XI/PI/PRO/CPI - CheatSheet

SAP NetWeaver Process Integration

SAP NetWeaver Process Orchestration

SAP Cloud Platform Integration

🛒 Product Overview

SAP PI	(Formerly known as: SAP XI, SAP Exchange Infrastructure); stands for *SAP Process Integration*. It is a NetWeaver coponent which acts as an EAI and lets you build interfaces with mapping and routing.
SAP PRO	(Formerly known as: SAP PO); stands for *SAP Process Orchestration*. SAP PRO is a bundle of SAP PI, SAP BRM and SAP BPM.
SAP CPI	(Formerly known as: SAP HCI, SAP HCP-IS, SAP Hana Cloud Platform Integration); stands for *SAP Cloud Platform Integration*. The CPI is a cloud-based (hosted in SAP Cloud Platform) integration platform built up on the OSS Apache Camel framework.

🔒 SSL, TLS, PGP, ... (All Stacks)

How to check quickly if TLS 1.2 is enabled?

A good indicator is the version of the used iSaSiLk library. If version is 4.5, the PI doesn't support TLS 1.1/1.2. If iSaSiLk has version 5.104 there are good chances, that TLS 1.2 is supported (because 5.104 usually will be installed, when doing the TLS 1.2 patches).

How to activate TLS 1.2 in AS Java?

To enable TLS 1.1 and TLS 1.2 support for SAP PI (AS Java) read the contents of SAP note 2417205. It contains further notes which explain to check and update TLS support.

How to activate TLS 1.2 in AS ABAP

Ensure that the used *CommonCryptoLib* has release 8.4.3.1 or later. (Update infos in note 1848999.) If you want to force TLS 1.2, read note 2384243.

How to force TLS 1.2?

If your SAP PI is TLS 1.2 ready, and you want the HTTP receiver channel to use explicitly TLS 1.2, then you can add the parameter `httpsP ro t ocols` with value `TLSv1.2` in the channels module tab. Further explanation can be found in note 2393811.

How to support ECDHE chipher suites?

As explained in Note 2538934 none of the SAP PI/PRO releases supports any kind of ECDHE ciphersuites. Either ask the partner to allow a non-ECDHE cipher suite or use an external SSL-handler like mitmproxy (https://goo.gl/yemrrV) for example.

What cipher suites are supported by SAP PI?

The ciphersuites which are activated by default can be seen in SAP note 2538934. Instructions on how to change the supported ciphersuites can be found in note 2616983.

🔒 SSL, TLS, PGP, ... (All Stacks) (cont)

How to get SSL certificate from...

▸ **HTTP;** open the website in a browser, click the *lock*-icon and save certificate or use the *Realcore Support Tools for SAP PI/PO.*

▸ **Mail, SFTP;** use the OpenSSL commandline utilities or the *Realcore Support Tools for SAP PI/PO.*

▸ **FTPs;** use the OpenSSL commandline utilities with command: `openssl s_client -connect <ip -of -se rve r>: <po rt> -show`

▸ **Other;** try to use *OpenSSL* toolset. Otherwise ❯ Google.

How to convert OpenSSH key to PKCS12?

To create a PKCS12 keystore from OpenSSH key, you need the OpenSSL commandline tools.

▸ First create a certificate from the private key: `openssl req -new -x509 -key <pr iva te- key -fi len ame> -days 3650 -out`

▸ Now create PKCS12 from private key and certificate: `openssl pkcs12 -export -in <x5 09- cer tif ica te- fil ena me> -in`

How to update TrustedCAs?

▸ **AS Java;** open /nwa/key-storage, select *TrustedCAs* keystore and click import. After import, stop and start the affected communication channel.

▸ **AS ABAP;** open transaction `STRUST` and add the certificate to the (TrustedCAs). If there's no store like that, choose SSL (anonymous/default).

What is "*peer certificate rejected by chainverifier*"-error?

This error usually occurs, when at least one certificate in the chain is invalid. Keep in my, that server certificates are chained (=trusted by higher au

What is a "*SSL common name mismatch*"-error?

This error occurs if the value of the field `CN` (common name) doesn't match the hostname. E.g. server has a cert that matches `server.com`, but is

Can a SSL certificate be issued for an IP address?

In theory SSL/TLS certs can be issued for IP addresses. Nevertheless this is "bad practice" and should be avoided in any case.

How to set-up PGP?

▸ **Create PGP keypair;** To create a PGP keypair you can use *Kleopatra* which can be downloaded at https://gnupg.org/.

