DevTest 10 – SAP JCo Connection Settings

SAP and DevTest Communication Configuration

SAP IDoc communication includes an SAP IDoc client and an SAP IDoc server process. The SAP IDoc client submits an IDoc to an SAP IDoc server for processing. For recording SAP IDoc traffic, the DevTest VSE recorder connects to the SAP IDoc client and to the SAP IDoc server process.

DevTest leverages the SAP JCo API to access SAP systems.

For asynchronous communication SAP JCo requires two connections to each SAP IDoc process: a listener connection for incoming requests and a requester connection for outgoing requests. SAP JCo uses properties files to specify connection settings. Listener connection settings require "jco.server.*" parameters; requester connections use "jco.client.*" parameters in .properties files.

SAP JCo requires a connection name for each connection.

In this sample demo environment, we have two SAP systems: CR2 and CS2. CR2 hosts the SAP IDoc client process, while the SAP IDoc server process is installed on CS2.

CR2 and CS2 run on *lod1809.ca.com* and on *lod1810.ca.com*, respectively.
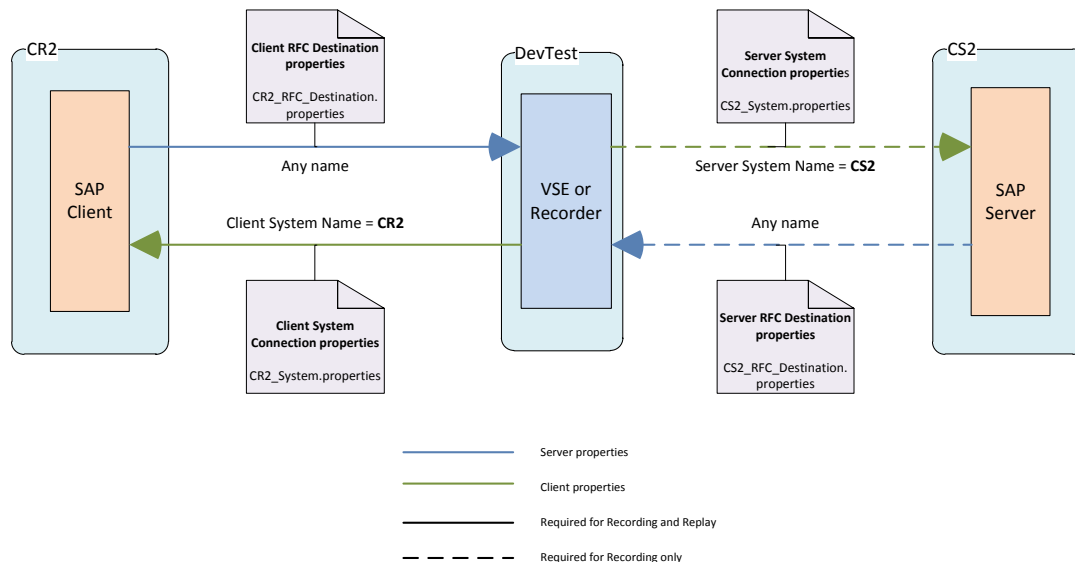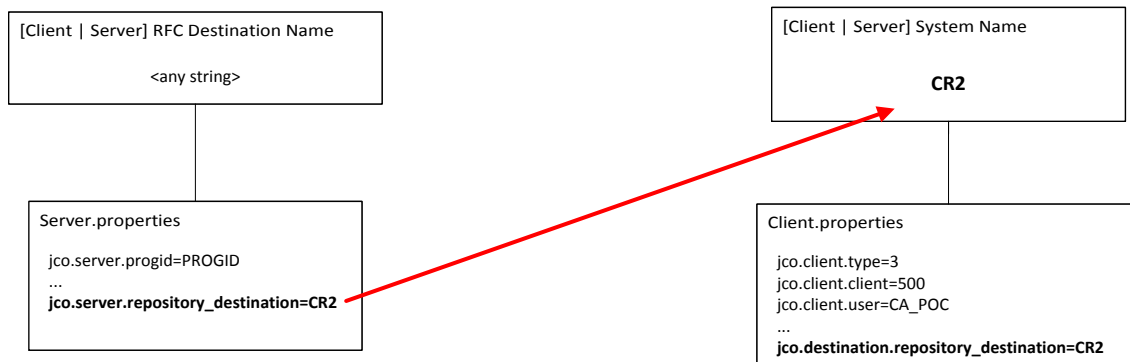

Figure 1 - DevTest-to-SAP communication

In the figure above, each communication link has assigned a name and a SAP JCo .properties file. The associated parameter names are in bold as they show up in the VSE recorder in DevTest Workstation and in the Virtual Service Model created from the recording. Note that both the connection settings for communication between DevTest and SAP IDoc Server are not required during replay unless you require Live Invocation.

