SAP NetWeaver
How-To Guide

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

Version 1.1

March 2010

HOW-TO GUIDE

THE BEST-RUN BUSINESSES RUN SAP™

© Copyright 2010 SAP AG. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP AG. The information contained herein may be changed without prior notice.

Some software products marketed by SAP AG and its distributors contain proprietary software components of other software vendors.

Microsoft, Windows, Outlook, and PowerPoint are registered trademarks of Microsoft Corporation.

IBM, DB2, DB2 Universal Database, OS/2, Parallel Sysplex, MVS/ESA, AIX, S/390, AS/400, OS/390, OS/400, iSeries, pSeries, xSeries, zSeries, z/OS, AFP, Intelligent Miner, WebSphere, Netfinity, Tivoli, Informix, i5/OS, POWER, POWER5, OpenPower and PowerPC are trademarks or registered trademarks of IBM Corporation.

Adobe, the Adobe logo, Acrobat, PostScript, and Reader are either trademarks or registered trademarks of Adobe Systems Incorporated in the United States and/or other countries.

Oracle is a registered trademark of Oracle Corporation.

UNIX, X/Open, OSF/1, and Motif are registered trademarks of the Open Group.

Citrix, ICA, Program Neighborhood, MetaFrame, WinFrame, VideoFrame, and MultiWin are trademarks or registered trademarks of Citrix Systems, Inc.

HTML, XML, XHTML and W3C are trademarks or registered trademarks of W3C®, World Wide Web Consortium, Massachusetts Institute of Technology.

Java is a registered trademark of Sun Microsystems, Inc.

JavaScript is a registered trademark of Sun Microsystems, Inc., used under license for technology invented and implemented by Netscape.

MaxDB is a trademark of MySQL AB, Sweden.

SAP, R/3, mySAP, mySAP.com, xApps, xApp, SAP NetWeaver, and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world. All other product and service names mentioned are the trademarks of their respective companies. Data contained in this document serves informational purposes only. National product specifications may vary.

These materials are subject to change without notice. These materials are provided by SAP AG and its affiliated companies ("SAP Group") for informational purposes only, without representation or warranty of any kind, and SAP Group shall not be liable for errors or omissions with respect to the materials. The only warranties for SAP Group products and services are those that are set forth in the express warranty statements accompanying such products and services, if any. Nothing herein should be construed as constituting an additional warranty.

These materials are provided “as is” without a warranty of any kind, either express or implied, including but not limited to, the implied warranties of merchantability, fitness for a particular purpose, or non-infringement.

SAP shall not be liable for damages of any kind including without limitation direct, special, indirect, or consequential damages that may result from the use of these materials.

SAP does not warrant the accuracy or completeness of the information, text, graphics, links or other items contained within these materials. SAP has no control over the information that you may access through the use of hot links contained in these materials and does not endorse your use of third party web pages nor provide any warranty whatsoever relating to third party web pages.

SAP NetWeaver “How-to” Guides are intended to simplify the product implementation. While specific product features and procedures typically are explained in a practical business context, it is not implied that those features and procedures are the only approach in solving a specific business problem using SAP NetWeaver. Should you wish to receive additional information, clarification or support, please refer to SAP Consulting.

Any software coding and/or code lines / strings (“Code”) included in this documentation are only examples and are not intended to be used in a productive system environment. The Code is only intended better explain and visualize the syntax and phrasing rules of certain coding. SAP does not warrant the correctness and completeness of the Code given herein, and SAP shall not be liable for errors or damages caused by the usage of the Code, except if such damages were caused by SAP intentionally or grossly negligent.

Disclaimer

Some components of this product are based on Java™. Any code change in these components may cause unpredictable and severe malfunctions and is therefore expressively prohibited, as is any decompilation of these components.

Any Java™ Source Code delivered with this product is only to be used by SAP’s Support Services and may not be modified or altered in any way.

THE BEST-RUN BUSINESSES RUN SAP™

Document History

Document Version	Description
1.10	Minor changes
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>`	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

Icon	Description
⚠	Caution
💡	Note or Important
❖	Example
⬆	Recommendation or Tip

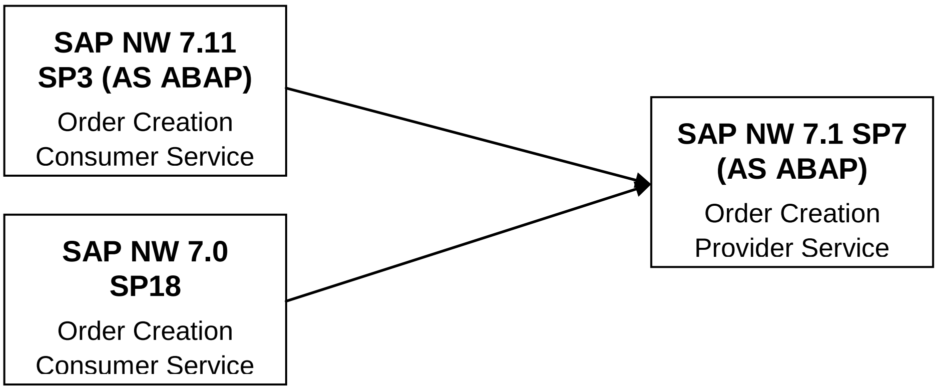
THE BEST-RUN BUSINESSES RUN SAP™ SAP®

Table of Contents

1. Business Scenario

Since SAP NetWeaver 7.0, SP 14, Web Services Reliable Messaging (WS-RM) has been introduced. WS-RM provides reliable delivery of asynchronous messages using the SOAP protocol. WS-RM is part of the ABAP stack.

In this how-to guide, we take a look at the development of consumer proxies and provider services using WS-RM. In our business scenario, we use a simple order creation process on a SAP NetWeaver 7.1, SP 7 system (AS ABAP). To simplify the application for demo purposes, the service inserts the order information into a database table. Then, we implement two consumer proxies on an SAP NetWeaver 7.0, SP 18 and an SAP NetWeaver 7.1, EHP 1, SP 3 system (AS ABAP). This is to show interoperability between the different releases.



In addition, we 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, messages are treated as standard SOAP requests.

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 do not arrive, the provider requests the missing message to 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 already been available with SAP NetWeaver PI/XI systems. Now the same quality of service can be handled by WS-RM, without using SAP NetWeaver PI/XI.

3. Prerequisites

3.1 Check and Verify WS-RM Configurations

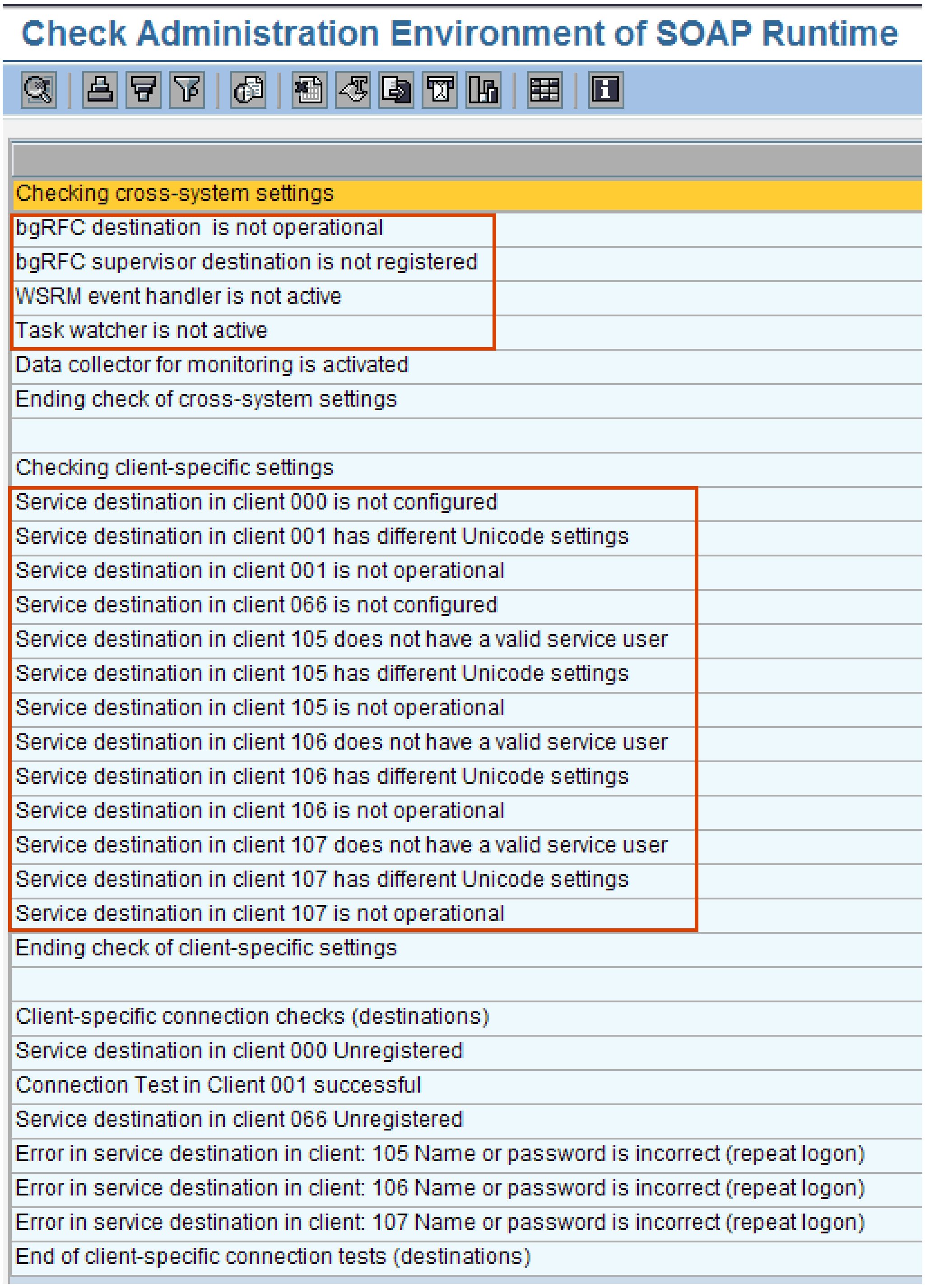
Before you can use WS-RM, you must verify that WS-RM has been configured on the consumer and provider systems.

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.

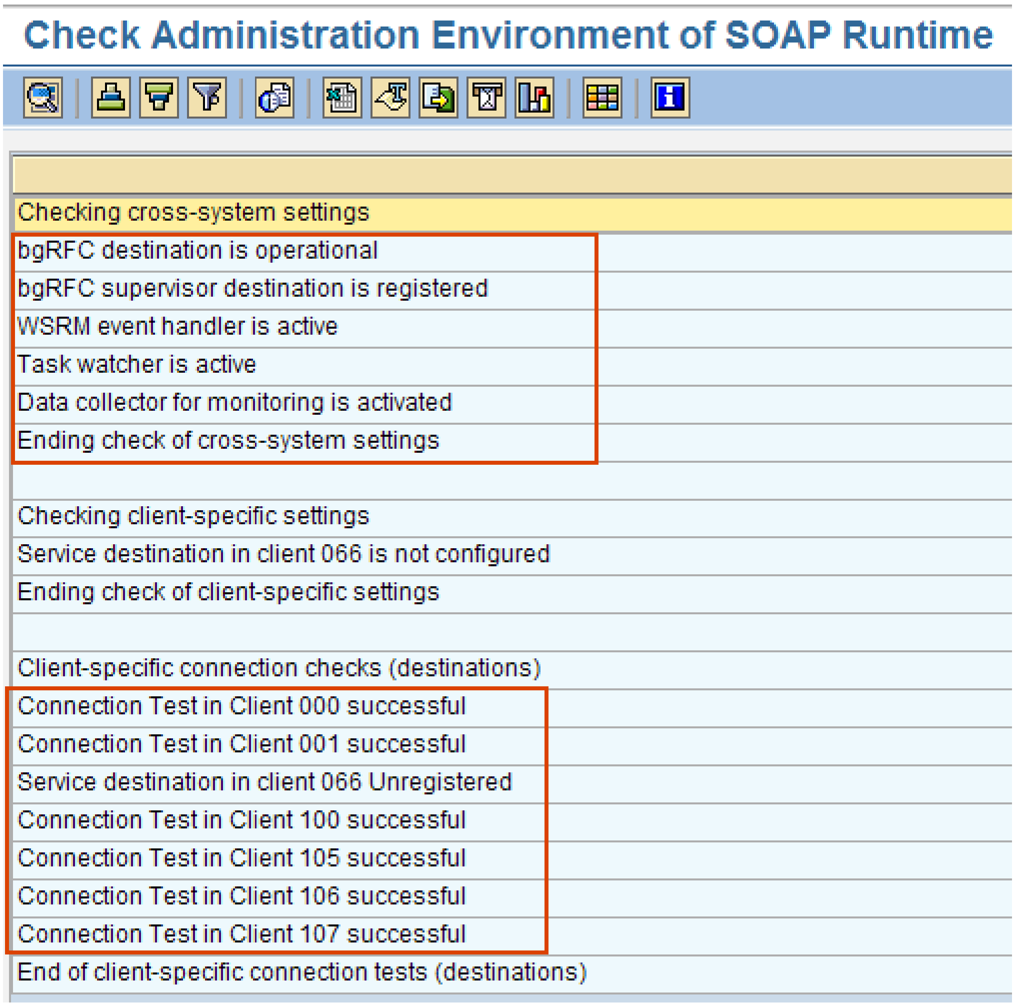
2. For each system, execute the report using SE38: SRT_ADMIN_CHECK
   Example output of a not configured WS-RM system:



Check Administration Environment of SOAP Runtime

```
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

```
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 (destinations)
```

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

3.2 Configure WS-RM for Consumer and Provider System

Important

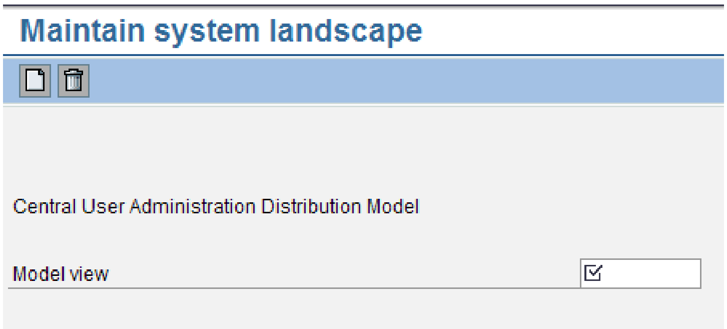
Follow the steps in this section only if WS-RM has not been configured based on the instructions above.

Note

Information on SAP Help Portal: Configuring the Web Service Runtime

1. On **all** clients, use transaction SCUA to check whether CUA is active.

   If it is not active, the following screen is displayed:



Maintain system landscape

Central User Administration Distribution Model

Model view ☑

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

     Note

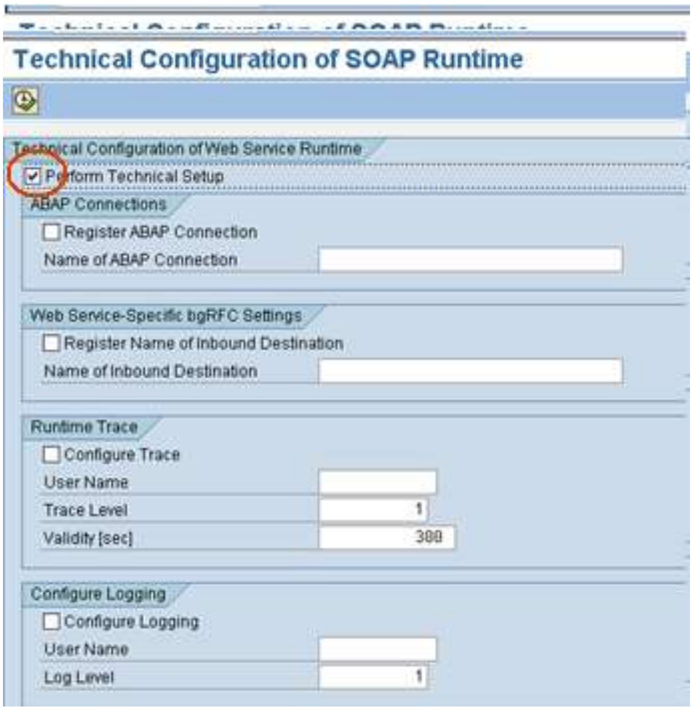
     SAP Note 1110741 Web service configuration can only be executed using SE37

   - If active, use report (SE38) SRT_ADMIN

     Note

     SAP Note 1043195 Configuration of the Web service runtime

2. On all clients, make sure the user used to perform the configurations has SAP_ALL rights, or DDIC rights.
3. On Client 000:
   a. Execute report (SE38) SRT_ADMIN
   b. Select option *Perform Technical Setup* and execute.



Technical Configuration of SOAP Runtime

Technical Configuration of Web Service Runtime

☑ Perform Technical Setup

ABAP Connections

□ Register ABAP Connection

Name of ABAP Connection

Web Service-Specific bgRFC Settings

□ Register Name of Inbound Destination

Name of Inbound Destination

Runtime Trace

□ Configure Trace

User Name

Trace Level 1

Validity [sec] 300

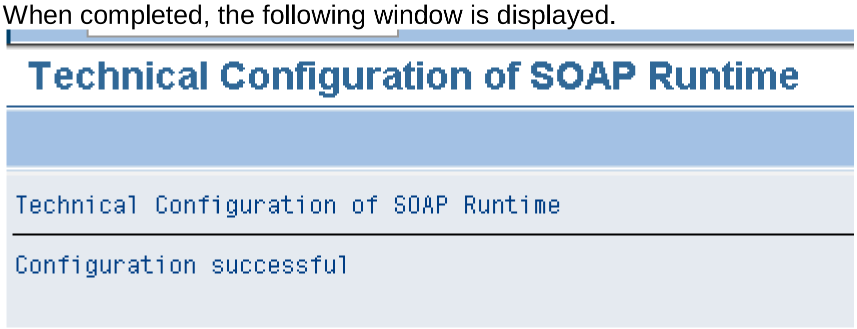
Configure Logging

□ Configure Logging

User Name

Log Level 1

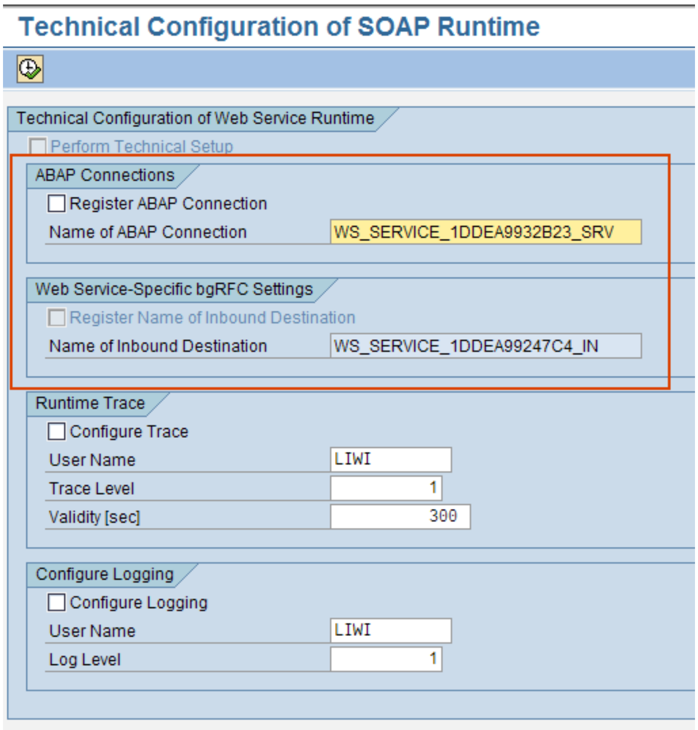
When completed, the following window is displayed.



Technical Configuration of SOAP Runtime