▸ **Save key on PI;** the private key has to be stored in SAP PI's filesystem. The standard path is: `/usr/s ap/ <System ID> /<I nstance II`

▸ **Configure bean;** set-up the bean as described in this article: https://goo.gl/R325Xv

Common PGP errors

▸ `PGP Encryption Module: Could not extract private key (org.b oun cyc ast le.o pe npg p.P GPE xce ption: ch`

Either the password setup in the parameter `pwdOwn Pri vateKey` is wrong or the key contains invalid chars. Try to set a simpler key in *Kleopatr*

▸ `PGP Encryption Module: Could not process message, Internal PGP Error (org.b oun cyc ast le.o pe npg p.P GI`
  `parameters`

The JCE unlimited strength policy isn't correct. Check /BC/VerifyJCE if all is green. Otherwise fix like explained here: https://goo.gl/Rt3F7n

▸ `You have requested an applic ation that is currently stopped.`

If this occurs when checking /BC/VerifyJCE, enable the application as explained in note 2606771.

❯_ Unix 101

Test HTTP connection; to test a HTTP(S) connection, use the *wget*-tool:

`wget http(s ):/ /<m yse rve r.d e>: <po rt> /<p ath>`

Test non-HTTP connection; to test a non-HTTP(S) connection, use the *telnet*-tool:

`telnet <my ser ver.de> <po rt>`

›_ Unix 101 (cont)

Test HTTP connection via proxy; to test a HTTP(S) connection via proxy server, use the *wget*-tool:

```
wget -e use_pr oxy=yes -e https_ pro xy= <my pro xy.d e> :<p rox y-p ort> http(s ):/ /<m yse rve r.d e>: <po
```

Test HTTP connection via proxy with auth; to test a HTTP(S) connection via proxy server with user authentication, use the *telnet*-tool:

```
wget -e use_pr oxy=yes -e https_ pro xy= <my pro xy.d e> :<p rox y-p ort> -e proxy_ use r=< proxy user> -e p
e r.d e>: <po rt> /<p ath>
```

Get SFTP-fingerprint; to get the server-fingerprint fo an SFTP server, use:

```
sftp -vv -oPort =<p ort> <us er> @<m yse rve r.d e>
```

Show number of cpus; to show used cpu and number of cores, use:

```
lscpu
```

Show amount of ram; to show amount of ram, swap and current memory status, use:

```
cat /proc/ meminfo
```

Show disk space; to show used, free and total diskspace, use:

```
df -h
```

Get SSL/TLS certificate from a FTPs server; to get the certificate, used by an SFTP server, use openssl toolkit:

```
openssl s_client -connect <server ip> :<s erver port> -showcerts -starttls ftp
```

Delete files older than X days; to delete files (e.g. logs) that are older than X days, use:

```
find . -name '<f ile nam e>' -type f -mtime +<d ays> -delete
```

Hints: In `<fi len ame>`-tag a * can be used as wildcard. Remove `-delete` to do a test-run without deletion.

The < and > symbols mark placeholders. You have to replace them with the actual values of your use-case.

⊞ API & Automation (Both Stacks)

API	OS*	Description
Directory API	JS	**What?** The DirectoryAPI provides a set of over 50 *SOAP webservices* to control, monitor and edit Integration Directory objects. **Where?** To browse through the available APIs open the path`/wsnav igator` on your Java stack, switch to *Provider-System* and click search. On the following wizard pages, you can retrieve the WSDL to test the API e.g. in SoapUI. **When?** Use the DirAPI when you want to download payloads, get monitoring results, edit channels, ... **More?** ▸ Tutorial: https://goo.gl/6hgNFP

⊹ API & Automation (Both Stacks) (cont)

Simple Query	JS	**What?** The Simple Query is an unofficial *HTTP/Post-based web-api* that allows to view and download Integration Directory as also Enterprise Service Repository objects. **Where?** To browse through the available methods open the path`/dir/s upp ort /Si mpl eQuery` for Directory objects or `/rep/s upp ort /Si mpl eQuery` for Respository objects on your Java stack. **When?** Use the Simple Query when you want to access repository objects like Mappings, etc. **More?** ‣ Tutorial: https://goo.gl/js6Tde ‣ To use the API, the API user needs the roles `SAP_XI _AP I_D ISP LAY _J2EE` and `SAP_XI _AP I_D EVE LOP _J2 EE`.
Channel Control	JS	**What?** The ChannelAdmin-Servlet is a subset of DirAPI that allows to start and stop channels via webservice call. **Where?** Call the following url: `/Adapt erF ram ewo rk/ Cha nne lAd min Ser vle t?p arty=&s ervice=&c ha n nel =<n ame >& act ion =<a cti on>`. Replace `<na me>` with channelname and `<ac tio n>` with either *start*, *stop* or *status*. **When?** Use this API to programmatically start/stop/query channels. **More?** ‣ https://goo.gl/o6oAdJ ‣ General tutorial: https://goo.gl/9ML4Vn ‣ Use in ABAP: To use the API, the API user needs the roles `SAP_XI _AP I_D ISP LAY _J2EE` and `SAP_XI _AP I_D - EVE LOP _J2EE`.