IDoc Meta Data Repository

All connection settings to SAP IDoc systems require the definition of a repository connection. The repository contains Meta data of every IDoc definition, and is therefore called IDoc Meta Data Repository. For each IDoc that is sent or received, SAP JCo retrieves the Meta data once per session.

In the VSE Recorder wizard of DevTest Workstation to record SAP IDoc traffic,

- "RFC Destination Name" defines the name of a passive listener connection to a SAP system.
- "System Name" specifies an active requester connection to a SAP system. Both get SAP JCo connection names assigned.
- The prefix of "Client" or "Server" defines whether this is a connection to the SAP client or to the SAP server, as in the diagram above.

```
[Client | Server] RFC Destination Name

        <any string>


Server.properties

  jco.server.progid=PROGID
  …
  jco.server.repository_destination=CR2
```

```
[Client | Server] System Name

        CR2


Client.properties

  jco.client.type=3
  jco.client.client=500
  jco.client.user=CA_POC
  …
  jco.destination.repository_destination=CR2
```

- Client properties connection settings contain the repository specification;
- Server properties connection settings refer to the SAP client connection name (CR2) and use the referred client properties with the intended repository definition to access the IDoc Meta Data Repository.

SAP JCo Connection Settings

The following screenshots show DevTest configuration settings used in the SAP environment to demonstrate SAP IDoc recording.
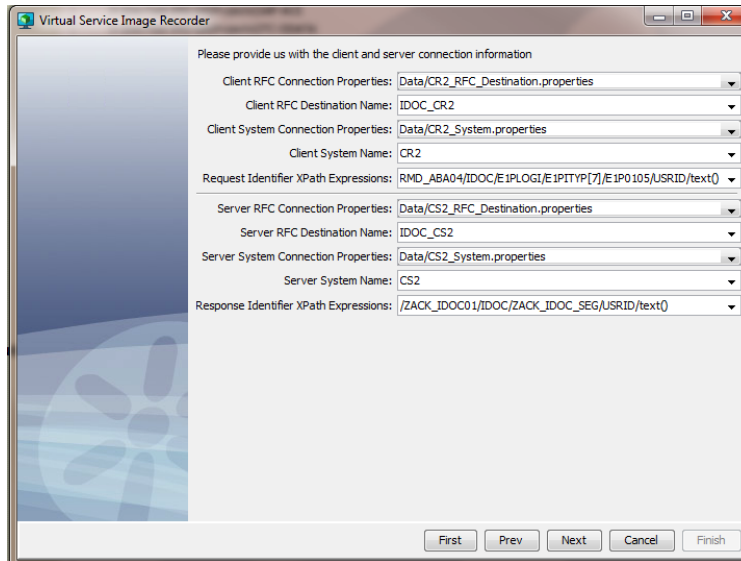
Figure 2 - VSE Recorder settings

When creating the Virtual Service from recording or from RR pairs, the settings are copied into the JCo IDoc Listener and JCo IDoc Live Invocation steps of the Virtual Service model (.vsm file).
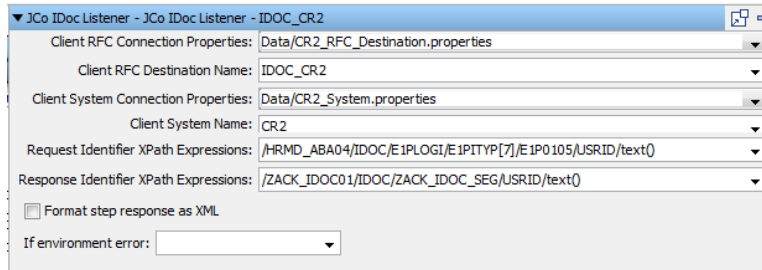