```
Technical Configuration of SOAP Runtime
Configuration successful
```

c. Re-execute report SRT_ADMIN, ABAP Connections and Web Service-Specific bgRFC Setting are displayed:



Technical Configuration of SOAP Runtime

Technical Configuration of Web Service Runtime

□ 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

Name of Inbound Destination: WS_SERVICE_1DDEA99247C4_IN

Runtime Trace

□ Configure Trace

User Name: LIWI

Trace Level: 1

Validity [sec]: 300

Configure Logging

□ Configure Logging

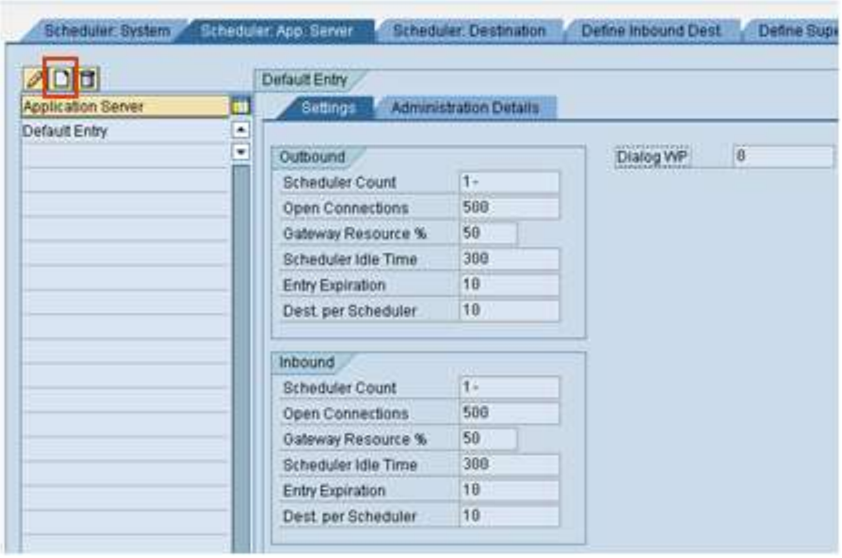
User Name: LIWI

Log Level: 1

Tip

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

4. On Client 000, configure bgRFC.
   a. Execute transaction: SBGRFCCONF
   b. On the *Scheduler App Server* tab, click on *Create*:



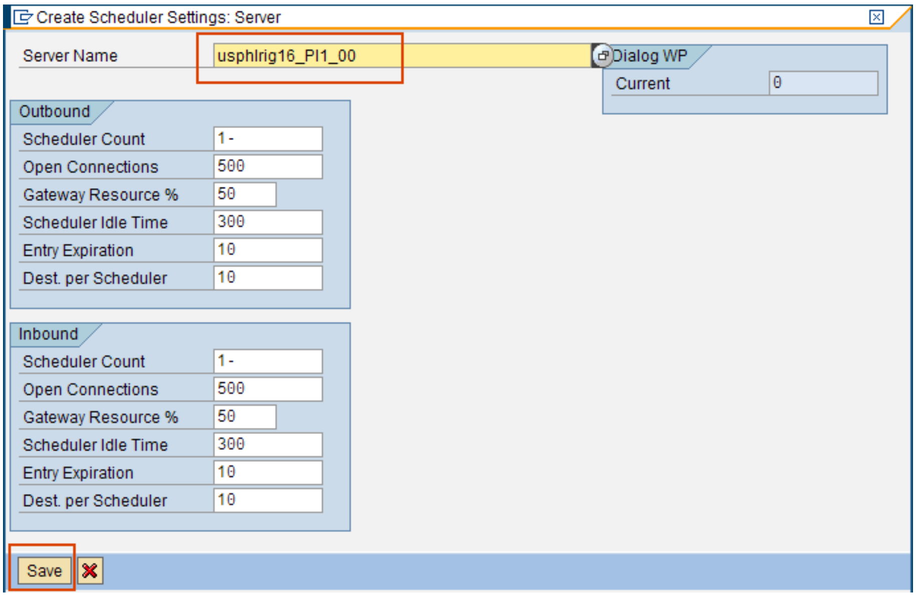
Default Entry

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

Dialog WP 0

   c. Provide a server name and save:



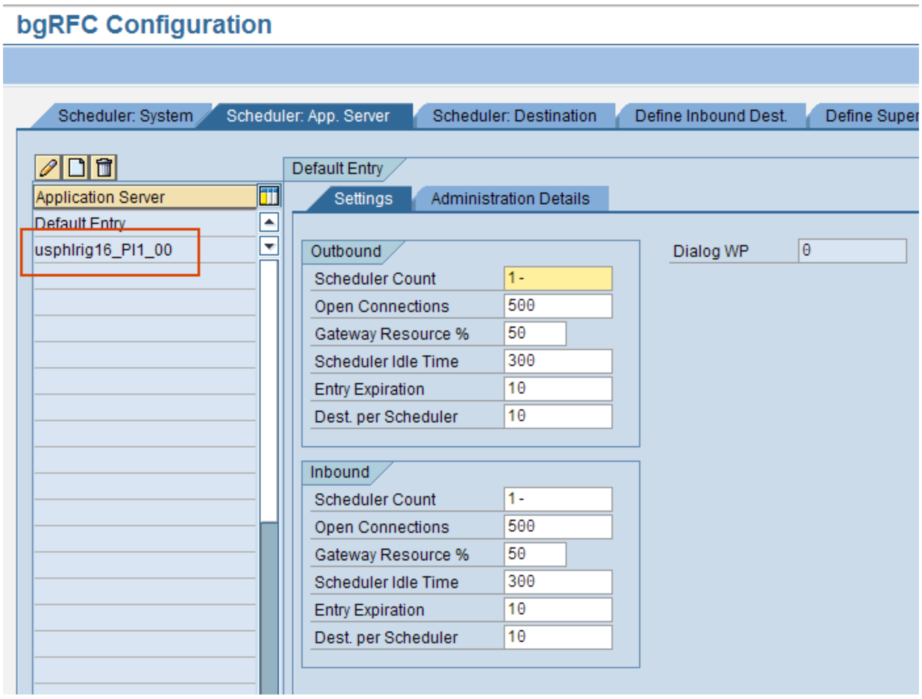
Server Name usphlrig16_PI1_00

Dialog WP
Current 0

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

d. This is the result:



Application Server
Default Entry
usphlrig16_PI1_00

Default Entry

Outbound

Scheduler Count	1-
Open Connections	500
Gateway Resource %	50
Scheduler Idle Time	300
Entry Expiration	10
Dest. per Scheduler	10

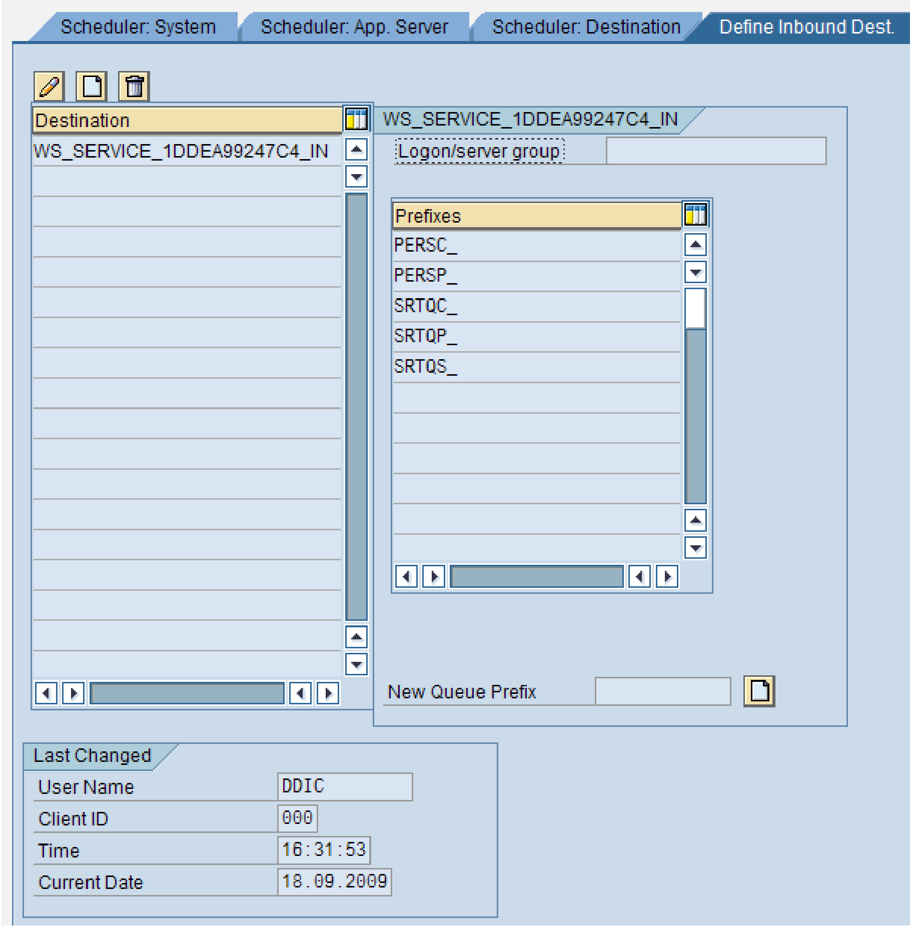
Inbound

Scheduler Count	1-
Open Connections	500
Gateway Resource %	50
Scheduler Idle Time	300
Entry Expiration	10
Dest. per Scheduler	10

Dialog WP 0

No other entries are necessary.

e. Check whether the queue prefixes are registered. If the setup is successful, no entries are necessary on this tab.



Destination
WS_SERVICE_1DDEA99247C4_IN

WS_SERVICE_1DDEA99247C4_IN

Prefixes
PERSC_
PERSP_
SRTQC_
SRTQP_
SRTQS_

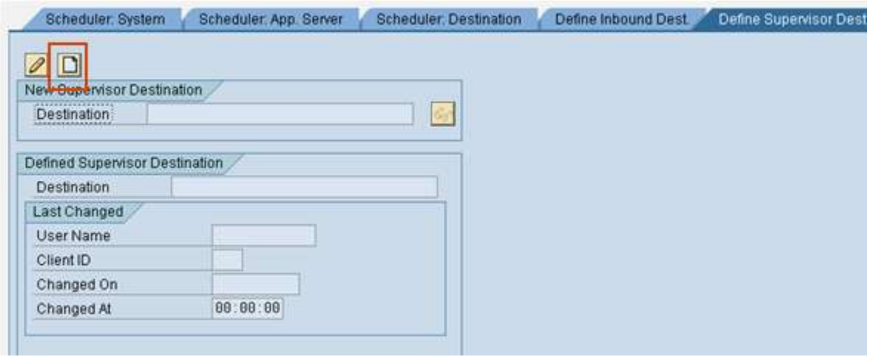
New Queue Prefix

Last Changed

User Name	DDIC
Client ID	000
Time	16:31:53
Current Date	18.09.2009

f. To define an RFC destination, click *Create* on the *Define Supervisor Destination* tab and enter the necessary information:

i.

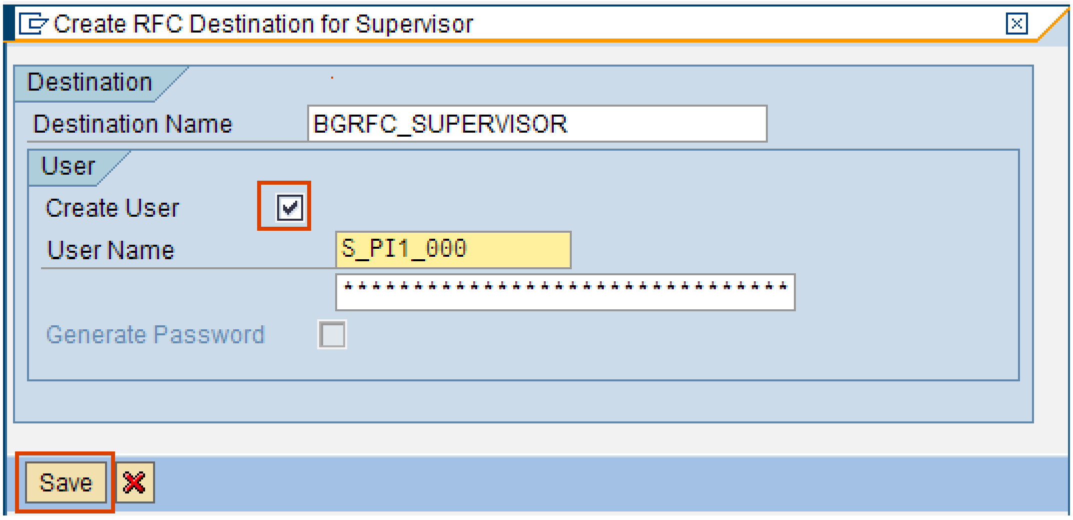


Scheduler: System | Scheduler: App. Server | Scheduler: Destination | Define Inbound Dest. | Define Supervisor Dest

New Supervisor Destination
Destination:

Defined Supervisor Destination
Destination:
Last Changed
User Name:
Client ID:
Changed On:
Changed At: 00:00:00

ii.



Create RFC Destination for Supervisor

Destination
Destination Name: BGRFC_SUPERVISOR
User
Create User ☑
User Name: S_PI1_000
****
Generate Password □

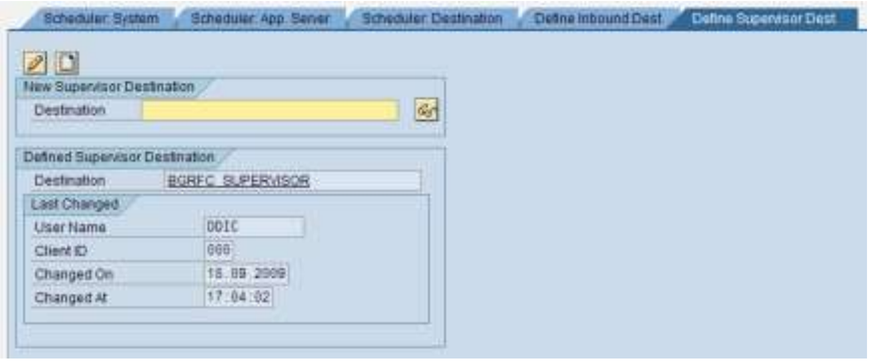
Provide a password and select *Save*. The user S_PI1_000 is also created.

Check whether the user is a service user and has the role SAP_BC_BGRFC_SUPERVISOR assigned. (Add the role, if not present.)

The RFC destination (type 3) should also be created: BGRFC_SUPERVISOR

The RFC destination should use the logon user: S_PI1_000

iii.

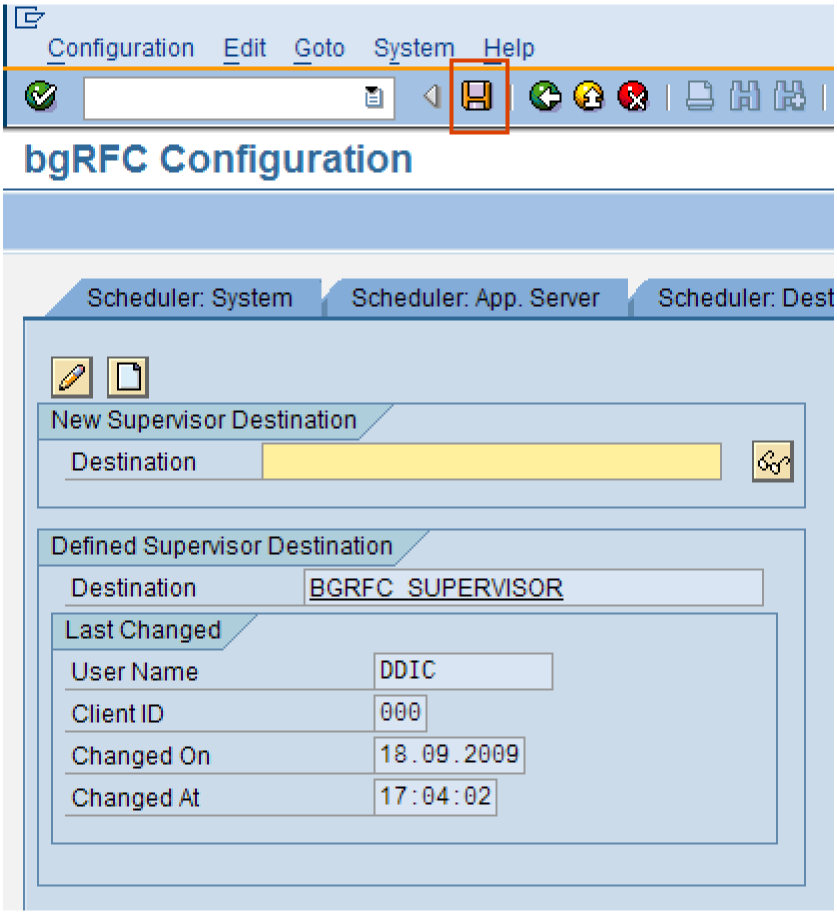


Scheduler: System | Scheduler: App. Server | Scheduler: Destination | Define Inbound Dest | Define Supervisor Dest

New Supervisor Destination
Destination:

Defined Supervisor Destination
Destination: BGRFC_SUPERVISOR
Last Changed
User Name: DDIC
Client ID: 000
Changed On: 16.09.2009
Changed At: 17:04:02

iv. Save the entries:



bgRFC Configuration

New Supervisor Destination

Destination

Defined Supervisor Destination

Destination BGRFC_SUPERVISOR

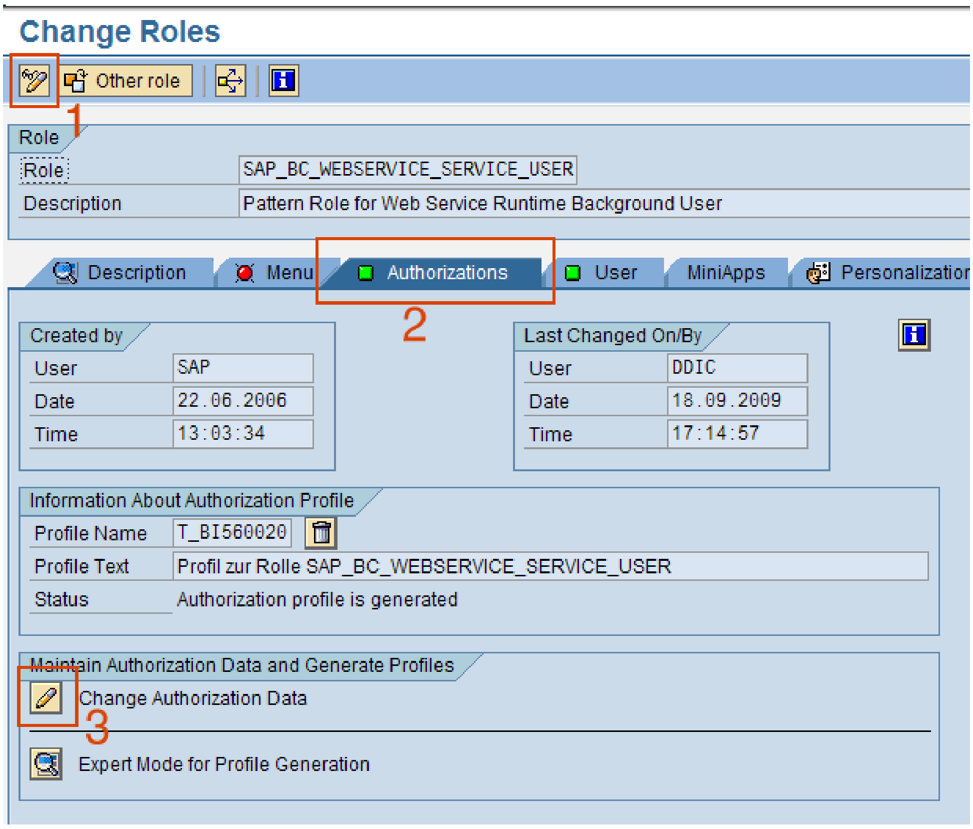
Last Changed

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 error *No RFC authorization for function module RFCPING*, occurs, follow the steps described below. Use transaction PFCG and add the role SAP_BC_WEBSERVICE_SERVICE_USER with authority for RFC function group SYST.

i. In transaction PFCG, select *Change*, select the *Authorization* tab and click on *Change Authorization Data*:



Change Roles

Role	SAP_BC_WEBSERVICE_SERVICE_USER
Description	Pattern Role for Web Service Runtime Background User

Created by

User	SAP
Date	22.06.2006
Time	13:03:34

Last Changed On/By

User	DDIC
Date	18.09.2009
Time	17:14:57

Information About Authorization Profile

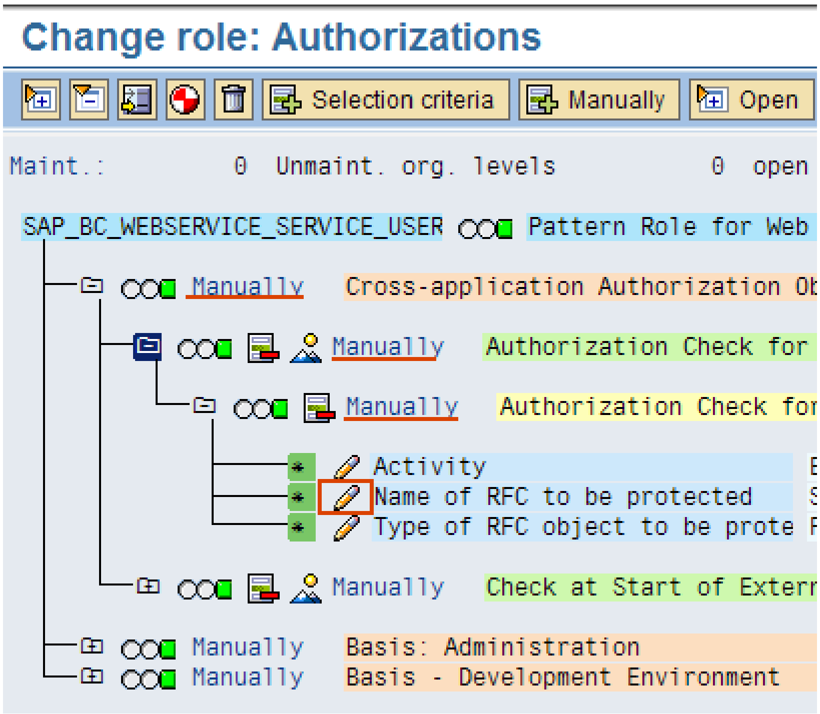
Profile Name	T_BI560020
Profile Text	Profil zur Rolle SAP_BC_WEBSERVICE_SERVICE_USER
Status	Authorization profile is generated

Maintain Authorization Data and Generate Profiles

Change Authorization Data

Expert Mode for Profile Generation

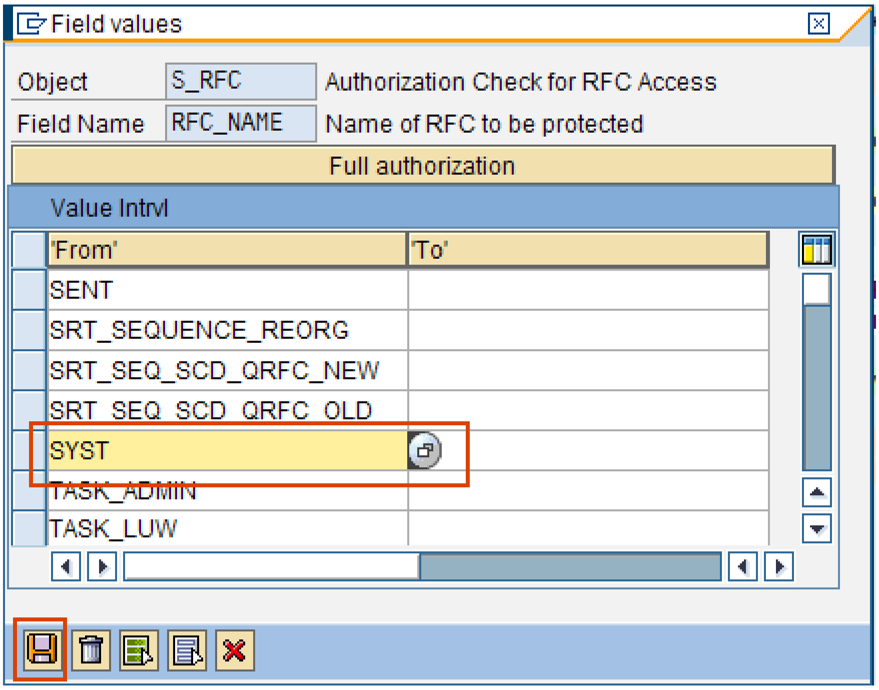
ii. Use the screenshot below to expand the folder and click on *change* for *Name of RFC to be protected*:



Change role: Authorizations

```
Maint.:          0  Unmaint. org. levels          0  open

SAP_BC_WEBSERVICE_SERVICE_USER        Pattern Role for Web
  Manually       Cross-application Authorization Ob
    Manually       Authorization Check for
      Manually       Authorization Check for
        Activity                              E
        Name of RFC to be protected           S
        Type of RFC object to be prote        F
    Manually       Check at Start of Extern
  Manually       Basis: Administration
  Manually       Basis - Development Environment
```

iii. Enter SYST and *Save*:



Field values

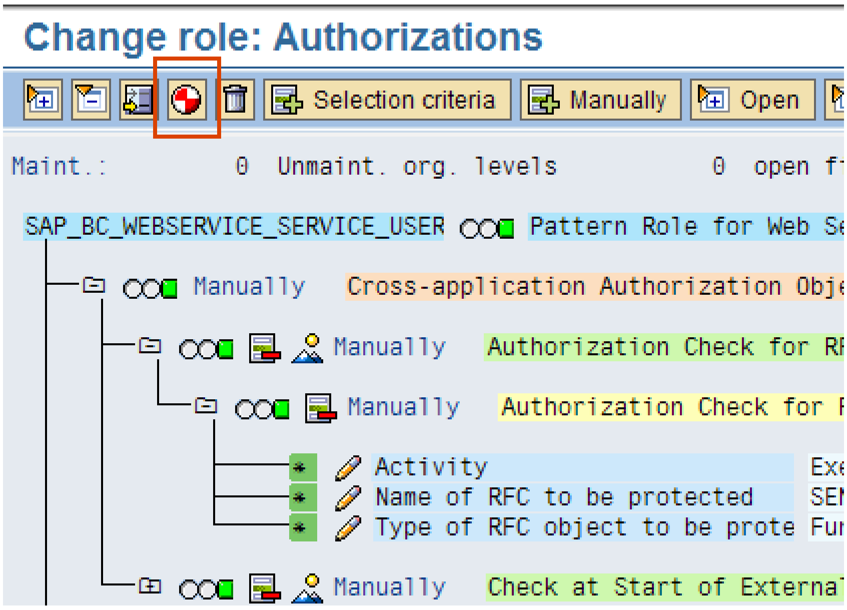
Object	S_RFC	Authorization Check for RFC Access
Field Name	RFC_NAME	Name of RFC to be protected

Full authorization

Value Intrvl

'From'	'To'
SENT	
SRT_SEQUENCE_REORG	
SRT_SEQ_SCD_QRFC_NEW	
SRT_SEQ_SCD_QRFC_OLD	
SYST	
TASK_ADMIN	
TASK_LUW	

iv. Generate the change:

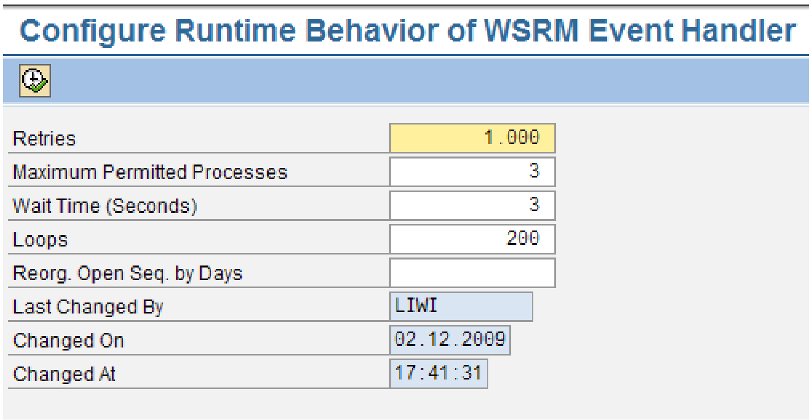


Change role: Authorizations

