

# **SAP Web Service - Create, Expose and Consume**

## **Agenda for this session**

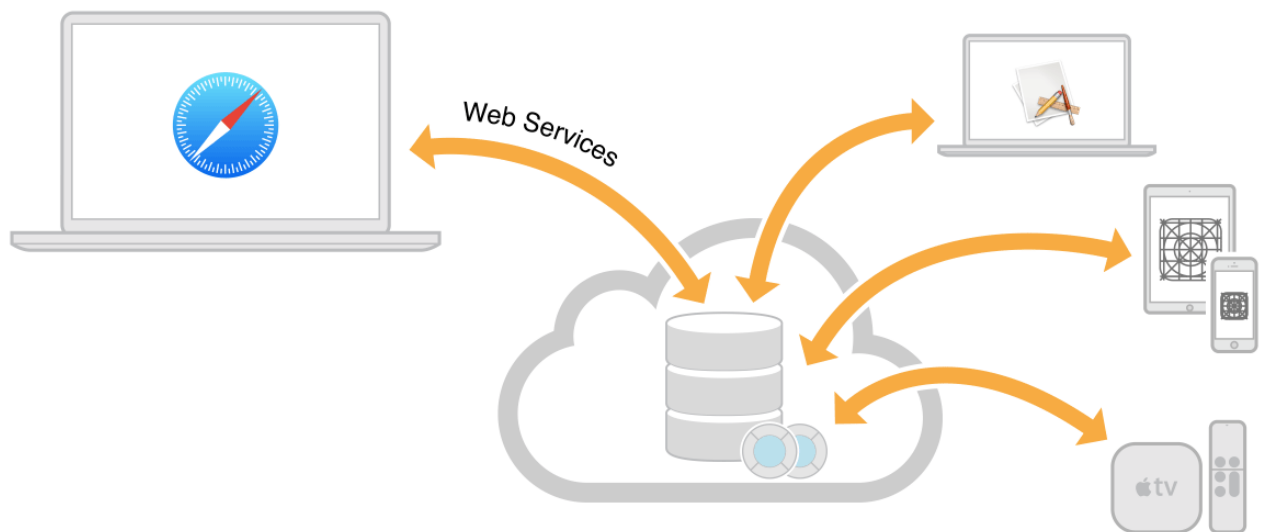
1. Introduction to Web Service and WSDL
2. Expose Web Service
3. Consume External Web Service
4. Demo

## Web service:

A **Web service** is an independent, modular, self-describing application function or service. Web services use XML to code and to decode data, and SOAP to transport it (using open protocols).

By using Web services, your application can publish its function or message to the rest of the world.

Web services Type: SOAP and REST



## WSDL

WSDL stands for Web Service Definition Language. WSDL is a document written in XML. The document describes a Web service. It specifies the operations (or methods) the service exposes.

**The following are the elements of WSDL.**

**Definitions:** This is the root element and has web service name and its target namespace.

**Types:** This element defines the data types used by the web services.

**Message:** This describes the request and response messages.

**Port Type:** It is most important element of web service. This defines the operations such as the input and output/Request and Response messages involved.

**Bindings:** In bindings element we define the way messages are transported i.e. binding style and transport protocol.

**Documentation:** It will provide the brief description of the service.

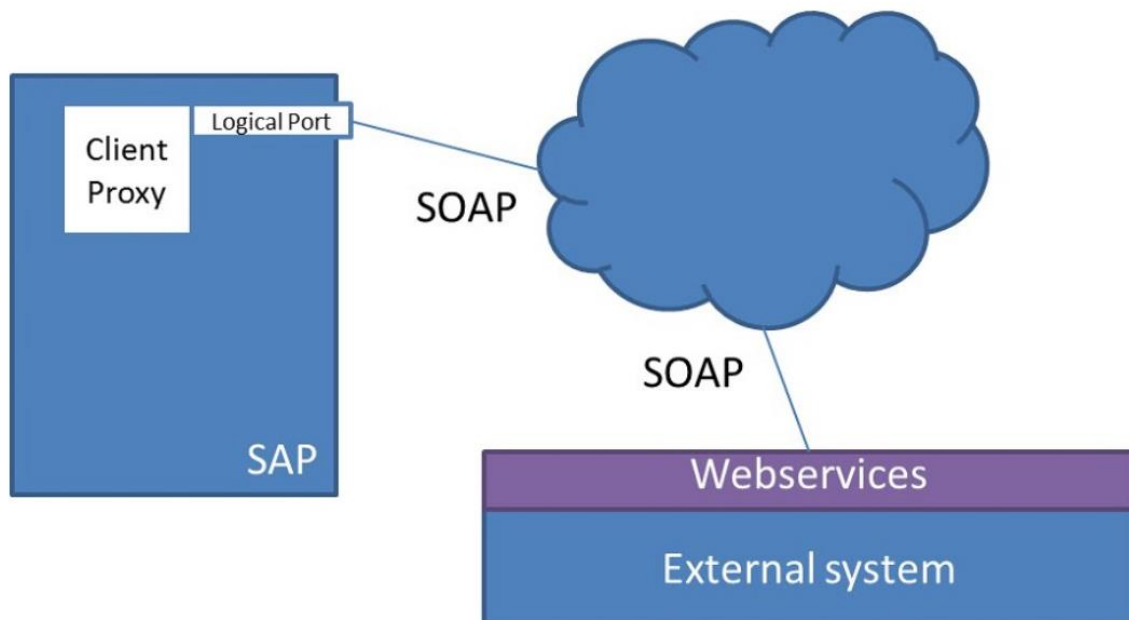
## Expose Web Service

Normally when a third-party calls SAP, it does an RFC function module or BAPI call through Middleware. They can also do direct web service calls thus by-passing Middleware. In such web service calls, WSDL files come into picture. WSDL is a file which is recognized by the third party as well as SAP.

## Consume External Web Service

Very often we have a business need to connect to the external third-party system from within SAP environment using external web service to pull information.

In layman terms, there are some data present in the external system and is needed in SAP system. To achieve this, we would need to create SAP Web Service Consumer to call external web service from SAP system.



## Expose web service

1. Open the RFC Function module for which you want to create the WSDL.  
For demo ZFM\_WS is considered.  
Right click on the FM->Create->Web Service.

