

WSO2 ESB Assignment

The purpose of this assignment is to learn and adapt to the WSO2 ESB. Also, this assignment link to the previous banking API. Before starting this assignment, you should learn the following concepts.

XML and SOAP services.
WSO2 ESB proxy services.
WSO2 ESB Mediators.

You can use the following tools for development.

WSO2 EI
WSO2 Integration Studio IDE
SOAP UI

1 - Transform XML data to JSON banking API format

Business Requirement	Description
1.0	The data format is given in the xml format and it should transform and insert to banking system. (See sample xml data format).
1.1	Type of the account should be correctly map with the API account type value (See account type mappings).
1.2	A proxy service should be implemented to accept the XML payload.

Task 2 - Get the JSON formatted data and transform to XML format

Business Requirement	Description
1.0	The user data should be transformed into the following XML format.
1.1	Type of the account should be correctly map to source system format. (See account type mappings)
1.2	A proxy service should be implemented to receive a list of user's account with XML format.

Account Type Mappings

Source System (XML data)	Target System (Banking API)
Isuru	1
Nirogya	2

Sample XML format.

```
<?xml version="1.0" encoding="UTF-8"?>
<users>
  <user id="1">
    <name>Nuwan Gunasekara</name>
    <password>$456SSSS</password>
    <accountType>Isuru</accountType>
  </user>
  <user id="2">
    <name>Gayan Perera</name>
    <password>$55dddfww</password>
    <accountType>Nirogya</accountType>
  </user>
  <user id="3">
    <name>Ruwan Weerasekara</name>
    <password>45ddddd@@</password>
    <accountType>Isuru</accountType>
  </user>
  <user id="4">
    <name>Gihan Dias</name>
    <password>sdfgee@@45</password>
    <accountType>Nirogya</accountType>
  </user>
  <user id="5">
    <name>Dimuth Rupasinghe</name>
    <password>ssfd##4ssd</password>
    <accountType>Isuru</accountType>
  </user>
</users>
```

Answers

Step 01 :- Download WSO2 Enterprise Integrator.

Step 02 :- Open a terminal and type '**sudo wso2ei-6.6.0-integrator**'

Step 03 :-

```
INFO {org.wso2.carbon.core.internal.StartupFinalizerServiceComponent} - WSO2 Carbon started in 21 sec
INFO {org.wso2.carbon.ui.internal.CarbonUIServiceComponent} - Mgt Console URL : https://192.168.8.100:9443/carbon/
INFO {org.wso2.carbon.core.services.util.CarbonAuthenticationUtil} - 'admin@carbon.super [-1234]' logged in at [2020
```

Copy the above Mgt Console URL and paste it in the browser and log into the system by giving 'admin' for both user name and password the window will look like below.

The screenshot shows the WSO2 Enterprise Integrator Management Console. The browser address bar displays the URL `192.168.8.100:9443/carbon/admin/index.jsp`. The page header includes the WSO2 logo, the text "Enterprise Integrator", and the "Management Console" title. A user is signed in as `admin@carbon.super`. The left sidebar contains a navigation menu with categories: Home, Manage, Services, Main, Monitor, Configure, and Tools. The main content area is titled "WSO2 Enterprise Integrator Home" and displays system information in a table format.

Server	
Host	192.168.8.100
Server URL	local://services/
Server Start Time	2020-12-28 21:53:39
System Up Time	0 day(s) 1 hr(s) 24 min(s) 8 sec(s)
Version	6.6.0
Repository Location	file:/usr/lib/wso2/wso2ei/6.6.0/repository/deployment/server/

Operating System	
OS Name	Linux
OS Version	5.8.0-33-generic

Operating System User	
Country	US
Home	/home/wso2
Name	wso2
Timezone	Asia/Colombo

Task 01:-

Go to Proxy Services -> Custom Proxy -> Switch to design view
then type the following code there and save it.

```
1 <proxy xmlns="http://ws.apache.org/ns/synapse"
2     name="tojson"
3     transports="https,http"
4     statistics="disable"
5     trace="disable"
6     startOnLoad="true">
7     <target>
8         <inSequence>
9             <property name="messageType" value="application/json" scope="axis2"/>
10            <respond/>
11        </inSequence>
12    </target>
13    <description/>
14 </proxy>
```

then we can see that proxy service in the list as follow.

The screenshot shows the WSO2 Enterprise Integrator Management Console. The left sidebar contains navigation options like Home, Manage, Main, Monitor, Configure, and Tools. The main content area displays 'Deployed Services' with a table of active services. The 'tojson' service is highlighted, showing its configuration as a proxy service using the 'axis2' transport and 'Unsecured' security.