```
Maint.:          0  Unmaint. org. levels        0  open f

SAP_BC_WEBSERVICE_SERVICE_USER  Pattern Role for Web Se
  Manually   Cross-application Authorization Obje
    Manually   Authorization Check for RF
      Manually   Authorization Check for F
        Activity                          Exe
        Name of RFC to be protected       SEN
        Type of RFC object to be prote    Fun
    Manually   Check at Start of Externa
```

v. To check that there are no more errors, execute report SRT_ADMIN_CHECK.

h. To configure WS-RM runtime event handler, execute report RSEHCONFIG:



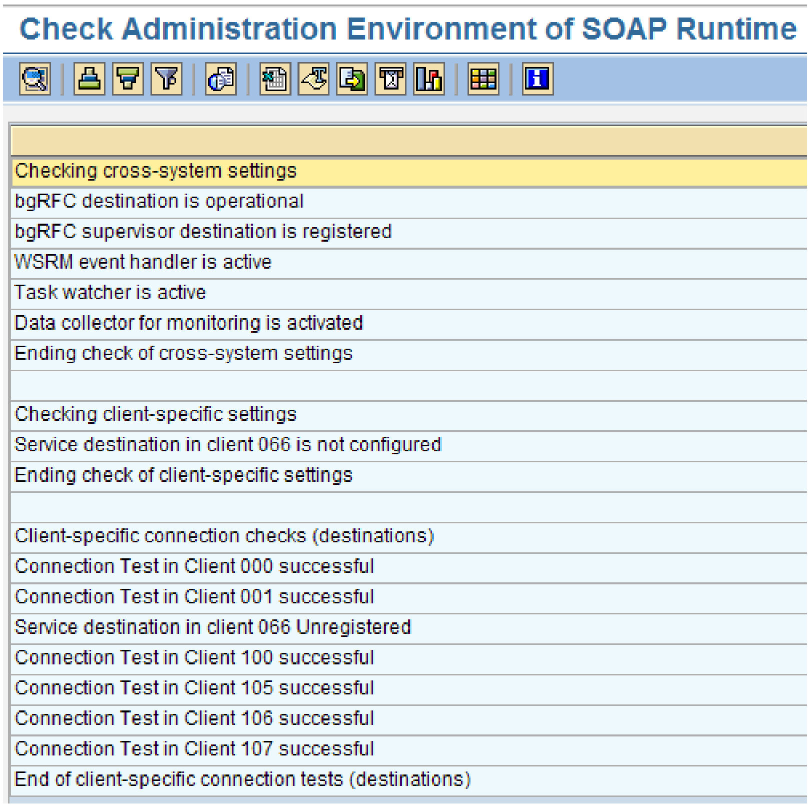
Configure Runtime Behavior of WSRM Event Handler

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*. Schedule the job hourly.

5. On all 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 previously outlined.
6. To check the configurations, execute report SRT_ADMIN_CHECK:



Check Administration Environment of SOAP Runtime

```
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 (destinations)
```

4. Step-by-Step Procedure

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

The provider application is an ABAP proxy. The ABAP proxy is generated using an inbound service interface defined in the ES Repository. Once the proxy is generated, use SOA Management (transaction SOAMANAGER) to create the WS-RM service.

In the consumer system, use the URL of the provider web service to create the consumer proxy. Use SOA Management (transaction SOAMANAGER) to create a logical port. A program can use the consumer service to send a message to the provider service.

In summary, the steps are:

In the Provider System:

1. Create a service interface in ES Repository.
2. Generate the ABAP proxy based on the service interface.
3. Add code to the ABAP proxy.

   In this case, we create a simple program to insert data into a table.
4. Use transaction SOAMANAGER to create a Web service endpoint for the ABAP proxy.
5. Use the Web Services Navigator to test the Web service.

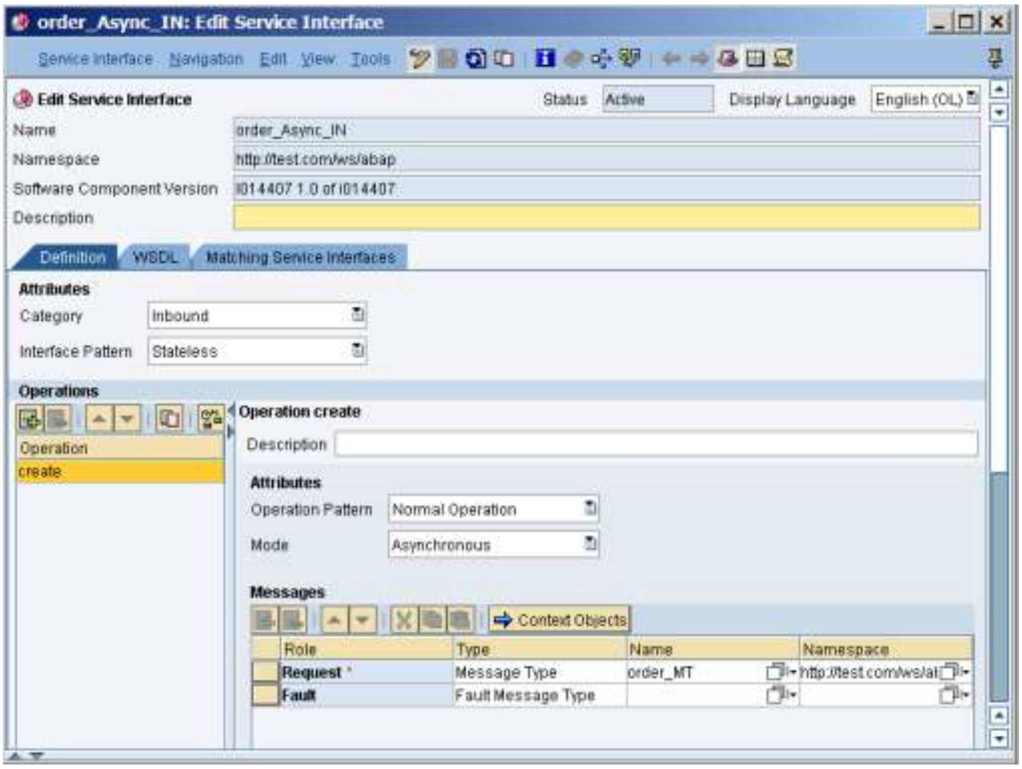
In the Consumer System:

1. Create a consumer proxy using the URL of the provider Web service.
2. Use transaction SOAMANAGER to create a logical port for the consumer service.
3. Create a program to call the consumer service.

4.1 Create the Provider Application

1. In ES Repository create a service interface for the provider system.

   Create and activate the following service interface:



Edit Service Interface

Status: Active

Display Language: English (OL)

Name: order_Async_IN

Namespace: http://test.com/ws/abap

Software Component Version: I014407 1.0 of I014407

Description:

Attributes

Category: Inbound

Interface Pattern: Stateless

Operations

Operation
create

Operation create

Description:

Attributes

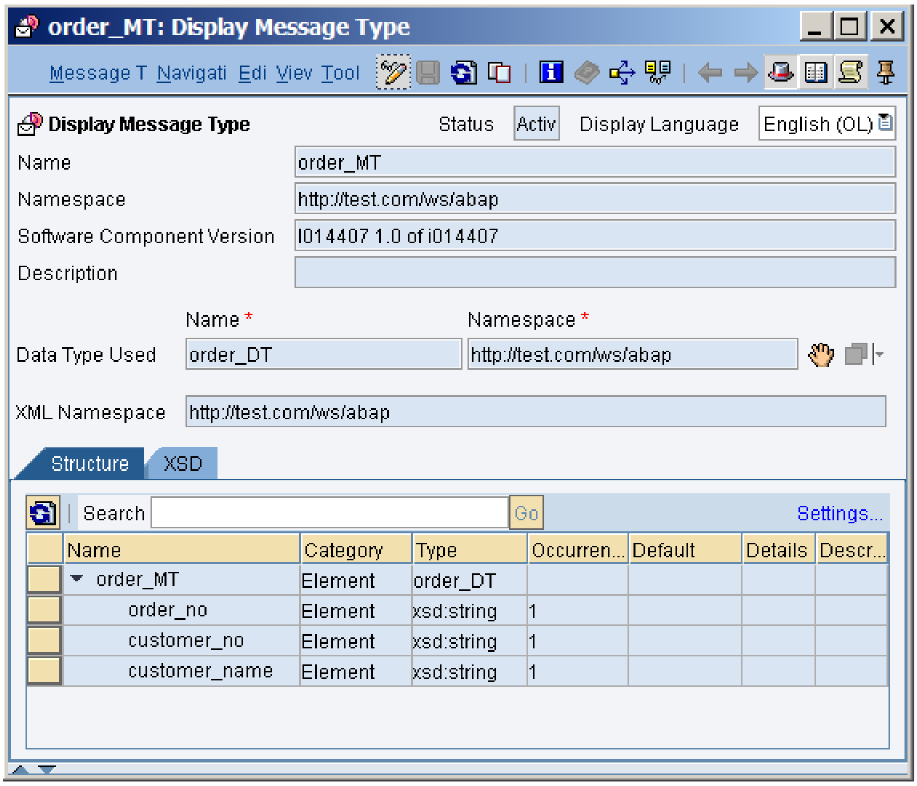
Operation Pattern: Normal Operation

Mode: Asynchronous

Messages

Role	Type	Name	Namespace
Request *	Message Type	order_MT	http://test.com/ws/al
Fault	Fault Message Type		

This interface is based on the message type:


order_MT: Display Message Type
Message T Navigati Edi View Tool
Structure
XSD
Search
Go
Settings...

Display Message Type

Status: Activ
Display Language: English (OL)

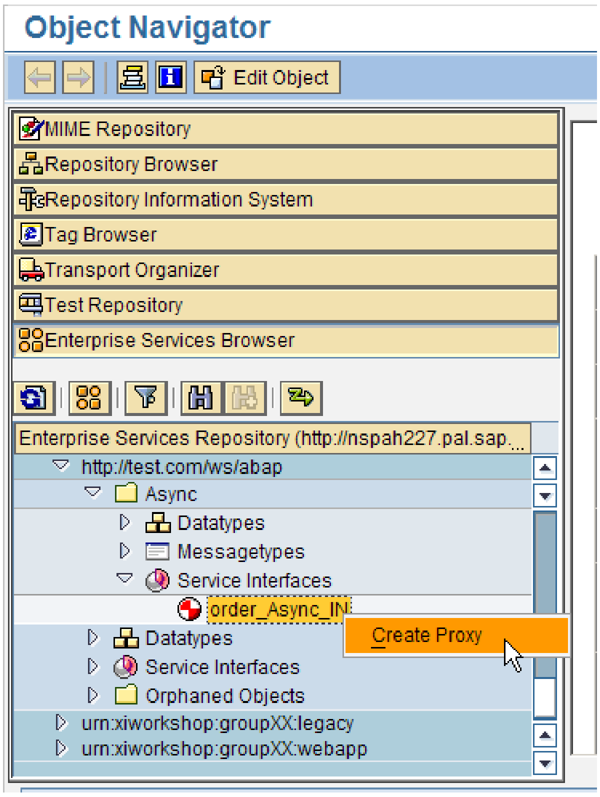
Name: order_MT
Namespace: http://test.com/ws/abap
Software Component Version: I014407 1.0 of i014407
Description:

Data Type Used: Name * order_DT; Namespace * http://test.com/ws/abap

XML Namespace: http://test.com/ws/abap

Name	Category	Type	Occurren...	Default	Details	Descr...
order_MT	Element	order_DT				
order_no	Element	xsd:string	1			
customer_no	Element	xsd:string	1			
customer_name	Element	xsd:string	1			

2. Go to transaction SPROXY to generate an ABAP proxy based on the service interface:

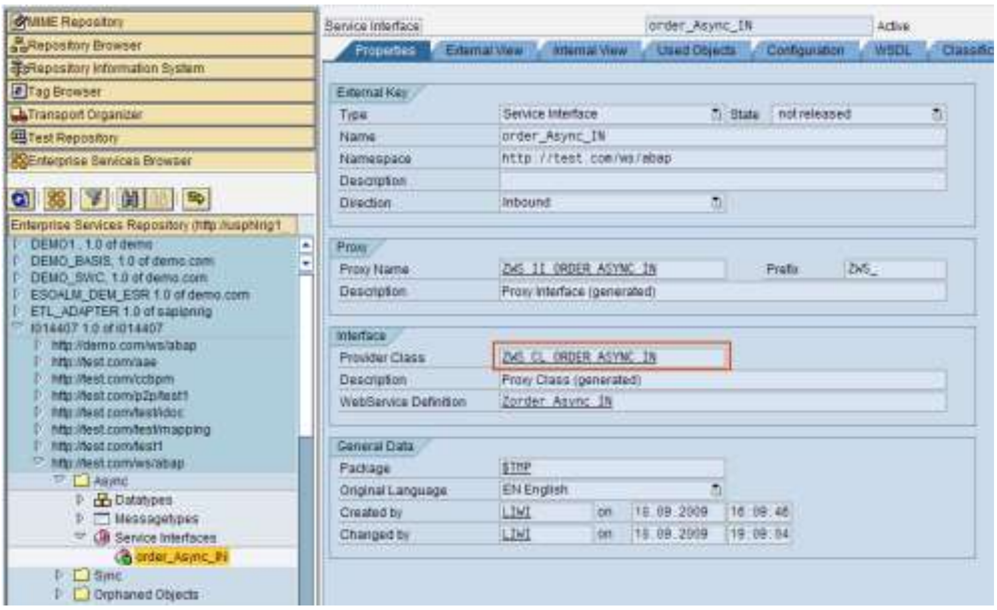


Enterprise Services Repository (http://nspah227.pal.sap...

- http://test.com/ws/abap
  - Async
    - Datatypes
    - Messagetypes
    - Service Interfaces
      - order_Async_IN
  - Datatypes
  - Service Interfaces
  - Orphaned Objects
- urn:xiworkshop:groupXX:legacy
- urn:xiworkshop:groupXX:webapp

Save and activate.

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



Service Interface: order_Async_IN Active

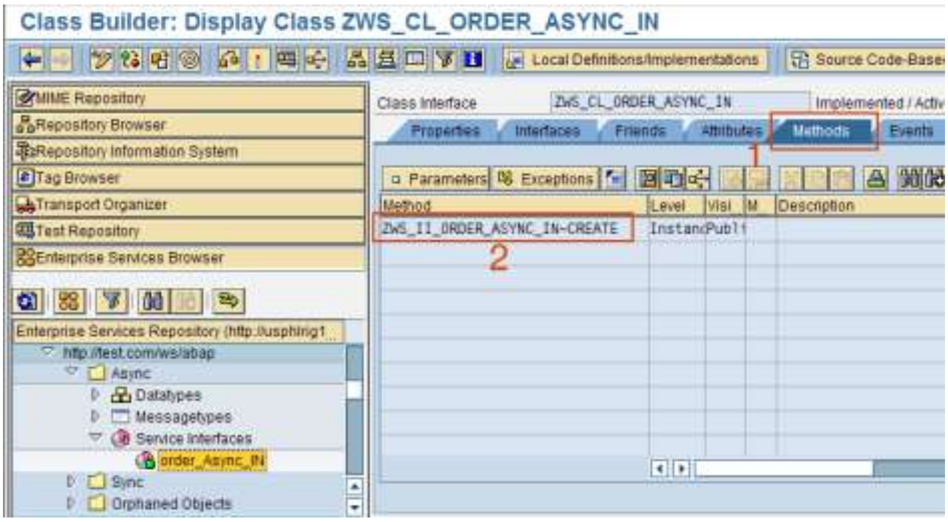
External Key
Type: Service Interface State: not released
Name: order_Async_IN
Namespace: http://test.com/ws/abap
Description:
Direction: Inbound

Proxy
Proxy Name: ZWS_II_ORDER_ASYNC_IN Prefix: ZWS_
Description: Proxy Interface (generated)

Interface
Provider Class: ZWS_CL_ORDER_ASYNC_IN
Description: Proxy Class (generated)
WebService Definition: Zorder_Async_IN

General Data
Package: $TMP
Original Language: EN English
Created by: LIWI on 16.09.2009 16:09:46
Changed by: LIWI on 16.09.2009 19:09:04

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

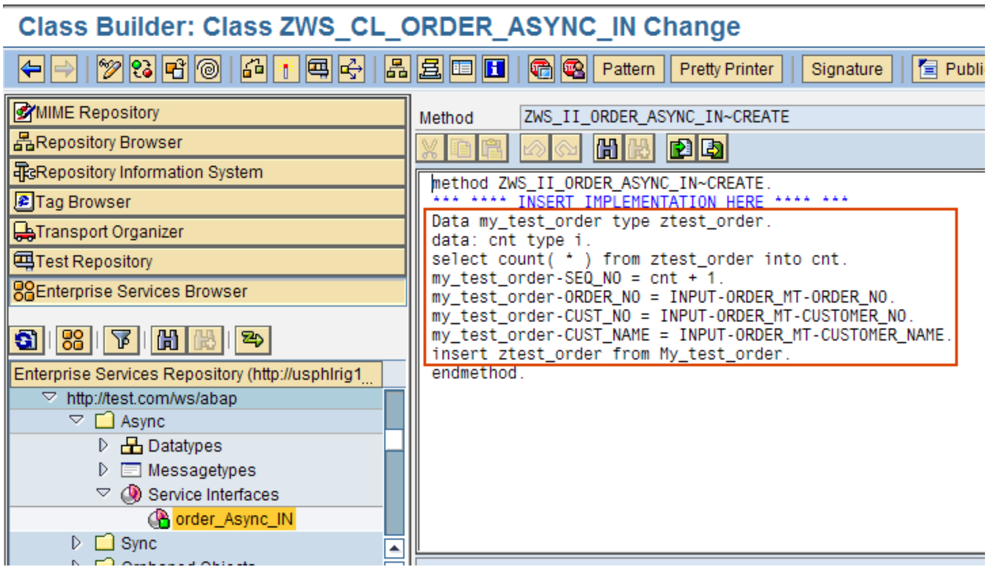


Class Builder: Display Class ZWS_CL_ORDER_ASYNC_IN

Class Interface: ZWS_CL_ORDER_ASYNC_IN Implemented / Activ

Method	Level	Visi	M	Description
ZWS_II_ORDER_ASYNC_IN~CREATE	Instanc	Publi		

c. Insert code into the proxy:



Class Builder: Class ZWS_CL_ORDER_ASYNC_IN Change

Method ZWS_II_ORDER_ASYNC_IN~CREATE

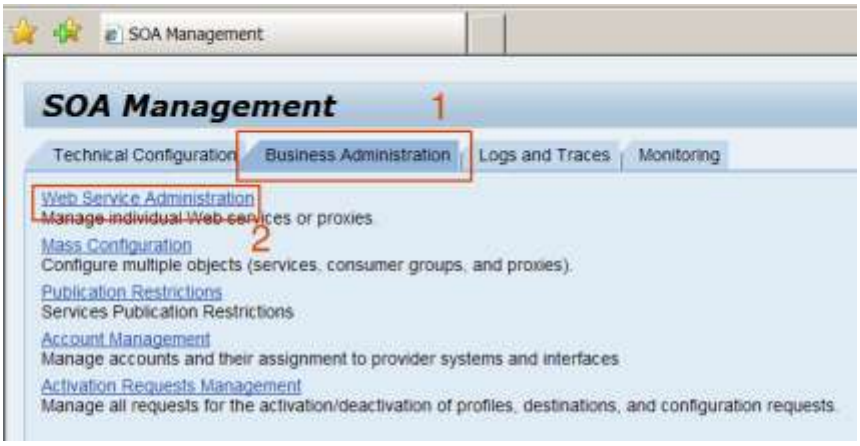
```
method ZWS_II_ORDER_ASYNC_IN~CREATE.
*** **** INSERT IMPLEMENTATION HERE **** ***
Data my_test_order type ztest_order.
data: cnt type i.
select count( * ) from ztest_order into cnt.
my_test_order-SEQ_NO = cnt + 1.
my_test_order-ORDER_NO = INPUT-ORDER_MT-ORDER_NO.
my_test_order-CUST_NO = INPUT-ORDER_MT-CUSTOMER_NO.
my_test_order-CUST_NAME = INPUT-ORDER_MT-CUSTOMER_NAME.
insert ztest_order from My_test_order.
endmethod.
```

d. Save and activate the proxy.

4. Use transaction SOAMANAGER to create an endpoint.

a. On the application client of the provider system, enter transaction SOAMANAGER. A Web Dynpro application starts in a browser.

b. Select the *Business Administration* tab and click on *Web Service Administration*:



Web Service Administration
Manage individual Web services or proxies

Mass Configuration
Configure multiple objects (services, consumer groups, and proxies)

Publication Restrictions
Services Publication Restrictions

Account Management
Manage accounts and their assignment to provider systems and interfaces

Activation Requests Management
Manage all requests for the activation/deactivation of profiles, destinations, and configuration requests

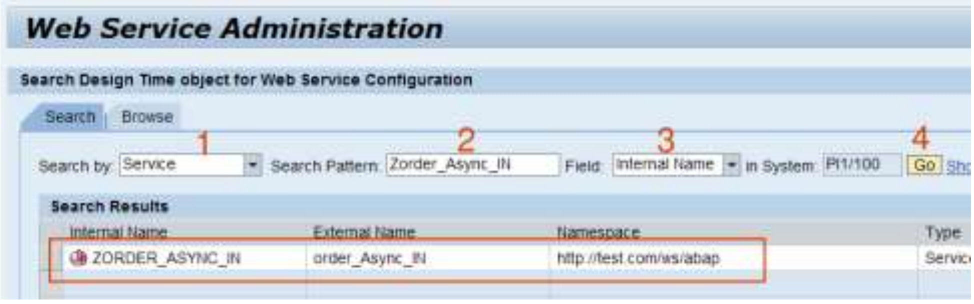
c. Enter the following search criteria:

Search by: Service

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

Field: Internal Name

The following result is displayed:



Web Service Administration

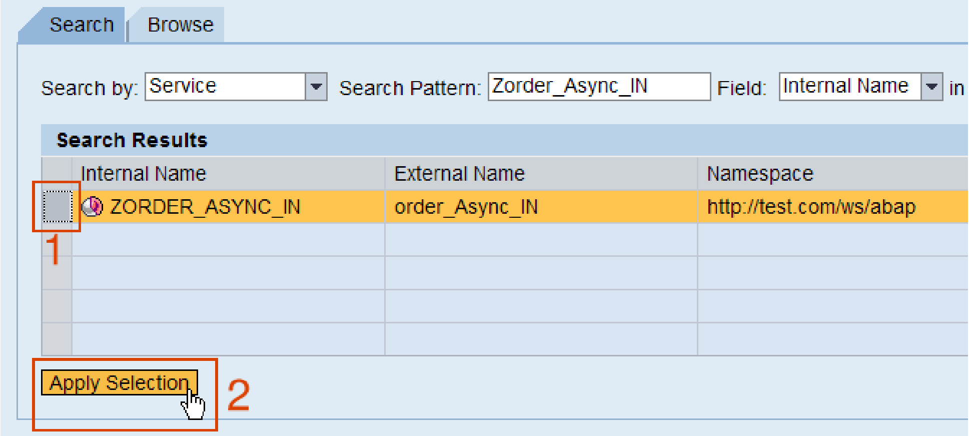
Search Design Time object for Web Service Configuration

Search by: Service Search Pattern: Zorder_Async_IN Field: Internal Name in System: PI1/100

Search Results

Internal Name	External Name	Namespace	Type
ZORDER_ASYNC_IN	order_Async_IN	http://test.com/ws/abap	Servic

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

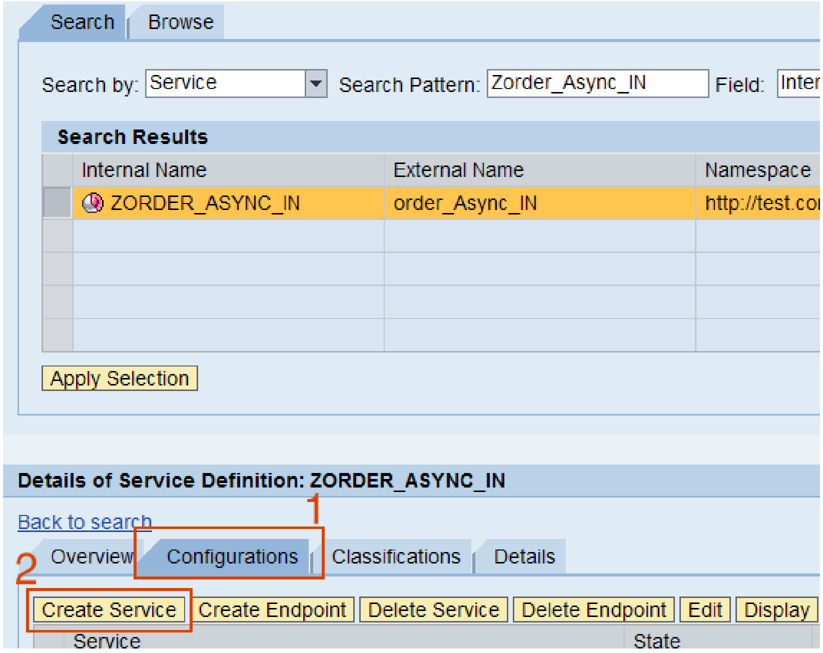


Search by: Service Search Pattern: Zorder_Async_IN Field: Internal Name in

Search Results

Internal Name	External Name	Namespace
ZORDER_ASYNC_IN	order_Async_IN	http://test.com/ws/abap

e. Scroll down, select the *Configurations* tab and click on *Create Service*:



Search by: Service Search Pattern: Zorder_Async_IN Field: Inter

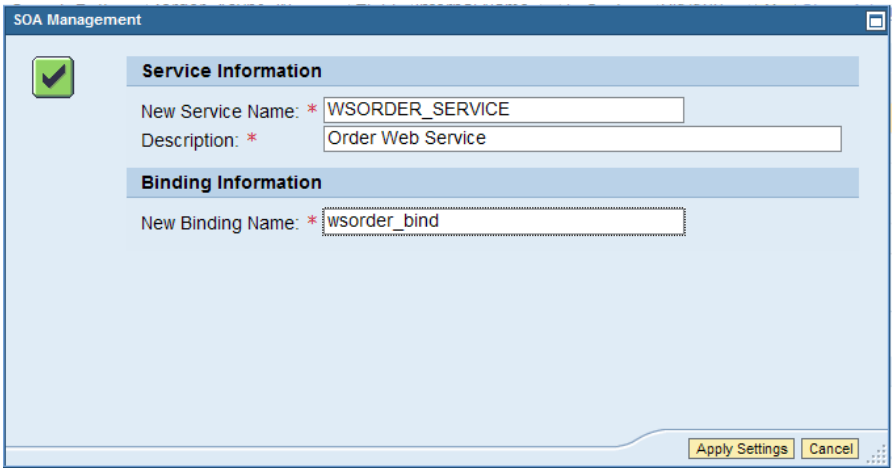
Search Results

Internal Name	External Name	Namespace
ZORDER_ASYNC_IN	order_Async_IN	http://test.co

Details of Service Definition: ZORDER_ASYNC_IN

Service	State

f. Enter a service name and a binding name:



Service Information

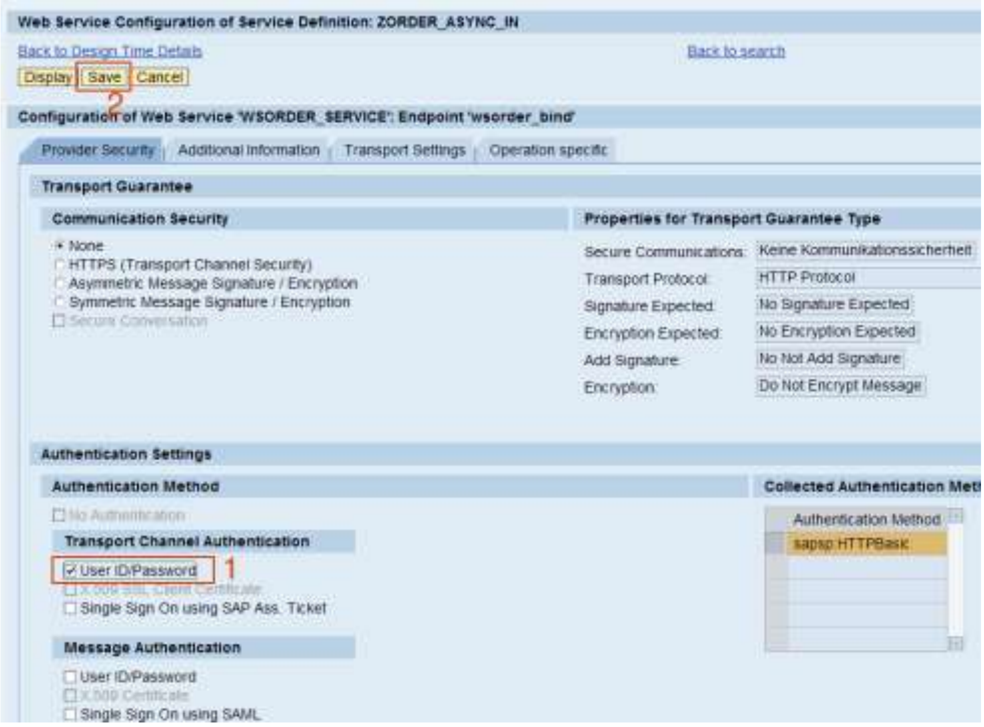
New Service Name: * WSORDER_SERVICE

Description: * Order Web Service

Binding Information

New Binding Name: * wsorder_bind

g. Scroll down, select *User ID/Password*, and *Save*:



Web Service Configuration of Service Definition: ZORDER_ASYNC_IN

Back to Design Time Details — Back to search

Display | Save | Cancel

Configuration of Web Service 'WSORDER_SERVICE': Endpoint 'wsorder_bind'

Provider Security | Additional Information | Transport Settings | Operation specific

Transport Guarantee

Communication Security

- ● None
- ○ HTTPS (Transport Channel Security)
- ○ Asymmetric Message Signature / Encryption
- ○ Symmetric Message Signature / Encryption
- □ Secure Conversation

Properties for Transport Guarantee Type

Secure Communications:	Keine Kommunikationssicherheit
Transport Protocol:	HTTP Protocol
Signature Expected:	No Signature Expected
Encryption Expected:	No Encryption Expected
Add Signature:	No Not Add Signature
Encryption:	Do Not Encrypt Message

Authentication Settings

Authentication Method

□ No Authentication

Transport Channel Authentication

- ☑ User ID/Password
- □ X.509 SSL Client Certificate
- □ Single Sign On using SAP Ass. Ticket

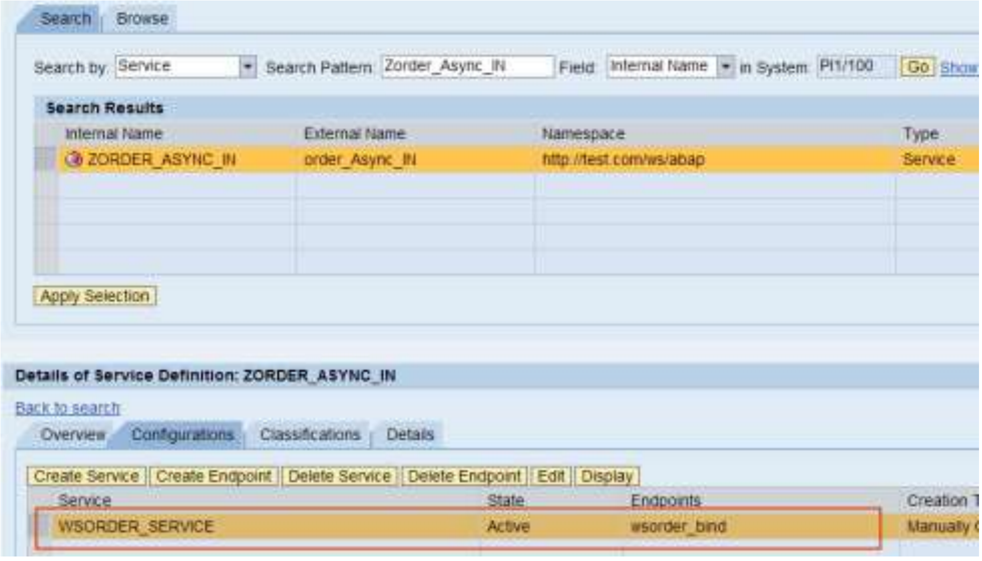
Message Authentication

- □ User ID/Password
- □ X.509 Certificate
- □ Single Sign On using SAML

Collected Authentication Met

Authentication Method
sapsp:HTTPBasic

h. The new service is displayed:



Search | Browse

Search by: Service ▾ Search Pattern: Zorder_Async_IN Field: Internal Name ▾ in System: PI1/100 Go Show

Search Results

Internal Name	External Name	Namespace	Type
ZORDER_ASYNC_IN	order_Async_IN	http://test.com/ws/abap	Service

Apply Selection

Details of Service Definition: ZORDER_ASYNC_IN

Back to search

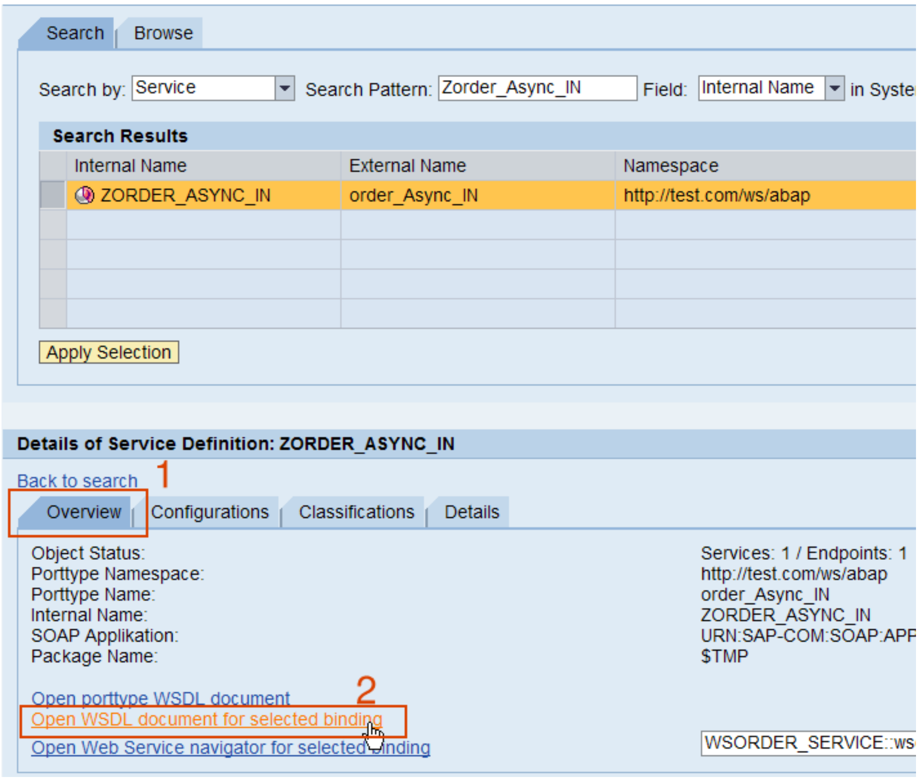
Overview | Configurations | Classifications | Details

Create Service | Create Endpoint | Delete Service | Delete Endpoint | Edit | Display

Service	State	Endpoints	Creation T
WSORDER_SERVICE	Active	wsorder_bind	Manually c

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 by: Service Search 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

Details of Service Definition: ZORDER_ASYNC_IN

Back to search

Overview | Configurations | Classifications | Details

Object Status:	Services: 1 / Endpoints: 1
Porttype Namespace:	http://test.com/ws/abap
Porttype Name:	order_Async_IN
Internal Name:	ZORDER_ASYNC_IN
SOAP Applikation:	URN:SAP-COM:SOAP:APP
Package Name:	$TMP

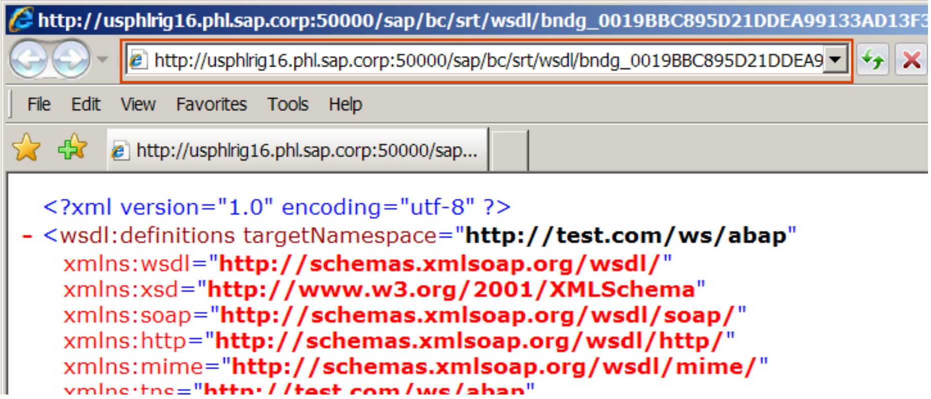
Open porttype WSDL document

Open WSDL document for selected binding

Open Web Service navigator for selected binding

WSORDER_SERVICE::ws

The following URL is displayed in the browser:



http://usphlrig16.phl.sap.corp:50000/sap/bc/srt/wsdl/bndg_0019BBC895D21DDEA99133AD13F

http://usphlrig16.phl.sap.corp:50000/sap/bc/srt/wsdl/bndg_0019BBC895D21DDEA9

http://usphlrig16.phl.sap.corp:50000/sap...