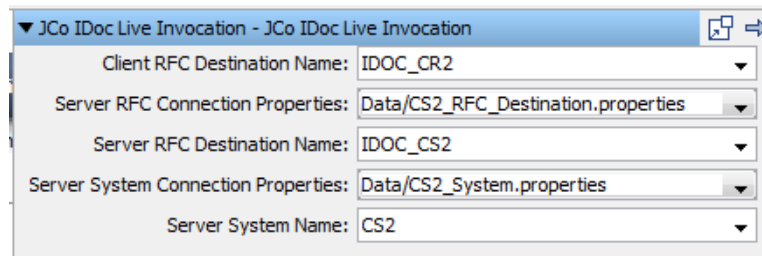*Figure 3 - JCo IDoc Listener step settings*

Figure 4 - JCo IDoc Live Invocation step setting

The SAP Client side settings:

Parameter Name	Settings	Explanation
Client RFC Connection Properties	Data/CR2_RFC_Destination.properties	Path to SAP JCo properties file with connection settings for the listener connection to the SAP client.
Client RFC Destination Name	IDOC_CR2	SAP JCo Connection name for the listener connection to the SAP client. Can be any name, must be unique.

3

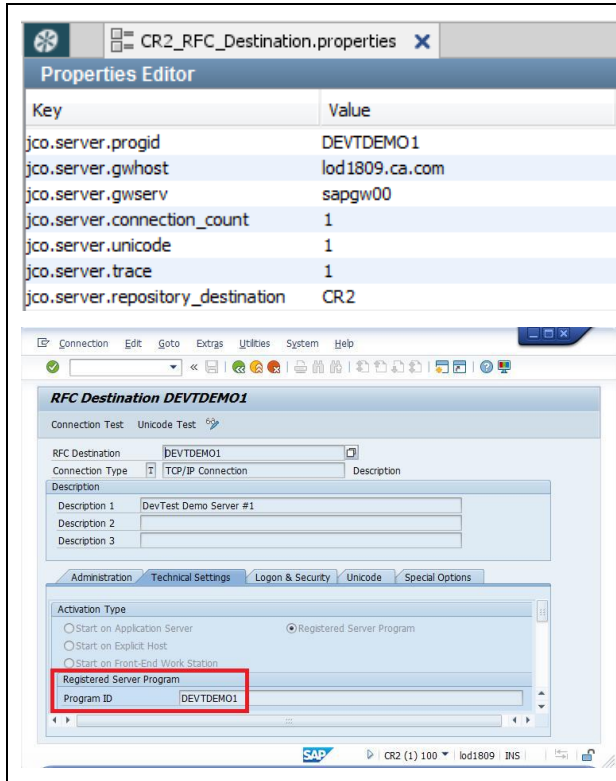|		Important: If using connections to different SAP systems (in different virtual services) this name must be unique across all virtual services. It must also be different from the "Server RFC Destination Name" property.
Client System Connection Properties	Data/CR2_System.properties	Path to SAP JCo properties file with connection settings for the requester connection to the SAP client.
Client System Name	CR2	SAP JCo Connection name for the requester connection to the SAP client. **Important: This name is referred in CR2_RFC_Destination.properties to obtain the name of the IDOC Meta data repository.**
Request Identifier XPath Expressions	/HRMD_ABA04/IDOC/E1PLOGI/E1P0105/USSRID/text()	XPath query to locate the ID in the IDoc to match the IDoc response

The SAP Server side settings:

Parameter Name	Settings	Explanation
Server RFC Connection Properties	Data/CS2_RFC_Destination.properties	Path to SAP JCo properties file with connection settings for the listener connection to the SAP Server.
Server RFC Destination Name	IDOC_CS2	SAP JCo Connection name for the listener connection to the SAP server. Can be any name, must be unique. **Important: If using connections to different SAP systems (in different virtual services) this name must be unique across all virtual services. It must also be different from the "Client RFC Destination Name" property.**
Server System Connection Properties	Data/CS2_System.properties	Path to SAP JCo properties file with connection settings for the requester connection to the SAP server.
Server System Name	CS2	SAP JCo Connection name for the requester connection to the SAP server. **Important: This name is referred in CS2_RFC_Destination.properties to obtain the name of the IDOC Meta data repository.**
Response Identifier XPath Expressions	/ZACK_IDOC01/IDOC/ZACK_IDOC_SEG/USRID/text()	XPath query to locate the ID in the IDoc to match the IDoc response