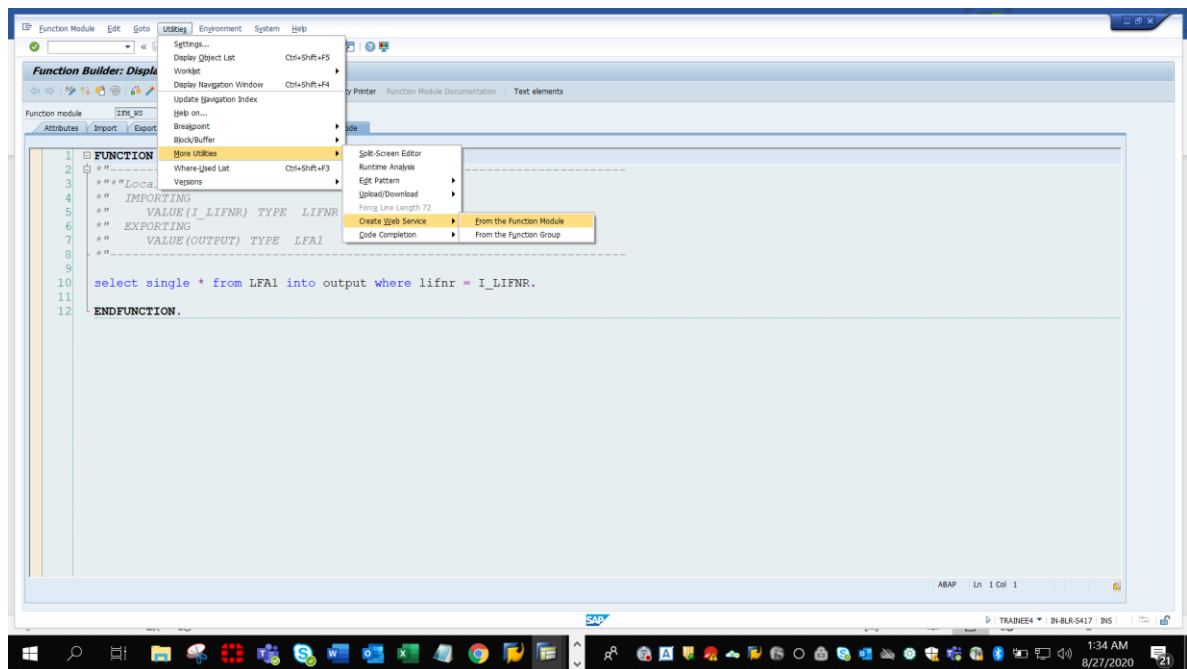


Fig-1

2. Give Service Definition name and description.

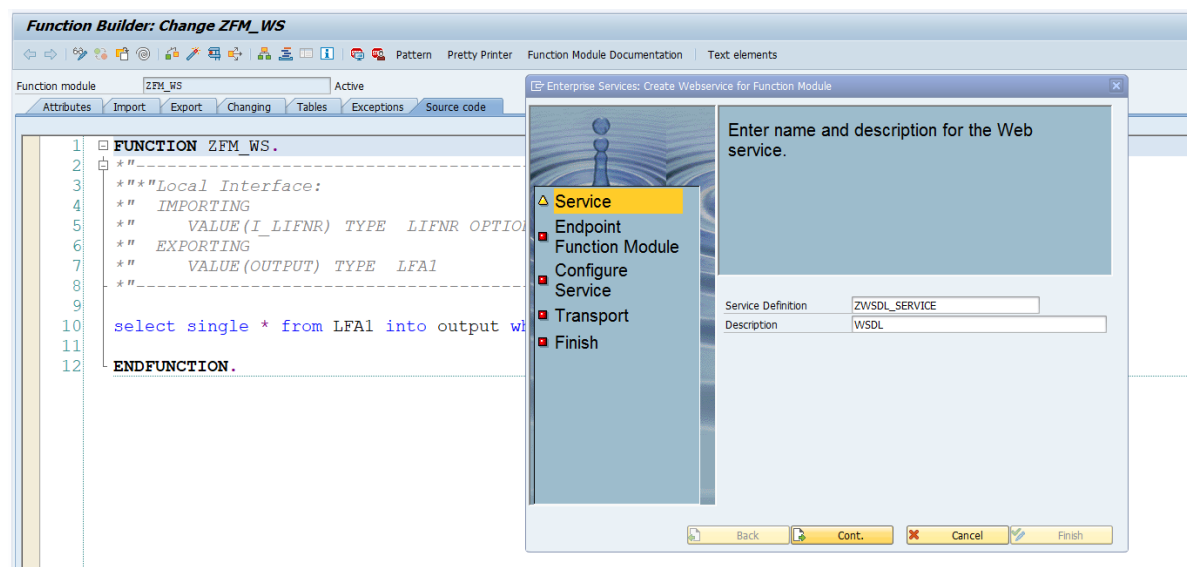


Fig-2

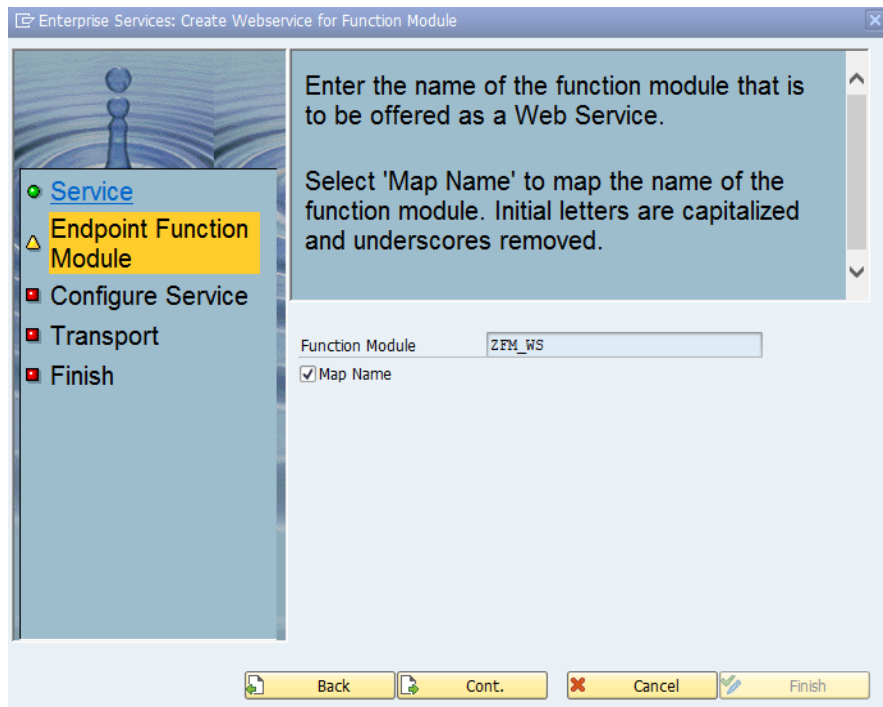


Fig-3

3. I have selected the No Authentication required Profile. You can choose any other as per your requirement from the drop-down list.

