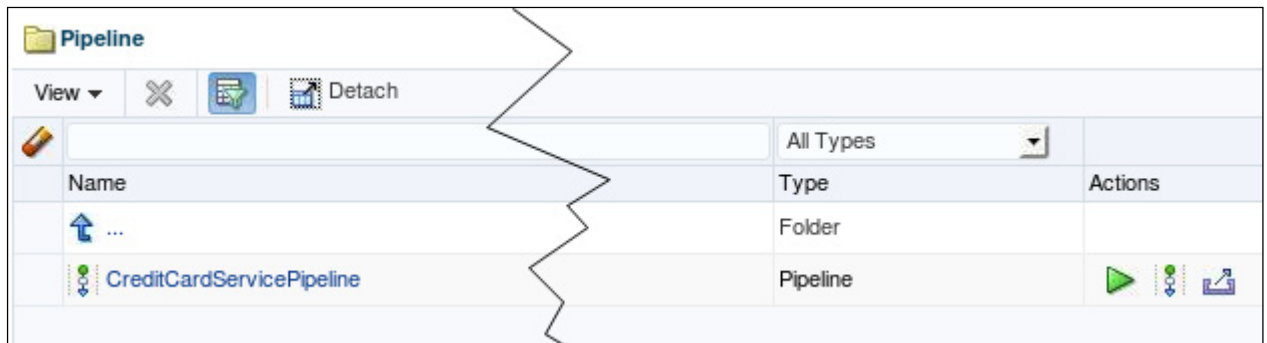
Directly Attached Policies

View Attach/Detach Enable Disable Effective Only All Detach

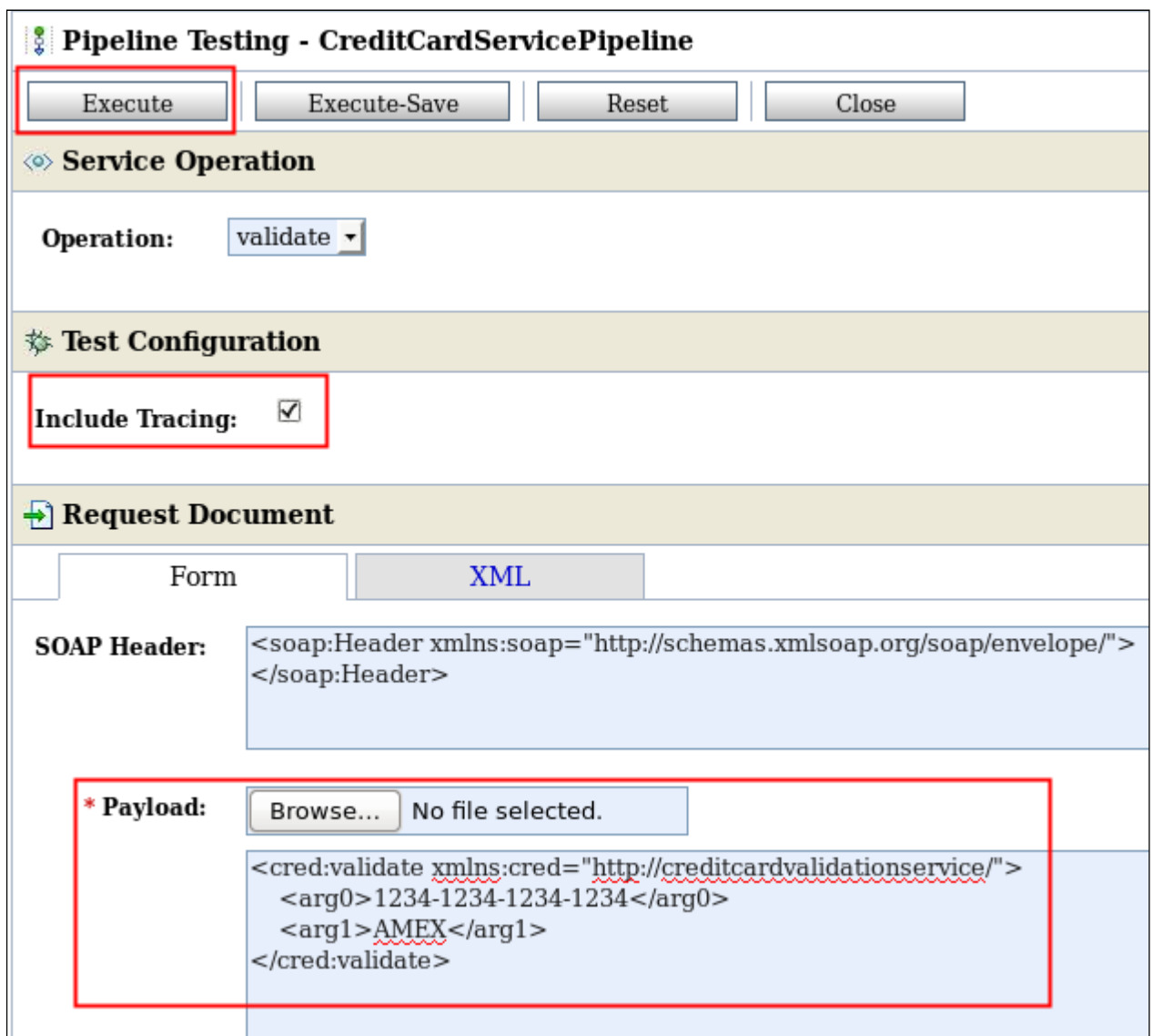
Policy Name	Category	Effective	Enabled	Total Violations
oracle/wss10_saml_token_service_pol...	Security	✓	✓	

