





How To... Develop, Monitor and Debug WS Consumer and Provider

Applicable Releases:

SAP NetWeaver 7.0 SP14

IT Practice: Service SOA & Design IT Scenario: Enabling Enterprise Services

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Document History

Document Version	Description
1.00	First official release of this guide



Typographic Conventions

Type Style	Description			
Example Text	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options. Cross-references to other documentation			
Example text	Emphasized words or phrases in body text, graphic titles, and table titles			
Example text	File and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.			
Example text	User entry texts. These are words or characters that you enter in the system exactly as they appear in the documentation.			
<example text></example 	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.			
EXAMPLE TEXT	Keys on the keyboard, for example, F2 or ENTER.			

Icons

lcon	Description
$\mathbf{\nabla}$	Caution
	Note or Important
∞ }•	Example
1	Recommendation or Tip



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1. Business Scenario

Since SAP NetWeaver 7.0 SP14, Web Services Reliable Messaging (WS-RM) was introduced. WS-RM provides reliable delivery of asynchronous messages using the SOAP protocol. WS-RM is included as part of the ABAP stack.

In this how-to guide, we will take a look at the development of consumer and provider services using WS-RM. In our business scenario, we will have a simple order creation process on SAP NW 7.1 SP7 system. To simplify the application for demo purposes, the service simply inserts the order information into a database table. Then, we will have 2 consumer services on SAP NW 7.0 SP18 and SAP NW 7.11 SP3 systems. This is to show interoperability between the different releases.



In addition, we will take a look at the monitoring of the messages sent from the consumer to the provider system.

🛿 Note

WS-RM protocol supports only asynchronous messaging. When interfaces are configured as synchronous using WS-RM, it will still be treated as a standard SOAP request.

2. Background Information

The standard SOAP protocol does not guarantee the delivery of messages. With the inclusion of the WS-RM protocol, message delivery is guaranteed. When a sequence of messages is sent from the consumer systems, these messages are tracked by the provider system. If any of the messages did not arrive, then the provider will request the missing message be re-sent. Consequently, a WS-RM runtime engine needs to be available at both the consumer and provider systems.

This guaranteed message delivery has been available with SAP NW PI/XI systems. Now the same quality of service can be handled by WS-RM, without using SAP NW PI/XI.

3. Prerequisites

3.1 Check and Verify WS-RM Configurations

Before we can use WS-RM, we must verify that WS-RM has been configured on the consumer and provider systems.

- 1. In transaction SICF, activate the following nodes, if not already activated:
 - a. /sap/bc/srt (including sub nodes)



b. /sap/bc/webdynpro/sap/appl_soap_management

🚹 Tip

Check Note 1124553 for details (http://service.sap.com/sap/support/notes/1124553)

2. For each system, execute the report using SE38: SRT_ADMIN_CHECK Example output of a <u>not configured</u> WS-RM system:

Check Administration Environment of SOAP Runtime 477 6 93976 H Checking cross-system settings bgRFC destination is not operational bgRFC supervisor destination is not registered WSRM event handler is not active Task watcher is not active Data collector for monitoring is activated Ending check of cross-system settings Checking client-specific settings Service destination in client 000 is not configured Service destination in client 001 has different Unicode settings Service destination in client 001 is not operational Service destination in client 066 is not configured Service destination in client 105 does not have a valid service user Service destination in client 105 has different Unicode settings Service destination in client 105 is not operational Service destination in client 106 does not have a valid service user Service destination in client 106 has different Unicode settings Service destination in client 106 is not operational Service destination in client 107 does not have a valid service user Service destination in client 107 has different Unicode settings Service destination in client 107 is not operational Ending check of client-specific settings Client-specific connection checks (destinations) Service destination in client 000 Unregistered Connection Test in Client 001 successful Service destination in client 066 Unregistered Error in service destination in client: 105 Name or password is incorrect (repeat logon) Error in service destination in client: 106 Name or password is incorrect (repeat logon) Error in service destination in client: 107 Name or password is incorrect (repeat logon) End of client-specific connection tests (destinations)

Example output of a configured WS-RM system:



Check Administration Environment of SOAP Runtime				
C A 7 7 6 1 2 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1				
Checking cross-system settings				
bgRFC destination is operational				
bgRFC supervisor destination is registered				
WSRM event handler is active				
Task watcher is active				
Data collector for monitoring is activated				
Ending check of cross-system settings				
Checking client-specific settings				
Service destination in client 066 is not configured				
Ending check of client-specific settings				
Client-specific connection checks (destinations)				
Connection Test in Client 000 successful				
Connection Test in Client 001 successful				
Service destination in client 066 Unregistered				
Connection Test in Client 100 successful				
Connection Test in Client 105 successful				
Connection Test in Client 106 successful				
Connection Test in Client 107 successful				
End of client-specific connection tests (destinatio	ns)			

If the report output does not reflect similarity to a properly configured WS-RM, then follow the steps in Section 3.2, or else, skip the next section, Section 4.

3.2 Configure WS-RM for Consumer and Provider System.

Important

Follow the steps in this section only if WS-RM has not been configured based on the instructions above.

Note

SAP Library on "Configuring the Web Service Runtime" can be found on: <u>http://help.sap.com/saphelp_nwpi71/helpdata/en/46/abbc05ba0c2a7fe10000000a1553f6/</u> <u>frameset.htm</u>

1. On <u>all</u> the clients, check if CUA is active by using transaction SCUA. If not active, the following screen should be displayed.



Maintain system landscape	
Oceandral Maria Administrative Distribution Martial	
Central User Administration Distribution Model	
Model view	

• If not active, use function module (SE37) SRT_TECHNICAL_SETUP

```
Note
```

SAP Note 1110741 Web service configuration can only be executed using SE37

• If active, use report (SE38) SRT_ADMIN



SAP Note 1043195 Configuration of the Web service runtime

- 2. On all the clients, make sure the userid used to perform the configurations has SAP_ALL previleges, or DDIC.
- 3. On Client 000:
 - a. Execute report (SE38) SRT_ADMIN
 - b. Select option "Perform Technical Setup"

Fechnical Configuration o	f SOAP Runtime
2	
echnical Configuration of Web Service Run	time
Perform Technical Setup	1000C
ABAP Connections	
Register ABAP Connection	
Name of ABAP Connection	
Web Costro Costife heDEC Cottions	3
Register Name of Inhound Destination	0.0
Name of Inhound Destination	
Runtime Trace	
Configure Trace	
User Name	
Trace Level	1
Validity (sec)	300
Configure Logging	
Configure Logging	
User Name	
Logimet	1



And, execute. The following completion window will be displayed.



c. Re-execute report SRT_ADMIN, you should see ABAP Connections and Web Service-Specific bgRFC Setting are populated:

reeninear configuration	or oor a realianto
b	
Technical Configuration of Web Service R	untime
Perform Technical Setup	
ABAP Connections	
Register ABAP Connection	
Name of ABAP Connection	WS_SERVICE_1DDEA9932B23_SRV
Web Service-Specific bgRFC Settings	
Register Name of Inbound Destination	ation
Name of Inbound Destination	WS_SERVICE_1DDEA99247C4_IN
Runtime Trace	
Configure Trace	
Configure Trace User Name	LIWI
Configure Trace User Name Trace Level	LIWI 1
Configure Trace User Name Trace Level Validity [sec]	LIWI 1 300
Configure Trace User Name Trace Level Validity [sec]	LIWI 1 300
Configure Trace User Name Trace Level Validity [sec]	LIWI 1 300
Configure Trace User Name Trace Level Validity [sec] Configure Logging Configure Logging	LIWI 1 300
Configure Trace User Name Trace Level Validity [sec] Configure Logging User Name	LIWI 1 300
Configure Trace User Name Trace Level Validity [sec] Configure Logging User Name Log Level	LIWI 1 300 LIWI 1

1 Tip

During the configuration process, we can use report SRT_ADMIN_CHECK to verify pending and completed tasks.

