Validating a Connection Between SAP R/3 and SAP XI with RFC

Applies To:
SAP Exchange Infrastructure

Summary
This article details how to validate the connection between SAP R/3 and SAP Exchange Infrastructure using remote function calls (RFC).

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Introduction
I encountered a situation in my project where I had to check the communication between R/3 system and XI system even before sending the actual RFCcall’s return data from R/3 system. I take this opportunity to discuss what we built to achieve this, below.

Scenario

Step 1 – Request message received from R/3 using the RFC_Sender comm. channel
Step 2 – Request message sent to the same R/3 using RFC_Receiver comm. channel
Step 3 – Response message received from R/3 using the RFC_Sender comm. channel
Step 4 - Response message sent to the same R/3 using RFC_Receiver comm. channel

STFC_CONNECTION is a nifty function module which when executed with a request text, will respond with the system details like version number of the application server, logon details etc.

When the function module - STFC_CONNECTION is executed on SAP R/3 (System A) with target RFC destination (“XI”), the sender channel (“RFC_Sender” - RFC adapter) configured in the SAP XI receives the request and sends this request back to the same R/3 system (Receiver Interface: STFC_CONNECTION) from where the request originated using receiver channel (“RFC_Receiver” - RFC adapter) in SAP XI.

SAP R/3 system, on receiving the request, responds to the request. This response is received by the sender channel (“RFC_Sender” - RFC adapter) in SAP XI and using the receiver channel (“RFC_Receiver” - RFC

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Validating a Connection Between SAP R/3 and SAP XI with RFC adapter), this response is sent to the same SAP R/3 system (Receiver Interface: STFC_CONNECTION) from where the response originated.

This test validates the following:

1. SAP R/3 (System A) is able to communicate with RFC adapter (RFC_Sender – communication channel) available on the SAP XI system.
2. SAP XI system, using RFC adapter (RFC_Receiver – communication channel), is able to communicate with SAP R/3

This scenario can be built easily and quickly to validate the connection between SAP R/3 and SAP XI when using RFC adapter. Any errors that occur due to communication problems can be quickly traced using the “dev_rfc” trace file and debugged accordingly.
Steps to build this scenario

1. Create an RFC destination called "XI" in SAP R/3 (System A). The program ID used in RFC destination should be provided in the RFC Sender Communication channel.

2. Import the structure of STFC_CONNECTION Function Module from System A (SAP R/3) into the Integration Repository:

3. The Request message structure of STFC_CONNECTION function module in the Integration Repository will be as shown below:

4. The Response message structure of STFC_CONNECTION function module in Integration Repository will be as shown below:

5. Create two communication channels, one for sender and one for receiver using the RFC adapter:
Shown below is the configuration for RFC_Sender Communication Channel:
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Shown below is the configuration for RFC_Receiver Communication Channel:

- **Adapter Type**: RFC Receiver
- **Transport Protocol**: RFC Adapter
- **Message Protocol**: RFC (RFC XML)
- **Adapter Engine**: af.xiw.sapstst1

**RFC Client Parameter**

- **Application Server**: RFL019
- **System Number**: 03
- **Authentication Mode**: Use Logon Data for SAP System
- **Logon User**: XAPPLUSER
- **Logon Password**: ********
- **Logon Language**: en
- **Logon Client**: 300
- **Maximum Connections**: 10

**RFC Metadata Repository Parameter**

- **Use Alternative RFC Metadata Repository**
6. Create the Sender Agreement, Receiver Determination, Interface Determination and Receiver Agreement. No mapping is required.

<table>
<thead>
<tr>
<th>Display Sender Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sender</strong></td>
</tr>
<tr>
<td>Party</td>
</tr>
<tr>
<td>Service</td>
</tr>
<tr>
<td>Interface</td>
</tr>
<tr>
<td>Namespace</td>
</tr>
<tr>
<td><strong>Receiver</strong></td>
</tr>
<tr>
<td>Party</td>
</tr>
<tr>
<td>Service</td>
</tr>
<tr>
<td>Description</td>
</tr>
</tbody>
</table>

| Sender Communication Channel | RFC_Sender |
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Make sure the sender and receiver are the same Business Systems (SAP R/3 – System A)
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Display Interface Determination

Sender
Party
Service RFL_BS
Interface STFC_CONNECTION
Namespace urn:sap-com:document:sap:rfc:functions

Receiver
Party
Service RFL_BS
Description

Configured Inbound Interfaces

<table>
<thead>
<tr>
<th>Inbound Interface</th>
<th>Namespace</th>
<th>Interface Mapping</th>
<th>Software Compo...</th>
</tr>
</thead>
<tbody>
<tr>
<td>STFC_CONNECTION</td>
<td>urn:sap-com:document:sap:rfc:functions</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Display Receiver Agreement

Sender
Party
Service RFL_BS

Receiver
Party
Service RFL_BS
Interface STFC_CONNECTION
Namespace urn:sap-com:document:sap:rfc:functions
Description

Receiver Communication Channel
RFC_Receiver

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7. Execute the function module STFC_CONNECTION using the transaction SE37

8. Use the configured RFC destination “XI” as the “RFC Target sys” parameter. And supply some request text (“Request_Text”) and execute the function module.
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9. The result:

![Test Function Module: Result Screen]

10. Refer to the following ABAP code snippet for executing the STFC_CONNECTION programmatically instead of using the user interface shown above.

*** Call STFC_CONNECTION to send/receive request/response to/from XI***

```abap
DATA: v_msg_text(80) TYPE C. "Message text

..........
CLEAR v_msg_text.
CALL FUNCTION 'STFC_CONNECTION'
    DESTINATION 'XI'
    EXPORTING
        requetext       = 'REQUEST_TEXT'
EXCEPTIONS
    communication_failure = 1 MESSAGE v_msg_text
    system_failure        = 2 MESSAGE v_msg_text.

IF SY-SUBRC NE 0.
   ***Write your code here***
ELSE.
   ***Write your code here***
ENDIF.

..........
```

11. Check the Integration Engine monitor for the processed XML messages (SXMB_MONI):

Shows Sender Interface:
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Monitor for Processed XML Messages

Number of XML Messages Found 2

XML Messages

Show Receiver Interface:

Monitor for Processed XML Messages

Number of XML Messages Found 2

XML Messages
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Shows the Request originating from SAP R/3 (System A):

Shows the Response originating from SAP R/3 (System A)
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