✦ API & Automation (Both Stacks) (cont)

RFC via NCO/JCO	AS	**What?** RFC isn't a real API but a protocol/technique to access the ABAP stack from outer systems. You can either call specific function modules via RFC or use generic modules like `RFC_GE T_T ABL E_DATA` to read any table.
		Where? Use a platform-specific RFC connector library like *SAP JCO* for Java or *SAP NCO* for .NET-applications.
		When? Use it e.g. to call function or retrieve data from ABAP stack in C# or Java applications.
		More?
		▸ NCO tutorial: https://goo.gl/DhvUAM
		▸ JCO tutorial: https://goo.gl/K2SyEC
SAP Gui Script	AS	**What?** SAP GUI scripting allows to write scripts which automate tasks in the SAP GUI. Scripts can either be written manually or recorded via a macro recorder.
		Where? Open SAP Logon, log into SAP system, click *Customize Local Layout* button (`Alt+F12`) and choose *Script Recording and Playback....*
		When? Use it for recurring tasks in SAP GUI, which can't be handled with an Z-program or via another API.
		More?
		▸ Base setup: https://goo.gl/V4dwkc
		▸ Macro tutorial: https://goo.gl/eqgVwK
SAPSHCUT	AS	**What?** The sapshcut.exe is commandline tool, which allows to launch SAP Gui with predefined commands and parameters.
		Where? The *sapshcut.exe* is placed in SAP Logon install dir, which is usually located in: `C:\Program Files (x86) \S AP \Fr ont End \SAPgui`. To see all parameters call sapshcut with *-?*-parameter from commandline like: `sapshc ut .exe -?`
		When? Use it to launch SAP GUI with a predefined transaction and (optional) predefined input data.
		More?
		▸ sapshcut.exe usage: https://goo.gl/WYWqgP
		▸ Shortcut file tutorial: https://goo.gl/jM5A5y

🧩 API & Automation (Both Stacks) (cont)

REST Api	CPI	**What?** The OData-API is a REST-based web api to control, manage and edit Cloud Integration Content. It can be seen as counterpart to SAP PI's Directory API. **Where?** The api endpoint itself can be reached via `https: //< tmn >/a pi/v1` whereby the *<tmn>* has to be replaced by your tenant's hostname. API testing can be done with REST-API tools like *Postman*. **When?** Use it to build your own monitoring or automate administation tasks. **More?** ‣ Documentation: https://goo.gl/t4u3dB ‣ API discovery tool: https://goo.gl/Wy8Y1B

*OS = Operational stack; system where the API is available. JS = Java stack, AS = ABAP stack, CPI = Cloud Platform Integration.

📈 Monitoring (ABAP Stack)

Transaction code	Description
SXMB_MONI	Integration engine message monitoring tools.
SXI_MONITOR	Message monitor entry.
SXMB_MONI_BPE	Integration process monitoring tools for Business Processing Engine (BPE) / ccBPM.
SXMS_LMS_ CONF	Configuration of user-defined custom search.
SA38 ❯ SXMS_ EXTRACT_ MESSAGES	(Re-)index messages after changing the user-defined custom search parameters.
SMQ1	Monitor *outbound* message queue.
SMQ2	Monitor *inbound* message queue.
SMQR	Check if queues are registered correctly.
SM58	Transactional RFC monitoring.
SMICM	Internet Communication Manager (ICM) monitoring tools.
SMGW	SAP Gateway monitoring tools.
ST06	Monitoring of system resources. For checking e.g. database space.