Access to both systems is configured as similar as possible: using identical client IDs, user IDs, password, and "Program ID" settings in RFC Destination names (ProgIDs) on both SAP systems CR2 and CS2. These settings are explained in following sections.
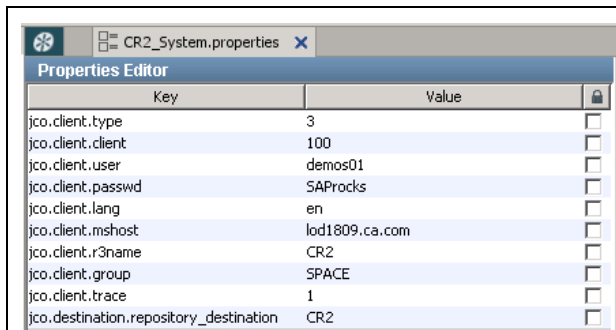
SAP IDoc Client connections

The virtual service and the VSE recorder listen for IDoc requests from CR2 per RFC Destination DEVTDEMO1. This RFC Destination is configured in SAP system CR2. It does not require a client ID, user ID or password. "sapgw00" is the default SAP gateway service. It resides on *lod1809.ca.com* and must be configured in etc/services on the local Workstation for recording and on the VSE system for replaying the virtual service. Usually "sapgw00" maps to "3300/tcp".

- **progid** contains the Program ID of the Registered Server Program configured in RFC Destination in SAP for VSE to register with.
- **gwhost** defines the FQDN of the AP system to register with.
- **gwserv** specifies the SAP gateway service name. This name must be configured in etc/service. It usually maps to "3300/tcp".
- **connection_count** sets the limit of concurrent connections this JCo application can handle.
- **unicode = 1** enables usage of Unicode on this connection. Unicode usage must also configured for the RFC destination in SAP. Please see SAP RFC Destination Test.
- **trace = 1** enables basic tracing of data on this connection. **0** disables.
- **repository_destination** refers to a Client destination from which to obtain the repository data.

VSE recorder and the virtual service will forward IDoc responses from CS2 (lod1810.ca.com) to the CR2 system actively. For this purpose we need a .properties file that actively connects to the CR2 system. CR2 provides a SAP message server (jco.client.mshost) that VSE recorder and virtual service will send the IDocs to.

- **type = 3** means this is a SAP R/3 connection.
- **client** is the SAP client ID for the user.
- **user** and **password** are the credentials to log into SAP under the given client.
  Note: This user ID must have read privileges for IDoc Meta Data in the IDoc Meta Data Repository
- **lang** is a two character acronym that determines the Log in language.
- **mshost** is the FQDN of the SAP Message server to connect to.
- Setting of **mshost** also requires settings of

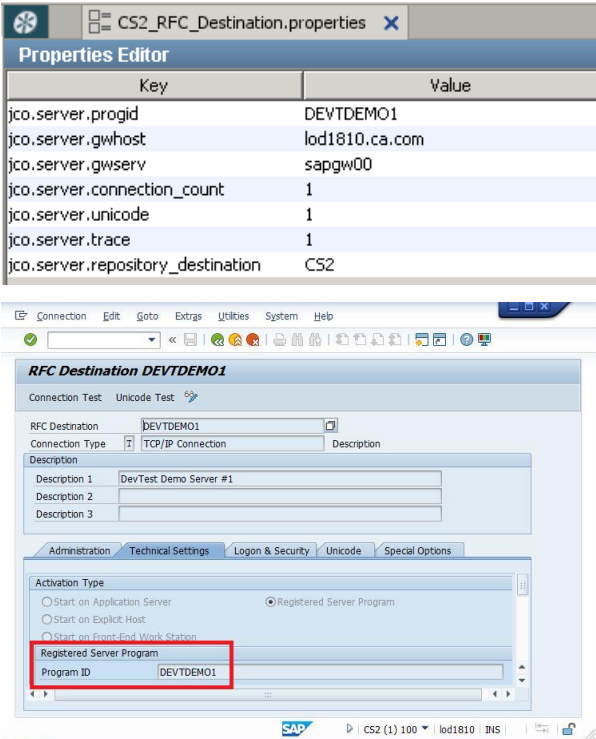|	
	○ **r3name**, which is the SAP name to connect to ○ **group**, which is the SAP application group to send the IDoc to for processing. **trace = 1** enables basic connection tracing **destination.repository_destination** identifies the SAP name where the repository resides that hosts the IDoc Meta data.

When using a SAP message server to connect to, parameters

- jco.client.r3name, and
- jco.client.group

must also be specified in order to address the correct SAP process.