- 4. On Client 000: Configure bgRFC
 - a. Execute transaction: SBGRFCCONF
 - b. Click on "Create" in the tab "Scheduler App Server":

	-	Default Entry			
Application Server	_0	Settings Adminis	tration Details		
Default Entry	8	Outbound		Dialog WP 0	
		Scheduler Count	1+		
		Open Connections	500		
		Gateway Resource %	50		
	_	Scheduler Idle Time	300		
	_	Entry Expiration	10		
	-	Dest per Scheduler	10		
		Inbound	11MP 5-	7	
	-111	Scheduler Count	1-		
	-11	Open Connections	500		
		Gateway Resource %	50		
	-	Scheduler Idle Time	300		
	-	Entry Expiration	10		
	-111	Dest per Scheduler	10		

c. Provide a server name:

🔄 Create Scheduler Sett	ings: Server	⊠ ∕
Server Name	usphlrig16_PI1_00	Dialog WP
Outbound		
Scheduler Count	1-	
Open Connections	500	
Gateway Resource %	50	
Scheduler Idle Time	300	
Entry Expiration	10	
Dest. per Scheduler	10	
Inbound		
Scheduler Count	1-	
Open Connections	500	
Gateway Resource %	50	
Scheduler Idle Time	300	
Entry Expiration	10	
Dest. per Scheduler	10	
Save 🗶		

d. The will result:



bgRFC Configurati	on				
Scheduler: System S	chedule	er: App. Server Schedu	ler: Destination	Define Inbound Dest.	Define Supe
		Default Entry			
Application Server		Settings Adminis	stration Details		
Default Entry					
usphlrig16_PI1_00	_믬	Outbound		Dialog WP	0
	_	Scheduler Count	1-		
	_	Open Connections	500		
	_	Gateway Resource %	50		
	_	Scheduler Idle Time	300		
		Entry Expiration	10		
	_	Dest. per Scheduler	10]	
	- 11				
	- 11	Inbound			
	- 11	Scheduler Count	1-		
		Open Connections	500		
		Gateway Resource %	50		
		Scheduler Idle Time	300		
	-	Entry Expiration	10		
	-11	Dest. per Scheduler	10		
				·	

No other entries will be necessary.

e. Check the queue prefixes have been registered. If the setup was successful, no entries are necessary on this tab.

Scheduler: System	Scheduler: App. Se	rver Scheduler: D	estination	Define Inbound Dest.
Scheduler: System	Scheduler: App. Se	Scheduler: D Scheduler: D SERVICE_1DDEA992 gon/server group fixes RSC_ RSP_ FQC_	estination 247C4_IN	Define Inbound Dest.
	SR SR	FQP_ FQS_		
	Nev	v Queue Prefix		
Last Changed	DDIC			
Client ID	000			
Time	16:31:53			
Current Date	18.09.2009			

- f. Define RFC Destination by clicking on "Create" in the tab "Define Supervisor Destination" and enter the necessary information:
 - i.

lew Oupervisor Desti	ion	
Destination		
Defined Supervisor De	nation	
Destination		
Last Changed /		
User Name		
Client ID		
Changed On		
onlanged on		

ii.

Create RFC Destination	n for Supervisor	\times
Destination	· ·	
Destination Name	BGRFC_SUPERVISOR	
User		
Create User 🗹		
User Name	S_PI1_000	
Generate Password		
Save 🗶		

Provide anything for password. After "Save", the userid S_PI1_000 should be created also.

You may want to verify that the userid is a "Service User" and has the role: SAP_BC_BGRFC_SUPERVISOR (add if not present)

The RFC Destination (type 3) should also have been created: BGRFC_SUPERVISOR

The RFC destination should be using the logon user: S_PI1_000

iii.

20			
ew Supervisor Desti	nation		
Destination		65	
efined Supervisor De	Estimation		
Destination	BORFC SUPERVISOR	6	
Last Changed			
User Name	0010		
Client (D	000		
Changed On	18.89.2909		
Changed it	12-04-02		

iv. Save the entries:

로 <u>C</u> onfiguration <u>E</u> dit <u>G</u> oto	S <u>y</u> stem <u>H</u> elp			
Ø	🗈 🖣 🕒 😋 🚱 🕒 🌡 🎼 🗉			
bgRFC Configurat	tion			
Scheduler: System	Scheduler: App. Server Scheduler: Des			
New Supervisor Destination				
Destination				
Defined Supervisor Destina	ation			
Destination BG	RFC SUPERVISOR			
Last Changed				
User Name	DDIC			
Client ID	000			
Changed On	18.09.2009			
Changed At	17:04:02			

- g. Verify the configuration by executing the report SRT_ADMIN_CHECK. If the error, "No RFC authorization for function module RFCPING", is present, then follow the steps below, using the transaction PFCG and add the role SAP_BC_WEBSERVICE_SERVICE_USER with authority for RFC function group SYST.
 - i. Go to the "Change" mode in PFCG, tab "Authorization" and click on "Change Authorization Data":

SAP

Change Ro	oles				
🕎 🖷 Other rol	le 🛛 🕂 📘				
Role					
Role	SAP BC WEBSERVICE SERVICE USER				
Description	Pattern R	ole for Web Service Ru	untime Backgrour	nd User	
	Г				
🔇 Descripti	on 🛛 🧕 Menu	Authorizations	🔲 User	MiniApps	🔠 Personalization
	L	2			
Created by		∠	Last Changed (Dn/By	
User	SAP		User	DDIC	
Date	22.06.2006		Date	18.09.2009	
Time	13:03:34		Time	17:14:57	
Information Abo	ut Authorization Pro	ofile			
Profile Name	T_BI560020	Ĩ			
Profile Text	Profil zur Rolle SA	P_BC_WEBSERVICE	SERVICE_USE	R	
Status	Authorization prof	ile is generated			
Maintain Authori	zation Data and Ge	enerate Profiles			
Change Authorization Data					
	de fer Drefile Cone	rotion			
Expert Mod	te for Profile Gener	auon			

ii. Expand the folder per the screenshot below and click on "change" for "Name of RFC to be protected":



iii. Enter "SYST" and "Save":

	🗁 Field value	es	⊠ ∕
	Object	S_RFC	Authorization Check for RFC Access
	Field Name	RFC_NAME	Name of RFC to be protected
			Full authorization
	Value Intrv	1	
	'From'		'To'
	SENT		
	SRT_SEQ	UENCE_REO	ORG
	SRT_SEQ	_SCD_QRFC	C_NEW
	SRT SEQ	SCD QRFC	
	SYST		
	TASK_ADI	WIN .	
	TASK_LU	N	
iv. (Generate the	change:	
	Change	e role: Au	uthorizations
		🕒 🔂 🛃	Selection criteria 🛃 Manually 🔃 Open 🧗
	Maint.:	0 Unm	nmaint.org.levels 0 open f [.]
	SAP_BC_WEB	SERVICE_SER	RVICE_USER 🔿 Pattern Role for Web Se
		🛾 Manually	Cross-application Authorization Obje
		000 🛃 🏒	Authorization Check for Ri
			Authorization Check for F
		*	 Activity Name of RFC to be protected Type of RFC object to be prote
		000 🗟 🏂	<u>Annually</u> Check at Start of External

- v. Execute report SRT_ADMIN_CHECK to verify that there are no more errors.
- h. Configure WSRM runtime event handler by running report RSEHCONFIG:



Configure Runtime Behavior of WSRM Event Handler

•	
Retries	1.000
Maximum Permitted Processes	3
Wait Time (Seconds)	3
Loops	200
Reorg. Open Seq. by Days	
Last Changed By	LIWI
Changed On	02.12.2009
Changed At	17:41:31

i. Start background job BC_SAP_SOAP_RUNTIME_MANAGEMENT.

If not scheduled in transaction SM37, call transaction SM36, and choose *Standard Jobs* - *Standard Scheduling*. You must schedule the job hourly.

- 5. On all of the other clients, execute report SRT_ADMIN. Execute transaction PFCG to enhance role SAP_BC_WEBSERVICE_SERVICE_USER with authority for RFC function group SYST using the instructions outlined previously.
- 6. Execute report SRT_ADMIN_CHECK to verify the configurations:

Check Administration Environment of SOAP Runtime
3 4 7 6 10 10 10 10 10 10 10 10 10 10 10 10 10
Checking cross-system settings
bgRFC destination is operational
bgRFC supervisor destination is registered
WSRM event handler is active
Task watcher is active
Data collector for monitoring is activated
Ending check of cross-system settings
Checking client-specific settings
Service destination in client 066 is not configured
Ending check of client-specific settings
Oliant analific connection checks (destinations)
Connection Test in Client 000 successful
Connection Test in Client 001 successful
Service destination in client 066 Unregistered
Connection Test in Client 100 successful
Connection Test in Client 105 successful
Connection Test in Client 106 successful
Connection Test in Client 107 successful
End of client-specific connection tests (destinations)



4. Step-by-Step Procedure

In this section, we will implement WS-RM provider and consumer applications on SAP NW.