```
  <?xml version="1.0" encoding="utf-8" ?>
- <wsdl:definitions targetNamespace="http://test.com/ws/abap"
    xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
    xmlns:xsd="http://www.w3.org/2001/XMLSchema"
    xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
    xmlns:http="http://schemas.xmlsoap.org/wsdl/http/"
    xmlns:mime="http://schemas.xmlsoap.org/wsdl/mime/"
    xmlns:tns="http://test.com/ws/abap"
```

Tip

You can copy this URL and paste it to a notepad.
This URL is necessary to create the consumer proxy.

Use this URL to test the Web service in the following step.

5. Use the WSNavigator to test the Web service.

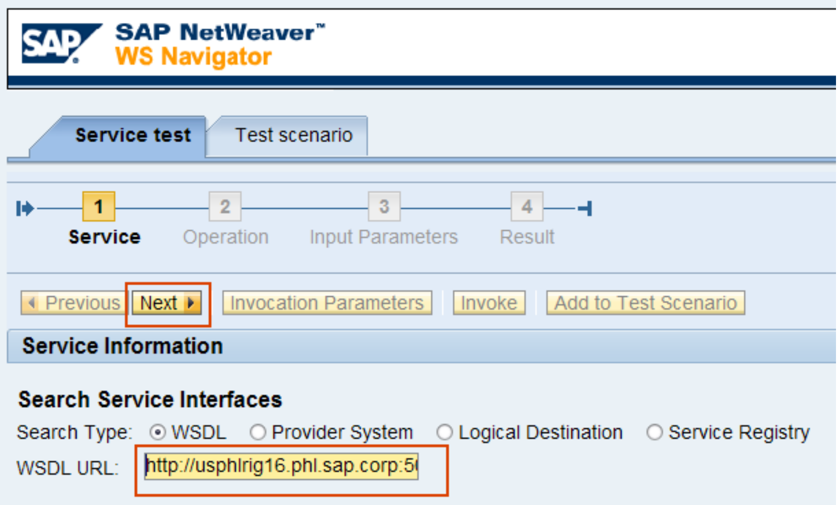
You can use any WS-RM enabled client tool, for example WSNavigator available in a SAP NetWeaver 7.1, EHP 1 system or above.

Note

WSNavigator in SAP NetWeaver 7.10 or below cannot execute services using WS-RM.
This capability is only available as of SAP NetWeaver PI 7.1, EHP 1.

a. In a SAP NetWeaver 7.1, EHP 1 system, execute WSNavigator.

b. Enter the URL obtained from the previous step and click *Next*:



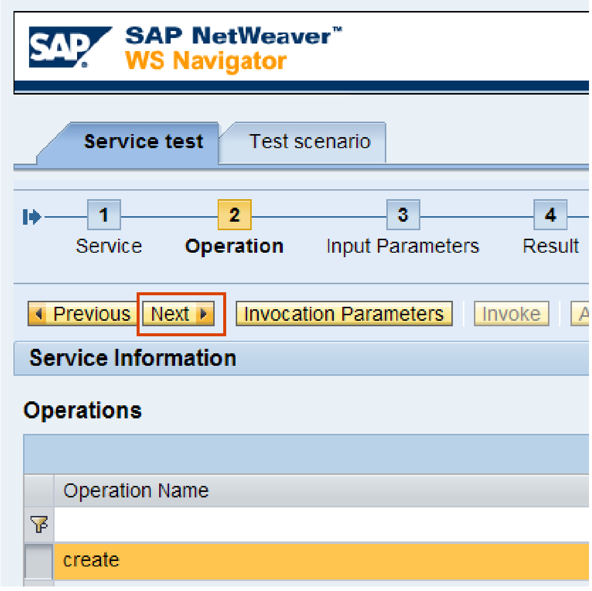
Search Type: ● WSDL ○ Provider System ○ Logical Destination ○ Service Registry

WSDL URL: http://usphlrig16.phl.sap.corp:5(

Tip

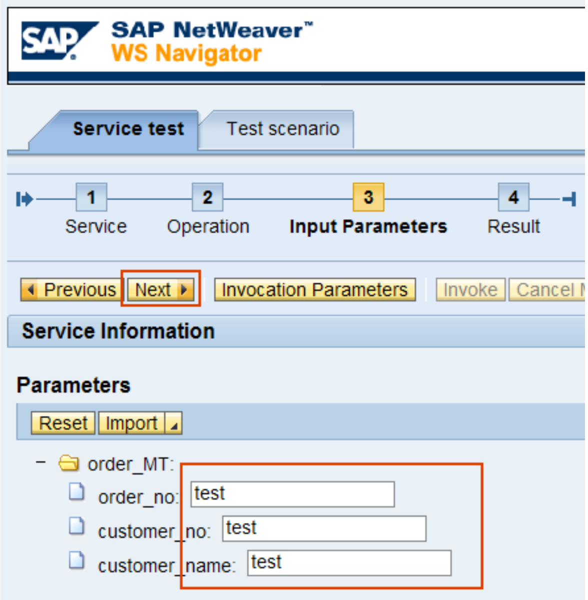
Logon is required. Enter a valid user with authorization to execute the Web service on the provider system.

c. Click *Next*:



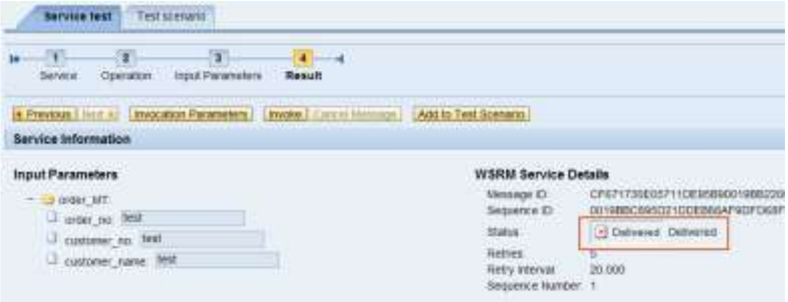
Operation Name
create

d. Enter test values and click *Next*:



- order_MT:
  - order_no: test
  - customer_no: test
  - customer_name: test

e. The status *Delivering* is displayed. Once complete, *Delivered* is displayed:



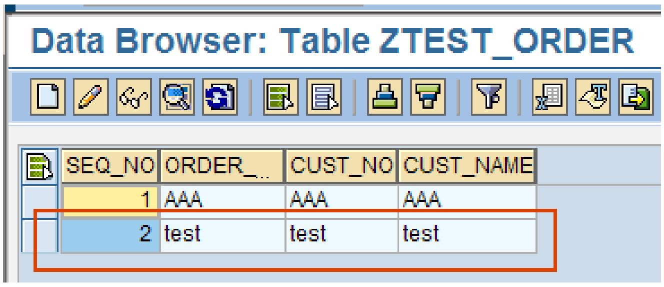
Input Parameters

- order_MT:
  - order_no: test
  - customer_no: test
  - customer_name: test

WSRM Service Details

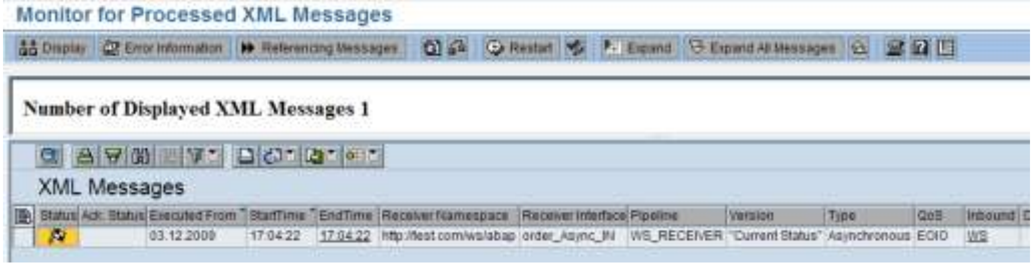
Message ID:	CF671730E05711DE9589001988220
Sequence ID:	0019BBC895021DDE8B6AF9DFD68F
Status:	Delivered Delivered
Retries:	5
Retry interval:	20.000
Sequence Number:	1

f. Check the successful execution by displaying the table content:



SEQ_NO	ORDER_...	CUST_NO	CUST_NAME
1	AAA	AAA	AAA
2	test	test	test

Check the message delivery using transaction SXMB_MONI on the provider system:



Number of Displayed XML Messages 1

XML Messages

Status	Ack. Status	Executed From	StartTime	EndTime	Receiver Namespace	Receiver Interface	Pipeline	Version	Type	QoS	Inbound
		03.12.2009	17:04:22	17:04:22	http://test.com/ws/abap	order_Async_IN	WS_RECEIVER	"Current Status"	Asynchronous	EOIO	WS

4.2 Create the Consumer Application

1. Create a consumer proxy using the URL of the provider Web service.

   Note

   You need the URL saved in previous step of section 4.1.4.i.

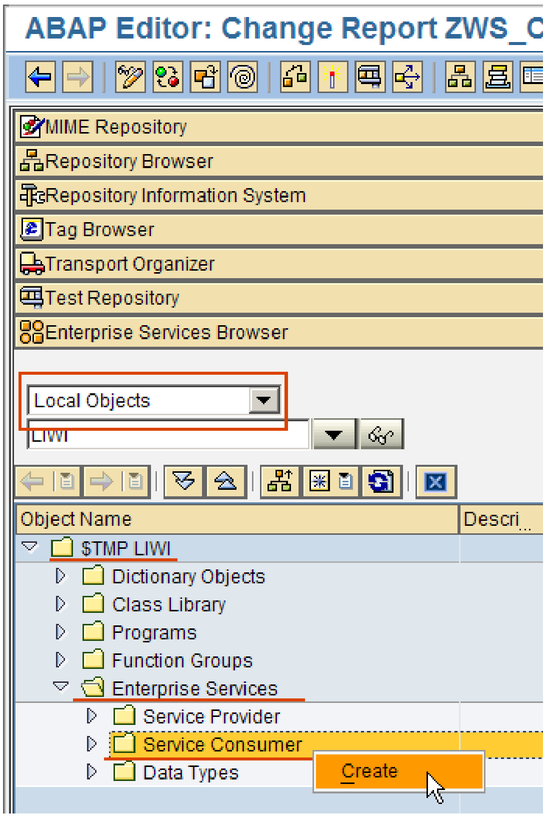
   a. Logon to the consumer system, and call transaction SE80.

   Important

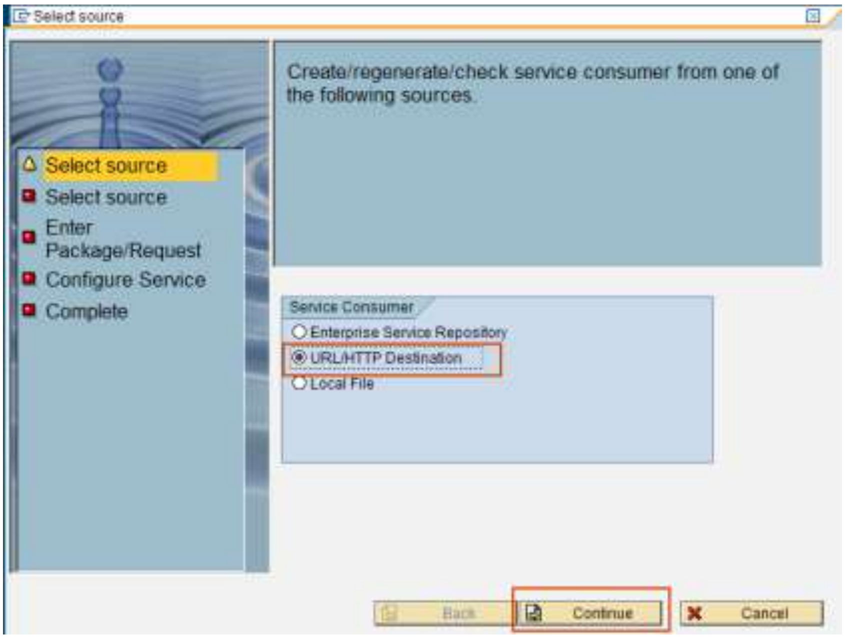
   In the consumer system WS-RM must be enabled, too.
   If this is not the case, refer to section 4.1.

   b. Select *Local Objects* and navigate to *Service Consumer*.

   Right-click and select *Create*:



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



Create/regenerate/check service consumer from one of the following sources.

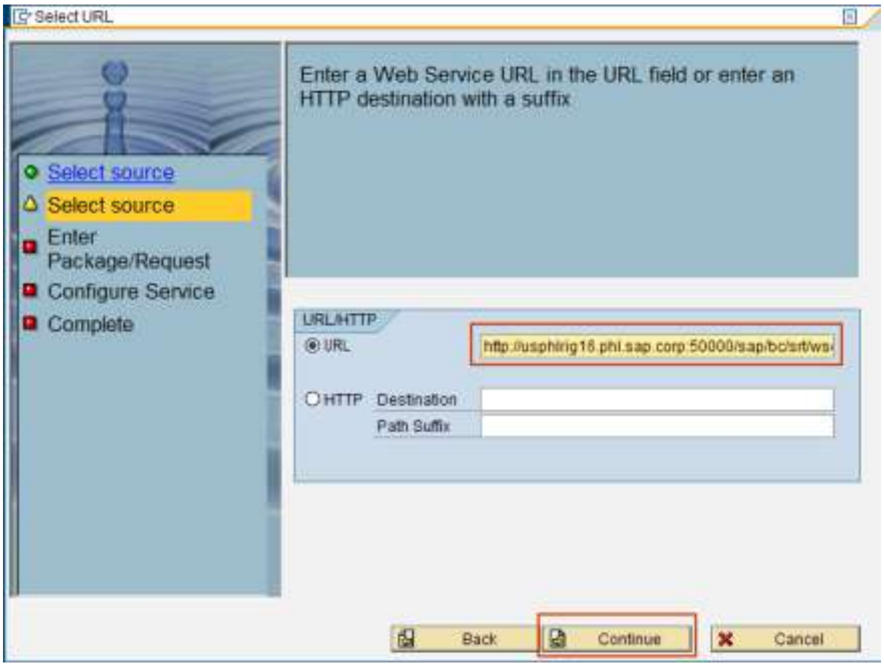
Service Consumer

○ Enterprise Service Repository

● URL/HTTP Destination

○ Local File

d. Paste the URL obtain from the provider Web service, and click *Continue*:



Enter a Web Service URL in the URL field or enter an HTTP destination with a suffix

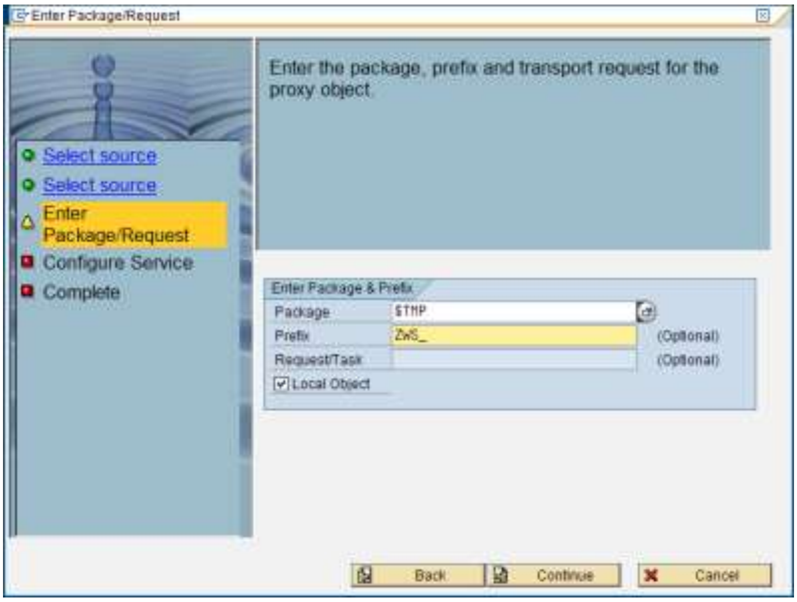
URL/HTTP

● URL http://usphlrig16.phl.sap.corp:50000/sap/bc/srt/ws

○ HTTP Destination

Path Suffix

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

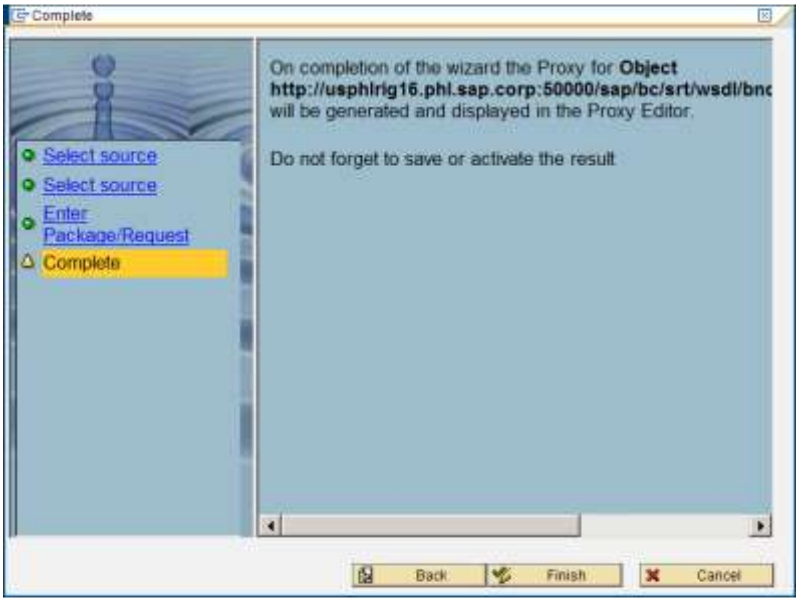


Enter the package, prefix and transport request for the proxy object.

Package	$TMP	
Prefix	ZWS_	(Optional)
Request/Task		(Optional)

☑ Local Object

f. Click *Finish*:



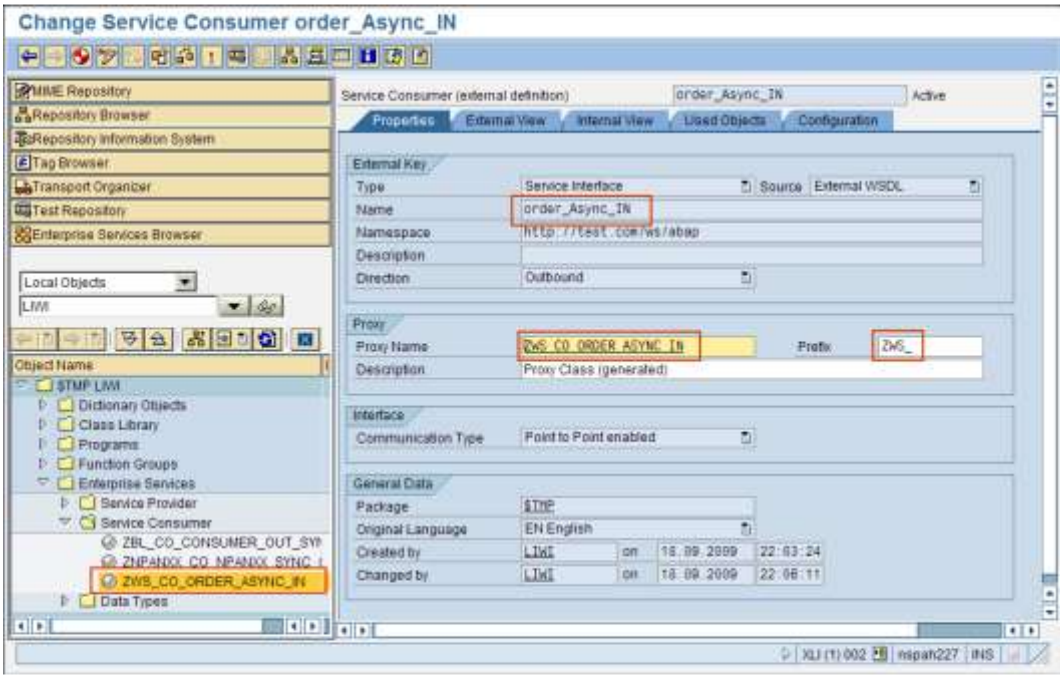
On completion of the wizard the Proxy for **Object** **http://usphlrig16.phl.sap.corp:50000/sap/bc/srt/wsdl/bnc** will be generated and displayed in the Proxy Editor.

Do not forget to save or activate the result

Important

Enter a user name and a password to access the provider system.
This is necessary to retrieve the metadata information of the Web service.

g. The consumer proxy is created:



Change Service Consumer order_Async_IN

Service Consumer (external definition) order_Async_IN Active

Properties | External View | Internal View | Used Objects | Configuration

External Key
Type: Service Interface Source: External WSDL
Name: order_Async_IN
Namespace: http://test.com/ws/abap
Description:
Direction: Outbound

Proxy
Proxy Name: ZWS_CO_ORDER_ASYNC_IN Prefix: ZWS_
Description: Proxy Class (generated)

Interface
Communication Type: Point to Point enabled

General Data
Package: $TMP
Original Language: EN English
Created by: LIWI on 18.09.2009 22:03:24
Changed by: LIWI on 18.09.2009 22:06:11

Save and activate the consumer proxy.

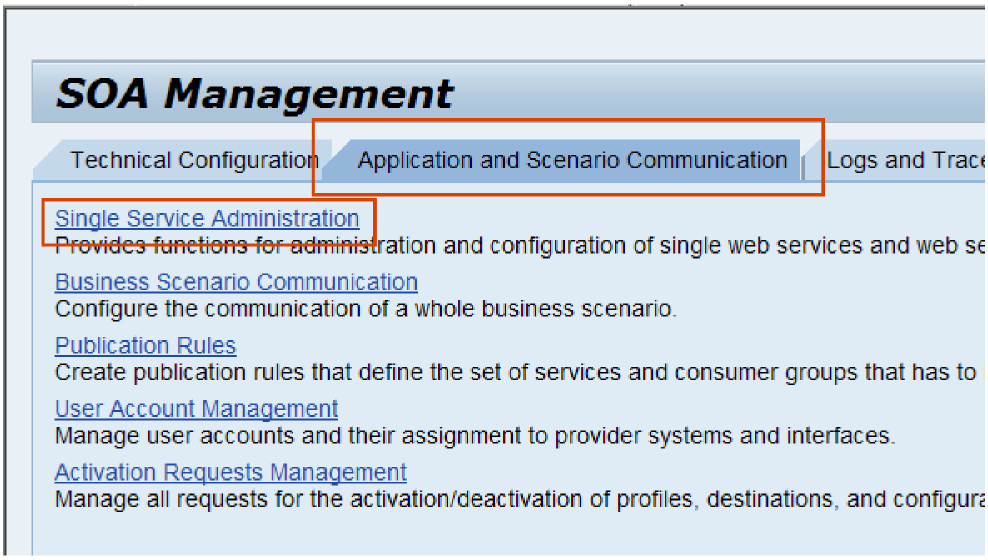
2. Use transaction SOAMANAGER to create the logical for the proxy.

   a. On the consumer system call transaction SOAMANAGER.

   b. Go to the *Application and Scenario Communication* tab and click on *Single Service Administration*:

Note

The tab and function name is different depending on the release level. However, the names should be similar. The position of the tab and location of the functions are the same. For example In SAP NetWeaver PI 7.1, the tab is called *Business Administration* and the function name is *Web Service Administration*.



SOA Management

Technical Configuration | Application and Scenario Communication | Logs and Trace

Single Service Administration
Provides functions for administration and configuration of single web services and web se

Business Scenario Communication
Configure the communication of a whole business scenario.

Publication Rules
Create publication rules that define the set of services and consumer groups that has to

User Account Management
Manage user accounts and their assignment to provider systems and interfaces.

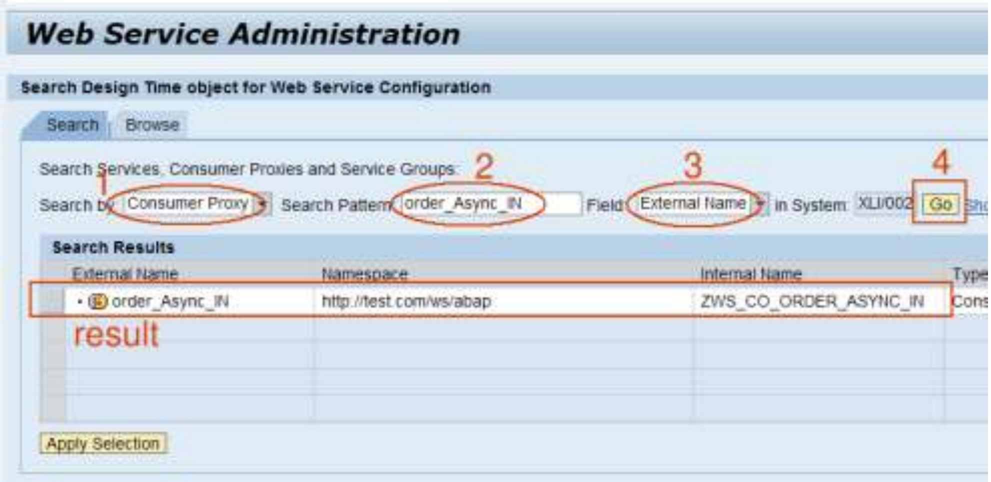
Activation Requests Management
Manage all requests for the activation/deactivation of profiles, destinations, and configura

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

To search click *Go*.

The following result is displayed:



Web Service Administration

Search Design Time object for Web Service Configuration

Search Services, Consumer Proxies and Service Groups:

Search by: Consumer Proxy Search Pattern: order_Async_IN Field: External Name in System: XLI/002

Search Results

External Name	Namespace	Internal Name	Type
order_Async_IN	http://test.com/ws/abap	ZWS_CO_ORDER_ASYNC_IN	Cons

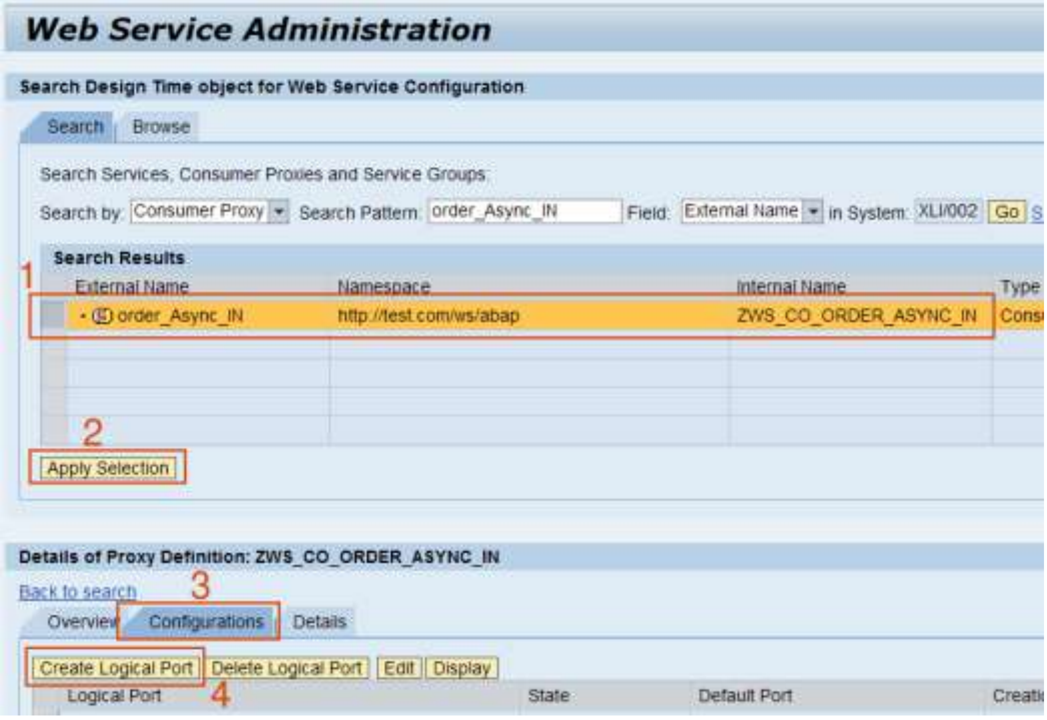
d. Create a logical port for the consumer service:

i. Select the consumer proxy

ii. Click on *Apply Selection*

iii. Scroll down and go to the *Configuration* tab.

iv. Click on *Create Logical Port*.



Web Service Administration

Search Design Time object for Web Service Configuration

Search Services, Consumer Proxies and Service Groups:

Search by: Consumer Proxy Search Pattern: order_Async_IN Field: External Name in System: XLI/002

Search Results

External Name	Namespace	Internal Name	Type
order_Async_IN	http://test.com/ws/abap	ZWS_CO_ORDER_ASYNC_IN	Cons

Details of Proxy Definition: ZWS_CO_ORDER_ASYNC_IN

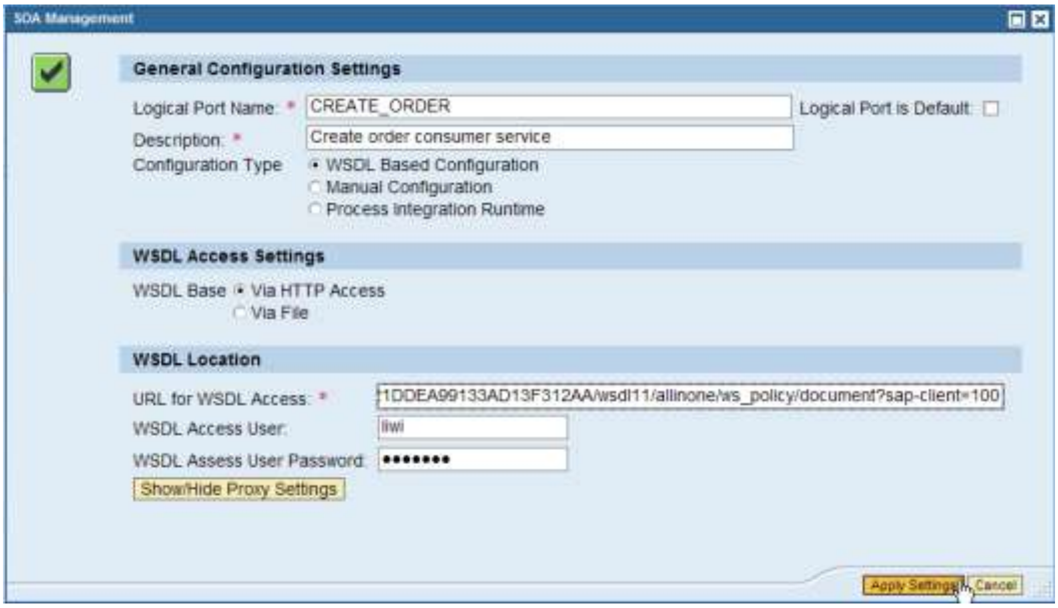
Logical Port	State	Default Port	Creati

e. Enter all required fields and click on *Apply Settings*:

the URL for WSDL Access is the provider Web service URL from step 4.1.4.i.

Important

Depending on the SAP NetWeaver release level, you may be asked to enter the binding name also. If this is requested, enter any binding name, for example create_order_binding.



SOA Management

General Configuration Settings

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 Settings

WSDL Base ● Via HTTP Access
○ Via File

WSDL Location

URL for WSDL Access: * 1DDEA99133AD13F312AA/wsdl11/allinone/ws_policy/document?sap-client=100

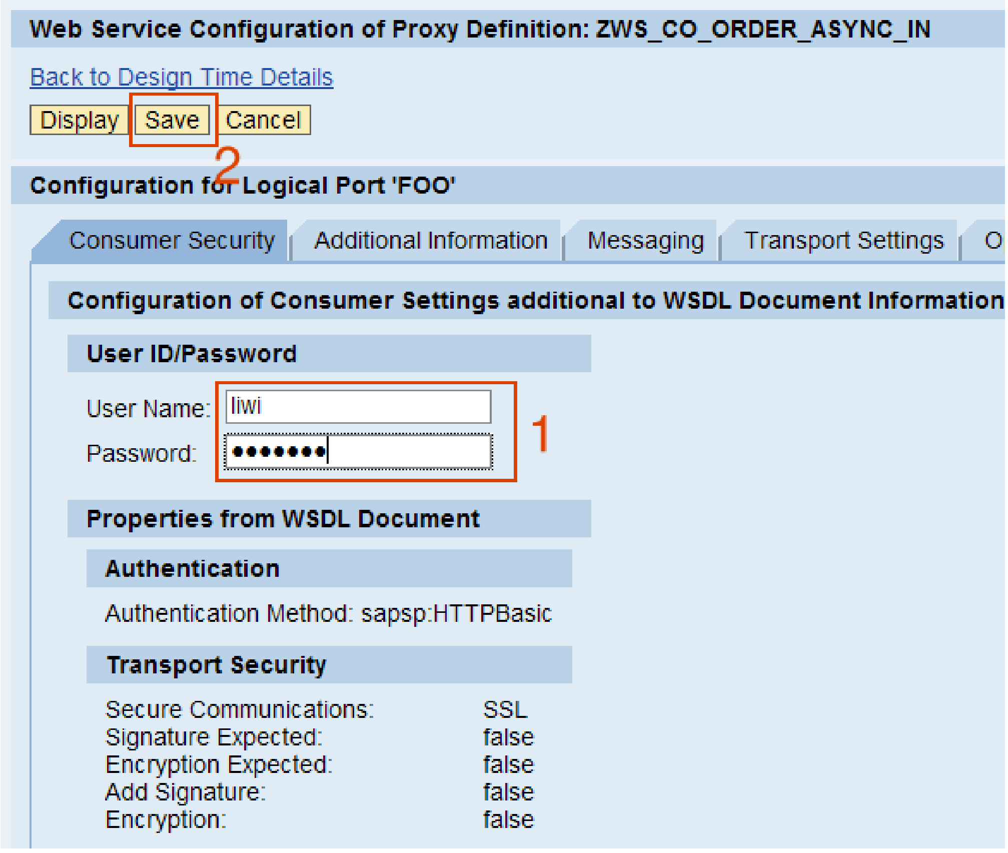
WSDL Access User: liwi

WSDL Assess User Password: •••••••

Show/Hide Proxy Settings

Apply Settings   Cancel

f. Scroll down and enter the authorized user to execute the provider service and save the configuration:



Web Service Configuration of Proxy Definition: ZWS_CO_ORDER_ASYNC_IN

Back to Design Time Details

Display   Save   Cancel

Configuration for Logical Port 'FOO'

Consumer Security | Additional Information | Messaging | Transport Settings | O

Configuration of Consumer Settings additional to WSDL Document Information

User ID/Password

User Name: liwi

Password: •••••••

Properties from WSDL Document

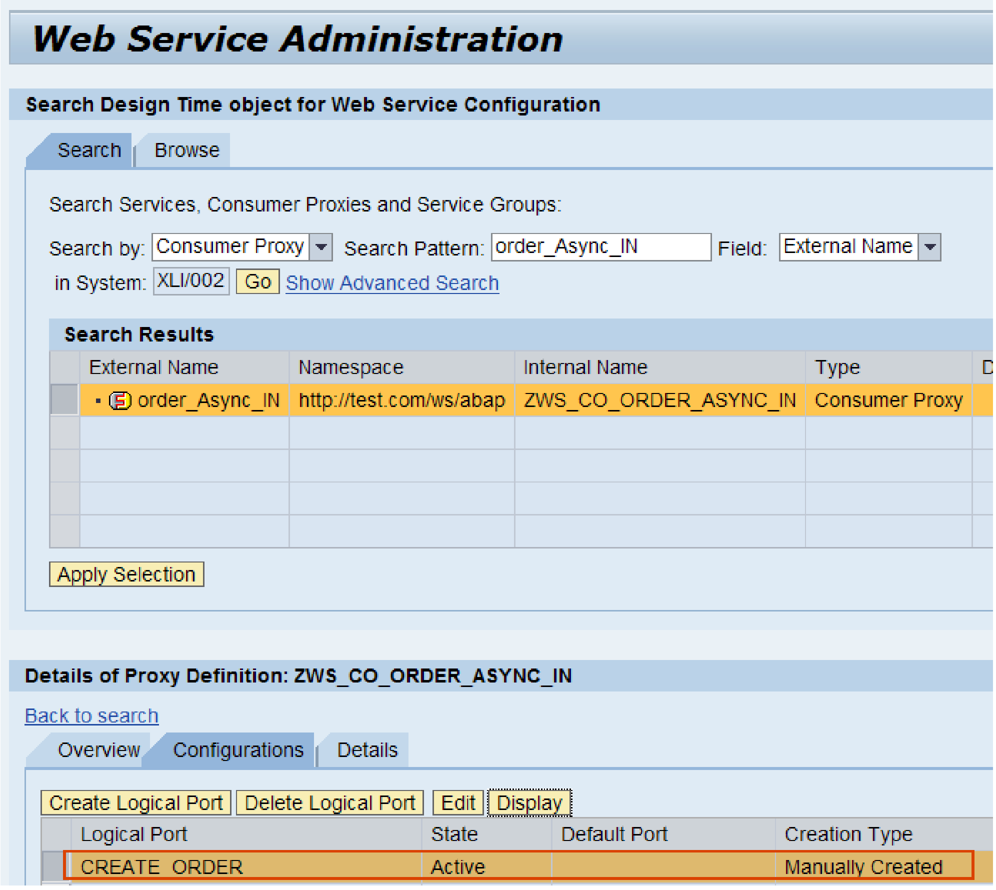
Authentication

Authentication Method: sapsp:HTTPBasic

Transport Security

Secure Communications:	SSL
Signature Expected:	false
Encryption Expected:	false
Add Signature:	false
Encryption:	false

g. The logical port is displayed:



Web Service Administration

Search Design Time object for Web Service Configuration

Search Services, Consumer Proxies and Service Groups:

Search by: Consumer Proxy Search Pattern: order_Async_IN Field: External Name

in System: XLI/002

Search Results

External Name	Namespace	Internal Name	Type	D
order_Async_IN	http://test.com/ws/abap	ZWS_CO_ORDER_ASYNC_IN	Consumer Proxy	

Details of Proxy Definition: ZWS_CO_ORDER_ASYNC_IN

Logical Port	State	Default Port	Creation Type
CREATE ORDER	Active		Manually Created

3. Create a program to call the consumer service.

   Find an example of an ABAP program below, 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.
```