Service	Transport	Security	WSDL 1.1	WSDL 2.0	Try this service	Download	Design View	Source View
echo	axis2	Unsecured	WSDL 1.1	WSDL 2.0	Try this service	Download		
tojson	proxy	Unsecured	WSDL 1.1	WSDL 2.0	Try this service		Design View	Source View
Version	axis2	Unsecured	WSDL 1.1	WSDL 2.0	Try this service	Download		
wso2carbon-sts	sts	Unsecured	WSDL 1.1	WSDL 2.0				

- > Save the given xml file as banking_data.xml
- > Open a terminal where banking_data.xml file is located
- > Get the url of the service that we added by clicking the try this service button. It will be look like this

<https://192.168.8.100:9443/services/tojson?tryit>

- > Then type as follows

```
curl --insecure -v -X POST -H "Content-Type:application/xml"
-d@banking_data.xml "https://192.168.8.100:9443/services/tojson"
```

- > Then the result will be as follows

```
* Connection #0 to host 192.168.8.100 left intact
{"users":{"user":[{"@id":"1","name":"Nuwan Gunasekara","password":"$456SSSS","accountType":"Isuru"}, {"@id":"2","name":"Gayan Perera","password":"$55dddfww","accountType":"Nirogya"}, {"@id":"3","name":"Ruwan Weerasekara","password":"45d ddd@@","accountType":"Isuru"}, {"@id":"4","name":"Gihan Dias","password":"sdfge e@@45","accountType":"Nirogya"}, {"@id":"5","name":"Dimuth Rupasinghe","password":"ssfd##4ssd","accountType":"Isuru"}]}
prasadi@pprasadi@prasadi-HP-ProBook-450
prasadi@prasadi-HP-ProBook-450-G5:~/Desktop$
```

Task 02 :-

Go to Proxy Services -> Custom Proxy -> Switch to design view then type the following code there and save it.

```
<?xml version="1.0" encoding="UTF-8"?>
<proxy xmlns="http://ws.apache.org/ns/synapse" name="jsontoXml"
startOnLoad="true" statistics="disable" trace="disable"
transports="http,https">
  <target>
    <inSequence>
      <property name="messageType" scope="axis2"
value="application/xml"/>
      <respond/>
    </inSequence>
  </target>
  <description/>
</proxy>
```

then we can see that proxy service in the list as follow.

The screenshot shows the WSO2 Enterprise Integrator Management Console. The left sidebar contains navigation options: Home, Manage (selected), Services, List, Add, Proxy Service, Data Service, Generate, Create, Upload, DS Scheduled Tasks, Service Bus, Sequences, Inbound Endpoints, Scheduled Tasks, Templates, Endpoints, Local Entries, HL7 Console, Message Processors, Message Stores, APIs, Source View, and Connectors. The main content area is titled 'Deployed Services' and shows 5 active services. A search bar at the top of the list allows filtering by Service Type (set to ALL) and Service name. Below the search bar are links for 'Select all in this page', 'Select none', and 'Delete'. The services are listed in a table with columns for checkboxes, service names, icons, security types, WSDL versions, and actions like 'Try this service' and 'Download'. The 'proxy' service is highlighted in the list.

Home > Manage > Services > List

Deployed Services

5 active services. 5 deployed service group(s).

Service Type: ALL Service:

Select all in this page | Select none

Services									
<input type="checkbox"/>	echo		Unsecured	WSDL1.1	WSDL2.0				
<input type="checkbox"/>	jsontoXml		Unsecured	WSDL1.1	WSDL2.0				
<input type="checkbox"/>	toJson		Unsecured	WSDL1.1	WSDL2.0				
<input type="checkbox"/>	Version		Unsecured	WSDL1.1	WSDL2.0				
	wso2carbon-sts		Unsecured	WSDL1.1	WSDL2.0				

Select all in this page | Select none

- > Save the json formatted data that we got in to a file called **banking_data.json**
- > Open a terminal where banking_data.json file is located
- > Get the url of the service that we added by clicking the try this service button. It will be look like this

<https://192.168.8.100:9443/services/jsontoXml?tryit>

- > Then type as follows

```
curl --insecure -v -X POST -H "Content-Type:application/json"
-d@banking_data.json "https://192.168.8.100:9443/services/jsontoXml"
```

- > Then the result will be as follows

```
* Connection #0 to host 192.168.8.100 left intact
<jsonObject><users><user id="1"><name>Nuwan Gunasekara</name><password>$456SSSS
</password><accountType>Isuru</accountType></user><user id="2"><name>Gayan Pere
ra</name><password>$55dddfww</password><accountType>Nirogya</accountType></user
><user id="3"><name>Ruwan Weerasekara</name><password>45ddddd@@</password><accou
ntType>Isuru</accountType></user><user id="4"><name>Gihan Dias</name><password>
sdfgee@@45</password><accountType>Nirogya</accountType></user><user id="5"><nam
e>Dimuth Rupasinghe</name><password>ssfd##4ssd</password><accountType>Isuru</ac
countType></user></>
prasadi@prasadi-HP-ProBook-450-G5:~/Desktop$
```