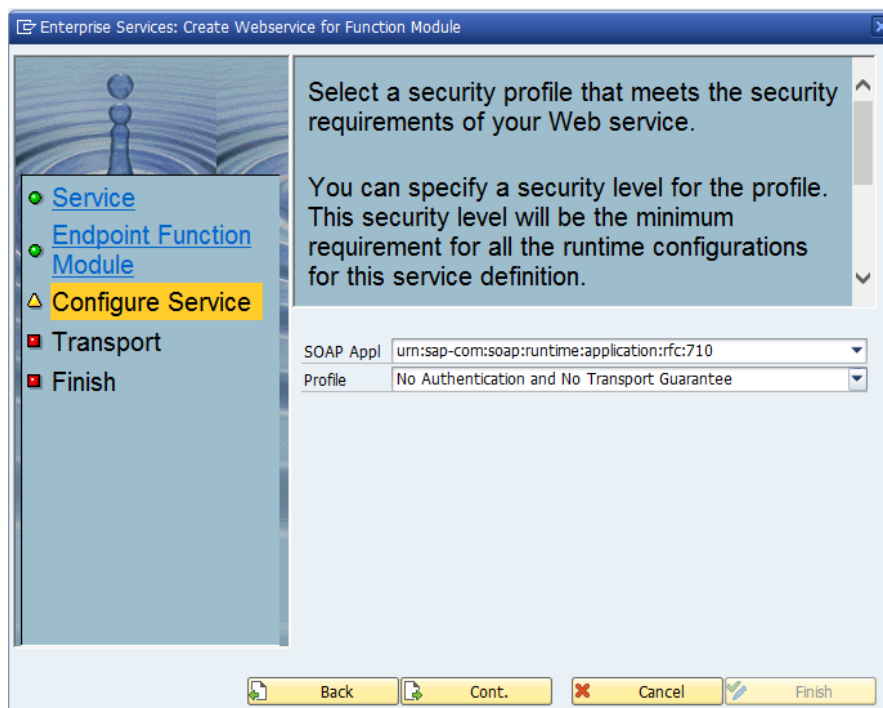


Fig-4

4. Give the package, transport number and complete the wizard.

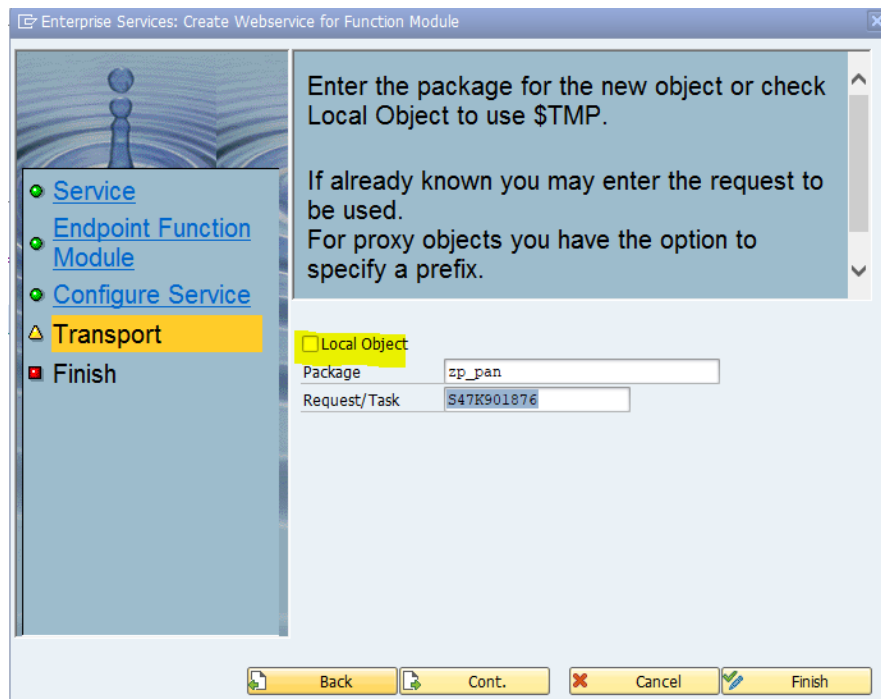


Fig-5

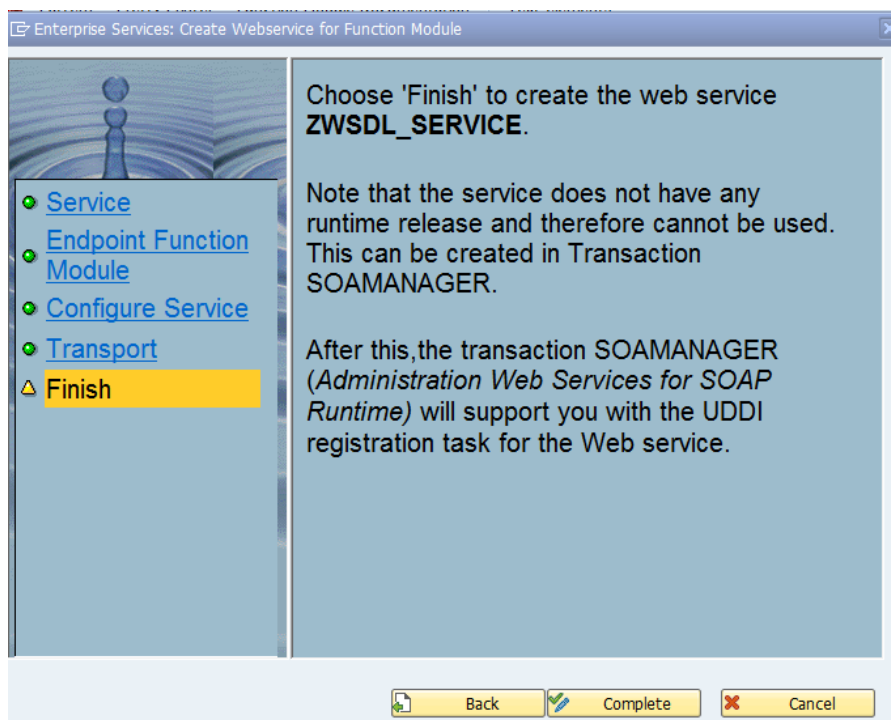


Fig-6

- Once the wizard is complete, activate the service definition.