📈 Monitoring (Java Stack)

Path	Description
/pimon ❯ Adapter Engine ❯ Message Monitor	AAE message monitoring.
/pimon ❯ Adapter Engine ❯ Communication Channel Monitor	New communication channel monitoring.
/rwb	*Classic* runtime workbench
/mdt/channelmonitorservlet	RWB-based channel monitoring.
/MessagingSystem/monitor/monitor.jsp	"Classic" message system monitoring.
/mdt/amtServlet	Java proxy runtime (JPR) monitoring
/rwb/sub/cache_monitoring/status_table	Cache monitoring status.
/nwa/pi-bcgnd-proc	Show status of background jobs (e.g. clean-up, ...)
/nwa/scheduler	Java scheduler monitoring.
/AdapterFramework/scheduler/scheduler.jsp	Pt. I - Java scheduler monitoring (fallback).
/AdapterFramework/scheduler/monitorscheduler.jsp	Pt. II - Java scheduler monitoring (fallback).
/CPACache/monitor.jsp	CPA cache monitoring.

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🖼 Monitoring (Java Stack) (cont)

/MessagingSystem/monitor/locks.jsp	View locked messages in Java stack.
/nwa/logs	AAE log viewer.
/nwa/java-sys-reports	Quick status overview of system logs.

Paths on the left column, beginning with / have to be appended to the base uri of the PI/PRO system: *http(s)://<hostname>:<port>*

🔧 Administration Tools (Both Stacks)

Path	Description
/rep/support/public/LockAdminService	View and remove ESR object locks.
/nwa/locks	View general Java locks.
/useradmin	User administration (Java).
/nwa/identity	Identity management and user administration.
/nwa/start-stop	Starting, stopping and re-starting of Java instances, services and processes.
/nwa/key-storage	Certificate handling and keystore administration. (Java)
/nwa/destinations	Configure and administrate destionations (e.g. HTTP, IDOC, etc.) in Java stack.
/BC/VerifyJCE	Tool to check supported keysize / encryption strength of PI. Needed e.g. for PGP.
/xpi_inspector	Powerful logging and analysis. More information in S-Note 0001514898. Setup files in S-Note 0002010715
/CPACache/refresh?mode=delta	Trigger CPA cache *delta* refresh.
/CPACache/refresh?mode=full	Trigger CPA cache *full* refresh.
/ftpjdbc	JDBC-, FTP- and XML-Parser test tools. Can be used to show JDBC driver version for example. (You need note 1085539.)

Transaction code	Description
SU01	User administration (ABAP).
STRUST	Certificate handling and keystore administration. (ABAP)
SM59	Configure and administrate destionations (e.g. HTTP, IDOC, etc.) in ABAP stack.
SLDCHECK	Test SLD connection.

🔧 Administration Tools (Both Stacks) (cont)

SLDAPICUST	Configure SLD connection.
SXMB_ADM	Administration of Integration Engine.

Paths on the left column, beginning with /, have to be appended to the base uri of the PI/PRO system: *http(s)://<hostname>:<port>*

💡 Useful Reports (ABAP Stack)

Transaction code	Description
SXMS_EXTRACT_MESSAGES	Re-indexes messages for user-defined custom search.
RSXMB_CANCEL_NO_COMMIT_MSG	Cancel non-restartable messages.
RSXMB_CANCEL_NOT_REST_MESSAGES	Cancel messages which are missing their `commit`.
RSBDCOS0	Execute a system command (OS level).
RSPARAM	Show profile parameters.

Be aware: If you are not sure how the programs behave, you should open them first in `SE38` or `SE80` and check their source code. Only run them directly via `SA38` if you know, what you are doing!

☁ Configure system proxy (Both Stacks)

Stack	How to
Java	*Check:* To do a quick check of the global proxy settings, open the following path on your PI/PO/PRO: /proxy_settings.jsp *Configure:* To configure the global proxy settings, open the path: /nwa/middleware-settings
ABAP	*Check & Configure:* Open transaction `SICF` and press `F8`. Go to the *Client*-menu entry and then select *Proxy-Settings*.

🔍 Readout Passwords (Both Stacks)

Passwords from SAP PI users

There is no universal way to grab passwords from PI users, but as long as there is an interface, sending data to the PI via SOAP or HTTP there is a good chance of getting the password. Even here you have two options:

▸ Open the receiving SOAP sender channel in the Integration Directory/NWDS. Switch to the *Modules*-tab and add a parameter to the adapter's own module with the following values: Parameter Name=`TraceHTTP`, Parameter Value=`plain`. The resulting logs with all header data can be found in /nwa/logs. Search for the `Author iza tion:`-header which should contain the user's password as Base64 string.

▸ If the adaptermodule isn't available, you could trace the incoming requests with /xpi_inspector. After creating the traces, search for the `Autho r ization`-header as explained above.