The provider application is an ABAP proxy. The ABAP proxy is generated from an inbound service interface defined in the ESR. Once the proxy has been generated, SOAMANAGER will be used to create the WS-RM service.

On the consumer system, the URL from the provider web service is used to create the consumer proxy. Then, SOAMANAGER is used to create the consumer service. A program can use the consumer service to send a message to the provider service.

In summary, the steps are:

On Provider System:

- 1. Create service interface in ESR.
- 2. Generate ABAP proxy from the service interface.
- 3. Provide code to the ABAP proxy. In this case, we will create a simple program to insert data into a table.
- 4. Use SOAMANAGER to create a web service from the ABAP proxy.
- 5. Test the web service using WSNavigator.

On Consumer System:

- 1. Create consumer proxy using the URL of the provider web service.
- 2. Use SOAMANAGER to create the consumer service from the proxy.
- 3. Create a program to call the consumer service.

4.1 Create the Provider Application

1. Create service interface in the ESR of the provider system. Create and activate the following service interface:

COLD.	
100	
_	

order_Async_IN: Edit	Service Interface				_ 🗆 🗙
<u>Service Interface</u> <u>N</u> avigatio	on <u>E</u> dit ⊻iew <u>T</u> ools	🎾 🔲 🛐 🗅 🖪 🧼 🔿	📮 🔶 🔿 🚨	. 🖽 🖻	톶
Edit Service Interface		Status A	ctive E)isplay Language	English (OL) 🖺 🔺
Name	order_Async_IN				
Namespace	http://test.com/ws/abap				
Software Component Version	1014407 1.0 of i014407				
Description					
Definition WSDL Mat	tching Service Interfaces				
Attributes					
Category Inbound	8				
Interface Pattern Stateless	E				
Operations					
🛃 🕒 🗖 🗖 🔂	Operation create				
Operation	Description				
create	Attributes				
	Operation Pattern	lormal Operation 🛛 🖺			
	Mode A	synchronous 🛛 🗎			
		,			
	Messages		4.		
		K 🔲 🖷 I 🖙 Context Objec	IS	blau	
	Request *	Type Message Type	order MT	Namesp	ace com/ws/at
	Fault	Fault Message Type	oraci_mi		
				· · · · ·	

This interface is based on the message type:

🕹 order_MT: Display Message Type					- 🗆 ×		
Message T Navigati Edi Viev Iool 🔚 🛐 🗅 🖬 🧇 🖧 💷 🔶 🔿 🖪 🖬 🕿 🐺						927	
Pisplay Message Type Status Activ Display Language English (OL)						sh (OL) 🖺	
Name order_MT							
Namespace		http://test.com	m/ws/abap				
Software Compone	ent Version	1014407 1.0	of i014407				
Description							
	Name *		Name	space *			
Data Type Used	order_DT		http://t	test.com/ws/	abap	4	🙄 🚽 🕐
XML Namespace Structure XS	XML Namespace http://test.com/ws/abap						
🛐 Search				30		Se	ettings
Name		Category	Туре	Occurren	Default	Details	Descr
order_MT		Element	order_DT				
order_	no	Element	xsd:string	1			
custon	stomer_no Element xsd:string 1						
custon	customer_name Element xsd:string 1						

2. Generate ABAP proxy from the service interface.

In transaction SPROXY, create the proxy from the service interface:



Object Navigator
듲 🔿 🛃 🖪 🖷 Edit Object
MIME Repository
器Repository Browser
張Repository Information System
₽Tag Browser
🖶 Transport Organizer
4 Test Repository
Benterprise Services Browser
Enterprise Services Repository (http://nspah227.pal.sap
✓ http://test.com/ws/abap
D ■ Messagetypes
V V Service Interfaces
Service Interfaces
V Orphaned Objects
um.xiworkshop.groupXX:legacy urg:xiworkshop.groupXY:webapp

Save and activate after creation.

- 3. Provide code to the ABAP proxy. In this case, we will create a simple program to insert data into a table.
 - a. Open the proxy and double-click on the Provider Class:

MIME Repository	Service Interface			order_Asyr	NC_IN	Active	
BRepository Browser	Friderten	Edemal View	Internal View	Used Onie	da Cento	water WSDL	Classifi
TRepository Information System		The second second second	Contract in Contract	Constant Constant	/ = 13		
Tag Browser	External Key						
🕁 Transport Organitisr	Type	Send	ce Interface	1	State not r	eleased	2
4Test Repository	Name	orde	Async_IN				
SEnterprise Services Browser	Namespace	http	//test.com/	vo/abap			
	Description						
	Direction	Inboy	nd	1	0140		
Enterprise Services Repository (http://usptimg1							
DEMD1, 1.0 of demo	Frany						
DEMO_BASS, 10 of demo com	Prox Name	ZHS	LI ORDER ASY	NC_IN	Preta	Zw5_	
ESOALM_DEM_ESR 10 of demp.com	Description	P1003	Interface (gene	(bets)			
1 ETL_ADAPTER 1.0 of sapipring							
1014407 1.0 of 014407	trileiface,			-	-		
D http://fest.com/bae	Provider Class	265	CL. ORDER ASY	NC IN			
 Intp://test.com/cctpm 	Description	Proxy	Class (general	ed)			
http://test.com/p2p/test1	WebService Defin	whon Zond	er Async IN				
1 Mg Asst comfissimation	[1/000000/1000001						
I http://est.com/test1	General Data						
	Package	\$THP					
h B Database	Original Languag	HE ENE	nglish	1			
D Messanations	Created by	LIWI	on	18.09.2009	16:09:48		
* Genice Interfaces	Changed by	LINE	un	18.09.2009	19:09:04		
G order Async IN	a constraintio						
0 🛄 Sync							
D Crphaned Objects							

b. Select the tab "Method" and double-click on the method name:



Class Builder: Display Class	ZWS_CL_ORD	DER_ASYNG	C_IN			
7860 A		Local Definit	ions/implen	rentations	The Source	Code-Base
MIME Repository	Class Interface	ZWS_CL_	ORDER_ASY	NC_IN	Implem	ented / Activ
Repository Browser	Properties	Interfaces	Friends	Attributes	Methods.	Events
TRepository Information System				1		
E Tag Browser	Parameters	06 Exceptions	31	÷ 🖂 🔒	XLA	
Garansport Organizer	Method		Level	Visi M	Description	
Test Repository	ZWS_11_ORDER_	ASYNC_IN~CREATE	Insta	ncPub11		
SEnterprise Services Browser		2				
0 88 7 H = D						
Enterprise Services Repository (http://usphirig1			_			
Thtp://est.com/ws/abap						
Async			_			
Massaachnos						
♥ () Service Interfaces			_			
ander_Async_H			(alla)		1	-
D Sync D Orphaned Objects	*					

c. Insert code into the proxy:

Class Builder: Class ZWS_CL_C	ORDER_ASYNC_IN Change
	🛃 🗉 🚺 🍘 🚳 Pattern Pretty Printer Signature 🔄 Publi
Image: Second System Image: Second Second System Image: Second Second System Image: Second Second Second System Image: Second S	Method ZWS_II_ORDER_ASYNC_IN~CREATE Method ZWS_II_ORDER_ASYNC_IN~CREATE. Method ZWS_II_ORDER_ASYNC_IN~CREATE. Method ZWS_II_ORDER_ASYNC_IN~CREATE. Method ZWS_II_ORDER_ASYNC_IN~CREATE. Method ZWS_II_ORDER_ASYNC_IN~CREATE. Method ZWS_II_ORDER_ASYNC_IN~CREATE. Method ZWS_II_ORDER_ASYNC_IN~CREATE. Method ZWS_II_ORDER_NO = INPUT-ORDER_MT-ORDER_NO. My_test_order-SEQ_NO = INPUT-ORDER_MT-ORDER_NO. My_test_order-CUST_NO = INPUT-ORDER_MT-CUSTOMER_NO. My_test_order-CUST_NO = INPUT-ORDER_MT-CUSTOMER_NO. MU_test_order-CUST_NO = INPUT-ORDER_MT-CUSTOMER_NO. MU_test_ORDER_NO = INPUT-ORDER_MT-CUSTOMER_NO. MU_te