2. Test the security implementation by invoking the `CreditCardValidationService` web service from the Service Bus service without implementing the appropriate OWSM client-side policy.
 - a. In Service Bus Console, navigate to the **Projects > Practice_07 > Pipeline** page.

- b. Click the green arrow button in the Actions section to launch the Test Console for the **CreditCardServicePipeline**.



- c. In the Test Console, enter values in the Payload field. Specify the card number as 1234-1234-1234-1234 and the card type as **AMEX** as shown in the screenshot below. Make sure the “**Include Tracing**” option is selected.

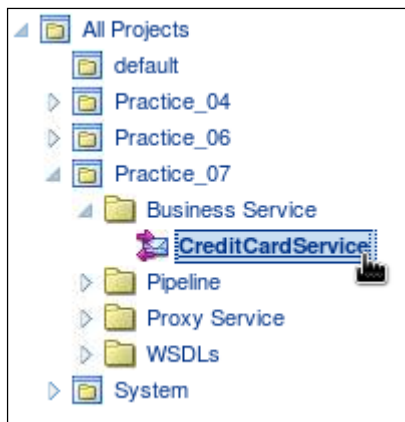


- d. Click **Execute** to test the pipeline.

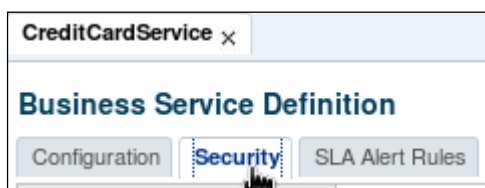
- e. You should see the following invalid security message in the **Invocation Trace** section. This indicates that the Service Bus service didn't have the required security infrastructure to invoke the secured web service application.



- f. Close the Test Console.
3. Add a SAML client Oracle WSM policy to the **CreditCardService** business service.
- In Service Bus Console, create a new session.
 - Navigate to **Practice_07 > Business Service** and click **CreditCardService**.



- c. On the Business Service Definition page, click the **Security** tab.



- d. Select **From OWSM Policy Store**, and click **Attach Policies**.

Policies

☐ No Policies

☒ From OWSM Policy Store

...

Name	Category	Status	Description
No OWSM Policies to display			

Service Account

Attach Policies

- e. Under **Available Policies**, enter `oracle/wss10_saml_token_client_policy` in the Name field, and click the search icon.

Security Policies - CreditCardService

Available Policies

Search

Name	Category	Status
oracle/atomic_transaction_policy	Other	Enabled

- f. In the results table, select `oracle/wss10_saml_token_client_policy` and click **Attach**.

Security Policies - CreditCardService

Available Policies

Search

Name	Category	Status	Description
oracle/wss10_saml_token_client_policy	Security	Enabled	