**Change Service Definition ZWSDL\_SERVICE**

Service Definition: ZWSDL\_SERVICE New

**Properties** External View Internal View Types Objects Configuration WSDL Classifications

**Identification**

Technical Name	ZWSDL_SERVICE
Porttype Name	ZWSDL_SERVICE
Short Description	WSDL
SOAP Namespace	urn:sap-com:document:sap:soap:functions:mc-style

**Endpoint**

Endpoint Type	Function Module
Referenced Object	ZFM_WS

**General Data**

Package	ZP_PAN		
Original Language	EN		
Created by	TRAINEE4	on	22.08.2020 22:48:17
Changed by	TRAINEE4	on	22.08.2020 22:48:17

Fig-7

- Execute transaction SOAMANAGER and select “Web Service Configuration”

**SOA Management (S47;100)** Mode: Local View Help Logoff

Service Administration Technical Administration Logs and Traces Management Connections Services Registry Monitoring Tools

**Identifiable Business Context**  
Display and maintain Identifiable Business Contexts (IBCs)

**Identifiable Business Context Reference**  
Display and maintain Identifiable Business Contexts references (IBC reference)

**Design Time Cache**  
Display central design time cache

**Web Service Configuration**  
Configure service definitions, consumer proxies and service groups

**Simplified Web Service Configuration**  
Configure service definitions for Web service consumers with limited capabilities

**Logon Data Management**  
Define logon data used by business scenario configuration

**Pending Tasks**  
Process pending tasks generated by business scenario configuration

**Local Integration Scenario Configuration**  
Configure multiple service definitions and service groups supporting change management

**Logial Determination of Receiver using Service Groups**  
Define rules for determining receiver IBC reference during service group runtime

**Logical Determination of Receiver, Sender and Authentication using Consumer Factories**  
Define rules for determining receiver IBC, sender IBC and authentication method during consumer factory runtime

**Web Service Isolation**  
Tool to isolate service definitions and consumer proxies

Fig-8



7. Search for your Service. Select the row and hit Apply Selection button.

The screenshot shows a search interface with the following components:

- Search criteria:**
  - Object Type:  is  All
  - Object Name:  is  ZWSDL\_SERVICE
  - Maximum Number of Results:  100
  - Buttons: Search, Clear values, Reset search criteria
  - Saved Search:
- Search Result:**

Internal Name	Type	Name	Namespace	Description
ZWSDL_SERVICE	Service Definition	ZWSDL_SERVICE	urn:sap-com:document:sap:soap:func...	WSDL

Fig-9

8. Go to Configuration->Create Service

The screenshot shows the 'Details of Service Definition: ZWSDL\_SERVICE' interface with the following components:

- Overview Configurations Classifications Details**
- Define Services and Bindings**
  - Buttons: Create Service, Activate, Deactivate, Delete, Republish, Display as List
- | Service/Binding | Actions | State | Description | Creation Ty |
|-----------------|---------|-------|-------------|-------------|
|                 |         |       |             |             |

Fig-10

9. Give the Service Name and the Binding Name and hit Apply Settings.

The screenshot shows the 'Service and Binding Name' configuration screen with the following components:

- Service and Binding Name** (Step 1 of 4)
- Service Information**
  - \* Service Name: ZWSDL\_SERVICE\_NAME
  - Service Description Text: service name of wsdl
- Binding Information**
  - \* New Binding Name: ZWSDL\_BINDING\_NAME

Fig-11

10. Select the suitable authentication and security option and Save it.

The screenshot shows a configuration dialog with the following sections:

- Transport Guarantee**: Transport Level: None
- Transport Level Security**:
  - ☒ None (http)
  - ☐ SSL (https)
- Message Level Security**:
  - ☒ None
  - ☐ Symmetric Message Signature and Encryption
  - ☐ Asymmetric Message Signature
  - ☐ Asymmetric Message Signature and Encryption
  - ☐ Secure Conversation
  - ☐ Extended Signature and Header Protection
- Authentication Settings**: Authentication Level: None
- Authentication Method**:
  - ☒ No Authentication
- ABAP Service User**:
  - User Name: TRAINEE4
  - Password: [masked]

Buttons at the top: Back, Next, Finish, Cancel.

Fig-12

11. Now the WSDL configuration is complete and it should be ready to be exposed to the external system.  
Click on the link 'Open Service WSDL generation'. This will show the WSDL file.

The screenshot shows the 'Web Service Configuration (S47;100)' page with the 'Details of Service Definition: ZWSDL\_SERVICE' tab selected. The 'Configurations' sub-tab is active, showing a table of service bindings.

Service/Binding	State	Description	Creation Type
ZWSDL_SERVICE_NAME	Active	service name of wsdl	Manually created
ZWSDL_BINDING_NAME			

Buttons at the top: Create Service, Activate, Deactivate, Delete, Republish, Display as List. A yellow box highlights the 'Open Service WSDL Generation' link.

Fig-13

**WSDL Generation for service: ZWSDL\_SERVICE\_NAME**

Flavour: All possible combinations are allowed

SAP Assertions:	All	WSP Version:	1.2	SOAP Action:	With
Security Assertions:	ABAP 702/730/740 and higher	WSP Style:	single-Binding		
WSDL Section:	AllInOne	SOAP Version:	SOAP 1.1 and SOAP 1.2		
WSDL Version:	1.1	SOAP Style:	Document		

**Options for WSDL Access and URLs**

☒ Standard  
☐ Alternative URL

Alternate Host:  Alt. Port (http):   
Meta Data Protocol:  Alt. Port (https):

**WSDL Generation**

WSDL URL for Service: [http://IN-BLR-S417.corp.capgemini.com:8000/sap/bc/srt/wsd/itv\\_10002A111AD1/svc\\_url/sap/bc/srt/rfc/sap/zwsdl\\_service/100/zwsdl\\_service\\_name/zwsdl\\_binding\\_name?sap-client=100](http://IN-BLR-S417.corp.capgemini.com:8000/sap/bc/srt/wsd/itv_10002A111AD1/svc_url/sap/bc/srt/rfc/sap/zwsdl_service/100/zwsdl_service_name/zwsdl_binding_name?sap-client=100)

Fig-14

## 12. ECC Role needed to access Web Service:

When the third party tries to call the URL (SAP WSDL), we might need to provide them a user id and password. The user for which the Web Service call is to be enabled should have the role 'SAP\_BC\_WEBSERVICE\_SERVICE\_USER'. Check your role in t-code SU01.