- d. Save and activate the proxy.
- 4. Use SOAMANAGER to create a web service from the ABAP proxy.
 - a. On the application client of the provider system, enter transaction SOAMANAGER. This will start a webdynpro application on the browser.
 - b. In the browser SOA Management application, select the tab "Business Administration" and click on "Web Service Administration":





- c. Enter the following search criteria:
 - Search by: Service

Search Pattern: Zorder_Async_IN (this value can be obtained from SPROXY) Field: Internal Name

The will result in the proxy being displayed:

Web Service Adm	inistration		
Search Design Time object for Web	Service Configuration		
Search Browse			
Search by Service Se	arch Pattern Zorder_Async_IN	Field Internal Name In System (P11/100	Go sho
Search Results			
internal Name	External Name	Namespace	Type
DORDER_ASYNC_IN	order_Async_IN	http://test.com/ws/abap	Servic

d. Select the proxy name and click on "Apply Selection":

Search Browse		
Search by: Service Search	ch Pattern: Zorder_Async_IN	Field: Internal Name 💌 in
Search Results		
Internal Name	External Name	Namespace
ZORDER_ASYNC_IN	order_Async_IN	http://test.com/ws/abap
1		
1		
Apply Selection		

e. On the bottom screen, select the tab "Configurations", and click on "Create Service":

Search Browse		
Search by: Service Search	ch Pattern: Zorder_Async_IN	Field: Inter
Search Results		
Internal Name	External Name	Namespace
ZORDER_ASYNC_IN	order_Async_IN	http://test.com
Apply Selection		
Details of Service Definition: ZORDER	R_ASYNC_IN	
Back to search		
	ifications (Dotails	
2 Configurations Classi		
Create Service Create Endpoint D	elete Service Delete Endpoint	Edit Display
Service	State	

f. Enter service name and binding name:

SOA Managemer	nt	
	Service Information	
_	New Service Name: * WSORDER_SERVICE Description: * Order Web Service	
	Binding Information	
	New Binding Name: * wsorder_bind	
	Apply Settings Cancel	:

g. Scroll down to the lower screen and select "User ID/Password", and "Save":

s to Design Time Defails	Back to a	saub
play Save Cancel		
	mandar blad	
ingenation of the service theorem_service, endpoint t	vsoreer_bind	
Provider Security Additional Information Transport Settings	Operation specific	
Transport Guarantee		
Communication Security	Properties for Transpo	rt Guarantee Type
* None	Secure Communications	Keine Kommunikationssiche
Asymmetric Message Signature / Encryption	Transport Protocol	HTTP Protocol
Symmetric Message Bignature / Encryption	Signature Expected	No Signature Expected
Li secure conversation	Encryption Expected	No Encryption Expected
	Add Signature	No Not Add Signature
	Encryption:	Do Not Encrypt Message
Authentication Settings		
Authentication Method		Collected Authenticatio
E3 No Automotication		Authentication Method
Transport Channel Authentication		sapsp HTTPBask
Ø User ID:Password		
Single Sign On using SAP Ass. Ticket		
Conduct with the share they be the		
Message Authentication		
User ID/Password		
C Single Stop On Using SAM		

h. The new service will now be visible:



Search by Service •	Search Pattern Zorder_Async_I	N Field Internal Name 💌 in System. Pl	1/100 Go sho
Search Results			
Internal Name	External Name	Namespace	Type
@ ZORDER_ASYNC_IN	order_Async_IN	http://test.com/ws/abap	Service
Apply Selection			
Apply Selection	RDER_ASYNC_IN		
Apply Selection tails of Service Definition: 201 (K to search	RDER_ASYNC_IN		
Apply Selection tails of Service Definition: 201 (K to search Overview Configurations C	RDER_ASYNC_IN		
Apply Selection tails of Service Definition: 201 (k to search Overview Configurations C Create Service Create Endpoint	RDER_ASYNC_IN lassifications _ Details	oint Edt Display	
Apply Selection tails of Service Definition: 201 (k to search Overview Configurations C Create Service Create Endpoint Service	RDER_ASYNC_IN lassifications Details I Delete Service Delete Endp S	oint Edit Display	Creatio

The web service for the provider proxy is now ready for use.

i. To obtain the URL for the web service, select the tab "Overview" and click on "Open WSDL document...":

Search Browse		
Search by: Service Se	arch Pattern: Zorder_Async_IN	Field: Internal Name 💌 in Syste
Search Results		
Internal Name	External Name	Namespace
ZORDER_ASYNC_IN	order_Async_IN	http://test.com/ws/abap
Apply Selection		
Details of Service Definition: ZORD	ER_ASYNC_IN	
Back to search		
Overview Configurations Cla	ssifications Details	
Object Status:		Services: 1 / Endpoints: 1
Porttype Namespace:		http://test.com/ws/abap
Internal Name:		ZORDER_ASYNC_IN
SOAP Applikation:		URN:SAP-COM:SOAP:APF
r achage Name.	0	⊕ EIVIE
Open porttype WSDL document		
Open Web Service navigator for sele		WSORDER_SERVICE::ws

In our case, the following URL will be displayed on the browser:





1 Тір

You can copy-n-paste this URL to a notepad. This URL will be used to create the consumer proxy. We will also use this URL to test the web service in the following step.

5. Test the web service using WSNavigator.

To test the web service, we can use any WS-RM enabled client tool. WSNavigator on a NW 7.11 system or above can be used.

🛯 Note

WSNavigator on NW 7.10 or below cannot execute services using WS-RM. This capability is only available since PI 7.11.

- a. On a NW 7.11 system, execute WSNavigator.
- b. Enter the URL obtained from the previous step and click "Next":

SAP NetWeaver" WS Navigator
Service test Test scenario
1 2 3 4 Service Operation Input Parameters Result
Previous Next Invocation Parameters Invoke Add to Test Scenario
Service Information
Search Service Interfaces
Search Type: <u> WSDL</u> Provider System Logical Destination Service Registry
WSDL URL: http://usphlrig16.phl.sap.corp.5

🚹 Tip

Logon will be requested and you will need to enter a valid user with authorization to execute the web service on the provider system.

c. Click "Next":



SAP NetWeaver [™] WS Navigator
Service test Test scenario
Image: Constraint of the service 2 3 4 Service Operation Input Parameters Result
Previous Next Invocation Parameters Invoke A Service Information
Operations
Operation Name
F
create

d. Enter any test values and click "Next":

SAP NetWeaver [®] WS Navigator
Service test Test scenario
1 2 3 4 Service Operation Input Parameters Result
Previous Next Invocation Parameters Invoke Cancel
Service Information
Parameters
Reset Import 4
 Gorder_MT: order_no: test customer_no: test customer_name: test

e. The status will show "Delivering". Once complete, it will show "Delivered":

Bervice test Test scenare	
In T I I I I I I I I I I I I I I I I I I	ί.
Previous] Inc. 10 (Inscription Parameters) (Incels) Con Service Information	elvesson) (Add to Test Romano)
Input Parameters	WSRM Service Details
- 😄 order, MT	Nessage D CF671730E05711DE9586001988220 Sequence III 001988C282021DDE88AF9DFD68F
Cl customer no feet	Status Detweed Detweed
Custoner_name (Hill	Retries 5 Retry Intervan 20 000 Sequence Namber: 1

f. We can verify the success by checking the table content:



D	ata Br	owser: '	Table Z	TEST_O	RDER
	l 🖉 &r	2 3 5		7 7	"I 🖧 🖪
B	SEQ_NO	ORDER	CUST_NO	CUST_NAME	
	1	AAA	AAA	AAA	_
	2	test	test	test	

We can also verify the message delivery using SXMB_MONI on the provider system:

Μ	onitor	r for Pro	cessed	XML M	essage	s						
at the	Display	Enter In	formation	H Reference	cing Messag	- 01- C	Restart 🤹 🖡	Emana 😽 Ei	pand Al Massag	** 🖻 🖉	2	
N	umber	r of Displ	ayed XI	ML Mess	ages 1	-					_	
	<u>a</u> 2	月月間	出於權	10101-10	B.C. HISC	1						
	XML	Message	85									
	Status A	ck Status Exe	outed From	StartTime	EndTime	Receiver Namespac	Receiver Interta	ce Fipeline	Version	Туре	008	Inbound
	and the second second		of the local division of the local divisiono	and the second se			and the second se	and the second second second		the second se		and the second se

4.2 Create the Consumer Application

1. Create consumer proxy using the URL of the provider web service.

🛛 Note

We will need the URL saved in a previous step, in section 4.1.4.i.

a. Logon to the consumer system, execute transaction SE80.