SAP IDoc Server connections

The VSE recorder listens for IDoc responses from CS2 system per RFC Destination DEVTDEMO1. This RFC Destination is configured in CS2. "sapgw00" is the default SAP gateway service. It resides on *lod1810.ca.com* and must be configured in etc/services on the local Workstation for recording and on the VSE system for replaying the virtual service.

	progid contains the Program ID of the Registered Server Program configured in RFC Destination in SAP for VSE to register with. **gwhost** defines the FQDN of the AP system to register with **gwserv** specifies the SAP gateway service name. This name must be configured in etc/service. It usually maps to "3300/tcp". **connection_count** sets the limit of concurrent connections this JCo application can handle. **unicode = 1** enables usage of Unicode on this connection. Unicode usage must also configured for the RFC destination in SAP. Please see SAP RFC Destination Test. **trace = 1** enables basic tracing of data on this connection. **0** disables. **repository_destination** refers to a Client destination from which to obtain the repository.

VSE recorder and the virtual service will forward IDoc requests from CR2 (*lod1809.ca.com*) to the CS2 system actively. For this purpose we need a .properties file that actively connects to the CS2 system. CS2

provides a SAP message server (jco.client.mshost) that VSE recorder and virtual service will send the IDocs to.

- **type = 3** means this is a SAP R/3 connection.
- **client** is the SAP client ID for the user.
- **user** and **password** are the credentials to log into SAP under the given client.
  Note: This user ID must have read privileges for IDoc Meta Data in the IDoc Meta Data Repository.
- **lang** is a two character acronym that determines the Log in language.
- **mshost** is the FQDN of the SAP Message server to connect to.
- Setting of **mshost** also requires settings of
  - **r3name**, which is the SAP name to connect to
  - **group**, which is the SAP application group to send the IDoc to for processing.
- **trace = 1** enables basic connection tracing
- **destination.repository_destination** identifies the SAP name where the repository resides that hosts the IDoc Meta data.

SAP Server Connection Alternatives

To connect to a SAP Service, clients can either connect to a SAP Application Service, or to a SAP Message Host that routes the SAP requests to the corresponding SAP Application.

When using a SAP message server to connect to, parameters

- jco.client.mshost,
- jco.client.r3name,
- jco.client.group

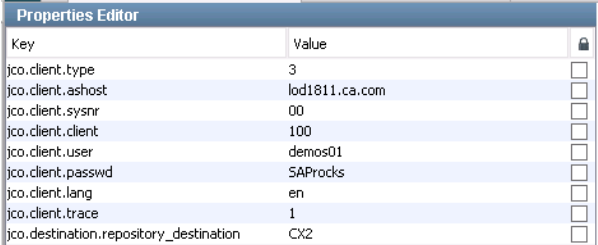must be specified to address the correct SAP system.

- **type = 3** means this is a SAP R/3 connection.
- **client** is the SAP client ID for the user.
- **user** and **password** are the credentials to log into SAP under the given client.
- **lang** is a two-character acronym that determines the Log in language.
- **mshost** is the FQDN of the SAP Message server to connect to.
- Setting of **mshost** also requires settings of

	○ **r3name**, which is the SAP name to connect to ○ **group**, which is the SAP application group to send the IDoc to for processing. **trace = 1** enables basic connection tracing **destination.repository_destination** identifies the SAP name where the repository resides that hosts the IDoc Meta data.

Accessing the SAP Application service directly, requires the setting of

- jco.client.ashost,
- jco.client.sysnr

instead.

	type = 3 means this is a SAP R/3 connection. **lang** is a two character acronym that determines the Log in language. **ashost** is the FQDN of the SAP Application server to connect to. - Setting of **ashost** also requires settings of ○ **sysnr**, which is the two-digit SAP System ID **client** is the SAP client ID for the user. **user** and **password** are the credentials to log into SAP under the given client. **trace = 1** enables basic connection tracing **destination.repository_destination** identifies the SAP name where the repository resides that hosts the IDoc Meta data.

Properties Editor

Key	Value	🔒
jco.client.type	3	☐
jco.client.ashost	lod1811.ca.com	☐
jco.client.sysnr	00	☐
jco.client.client	100	☐
jco.client.user	demos01	☐
jco.client.passwd	SAProcks	☐
jco.client.lang	en	☐
jco.client.trace	1	☐
jco.destination.repository_destination	CX2	☐

Document Changes

Version	Date	Primary Author	Description
1.0	30/06/2016	Ulrich Vogt	Initial version