Role Assignments				
St	Role	Type	Val	
<input checked="" type="checkbox"/>	SAP_BC_WEBSERVICE_SERVICE_USER		20	

Fig-15

## 13. Execute the soapUI application which you have downloaded and installed. Give a Project name and give the URL of WSDL which was generated on the last step.

**New SOAP Project**

Creates a WSDL/SOAP based Project in this workspace

Project Name:

Initial WSDL:

Create Requests: ☒ Create sample requests for all operations?

Create TestSuite: ☐ Creates a TestSuite for the imported WSDL

Relative Paths: ☐ Stores all file paths in project relatively to project file (requires save)

Fig-16

14. Given Input value of LIFNR as 'VENDOR1' in left hand side and got output in right hand side screen.

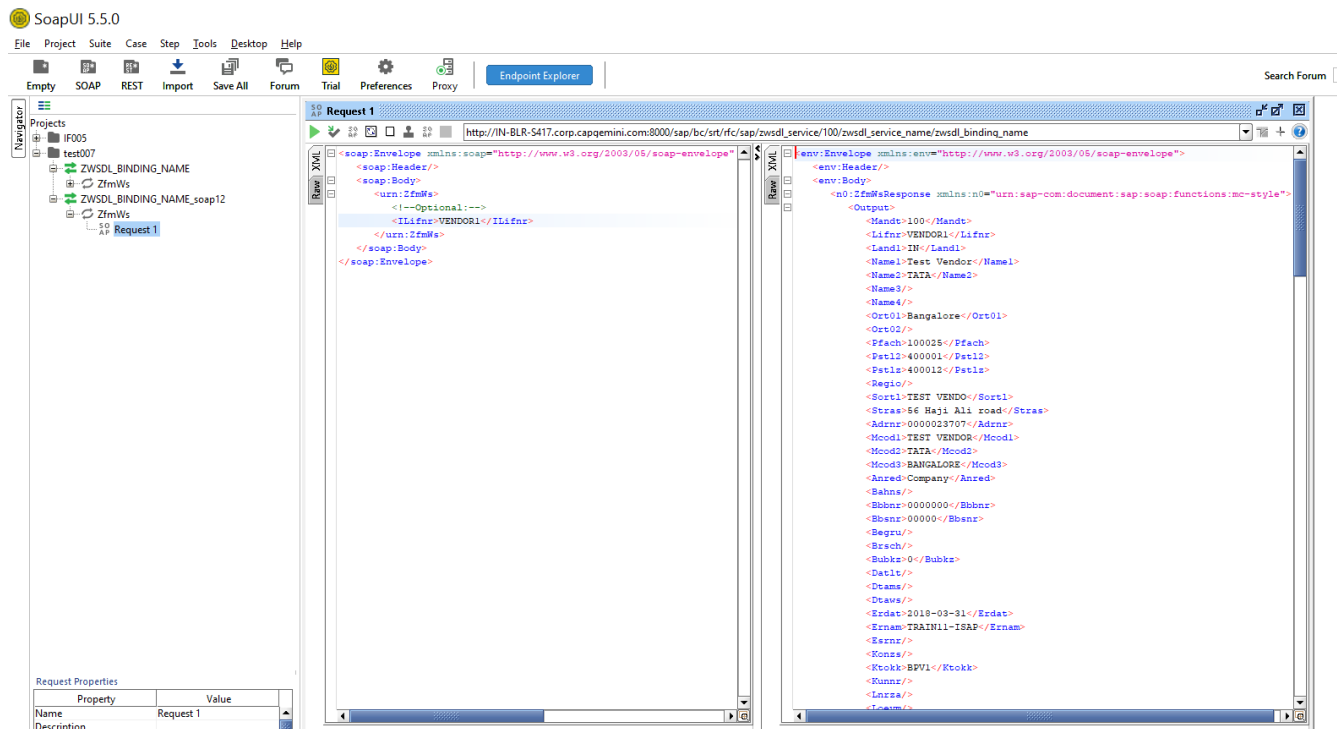


Fig-17

15. Transaction code: SRT\_UTIL can be used to check any kind of error in web service.

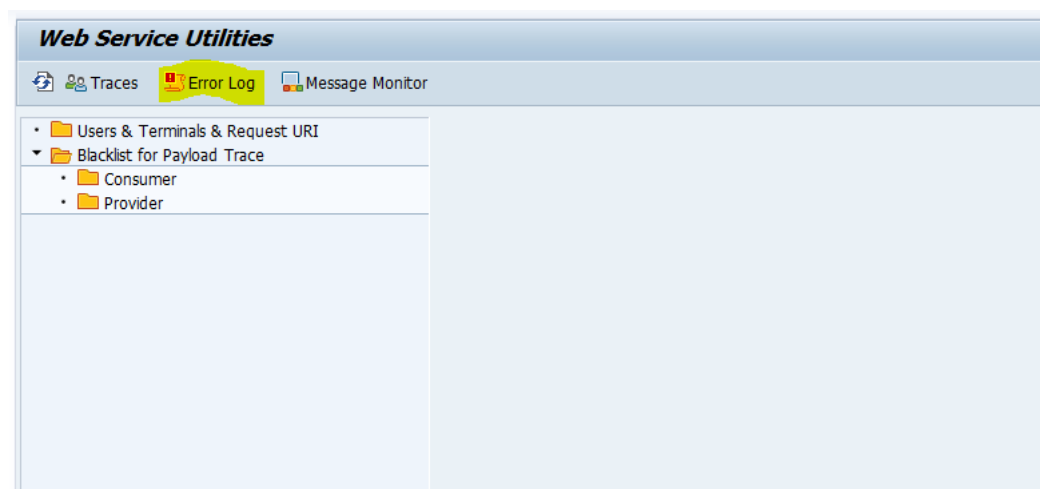


Fig-18

# Consume External Web Service

1. Tcode SE80, go to **Enterprise Services** and right click on 'Create'.  
A pop-up will appear. Select **Service Consumer** option and click 'Cont.'.