Important

The consumer system must also have WS-RM configured. If not, then see section 4.1.

b. Select "Local Objects" and navigate to "Service Consumer". Right-click and select "Create":



ABAP Editor: Change Report ZWS_C
♦ ♥ ♥ ♥ ♥ ● ● ● ● ♥ ♥ ♥ ● ● ● ● ♥ ♥ ♥ ●
MIME Repository
器Repository Browser
張Repository Information System
Tag Browser
🖶 Transport Organizer
Benterprise Services Browser
Object Name Descri
D Dictionary Objects
Class Library
D Programs
V Punction Groups
Chiefprise Services
Consumer
Data Types Create

c. Select "URL/HTTP Destination" and click "Continue":

Er Select source	
△ Select source ■ Select source ■ Enter Package/Request	Create/regenerate/check service consumer from one of the following sources.
Configure Service	Sentice Consumer O Enterprise Sentice Reposition © URLATTP Destination O Local File
	Back D Continue X Cancel

d. Paste the URL obtain from the provider web service, and click "Continue":

Complete URL#TTP URL http://usphirig18.phi.sap.corp.50800/sap/bc/srt/wsi OHTTP Destination Path Suffix	Select source Select source Enter Package/Request	Enter a Web Serv HTTP destination v	ice URL in the URL field or enter an with a suffix
Complete INC Intp://usphirig16.phi.sap.corp.50800/sap.bc/srt/wsi OHTTP Destination Path Suffix	Configure Service	Distants 7	
O HTTP Destination Path Suffix	Complete	@URL	http://usphirig16.phi.sap.corp.50000/sap/bc/srt/ws-
Path Suffix	1		
Patrisumix	Ĩ	OHTTP Destination	0
	1	Paerolani	

e. Enter a prefix for the proxy object and click "Continue":

Complete Enter Factage & Pretx Package & TIVP Pretx Pretx Zv6_ (Optional) Request/Task (Optional) Optional)	Select source Select source Enter Package/Request	Enter the pac proxy object	kage, prefix and transport	request for the
Package [\$THP [] Prefix Zw6_ (Optional) Request/Task (Optional) Plocal Object	Complete	Enter Fackage &	Pretix	
Prefix 2v6(Optional) Request/Task (Optional) Plocal Object		Package	STHP	(3)
Request/Task (Optional)		Prefix	Zw5_	(Optional)
[] Local Object		Request/Task		(Optional)
		Local Object		

f. Click "Finish":



Complete	On completion of the wizard the Proxy for Object http://usphirig16.phi.sap.corp:50000/sap/bc/srt/wsdl/bnc will be generated and displayed in the Proxy Editor. Do not forget to save or activate the result
	A Sack S Finish X Cancel

🚺 Important

You will be prompted for logon user to access the provider systems. This is necessary for the wizard to retrieve the metadata information of the web service.

g. The consumer proxy will be created:

R mine watersately	Service Consumer (externa	al definition)	order Asy	nc_IN	Active
Repository Browser	Properties Ettern	nai View / Internal View	Used Obje	cta Coofiguratio	10
Repository Information System					
Tap Browser	External Key				
Transport Organizer	Туре	Service Interface		Source External (W9DL
Test Repository	Name	order_Async_IN			
Enterprise Services Browser	Namespace	http://test.com/	s/abap		
	Description				
Local Objects	Direction	Outbound		1	
LIM - 40					
The second se	1 throws				
and the second s	1 COMP	photo and a second s	and the second se		pinning 1
	Provy Name	TWS CO ORDER ASYN	C IN	Profix	246_
Hind Name	Prov Name Description	Provy Class (general	ed)	Prafix	246_
Died Name Died Name Comme Lund	Provy Name Cescription	WS CO ORDER ASYN Proxy Class (general	ed)	Profix	246_
Itied Name Itied Name Control of the LMM Co	Prov Name Description	We CO DROER ASYN Proxy Class (general)	ed)	Profix	246_
tijed Name	Provy Name Description	Proxy Class (general Proxy Class (general Point to Point enable	ec IN ecti	Profes	206_
tijed Name tijed Name Ustrup LMM Dictionary Objects Dictionary Objects Dictionary Programs Dictionary Programs Dictionary Dictio	Prov Name Description	Prov Class Igeneral Prov Class Igeneral Point to Point enable	ed)	Profix	ZM6
Image: State of the state o	Prov Name Description Interface Communication Type General Data	Prov Class Igeneral Prov Class Igeneral Point to Point enable	ed) d T	Profix	[ZW5_
Project Name Diplect Name	Prov Name Description Interface Communication Type Ceneral Data Package	Prov Class (general Prov Class (general Point to Point enable	ed)	Prote	[ZM5_
Itiged Name Itiged Nam Itiged Nam	Prov Name Description Interface Communication Type General Data Package Original Language	Cos CO ORDER ADVI Prov Class Igeneral Point to Point enable STIRE EN English	e IN	Profix	245_
	Prov Name Description Interface Communication Type General Data Package Disjinal Language Orisited by	Cost COLORDER ADVI Proxy Class Igeneral Point to Point enable SITIE EN English LINE on	4C 18 ed) a	Profix	246_
	Prov Name Description Interface Communication Type General Data Package Criginal Language Criginal Language Criginal Language	Prov Class (general Prov Class (general Point to Point enable STITE EN English LTMI on LTMI on	4 7	Profix	246_

Save and activate the newly created consumer proxy.

- 2. Use SOAMANAGER to create the consumer service from the proxy.
 - a. Execute transaction SOAMANAGER on the consumer system.
 - b. Go to the tab "Application and Scenario Communication" and click on "Single Service Administration":

Note

The tab and function name might be different depending on the release level. However, the names should be similar, and position of the tab and location of the function should



be the same. For example for PI 7.1, the tab is "Business Administration" and the function name is "Web Service Administration".



- c. In the Web Service Administration screen, select:
 - Search by: Consumer Proxy
 - Search Pattern: order_Async_IN (this value can be obtained from the previous step when the consumer proxy is created)
 - Field: External Name

Click "Go" to search.

The following screen should result:

Service Groups 2	3	4
Pattern order_Async_IN Field	External Name in System XL/002	30
		_
mesoace	Internal Name	Typ
p //test.com/ws/abap	ZWS_CO_ORDER_ASYNC_IN	Con
	Service Groups 2 Pattern order_Async_IN Field(mesoace p //test.com/ws/abap	Service Groups 2 3 Pattern order_Async_IN Field External Name in System: XLU002 C mesoace Internal Name p //test com/ws/abap ZWS_CO_ORDER_ASYNC_IN

- d. Create a port for the consumer service:
 - i. Select the consumer proxy
 - ii. Click on "Apply Selection"
 - iii. From the new screen on the bottom, go to the tab "Configuration"
 - iv. Click on "Create Logical Port"



earch besign time objection	Web Service Configuration		
Search Browse			
Search Services, Consumer Pro	wes and Service Groups Search Pattern: order_Async_IN Field:	External Name + in System XLI/002	Go
Search Results			
Elternal Name	Namespace	Internal Name	Cope
Apply Selection	CO ORDER ASYNC IN		
Apply Selection Details of Proxy Definition: ZWS lack to search 3 Overview Configurations	CO_ORDER_ASYNC_IN		

e. Enter all the fields to create the logical port and click on "Apply Settings":

The "URL for WSDL Access" is the provider's web service URL from step 4.1.4.i.

🚺 Important

in the second

Depending on the NW release level, you may be asked to enter the binding name also. If this is requested, enter any binding name, e.g. "create_order_binding".