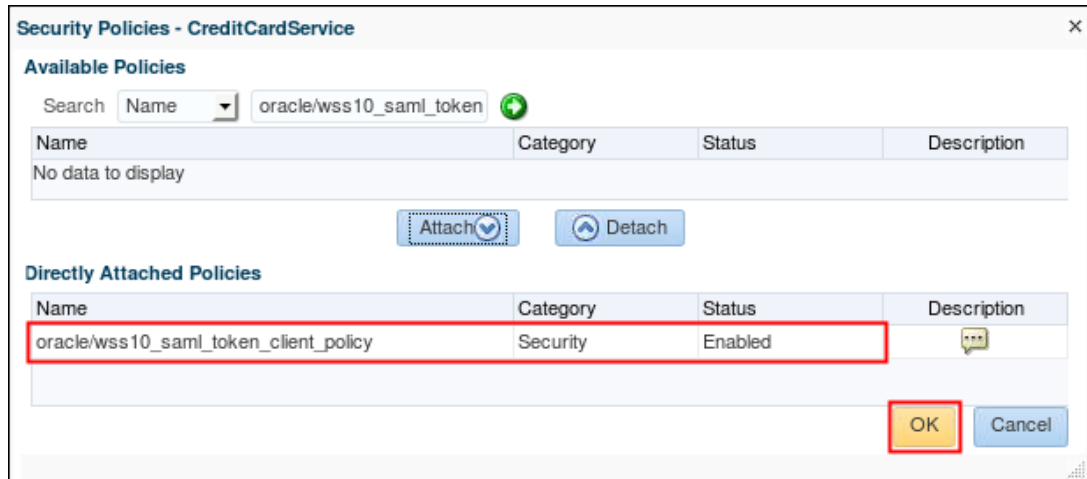
Attach Detach

Directly Attached Policies

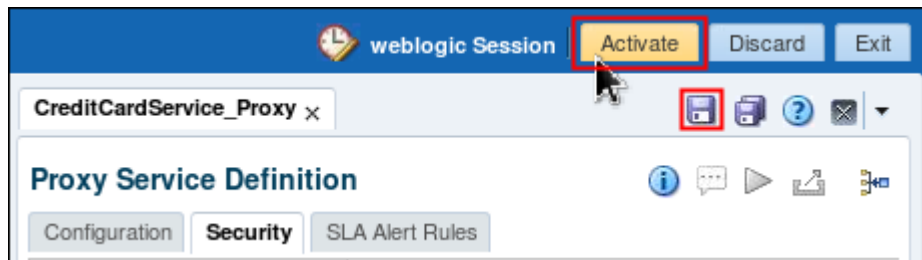
Name	Category	Status	Description
No data to display			

OK Cancel

- g. In the Directly Attached Policies panel, verify that the policy is attached and click **OK**.



- h. **Save** and **activate** the changes with an appropriate description.



4. Test the security implementation.
- a. In SB Console, navigate to the **Practice_07 > Proxy Service** page.

- b. Click the green arrow button to launch the Test Console for the **CreditCardService_Proxy** proxy service.
- c. In the Test Console, enter values in the Payload field. Specify the card number as 1234-1234-1234-1234 and the card type as **AMEX** as shown in the screenshot below. In the Security section, specify **joe-key** as the override value for the **oracle/wss_username_token_client_policy** policy with the **csf-key** property.

Proxy Service Testing - CreditCardService_Proxy

Execute Execute-Save Reset Close

Service Operation

Operation: validate

Request Document

Form XML

SOAP Header: <soap:Header xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/"></soap:Header>

* Payload: Browse...

<cred:validate xmlns:cred="http://creditcardvalidation.service/"><arg0>1234-1234-1234-1234</arg0><arg1>AMEX</arg1></cred:validate>

Security

Override Values

Policy Name	Property	Default Value	Override Value	Actions
oracle/wss_username_token_client_policy	reference.priority	[No Policy Default]		
	csf-key	basic.credentials	joe-key	
	user.tenant.name	[No Policy Default]		

Add

Transport

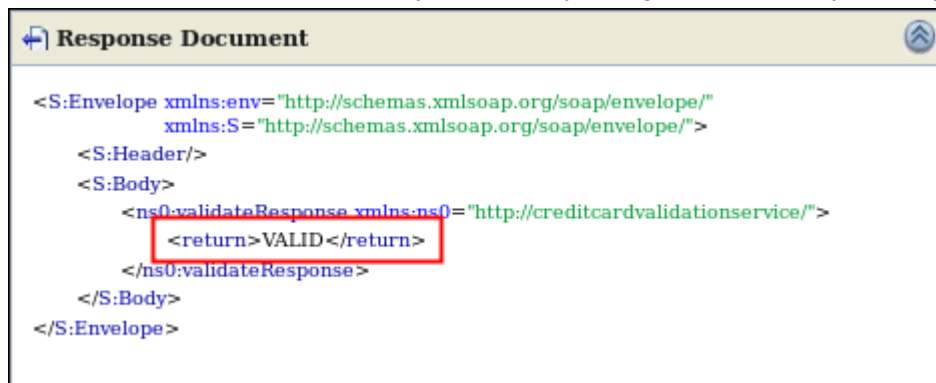
Attachment

Execute Execute-Save Reset Close

Top Run the test.

- d. Click **Execute** to test the proxy service.

- e. You should see the following response (in addition to SOAP headers). This indicates that the service was successfully invoked by using SAML identity propagation.



- f. Close the Test Console.