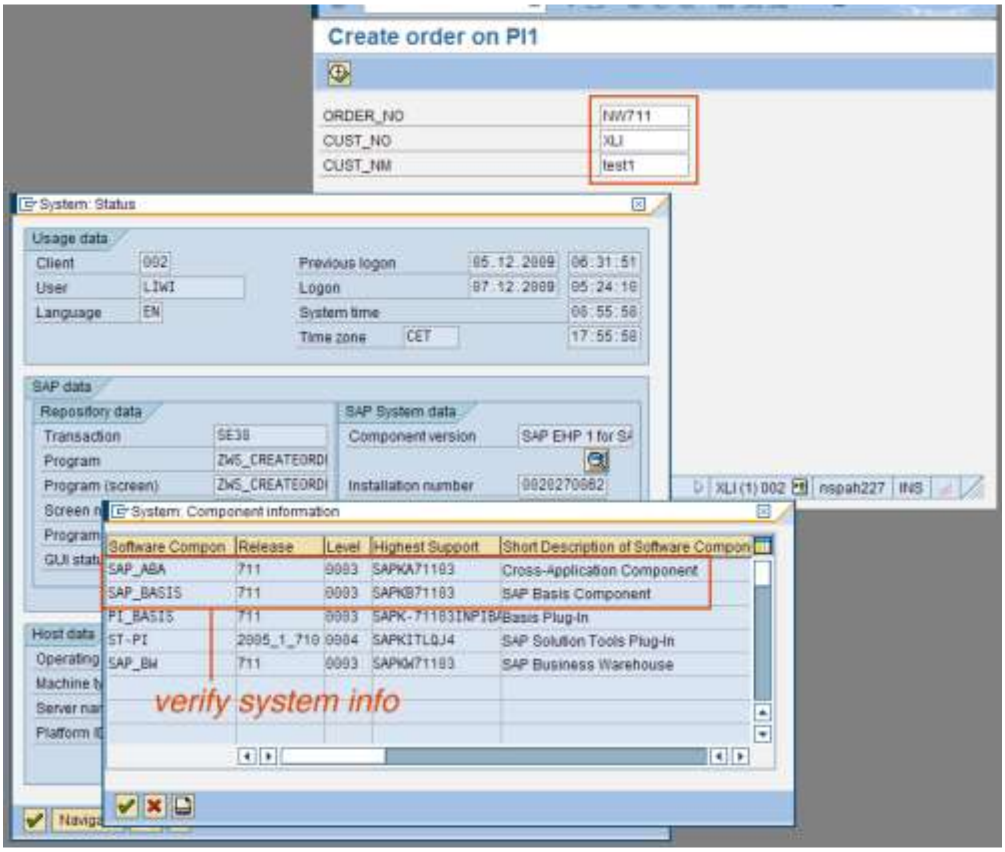
```
data: INPUT type ZWS_ORDER_MT .


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.
```