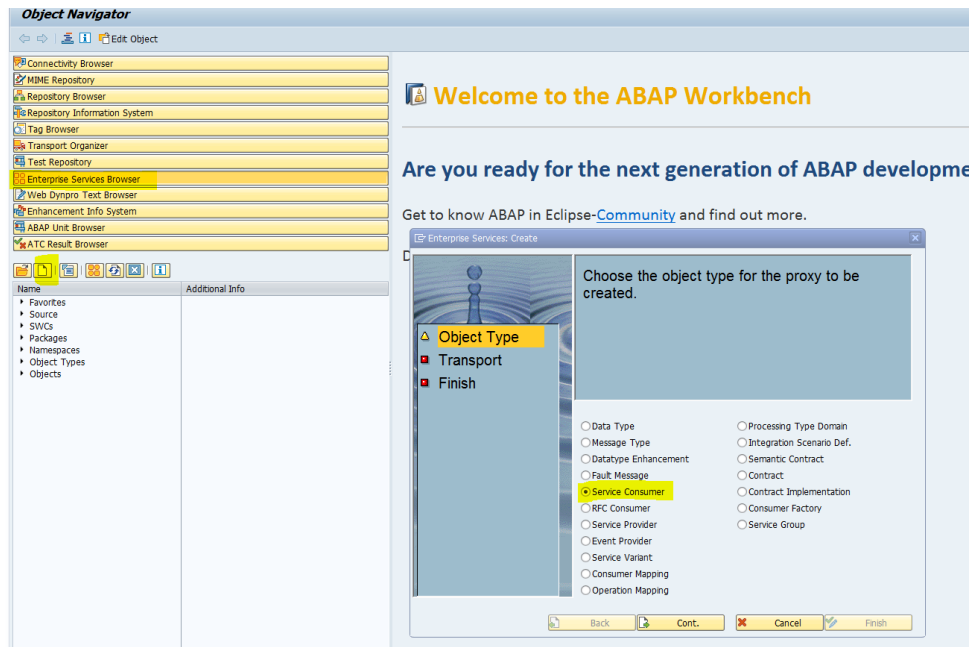


Fig-19

2. Please select **External WSDL/Schema** and press continue.

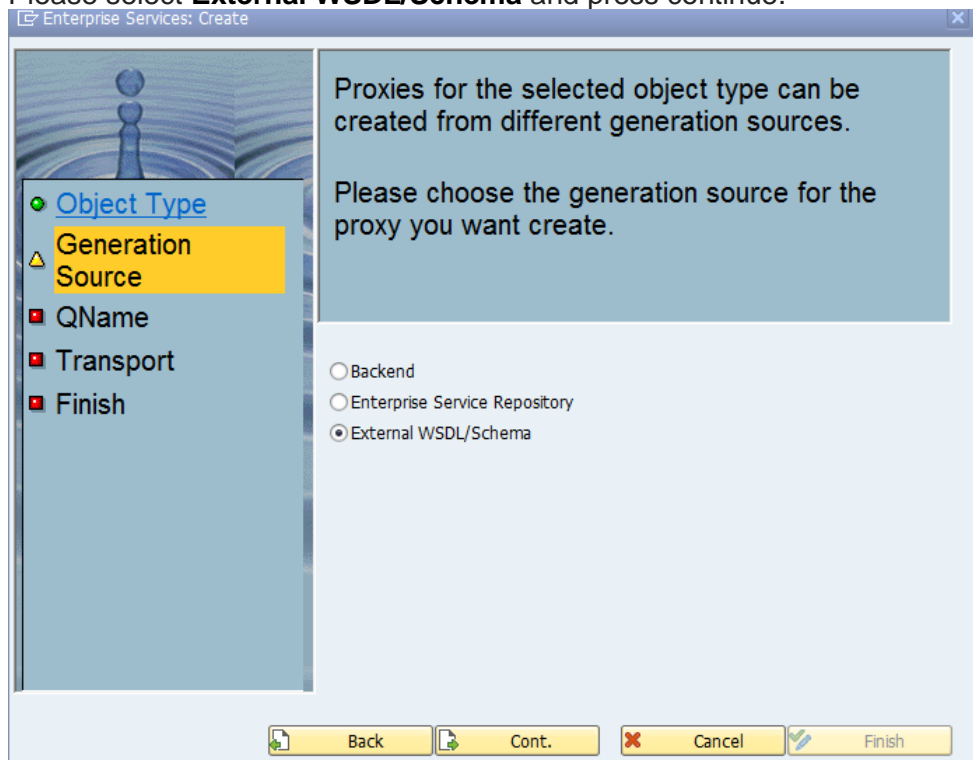


Fig-20

3. We can choose amongst Local file, URL, HTTP Destination and Service Registry. Choose URL option and click on Continue.