Logical Port Name: *	CREATE_ORDER	Logical Port is Default
Description: *	Create order consumer service	
Configuration Type	WSDL Based Configuration Manual Configuration Process Integration Runtime	
WSDL Access Settin	ge	
WSDL Base • Via HT	IP Access	
WSDL Location		
URL for WSDL Access	* 1DDEA99133AD13F312A	A/wsdl11/allinone/ws_policy/document?sap-client=1
WSDL Access User:	liwi	
WSDL Assess User Pa	ssword:	
Lat. all a set	nos	

f. On the newly created bottom portion of the screen, enter the authorized user to execute the provider service, and save the configuration:

Web Service Configuration of Proxy Defini	tion: ZWS_CO_ORDER_ASYNC_IN
Back to Design Time Details Display Save Cancel	
Configuration for Logical Port 'FOO'	
Consumer Security Additional Informatio	n Messaging Transport Settings O
Configuration of Consumer Settings ad	ditional to WSDL Document Information
User ID/Password	
User Name: Iiwi Password:	1
Properties from WSDL Document	
Authentication	
Authentication Method: sapsp:HTTPBas	ic
Transport Security	
Secure Communications:SSLSignature Expected:falseEncryption Expected:falseAdd Signature:falseEncryption:false	
(ou should now see the new port in the displa	а <i>ч</i> :

g. You should now see the new port in the display:

Web Service	Administrati	on						
Course Design Time shield	for Web Comise Conf							
Search Design Time object	for web Service Cont	iguration						
Search Browse								
Search Services, Consume	er Proxies and Service Gr	oups:						
Search by: Consumer Pro	xy - Search Pattern: or	der_Async_IN Field: E	xternal Name 👻					
in System: XLI/002 Go	Show Advanced Search							
Search Results								
External Name	Namespace	Internal Name	Туре D					
G order_Async_IN	http://test.com/ws/abap	ZWS_CO_ORDER_ASYNC_IN	Consumer Proxy					
Apply Selection								
Details of Proxy Definition:	ZWS_CO_ORDER_ASY	NC_IN						
Back to search								
Overview Configurations Details								
Create Logical Port Delete Logical Port Edit Display								
	Sidle		Janually Created					
CREATE ORDER	Active							



3. Create a program to call the consumer service.

With a consumer web service, we have to have a program to call it. Below is an example of an ABAP program, created using SE38:

```
*&-----
_ *
*& Report ZWS CREATEORDER PI1
* &
                    _____
*&----
_ *
* &
* &
                   _____
* & _ _ _ _ _ _
_ *
REPORT ZWS CREATEORDER PI1.
DATA: ZCREATEORDER TYPE REF TO ZWS CO ORDER ASYNC IN,
          m seq prot TYPE ref to IF WSPROTOCOL SEQUENCE,
          m_seq TYPE ref to IF_WS_CLIENT_SEQUENCE,
          l wsprot type ref to if wsprotocol,
          lv seq TYPE SRT SEQ ID.
data: INPUT type ZWS ORDER MT .
parameters: Order No(10) type c LOWER CASE.
parameters: Cust No(10) type c LOWER CASE.
parameters: Cust Nm(10) type c LOWER CASE.
input-ORDER MT-ORDER NO = Order No.
input-ORDER MT-CUSTOMER NO = Cust No.
input-ORDER MT-CUSTOMER NAME = Cust nm.
try.
   CREATE OBJECT ZCREATEORDER
     EXPORTING
       logical port name = 'CREATE ORDER'.
  generation of the sequence protocol and the sequence
   m seq prot ?= ZCREATEORDER-
>get protocol( if wsprotocol=>sequence ).
   m seq = m seq prot->create persistent sequence().
* start sequencing and get id
   m seq->begin( ).
   m seq prot->set client sequence( m seq ).
   lv seq = m seq->get id().
   CALL METHOD ZCREATEORDER->CREATE
     EXPORTING
```



INPUT = input.

```
* end sequencing and commit work
m_seq->end().
cl_soap_tx_factory=>commit_work().
write:/ 'Order Successfully Sent'.
CATCH CX_AI_SYSTEM_FAULT
CX_AI_APPLICATION_FAULT .
write : 'Error during proxy call'.
exit.
ENDTRY.
```

Please note the parts of the program marked in red.

- o <u>ZWS_CO_ORDER_ASYNC_IN</u>: the proxy name as it was create in SE80 above.
- ZWS_ORDER_MT: the ABAP structure containing the input data. This is automatically created during the proxy creation process.
- CREATE_ORDER: logical port name created using SOAMANAGER is a previous step.
- CREATE: the operation name when we created the service interface in the ESR. You can also see this name in the ABAP proxy as the method of the class.
- o commit work(): we must have this for asynchronous message processing.
- 4. Execute the consumer program:
 - a. On a NW 7.11 consumer system:

			Crea	te order	on PI1						
			(D)								
			ORDER	NO		NM	711				
			CUST_I	10		NU.					
			cust_f	aw.		Ites	11				
System: Stat	tus						8/				
Jsage data	7.										
Client	002	Pre	WOUS ROS	pon	85.12 2009	06:31:	51				
User	LIWI	Lo	pon		07.12.2009	05:24	10				
Language	EN.	Sys	stern time	6		08.55	58				
		Tin	ne zone	CET		17:55:5	58				
			1907.000								
IAP data											
Repository a	lata		SAP	System data							
Transaction	1	5E38	Con	aponent versio	n SAP E	HP 1 for S					
Program		ZWS_CREATEORI	DI			<u>O</u>					
Program (s	creen)	ZWS_CREATEORI	linst	allation number	98262	70552		× XLI (1) 002 🗉	nspah227	INS
Screen n	System: Com	ponent informat	tion					_	0		
Program	offware Compo	n Release	Level	Highest Suppo	oft Short De	scription d	of Software	Compo			
GUR statu	AP_ABA	711	0093	SAPKA71183	Cross-Ap	plication	Component				
5	AP_BASIS	711	0003	SAPK871103	SAP Basi	s Compo	nent	-			
P.	I_BASIS	711	9993 3	SAPK-711831	VP18/Basis Plu	ig-In					
nost data g	T-PI	2005_1_710	0004	SAPKITLQJ4	SAP Solu	tion Tools	Plug-In				
Uperating 5	AP_BM	711	0003 3	SAPKW71183	SAP Busi	ness War	shouse				
Server nav	verif	v svster	n in	fo	-						
Piniform IT			- Calo						8		
C SHOULDED IN THE		Tallall		-		_					

Result on the provider system:



Di	Data Browser: Table ZTEST_ORDER									
R	SEQ_NO	ORDER	CUST_NO	CUST_NAME						
	2	q	w	е						
	3	NW711	XLI	test1						
					·					

b. On a NW 7.00 SP18 consumer system:

Usage data OP OP N/700 X89 Usage data OP N/700 X89 OP	P	SA	leip	materies of	ogram Edit (Pr		
Create order on Pl1 Create order order order order Create order order order order order Create order Create order	1	MP (27 (28) (40) (21)	5 000	2		0		
ORDER_NO NA700 ORDER_NO NA700 CUST_NO X89 CUST_NM TEST3 *System: Status Image: Cust_NM Usage data Image: Cust_NM Client 200 Usage data Image: Cust_NM Client 200 User LINI Logon 12/03/2008 System time 06:51:05 Time zone CST Transaction SE38 Program ZxS_CREATEORD Installation number 0020173879 Screen number Component information Program (GLV) Scheare Component information Program (GLV) Scheare Component information Gui status Scheare Com				on PI1	eate order	Cre		
ORDER_NO Nx700 CUST_NO X89 CUST_NIM TEST1 *System: Status C Usage data C Client 200 Usage data C Client 200 Usage data C Client 200 Usage data Conno Client 200 Usage data Conno System time 08: 51: 05 Time zone CST Transaction SE38 Program ZMS_CREATEORD Installation number 0020173879 Streen number C Streen number SAP_ABASIS Streen number SAP_ABASIS Program (GLU) Streen Release Level Highest Spoot Short Description of Software Component Streen number C Streen number SAP_BASIS Streen number <td></td> <th></th> <td></td> <td></td> <td></td> <td>•</td> <td></td> <td></td>						•		
CUST_NO X89 CUST_NM TEST1 System: Status C Jsage data Chent Chent 200 Previous logon 12/03/2009 09:54:15 User LIMI Logon 12/07/2009 08:51:05 Tansaction SE38 Program ZNS_CREATEORD Program ZNS_CREATEORD Installation number 0920173879 Screen number Crepter Component Information Program (Screen) ZNS_CREATEORD Screen number Crepter Component Information Program (GUI) Schware Compon Release Level Highest Spoont Short Description of Software Component GUI status SAP_ABIA 700 9018 SAP NetWeaver Bi 7.0 SAP NetWeaver Bi 7.0			Nw700		ER_NO	ORDE		
CUST_NM TEST1 System: Status Client Jsage data Client Client 290 Previous logon 12/03/2009 User LINI Logon 12/07/2009 Baye data System time Chent 200 Previous logon 12/07/2009 BAP data System time Repositiony data SAP System data Program ZNS_CREATEORD Program ZNS_CREATEORD Installation number 0920173879 Screen number Component information Program (Screen) ZNS_CREATEORD Screen number Component information Program (GUI) Schware Compon Release Level Highest Support Short Description of Software Compon GUI status SAP_ABA 700 9018 SAP_BASIS 2005_1_700 SAP NetWeaver Bi 7.0 Operating system 700 0018 SAP NetWeaver Bi 7.0 Marthine hole 700 0018 SAP NetWeaver Bi 7.0			XR9		r_NO	CUST		
System Status			TEST1		E_NM	CUST		
Jaage data 200 Previous logon 12/03/2000 09:54:15 User LIMI Logon 12/07/2009 68:44:28 Language EN System time 08:51:05 AP data Time zone CST 10:51:05 AP data Component version SAP NetWeaver 2 Image data Program Zx6_CREATEORD Installation number 0020173879 Program (screen) Zx6_CREATEORD Installation number 0020173879 Screen number Component information Short Description of Software Component Program (GUI) Schware Component information Short Description of Software Component AP_BASIS 706 0018 SAPKA70018 Cross-Application Component Apr BaSIS 2005_1_700 0018 SAP NetWeaver BI 7.0 Image data Coperating system Fight SAPKA70018 SAP NetWeaver BI 7.0 Image data			8					System: Status
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								Operating system Machine type
Server name					-			Server name
Platern ID verify, system info		•	fo	em ir	syst	rify	vei	Platform ID

Result on the provider system:

D	Data Browser: Table ZTEST_ORDER									
	l 🖉 &r	3		8 8 1	"I 🖑 🖪					
R	SEQ_NO	ORDER	CUST_NO	CUST_NAME						
	1	AAA	AAA	AAA						
	2	q	w	е						
	3	NW711	XLI	test1						
	4	NW700	XR9	TEST1						

4.3 Monitoring and Debugging

WS-RM has its own runtime time engine. Consequently, monitoring and debugging will include a set of different tools in addition to the traditional ABAP and Integration Engine tools.



In this section, we will describe some of the available tools.

In order to determine the tools, an overview of the message flow during WS-RM runtime can be helpful. Although the diagrams below outlines the flow in PI Integration Servier, it is also applicable to application servers since the Integration Engine is also part of the ABAP stack.





Network \rightarrow ICM \rightarrow WS Adapter \rightarrow bgRFC \rightarrow WS Adapter \rightarrow Central Pipeline



Sending message from WS-RM to the network:

Central Pipeline \rightarrow WS Adapter \rightarrow bgRFC \rightarrow Network (via HTTP Post)

Therefore, during our monitoring process, we can use the message processing paths indicated above to determine the tools to use.

- ICM: monitoring the ICM for incoming messages.
 ICM can be monitored from either ABAP or Java:
 - ABAP: transaction SMICM
 From the main menu: Goto → Trace File → Display...

⊑r List E	dit	<u>G</u> oto	Administration	n AS <u>J</u> ava	1	<u>S</u> ettings	Sy	stem	Hel	р				
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<u>Ц</u> 6	52	12	10.396	Availab	le									
H 7	97	94	10.402	Availab	le									
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9	72	54 52	10.347	Availab	10									
	13	52	10.413	Availab	16									

The trace level can be changed using the menu:

⊑∕ List Edit	<u>Goto</u> <u>A</u> dministration	AS <u>J</u> ava	<u>S</u> ettings S <u>y</u> stem <u>H</u> elp
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3 548	30 10.456	Availab1	le
4 70	56 10.408	Availab1	le
5 852	20 10.409	Availabl	le
6 52	12 10.403	Availab1	le
7 97	04 10.409	Availab1	e
8 856	64 10.461	Availabl	le
9 628	34 10.356	Running	Administration
10 73	52 10.421	Availabi	le

• Java: <u>http://<server>:5xx13</u> (Management Console)





Note

Please reference the following for the creation of administrator users with authorization to view ICM from the browser:

http://help.sap.com/saphelp_nw70ehp1/helpdata/en/48/7f2d997df935e1e10000000a421 89c/frameset.htm

2. Transaction SXMB_MONI or SXI_MONITOR: This is the existing tool used to monitor Integration Engine messages. From this display, we can get payload information.



3. With SXMB_MONI or SXI_MONITOR, scroll to the right to display the columns "Queue Sequence" and "Queue ID". By clicking on the value of those columns will can get additional monitoring information:

WS-RM messages are sent as sequences, where multiple messages can be sent in specific sequences with guaranteed delivery. SOAMANGER's sequence monitor provides information on errors during message processing. The messages can be restarted and terminated using the monitor.

WS-RM is processed by the background RFC, therefore, monitoring the bgRFC is important to get any additional details. The logging of successful asynchronous WS-RM messages is not kept, which is why for successful messages, we do not see anything in the monitor.

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Image: Status Image: Status<	umber of Di	splayed X	ML Messages	1				<u> </u>
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Note

bgRFC monitoring is also accessible by using the transaction: SBGRFCMON

These 2 displays will give us additional information of the message being processed. When error does occur, the error details will be displayed.

4. Transaction SRT_TOOLS: This tool provides a centralized location for access to SOA runtime tools.



SOA Runtime Tools
🗢 🗋 SOA Runtime Tools
🗢 🗋 Monitoring
ගින Monitor for Processed XML Messages
ୈନ୍ଦ Sequence Monitor
ୈନ୍ଦ bgRFC Monitor
& Display Web Service Logging and Tracing
ୈନ SRTUTIL: Administration
WS Configuration
🔓 Display Web Service Runtime Configurations in Current Client
🂖 Pending SOAP Runtime Configuration Tasks
Service Configurations in Current Clent
🂖 SOA Manager
🂖 Integration Directory Cache
Technical Configuration
Check Administration Environment of SOAP Runtime
🌠 Technical Configuration of SOAP Runtime 🛛 🚽
🌿 bgRFC Configuration
Testing Tools
🖽 SOAP Runtime: Use Cases
Report TEST_WS_SCENARIOS
Star ABAP Dump Analysis
ୈନ Maintain Services

For monitoring:

- a. Monitoring for Processed XML Messages: This is the same as the monitoring tool which can be accessed using SXMB_MONI.
- b. Sequence Monitor: This is the same tool discussed above.
- c. bgRFC Monitor: This is the same tool discussed above.
- d. Display Web Service Logging and Tracing: This tool monitors the messages and trace information as defined by the configurations in "Technical Configuration of SOAP Runtime". The logging and trace level are configured there.
- e. SRTUTIL: Display messages based on users.
- 5. Transaction SOAMANAGER → Monitoring: The SOAMANAGER tool is a webdynpro application which provides not only the administration tools of managing consumer and provider services, as seen in the previous sections, but it also provides monitoring, logs and traces.

SOA Manage	ment		
Technical Configuration	Business Administration	Logs and Traces	Monitoring
Message Monitoring Monitor Your Messages. Sequence Monitoring Monitor Sequences.			

- a. Message Monitoring: This is the equivalent to SXMB_MONI.
- b. Sequence Monitoring: This is also similar to the sequence monitoring in ABAP, as mentioned above. However, it provides a little different user interface.

Criteria Selectio	n				
Start Search Re	set Criteria				
General Criteria	1				Ξ
User Name Sequence Status:	[Role		
Start Date	11.12.2009	100	Start Time	00.00.00	
End Date.	11.12.2009	10	End Time	23 59 59	
Special Search	Criteria				
Component/Applic Logical Sequence Technical Sequen Message ID:	ation: ID: ce ID:				
Sequences Fou	nd				
Delete Selected S	equence Close S	elected Sequence	Restart Selected Seq	uence	

6. Transaction SOAMANAGER \rightarrow Logs and Traces:

SOA Manage	ment		
Technical Configuration	Business Administration	Logs and Traces	Monitoring
Logs/Trace Viewer Display all logs and traces. Logs Configuration Configure logs. <u>Trace Configuration</u> Configure traces.			