Note the parts of the program marked in red.

- ZWS_CO_ORDER_ASYNC_IN: the proxy name as it was created 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 in SOAMANAGER in a previous step.
- CREATE: the operation name when the service interface is created in the ES Repository. You can also see this name in the ABAP proxy as the method of the class.
- commit_work( ): This is necessary for asynchronous message processing.

4. Execute the consumer program:

    a. In a SAP NetWeaver 7.1, EHP 1 consumer system:



Create order on PI1

ORDER_NO	NW711
CUST_NO	XLI
CUST_NM	test1

System: Status

Usage data

Client	002	Previous logon	05.12.2009	06:31:51
User	LIWI	Logon	07.12.2009	05:24:10
Language	EN	System time		06:55:58
		Time zone	CET	17:55:58

SAP data

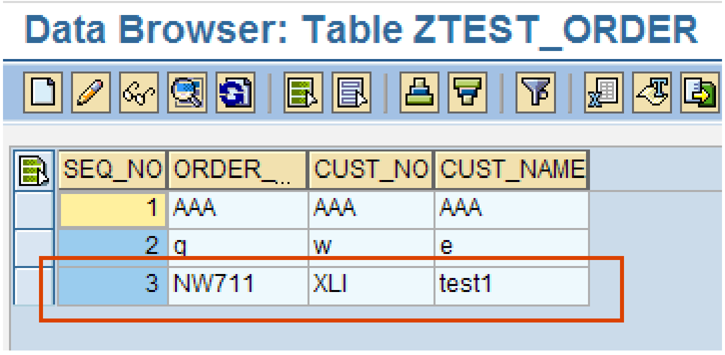
Repository data		SAP System data	
Transaction	SE38	Component version	SAP EHP 1 for S/
Program	ZWS_CREATEORDI		
Program (screen)	ZWS_CREATEORDI	Installation number	0020270082

System: Component information

Software Compon	Release	Level	Highest Support	Short Description of Software Compon
SAP_ABA	711	0003	SAPKA71103	Cross-Application Component
SAP_BASIS	711	0003	SAPKB71103	SAP Basis Component
PI_BASIS	711	0003	SAPK-71103INPIBA	Basis Plug-In
ST-PI	2005_1_710	0004	SAPKITLQJ4	SAP Solution Tools Plug-In
SAP_BW	711	0003	SAPKW71103	SAP Business Warehouse

verify system info

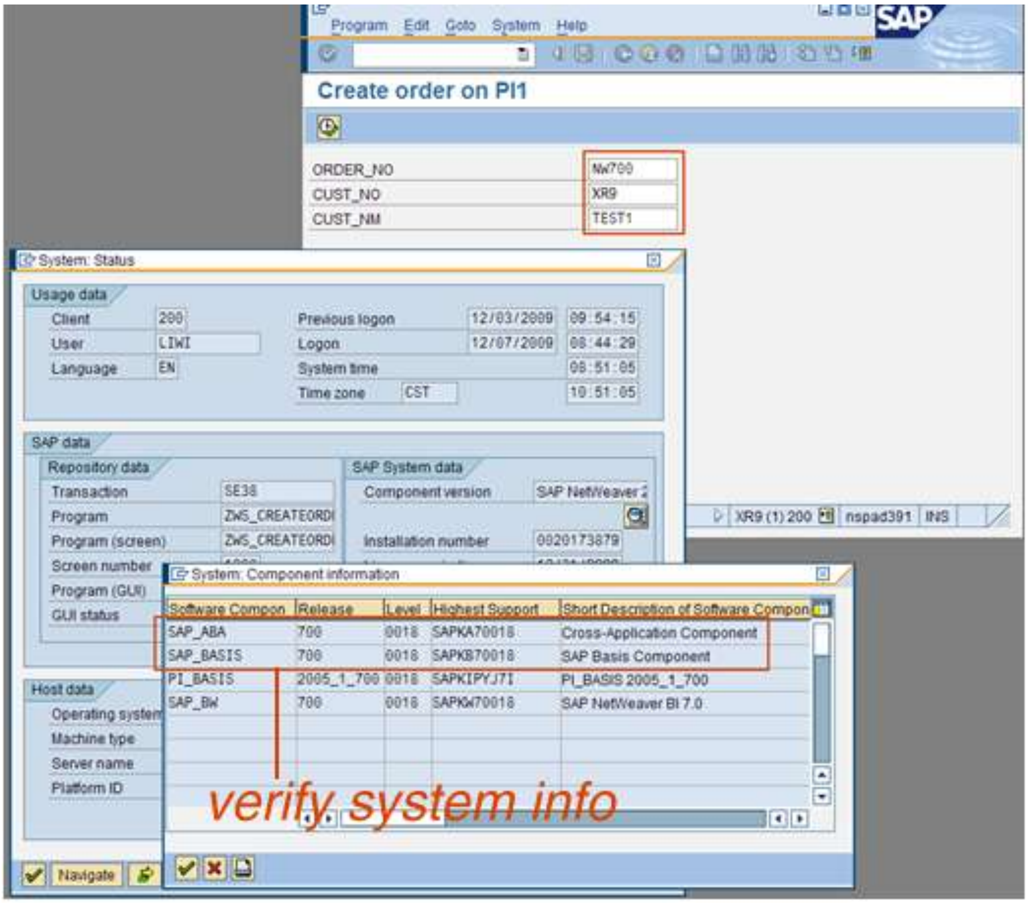
Result in the provider system:



Data Browser: Table ZTEST_ORDER

SEQ_NO	ORDER_..	CUST_NO	CUST_NAME
1	AAA	AAA	AAA
2	q	w	e
3	NW711	XLI	test1

b. In a SAP NetWeaver 7.00, SP 18 consumer system:



Create order on PI1

ORDER_NO	Nw700
CUST_NO	XR9
CUST_NM	TEST1

System: Status

Usage data

Client	200	Previous logon	12/03/2009	09:54:15
User	LIWI	Logon	12/07/2009	08:44:29
Language	EN	System time		08:51:05
		Time zone	CST	10:51:05

SAP data

Repository data

Transaction	SE38
Program	ZWS_CREATEORDI
Program (screen)	ZWS_CREATEORDI

SAP System data

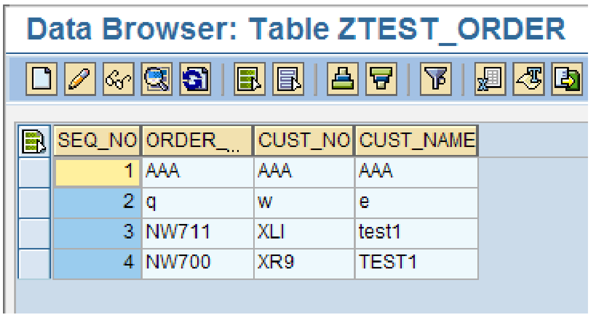
Component version	SAP NetWeaver 2
Installation number	0020173879

System: Component information

Software Compon	Release	Level	Highest Support	Short Description of Software Compon
SAP_ABA	700	0018	SAPKA70018	Cross-Application Component
SAP_BASIS	700	0018	SAPKB70018	SAP Basis Component
PI_BASIS	2005_1_700	0018	SAPKIPYJ7I	PI_BASIS 2005_1_700
SAP_BW	700	0018	SAPKW70018	SAP NetWeaver BI 7.0

verify system info

Result in the provider system:



Data Browser: Table ZTEST_ORDER

SEQ_NO	ORDER_...	CUST_NO	CUST_NAME
1	AAA	AAA	AAA
2	q	w	e
3	NW711	XLI	test1
4	NW700	XR9	TEST1

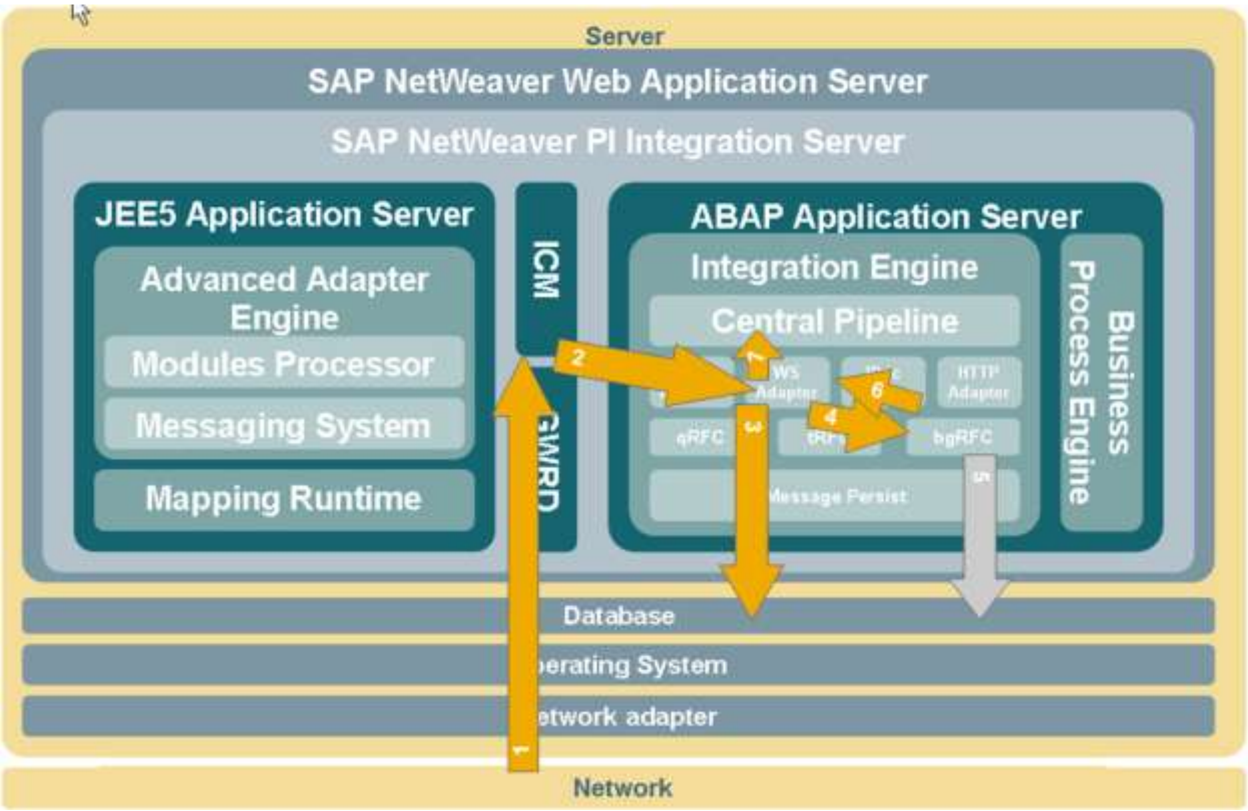
4.3 Monitoring and Debugging

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

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

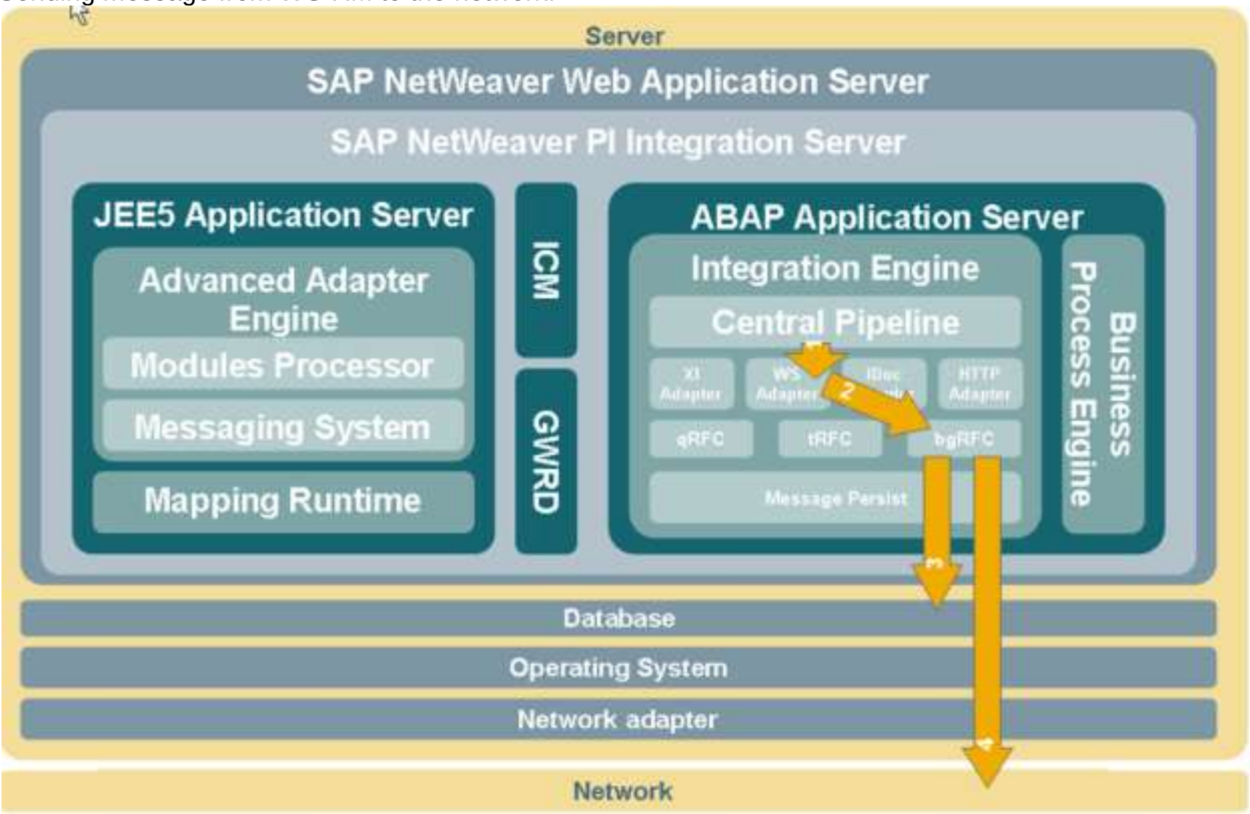
In order to determine the tools, an overview of the message flow during WS-RM runtime can be helpful. Although the diagrams below outline the flow in SAP NetWeaver PI Integration Server, it is also applicable to the Application Servers since the Integration Engine is also part of the ABAP stack.

Sending message from the network to WS-RM:



Network → ICM → WS Adapter → bgRFC → WS Adapter → Central Pipeline

Sending message from WS-RM to the network:



Central Pipeline → WS Adapter → bgRFC → Network (via HTTP Post)

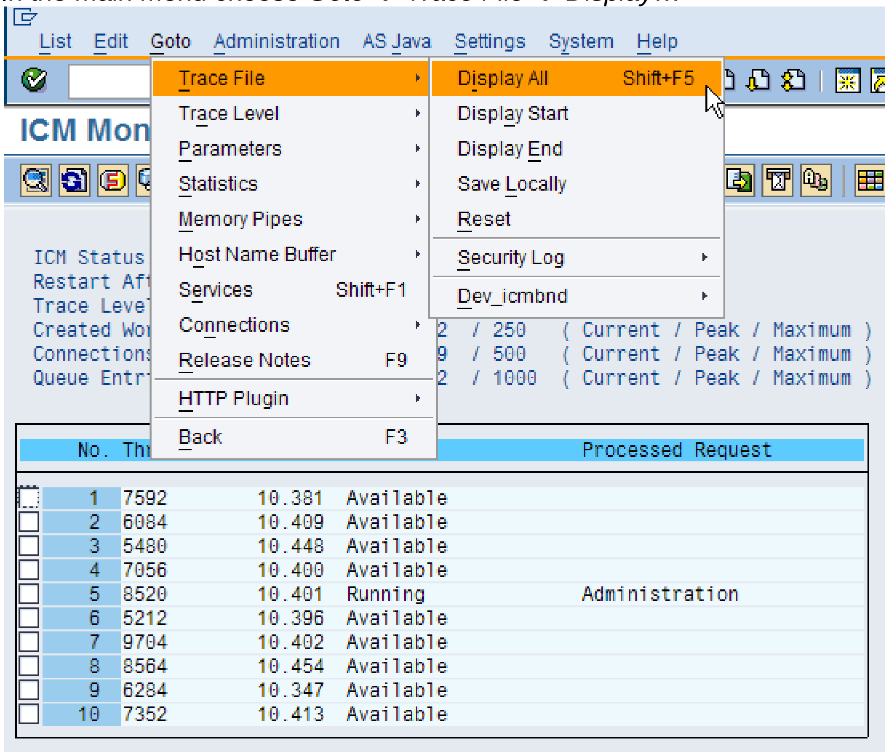
To monitor the messages, we can use the message processing paths indicated above to determine the tools to use.