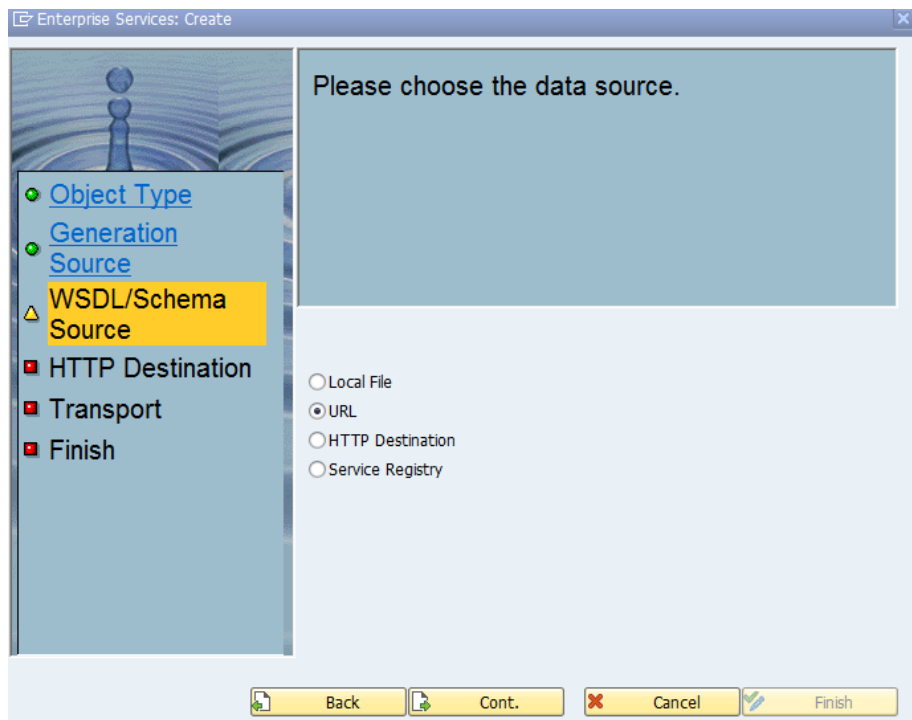


Fig-21

4. Enter the External system WSDL in the URL path and click on continue.

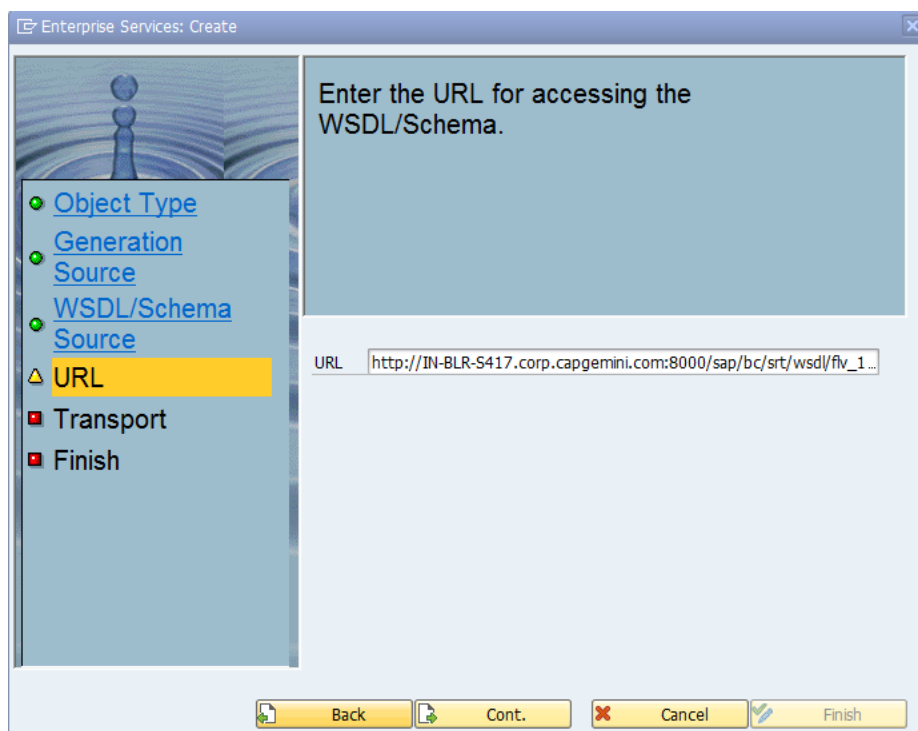


Fig-22

5. In the next step, it will ask for TR details and package assignment. Enter the details and press continue to finish the Consumer Service creation.

Enterprise Services: Create

Enter the package for the new object or check Local Object to use \$TMP.

If already known you may enter the request to be used.  
For proxy objects you have the option to specify a prefix.

☐ Local Object

Package:

Request/Task:

Prefix:

Object Type  
Generation  
Source  
WSDL/Schema  
Source  
URL  
**Transport**  
Finish

Back Cont. Cancel Finish

Fig-23

6. Once consumer service is created, proxy class and methods will get created automatically which will be consumed in ABAP report.

Service Consumer: ZWSDL\_SERVICE New (Revised)

Properties Name Problems External View Internal View Objects Configuration WSDL Warnings Classifications

Service Consumer

Name: ZWSDL\_SERVICE

Namespace: urn:sap-com:document:sap:soap:functions:mc-style

ABAP Object: CLAS Class

ABAP Name: ZCO\_ZWSDL\_SERVICE

Prefix:

Source: External WSDL

Description: Proxy Class (generated)

General Data

Package: ZP\_PAN Release Status: Not Released

Original Language: EN English

Created by: TRAINER4 on 22.08.2020 23:17:21

Changed by: TRAINER4 on 22.08.2020 23:17:21

Fig-24

7. Go back to SOAMANAGER, find the consumer proxy created

The screenshot shows the 'Search criteria' section with the following filters: Object Type is 'All', Object Name is 'ZWSDL\_SERVICE', and Maximum Number of Results is '100'. The 'Search' button is highlighted. Below the search criteria, the 'Search Result' table is displayed with the following data:

Internal Name	Type	Name	Namespace	Description
ZCO_ZWSDL_SERVICE	Consumer Proxy	ZWSDL_SERVICE	urn:sap-com:document:sap:soap:func...	
ZWSDL_SERVICE	Service Definition	ZWSDL_SERVICE	urn:sap-com:document:sap:soap:func...	WSDL

Fig-25

8. Click Consumer proxy and create a new logical port:

A consumer proxy never stores details about a server URL (which is system specific). These details have to be configured through logical ports and End Points.

The screenshot shows the 'Web Service Configuration (S47;100)' page for the 'Details of Consumer Proxy: ZCO\_ZWSDL\_SERVICE'. The 'Configurations' tab is selected, and the 'Define Logical Ports' section is active. A dropdown menu is open, showing the following options: WSDL Based Configuration, Manual Configuration, Process Integration Runtime, Local Shortcut Configuration, Service Registry Based Configuration, Template Based Configuration, and WSDL based Configuration with Template. The table below the dropdown is empty.

State	Logical Port is Default	Description	Creation Type
-------	-------------------------	-------------	---------------

Fig-26



Web Service Configuration (S47;100)

New WSDL based Configuration of Logical Port for Consumer Proxy 'ZCO\_ZWSDL\_SERVICE'

1

2

3

4

5

6

7

8

Logical Port NameWSDL InformationBinding SelectionConsumer SecurityHTTPSettingsSOAP ProtocolIdentifiable Business ContextOperation Settings

Back

Next

Finish

Cancel

WSDL Access Settings

WSDL Base:

Via HTTP Access

Via File

WSDL from Upload

WSDL Location

URL for WSDL Access:

xrp.capgemini.com:8000/sap/bc/srt/wSDL/tlv\_10002A111AD1/srvr\_url/sap/bc/srt/rfc/sap/zwsdl\_service/100/zwsdl\_service\_name/zwsdl\_binding\_name?sap-client=100

WSDL Access User:

trainee4

WSDL Access User Password:

\*\*\*\*\*

Show/Hide Proxy Settings

Fig-27

New WSDL based Configuration of Logical Port for Consumer Proxy 'ZCO\_ZWSDL\_SERVICE'

1

2

3

4

5

6

7

8

Logical Port NameWSDL InformationBinding SelectionConsumer SecurityHTTPSettingsSOAP ProtocolIdentifiable Business ContextOperation Settings

Back

Next

Finish

Cancel

Binding

Selected Binding: 1 ZWSDL\_BINDING\_NAME\_soap12

Overview of Possible Combinations Identified by WSDL Document









Actions	Index	Order	Subject Name	Property Name	Property Value
	36	1	ZWSDL_BINDING_NAME_soap12	OptimizedXMLTransfer	SAPBinaryXML
	36	2	ZWSDL_BINDING_NAME	OptimizedXMLTransfer	SAPBinaryXML
	34	3	ZWSDL_BINDING_NAME_soap12	Transport Binding Type	http://schemas.xmlsoap.org/soap/http
	34	4	ZWSDL_BINDING_NAME	Transport Binding Type	http://www.sap.com/soap12/http
				OptimizedXMLTransfer	MTOM
				Transport Binding Type	http://www.sap.com/soap12/http
				OptimizedXMLTransfer	MTOM
				Transport Binding Type	http://schemas.xmlsoap.org/soap/http

Fig-28

Web Service Configuration (S47;100)

Details of Consumer Proxy: ZCO\_ZWSDL\_SERVICE

Overview

Configurations

Details

Define Logical Ports

Create

Set Log.Port Default

Activate

Deactivate

Delete





Actions	Logical Port	State	Logical Port is Default	Description	Creation Type
   	ZLP_NAME	Active	true	logical port	Manually created

Fig-29

## 9. Consume the web service in ABAP report:

You can find the data type for input and output parameters in SE80:

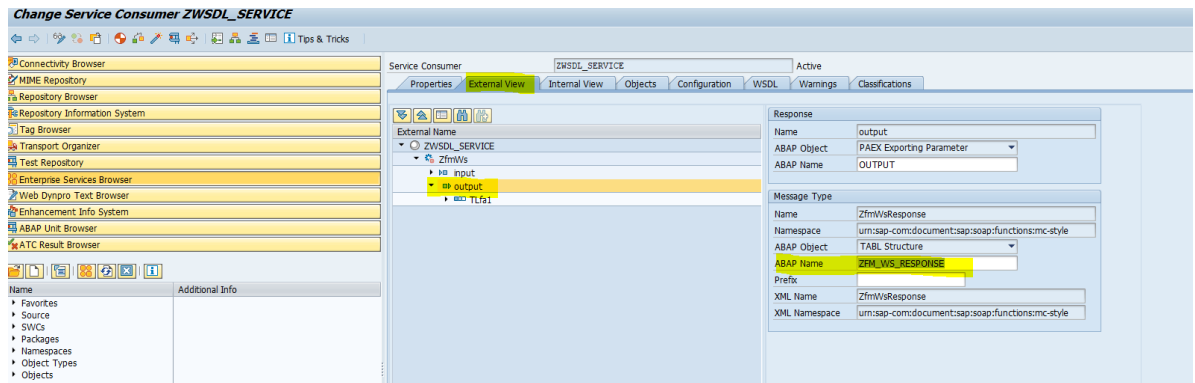


Fig-30

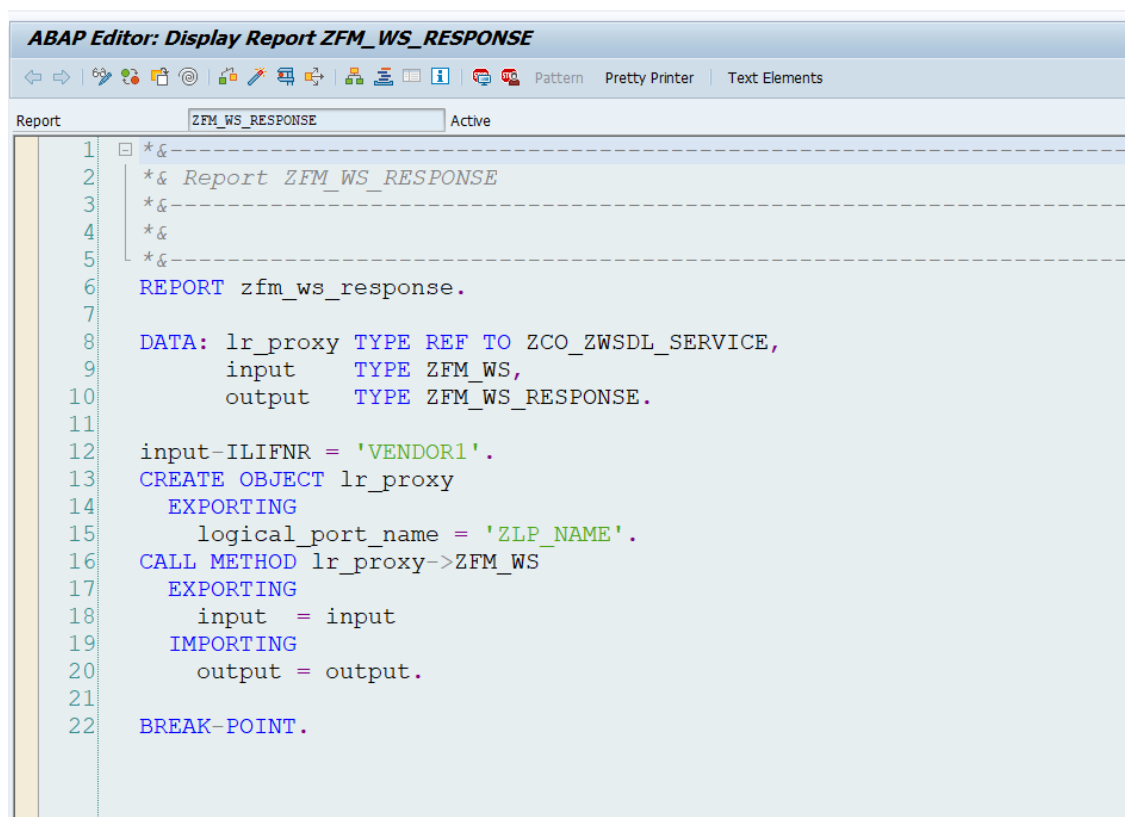


Fig-31