This provides detailed message information based on the configuration in "Logs Configuration" and "Trace Configuration".

Example:

TAX INCOME	100		-					
show All Carls	Prom La	st hour		20				
Found Calls								
Status	Timestamp	Client	User Name	Interface Name	Location	is Prescheduled	Communication Pattern	Call
Success	2009-12-11 17:56.16	002	UW	ZWS_CO_ORDER_ASYNC_IN	Consumer	х	SOAP_RUNTIME_CONFIG	00198
G Success	2009-12-11 17.56.16	002	LIM	ZWS_CO_ORDER_ASYNC_N	Consumer	X	Method create	0019
Success	2009-12-11 17:56:16	002	LIW		Consumer	X	SEQUENCE_MANAGER	00198
Success	2009-12-11 17 56.17	002	LINN	ZW5_CO_ORDER_ASYNC_N	Consumer		Method create	00198
Success	2009-12-11 17.56.17	002	LIW	ZWS_CO_ORDER_ASYNC_N	Consumer		Method CreateSequence	00198
Success	2009-12-11 17:56:22	002	LIM		Consumer		SEQUENCE_MANAGER	00196
all Details	og Records Thinke A	ac.0056	/ Paulona 1	No.e				
Available Lo	g Records							
Status	Level			Processor Name	Step Na	me		7
G Succes	s Errors and F	ectorma	ince:	SCAP Runtime	initakza	tion of SDAP Cite	nt Runtime	()
G Succes	s Errors and P	entorma	ince	SCAP Runtime	initiaiza	tion of SOAP Cire	nt Runtime	(1
Succes	s Errors and P	erforma	ince	SOAP Runtime	Execute	on of SOAP Client	Runtime	0

7. ABAP Runtime Error: It might also be necessary to go to the runtime error log to determine the problem.

ABAP Transaction: ST22

arameters Standard					
		Today		6 Runtime Errors	S
		Yesterday		10 Runtime Error	rs
Own selection	/				
Date		10/05/2009 🕝	to		4
Time		00:00:00	to	00:00:00	⇒
Host			to		->
Work Process	Index		to		-
User		TESTUSER	to		=
Client			to		-
To be stored			to		=
Runtime Erro	r		to		-
Program Nan	пе		to		4
Exception			to		=
Transaction II	C		to		4
🕒 Star	1				

4.4 Use WSNavigator to Debug WS

Use WSNavigator to Debug WS:

 Change trace level to "Debug" on for the packages: com.sap.engine.services.webservices com.sap.engine.services.wsrm

	and the second sec			Related Links
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ow tracing Locations - Location	om sap engine service: 00 Open Filter	3		1000
cing Locations				1510
ve Configuration Reset Location Cop	y to Subtree Copy To Filtered Subtree De	fault Configura	ation	
			Severity	
· ROOT LOCATION		Q	Error	
+ 🔁 AutoLog		0	Error	
- 🗀 com			Error	-
🔹 🗀 sap			Error	-
🔹 🛄 engine	0	Error	•	
 services 	0	Error		
 webservices 		ø	Error	
additions			All	
espbase			Path	R
🕨 🛄 jaxm			Info	
			Warning	
			Fatal	
System Configuration Per Instance C	Configuration		None	
Destinations				
Pattern	Count			Limit
Vog\defaultTrace_00.trc	20			10.485.760

- 2. Execute the service using WSNavigator.
- 3. Go to the default trace in the Log Viewer:



a. Enter in the filter for "Location" column: com.sap.engine.services



b. Using SOAMANAGER:

i. In /nwa:



- ii. In ABAP:
 - TX: ST22

To examine the dumps (if any) generated by the WS call.

TX: SE38 - report SRT_ADMIN_CHECK

To determine any missing WS configurations.



c. Where to monitor?

Sender System:

SXMB_MONI (aka SXI_MONITOR)

Use the default display:

Choose la	vout	
Layout setting	All	
Layout	Layout description	Default setting
1ACKVIEW	Acknowledgement View for Messages	
1BIZVIEW	Application-Oriented View for Message:	
1DEFAULT	Standard Layout for Monitor	
1TECVIEW	Technical View for Messages	1
3DEFAULT	Default Layout	4
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A		28 28 2000	211852	211018	"Carrent Status"	Asynchroneau	EOI0	148		201000200001055-0048000014521008	SALIDIC ODI SERVICIO CORE ARADADI DI LA DI COMPLETA DI
A			21.19.25	2110.28	'Connet Bates'	Asynchropous	DOI0	305		001088220082108824845404310448285	BRTGC 001368220062306E48454040F5448385
A			212018	21,20,19	"Conent Status"	Asirichtoness	£010	W/8		001088220062108E48484343E3906EE0305	SHIGE OUTBREEDONE CREARAGE MORED OF

This display will provide the Queue/Sequence id and the queue name/ID:

d. From the sequence ID, we can get to the Sequence Monitor, where we can get additional information about our message. We can also examine errors and start/end the sequence.



e. From the Queue ID, we can examine the bgRFC queue where is message is processed. The Queue ID will indicated is our message is waiting in the queue and the reason it might be stuck.

	Monitor for bgRFC Units			
	5			
1				
	Procedure/Destination/Unit Type	Status	Change Status	3 8 7 6 6
	🗢 🗐 Inbound			L Lo Ma
	No data available for selection			Units
				Status Name of First F



In addition to monitoring the message from the ABAP stack, we can also monitor the message from SOAMANAGER in the web browser.

In SOAMANAGER, select Monitoring \rightarrow Sequence Monitoring:



(Message Monitoring is a link to the ABAP's SXMB_MONI.)

In SOAMANAGER's Sequence Monitor, we can copy-n-paste the Sequence ID from SXMB_MONI, or any other search criteria:

V	Veb	Ser	vic	e Seq	uence	Monitor			
S	ystem:	XLI CI	ient: (002 Serv	er: nspah22	27_XLI_27 /nspa	ah227 Sta	rtTime: Sun Sep 13 17:21:56 2009)
С	riteria	Selecti	on						
St	art Sear	ch Re	set Crit	eria					
0	Genera	l Criter	ia						
Use	er Name	5					Role:	•	
Se	quence	Status:				•			
Sta	art Date:		29.09	.2009	62		Start Time:	: 00:00:00	
En	d Date:		29.09	.2009	62		End Time:	23:59:59	
5	Special	Searc	h Crit	eria					
Со	mponen	t/Applica	ation:						
Lo	gical Se	quence	ID:	0019BB22	00021DEEAE	3A59D69345			
Те	chnical §	Sequend	e ID:						
Ме	ssage II	D:							
S	equen	ces Fo	und						
De	elete Sel	ected S	equen	ce Close	Selected Seq	uence Restart S	elected Sec	quence	
Nun	nber of S	Sequenc	es Fou	und:	1				
₽.	Status	Client	Role	Date	Time	Component/App	lication Lo	gical Sequence ID	Те
		002	С	29.09.20	09 21:18:51	LOCAL_	00	19BB2200021DEEABA59D6934531305	00

From here, we can delete, close or restart the sequence. We can also examine additional detail about the sequence:



Sequence Details					
Logical Sequence					
Created On/At	29.09.2009.21.18.52	Created By:	LIMI	1	
Logical Sequence ID	0019BB2200021DEEABA59D6934531305	Destination:	WS_SERVICE	1DECAFE6FBD5_S	
Queue Name:	SRTQC_0019882200021DEEA8A59D693-	Domain Name	MY_GLOBAL_	DOMAIN	
Queue Status Code	No queue status code exists	Sequence Execution Status	In process		
Sequence Use Case:	equence Use Case Standard f		Remote Process Mode		
Sequence Error Type	No Errors				
Sequence Status:	Sequence open				
Sequence Type.	Type managed by application				
Queue Status:	Queue Status: Created	Queue State			
Queue Completion Status	Status: Sequence Open				
Technical Sequence					3

Receiver System:

Similarly to Sender System, SXMB_MONI and SOAMANAGER can be used to monitor the messages.

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