1. ICM: monitoring the ICM for incoming messages.

   ICM can be monitored in AS ABAP or AS Java:

   - ABAP: transaction SMICM

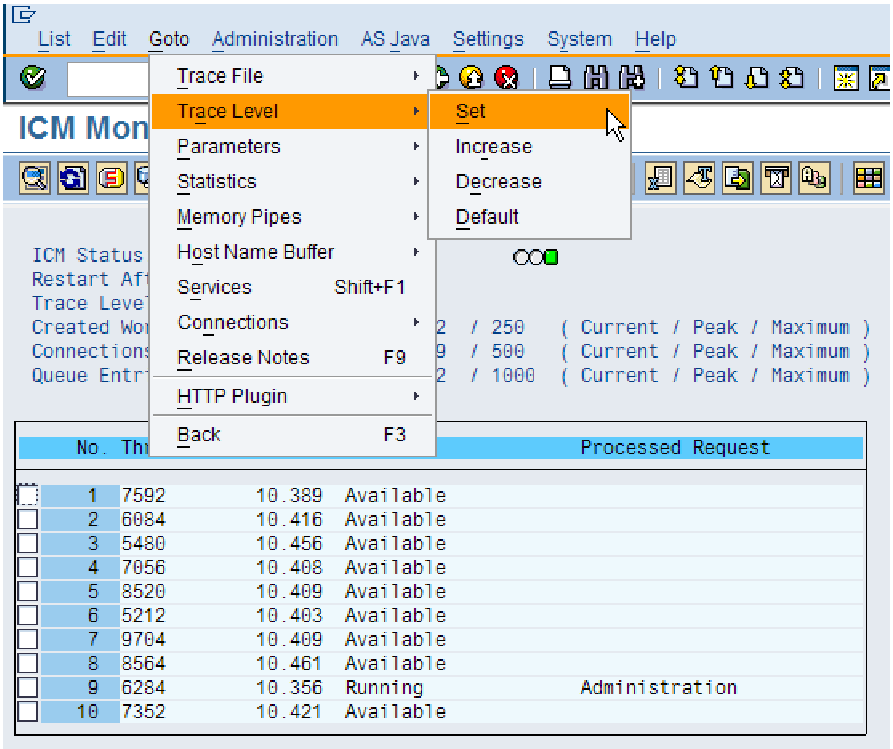
     In the main menu choose *Goto → Trace File → Display…*



```
ICM Status
Restart Aft
Trace Leve
Created Wo        2  / 250   ( Current / Peak / Maximum )
Connections       9  / 500   ( Current / Peak / Maximum )
Queue Entr        2  / 1000  ( Current / Peak / Maximum )

  No. Thr                                  Processed Request

   1  7592       10.381  Available
   2  6084       10.409  Available
   3  5480       10.448  Available
   4  7056       10.400  Available
   5  8520       10.401  Running          Administration
   6  5212       10.396  Available
   7  9704       10.402  Available
   8  8564       10.454  Available
   9  6284       10.347  Available
  10  7352       10.413  Available
```

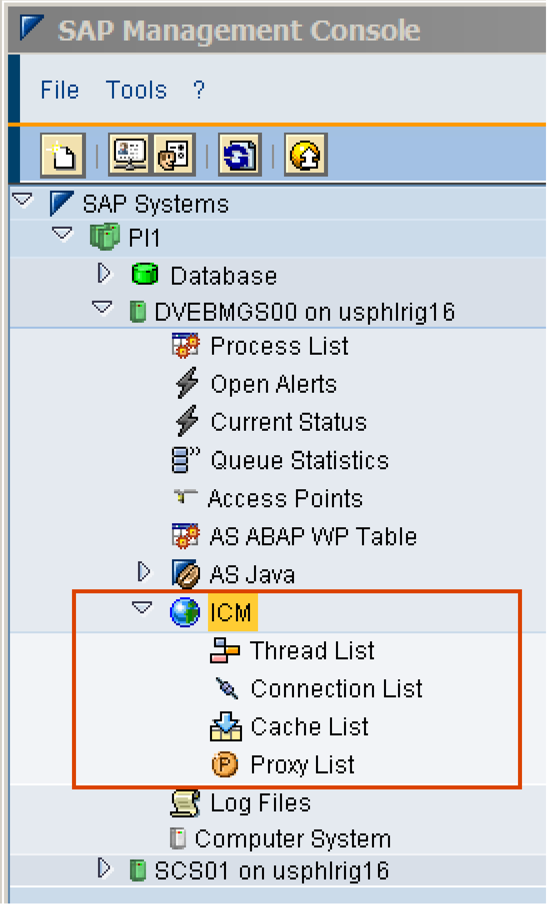
Change the trace level by using:

Goto → Trace Level → …



```
ICM Status
Restart Aft
Trace Leve
Created Wo        2  / 250   ( Current / Peak / Maximum )
Connections       9  / 500   ( Current / Peak / Maximum )
Queue Entr        2  / 1000  ( Current / Peak / Maximum )

  No. Thr                                  Processed Request

   1  7592       10.389  Available
   2  6084       10.416  Available
   3  5480       10.456  Available
   4  7056       10.408  Available
   5  8520       10.409  Available
   6  5212       10.403  Available
   7  9704       10.409  Available
   8  8564       10.461  Available
   9  6284       10.356  Running          Administration
  10  7352       10.421  Available
```

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

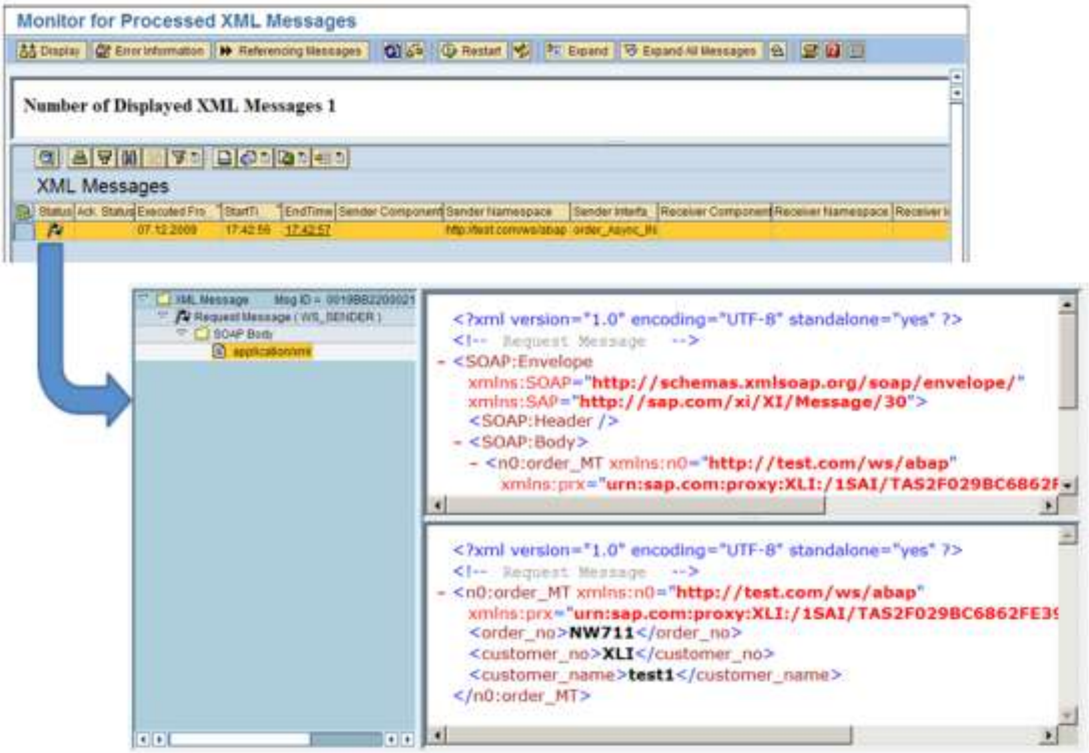


Note

Use the following information to create administrator users with authorization to view ICM from the browser:

Creating Administration Users

2. Transaction SXMB_MONI or SXI_MONITOR: This is the existing tool used to monitor Integration Engine messages. In this monitor you can display payload information.



Number of Displayed XML Messages 1

Status	Ack. Status	Executed Fro	StartTi	EndTime	Sender Component	Sender Namespace	Sender Interfa	Receiver Component	Receiver Namespace	Receiver I
		07.12.2009	17:42:56	17:42:57		http://test.com/ws/abap	order_Async_IN			

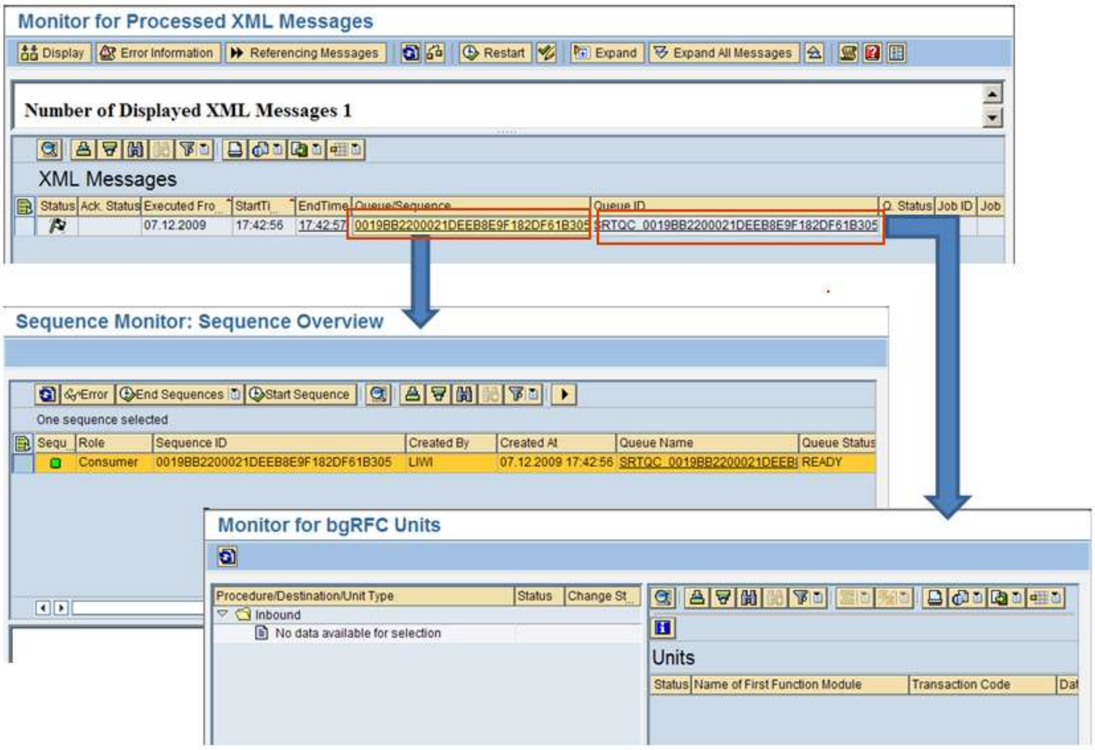
```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<!--  Request Message   -->
- <SOAP:Envelope
    xmlns:SOAP="http://schemas.xmlsoap.org/soap/envelope/"
    xmlns:SAP="http://sap.com/xi/XI/Message/30">
    <SOAP:Header />
  - <SOAP:Body>
    - <n0:order_MT xmlns:n0="http://test.com/ws/abap"
        xmlns:prx="urn:sap.com:proxy:XLI:/1SAI/TAS2F029BC6862F
```

```
<?xml version="1.0" encoding="UTF-8" standalone="yes" ?>
<!--  Request Message   -->
- <n0:order_MT xmlns:n0="http://test.com/ws/abap"
    xmlns:prx="urn:sap.com:proxy:XLI:/1SAI/TAS2F029BC6862FE3
    <order_no>NW711</order_no>
    <customer_no>XLI</customer_no>
    <customer_name>test1</customer_name>
  </n0:order_MT>
```

3. Call transaction SXMB_MONI or SXI_MONITOR, scroll to the right to display the columns *Queue Sequence* and *Queue ID*. To get additional monitoring information, click on the value of these:

   WS-RM messages are sent as sequences. Multiple messages are sent in specific sequences with guaranteed delivery. SOAMANGER's sequence monitor provides information about errors during message processing. You can restart or terminate messages in this monitor.

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



Monitor for Processed XML Messages

Number of Displayed XML Messages 1

XML Messages

Status	Ack. Status	Executed Fro...	StartTi...	EndTime	Queue/Sequence	Queue ID	Q. Status	Job ID	Job
		07.12.2009	17:42:56	17:42:57	0019BB2200021DEEB8E9F182DF61B305	SRTQC_0019BB2200021DEEB8E9F182DF61B305			

Sequence Monitor: Sequence Overview

One sequence selected

Sequ...	Role	Sequence ID	Created By	Created At	Queue Name	Queue Status
🟩	Consumer	0019BB2200021DEEB8E9F182DF61B305	LIWI	07.12.2009 17:42:56	SRTQC_0019BB2200021DEEB8	READY

Monitor for bgRFC Units

Procedure/Destination/Unit Type	Status	Change St...
Inbound		
No data available for selection		

Units

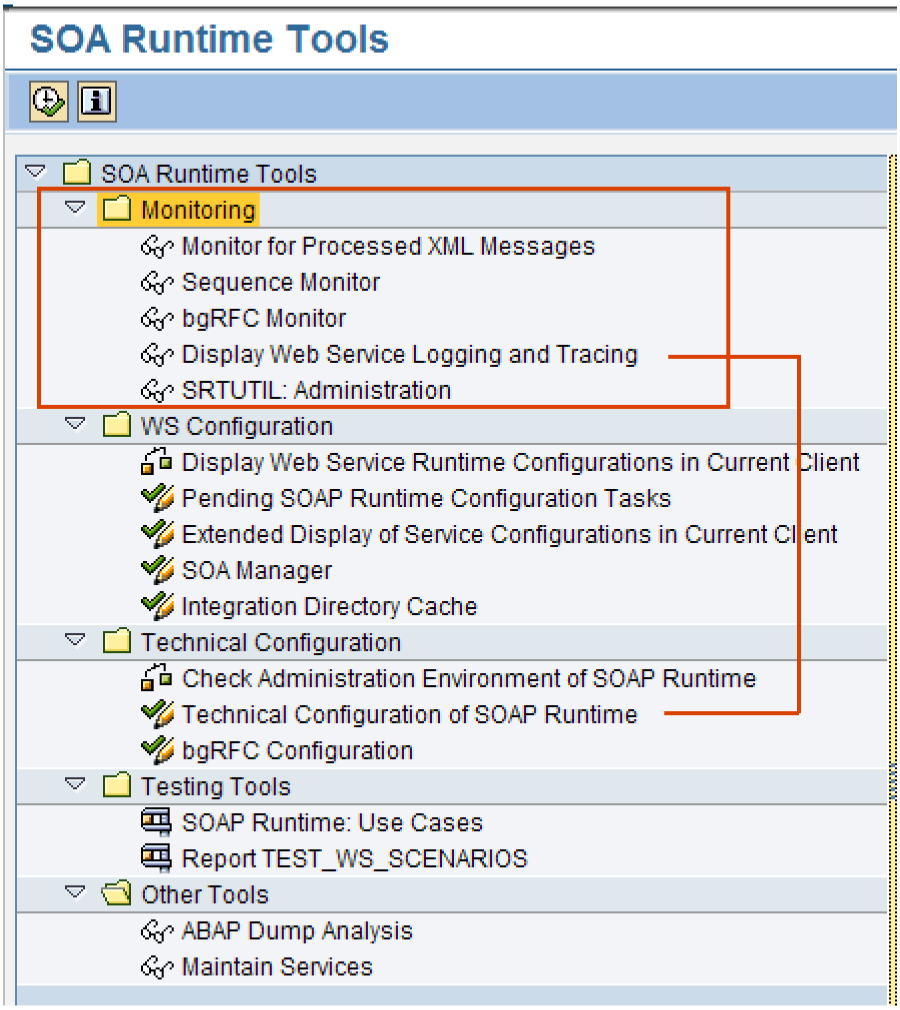
Status	Name of First Function Module	Transaction Code	Dat

Note

Select transaction SBGRFCMON to monitor bgRFCs.

These two monitors give you additional information of the processed messages. When an error occurs, the error details are displayed.

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



SOA Runtime Tools

- SOA Runtime Tools
  - Monitoring
    - Monitor for Processed XML Messages
    - Sequence Monitor
    - bgRFC Monitor
    - Display Web Service Logging and Tracing
    - SRTUTIL: Administration
  - WS Configuration
    - Display Web Service Runtime Configurations in Current Client
    - Pending SOAP Runtime Configuration Tasks
    - Extended Display of Service Configurations in Current Client
    - 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
  - Other Tools
    - ABAP Dump Analysis
    - 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.

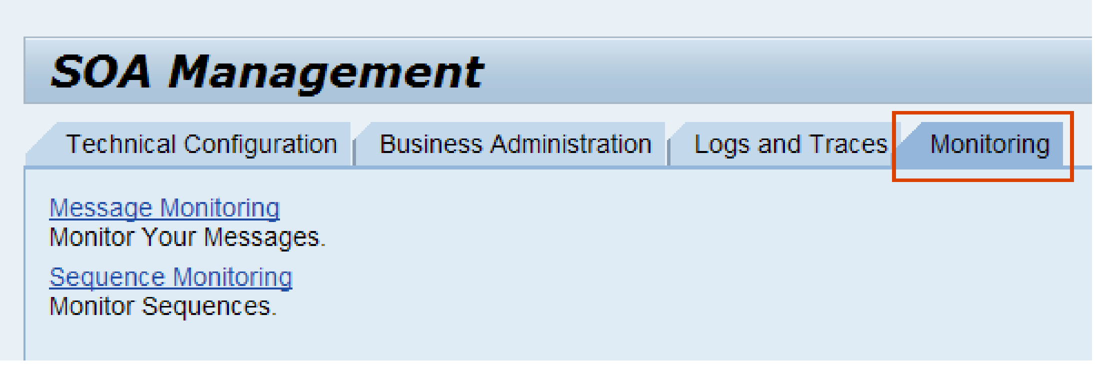
b. Sequence Monitor: This is the same tool as discussed above.

c. bgRFC Monitor: This is the same tool as 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 Web Dynpro 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.



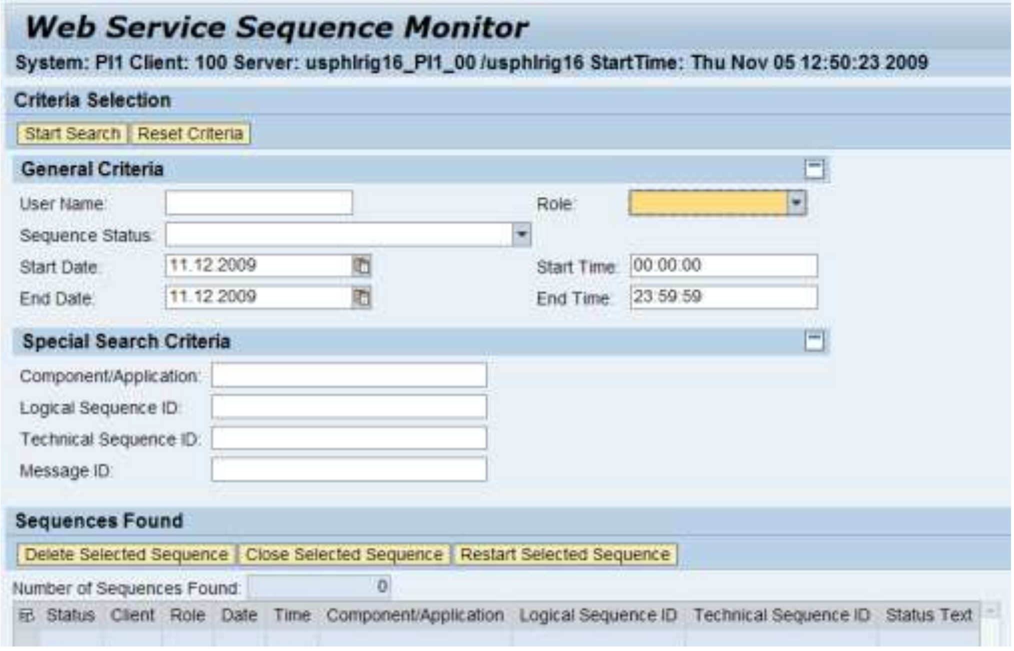
SOA Management

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.



Web Service Sequence Monitor

System: PI1 Client: 100 Server: usphlrig16_PI1_00 /usphlrig16 StartTime: Thu Nov 05 12:50:23 2009

Criteria Selection

General Criteria

User Name:
Role:
Sequence Status:
Start Date: 11.12.2009
Start Time: 00:00:00
End Date: 11.12.2009
End Time: 23:59:59

Special Search Criteria

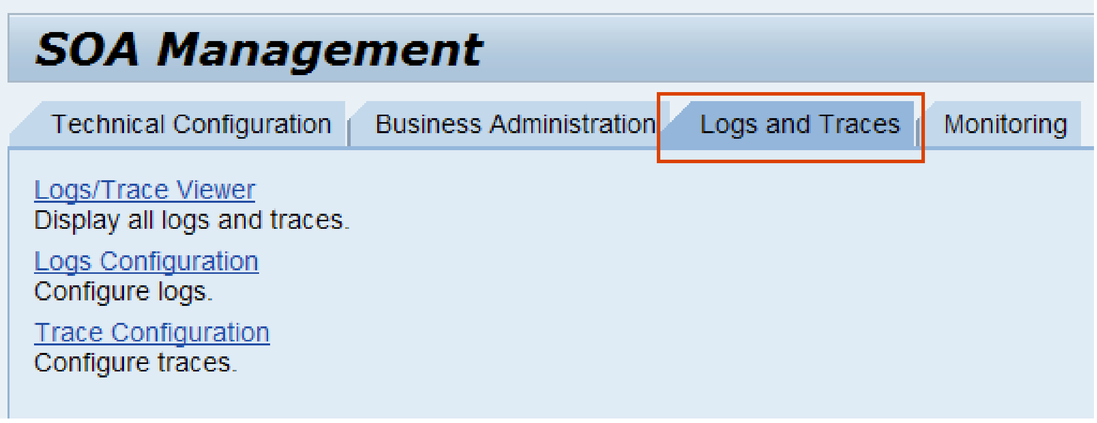
Component/Application:
Logical Sequence ID:
Technical Sequence ID:
Message ID:

Sequences Found

Number of Sequences Found: 0

Status	Client	Role	Date	Time	Component/Application	Logical Sequence ID	Technical Sequence ID	Status Text

6. Transaction SOAMANAGER → Logs and Traces:



SOA Management

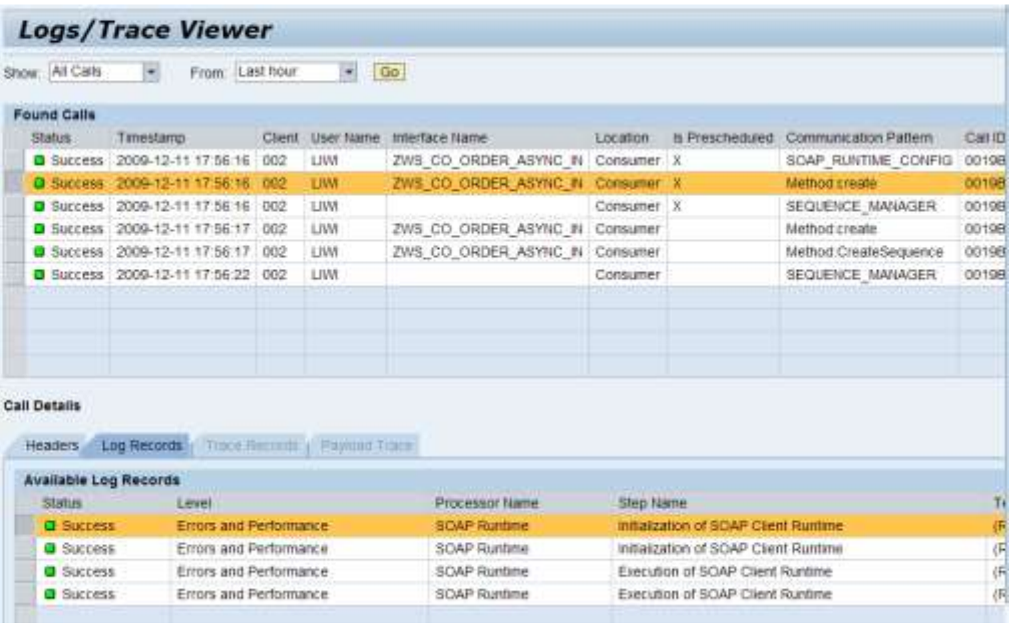
Logs/Trace Viewer
Display all logs and traces.

Logs Configuration
Configure logs.

Trace Configuration
Configure traces.

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

Example:



Logs/Trace Viewer

Show: All Calls From: Last hour Go

Found Calls

Status	Timestamp	Client	User Name	Interface Name	Location	Is Prescheduled	Communication Pattern	Call ID
Success	2009-12-11 17:56:16	002	LIWI	ZWS_CO_ORDER_ASYNC_IN	Consumer	X	SOAP_RUNTIME_CONFIG	00198
Success	2009-12-11 17:56:16	002	LIWI	ZWS_CO_ORDER_ASYNC_IN	Consumer	X	Method create	00198
Success	2009-12-11 17:56:16	002	LIWI		Consumer	X	SEQUENCE_MANAGER	00198
Success	2009-12-11 17:56:17	002	LIWI	ZWS_CO_ORDER_ASYNC_IN	Consumer		Method create	00198
Success	2009-12-11 17:56:17	002	LIWI	ZWS_CO_ORDER_ASYNC_IN	Consumer		Method CreateSequence	00198
Success	2009-12-11 17:56:22	002	LIWI		Consumer		SEQUENCE_MANAGER	00198

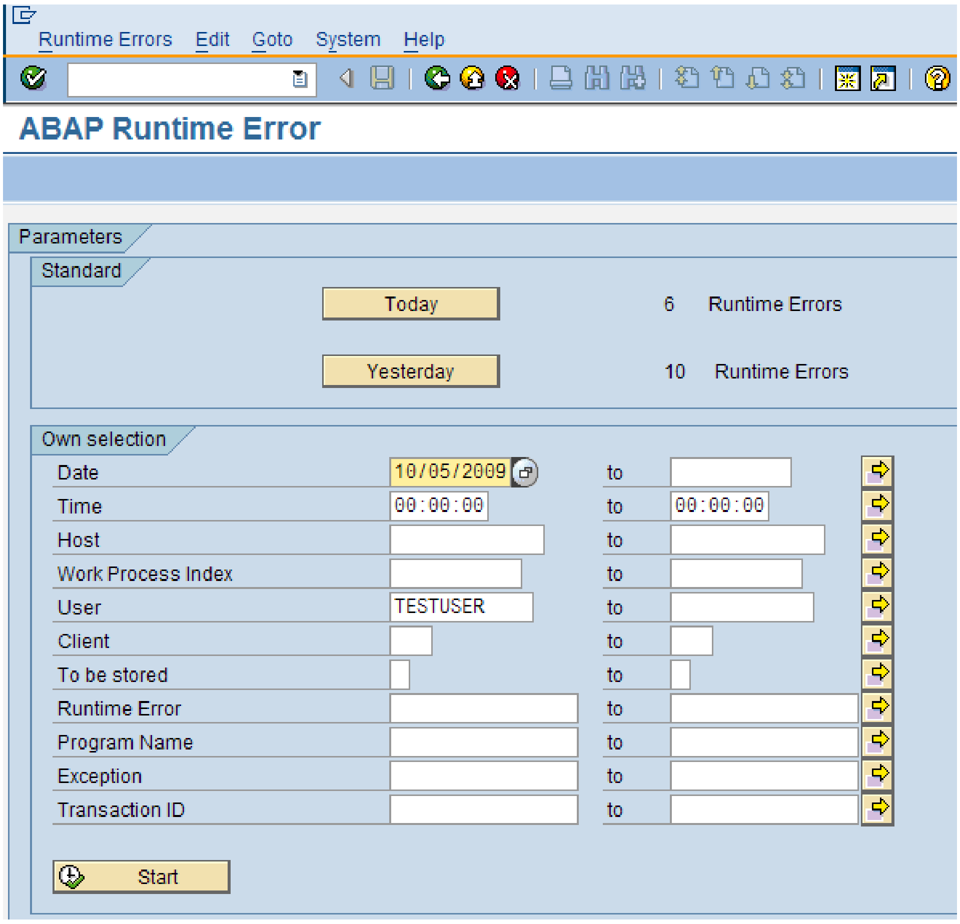
Call Details

Available Log Records

Status	Level	Processor Name	Step Name	T
Success	Errors and Performance	SOAP Runtime	Initialization of SOAP Client Runtime	(R
Success	Errors and Performance	SOAP Runtime	Initialization of SOAP Client Runtime	(R
Success	Errors and Performance	SOAP Runtime	Execution of SOAP Client Runtime	(R
Success	Errors and Performance	SOAP Runtime	Execution of SOAP Client Runtime	(R

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

ABAP Transaction: ST22



ABAP Runtime Error

Parameters

Standard

Today	6	Runtime Errors
Yesterday	10	Runtime Errors

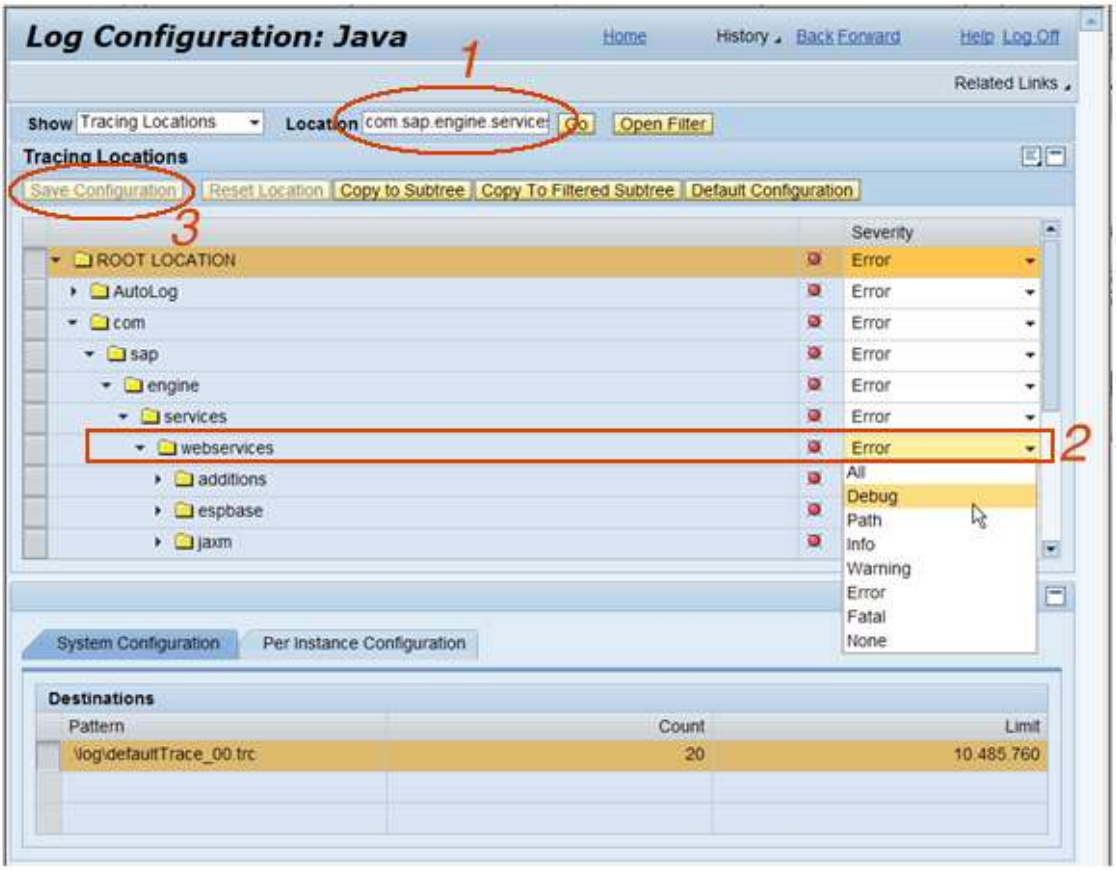
Own selection

Date	10/05/2009	to	
Time	00:00:00	to	00:00:00
Host		to	
Work Process Index		to	
User	TESTUSER	to	
Client		to	
To be stored		to	
Runtime Error		to	
Program Name		to	
Exception		to	
Transaction ID		to	

4.4 Use WSNavigator to Debug Web Services

Use WSNavigator to Debug Web Services:

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

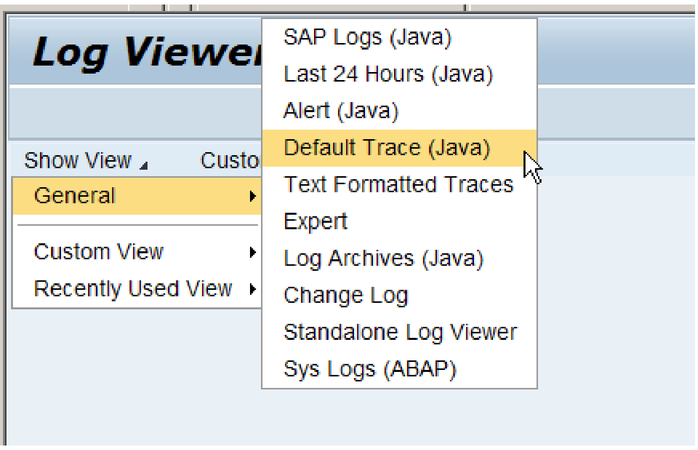


	Severity
ROOT LOCATION	Error
AutoLog	Error
com	Error
sap	Error
engine	Error
services	Error
webservices	Error
additions	
espbase	
jaxm	

Destinations

Pattern	Count	Limit
\log\defaultTrace_00.trc	20	10.485.760

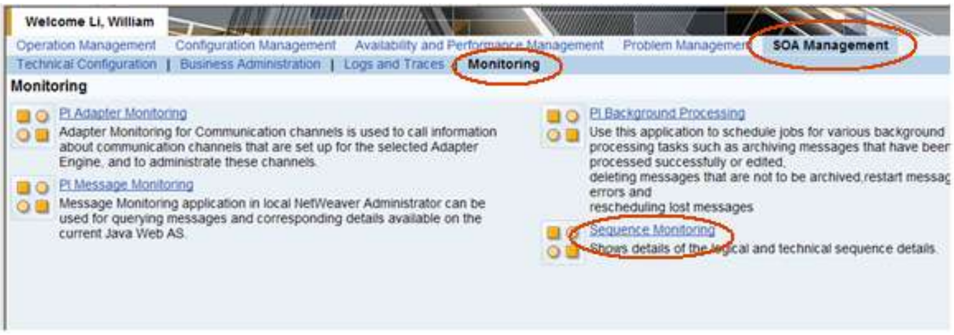
2. Execute the service using WSNavigator.
3. Go to the default trace in the Log Viewer:



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

b. Using SOAMANAGER:

i. In /nwa:



Welcome Li, William
Operation Management
Configuration Management
Availability and Performance Management
Problem Management
SOA Management
Technical Configuration | Business Administration | Logs and Traces | Monitoring

Monitoring

PI Adapter Monitoring
Adapter Monitoring for Communication channels is used to call information about communication channels that are set up for the selected Adapter Engine, and to administrate these channels.

PI Message Monitoring
Message Monitoring application in local NetWeaver Administrator can be used for querying messages and corresponding details available on the current Java Web AS.

PI Background Processing
Use this application to schedule jobs for various background processing tasks such as archiving messages that have been processed successfully or edited, deleting messages that are not to be archived,restart messag errors and rescheduling lost messages

Sequence Monitoring
Shows details of the logical and technical sequence details.

ii. In ABAP:

TX: ST22

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

TX: SE38 - report SRT_ADMIN_CHECK

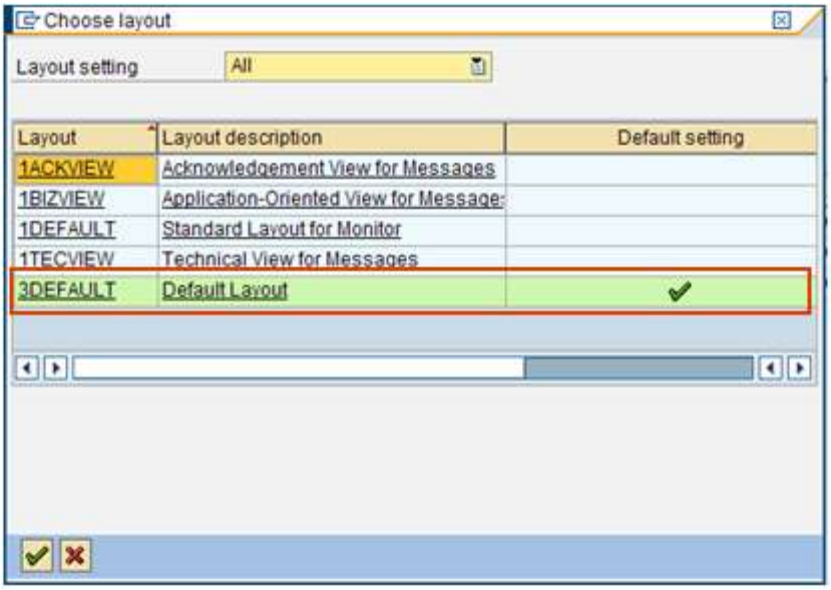
To determine any missing Web Services configurations.

c. Where to monitor?

Sender System:

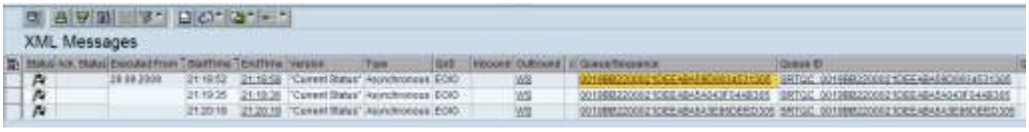
SXMB_MONI (aka SXI_MONITOR)

Use the default display:



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	
3DEFAULT	Default Layout	✓

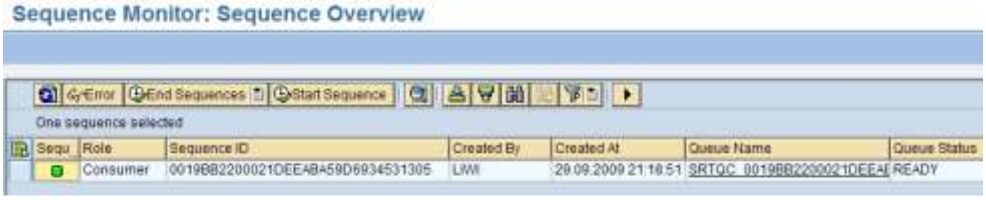


XML Messages

Status	Ack. Status	Executed From	StartTime	EndTime	Version	Type	QoS	Inbound	Outbound	Queue/Sequence	Queue ID
		28.09.2009	21:19:52	21:19:58	"Current Status"	Asynchronous	EOIO		WS	[illegible]	[illegible]
			21:19:35	21:19:36	"Current Status"	Asynchronous	EOIO		WS	[illegible]	[illegible]
			21:20:18	21:20:19	"Current Status"	Asynchronous	EOIO		WS	[illegible]	[illegible]

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

d. By clicking on the sequence ID, you open the Sequence Monitor, to get additional information about the message. You can also examine errors and start/end the sequence.

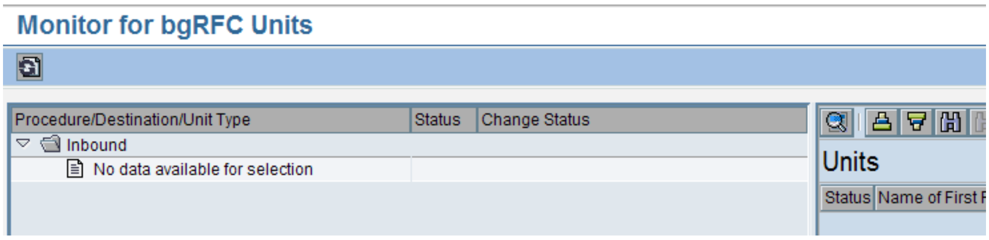


Sequence Monitor: Sequence Overview

One sequence selected

Sequ	Role	Sequence ID	Created By	Created At	Queue Name	Queue Status
🟩	Consumer	0019BB2200021DEEABA59D6934531305	LIWI	29.09.2009 21:18:51	SRTQC_0019BB2200021DEEAE	READY

e. By clicking on the Queue ID, you can examine the bgRFC queue where the message is processed. The bgRFC monitor indicates if our message is waiting in the queue, and the reason it might be stuck.



Monitor for bgRFC Units

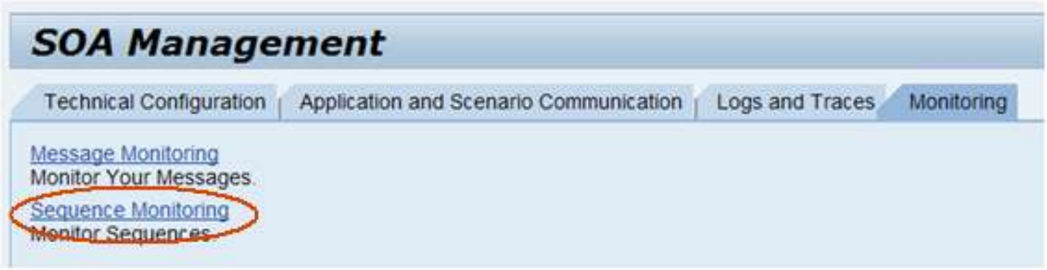
Procedure/Destination/Unit Type	Status	Change Status
Inbound		
No data available for selection		

Units

Status	Name of First F

In addition to monitoring the message in the AS ABAP, youcan also monitor the message in transaction SOAMANAGER in the web browser.

In SOAMANAGER, select *Monitoring → Sequence Monitoring*:

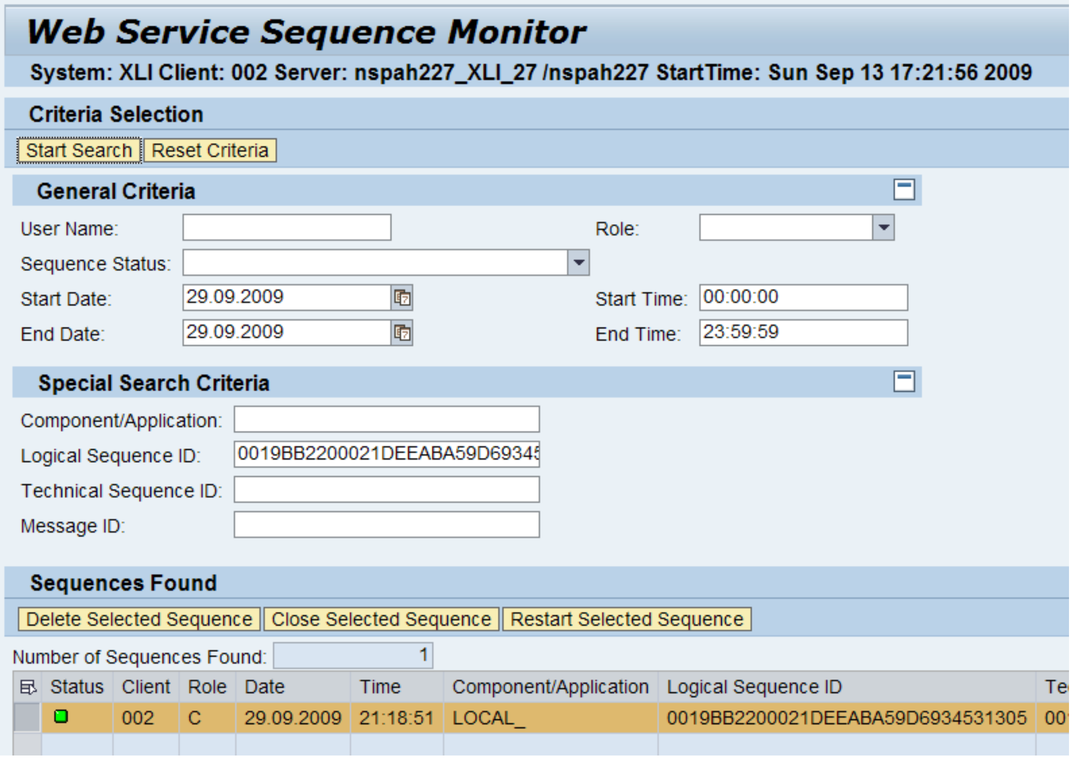


SOA Management

Message Monitoring
Monitor Your Messages.
Sequence Monitoring
Monitor Sequences

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

In SOAMANAGER’s Sequence Monitor, you can copy and paste the Sequence ID from SXMB_MONI, or any other search criteria:



System: XLI Client: 002 Server: nspah227_XLI_27 /nspah227 StartTime: Sun Sep 13 17:21:56 2009

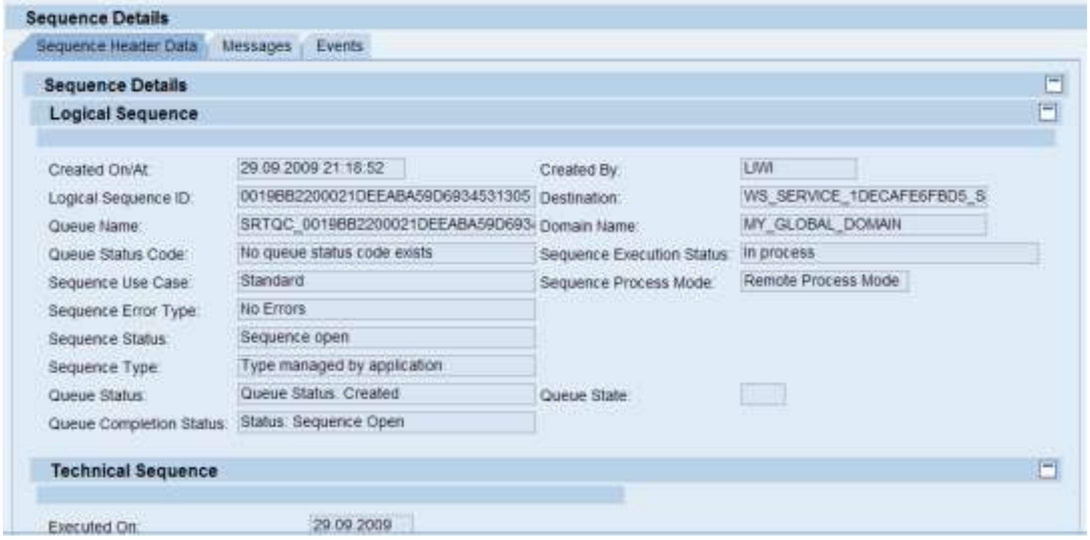
User Name:		Role:	
Sequence Status:			
Start Date:	29.09.2009	Start Time:	00:00:00
End Date:	29.09.2009	End Time:	23:59:59

Component/Application:	
Logical Sequence ID:	0019BB2200021DEEABA59D69345
Technical Sequence ID:	
Message ID:	

Number of Sequences Found: 1

Status	Client	Role	Date	Time	Component/Application	Logical Sequence ID	Te
🟩	002	C	29.09.2009	21:18:51	LOCAL_	0019BB2200021DEEABA59D6934531305	00

Here, you can delete, close or restart the sequence. You can also examine additional detail about the sequence:



Created On/At:	29.09.2009 21:18:52	Created By:	LIWI
Logical Sequence ID:	0019BB2200021DEEABA59D6934531305	Destination:	WS_SERVICE_1DECAFE6FBD5_S
Queue Name:	SRTQC_0019BB2200021DEEABA59D693	Domain Name:	MY_GLOBAL_DOMAIN
Queue Status Code:	No queue status code exists	Sequence Execution Status:	In process
Sequence Use Case:	Standard	Sequence Process Mode:	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		

Executed On: 29.09.2009

Receiver System:

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

www.sdn.sap.com/irj/sdn/howtoguides

THE BEST-RUN BUSINESSES RUN SAP™