☺ NWDS Lifesaver

Where can I get NWDS 7.5 quick and easy?

Following the click instructions from this article: https://goo.gl/RQ7fW3

NWDS doesn't start and does not show anything while opening.

The NWDS can't find a suitable JRE/JDK. Add the `-vm`-paramter into the NWDS .ini-file.

NWDS throws an exception during the startup and then closes again.

NWDS needs a 32-bit (x86) jdk. (Even if your Windows installation is x64!)

NWDS complains about a wrong JDK (non-SAP) version.

Either click "cancel" and simply ignore the error or search in OneNote for the "JVM vendor not supported" article.

NWDS crashes with *"Unhandled event loop exception - Java heap space"* exception.

Raise the values `Xmx` and `XX:Max Per mSize` in the NWDS .ini-file which lays beneath the NWDS-/Eclipse.exe file.

How to avoid the annoying re-login dialogs?

Open NWDS and follow the menu path: *Preferences* ❯ *PI Tools Configuration* ❯ *Tool-Specific* ❯ *Session-Timeout*. Raise the timeout value.

How to set-up a Java mapping?

Read the following step-by-step tutorial: https://goo.gl/n9JCaU

Using "XPath containing whitespaces" doesn't work.

Be sure to just add one XPath by double-clicking. This is necessary to add the namespaces. (You can remove the added XPath after the action.)

⚙ Adapter Modules (Java Stack)

Module Name	Description
General beans	
DynamicConfigurationBean	Mod.-Name: `AF_Mod ule s/D yna mic Con fig ura tio nBean` *Used to append, edit or delete entries of the DynamicConfiguration section of the XI3.0 header.*
PayloadSwapBean	Mod.-Name: `AF_Mod ule s/P ayl oad Swa pBean` *Used to switch the main message payload with an message attachment, defined by the module's parameters.*
PayloadZipBean	Mod.-Name: `AF_Mod ule s/P ayl oad ZipBean` *Used to zip or unzip a payload. Whn unzipping an archive with multiple files, those will be added as attachments.* ❶ Pro tip: *Use the undocumented parameter* `gunzip` *to unzip .gz (GZip) files.*

⚓ Adapter Modules (Java Stack) (cont)

MessageTransformBean	**Mod.-Name:** `AF_Mod ule s/M ess age Tra nsf ormBean` *Used to transform messages, change the XML, add/edit MIME-types, etc. The module can load custom/external Java tranformation classes.*
StrictXml2PlainBean	**Mod.-Name:** `AF_Mod ule s/S tri ctX ml2 Pla inBean` *Used to convert XML payload to plain(text) files. Became obsolete in some way by the* `Messag eTr anf ormBean`*.*
TextCodepageConversionBean	**Mod.-Name:** `AF_Mod ule s/T ext Cod epa geC onv ers ionBean` *Used to swap the code page of the main payload of the XI message and also convert its content.*
XiHeaderValidationBean	**Mod.-Name:** `XiHead erV ali dat ionBean` *Used to validate header information of outbound messages.*
XMLAnonymizerBean	**Mod.-Name:** `AF_Mod ule s/X MLA non ymi zerBean` *Used to anonymize XML elements/attributes by removing namespaces or namespace prefixes. Also the encoding attribute of the XML declaration can be changed.*
Sync-Async-Bridge beans	
RequestResponseBean	**Mod.-Name:** `AF_Mod ule s/R equ est Res pon seBean` *Used in async-sync bridges to convert the asynchronous request to a synchronous one. Used in combination with RequestOnewayBean.*
RequestOnewayBean	**Mod.-Name:** `AF_Mod ule s/R equ est One wayBean` *Used in async-sync bridges to redirect a synchronous response to an sync interface.*
NotifyResponseBean	**Mod.-Name:** `AF_Mod ule s/N oti fyR esp ons eBean` *Used in sync-async bridges to sent out (create) a response message.*
WaitResponseBean	**Mod.-Name:** `AF_Mod ule s/W ait Res pon seBean` *Used in sync-async bridges to wait for a response message.*

To develop your own module, read the section "Module Development" on this SAP page:https://goo.gl/1mmyxz and also check the sources of this open-source project: https://goo.gl/We4ghm

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📄 IDOC Handling (Both Stacks)

Path	Description
/pimon ❯ Adapter Engine ❯ IDOC adapter monitor	IDOC message monitoring.
/pimon ❯ Adapter Engine ❯ IDOC adapter monitor ❯ Metadata monitor	Maintenance of IDOC metadata.

Transaction code	Description
IDX_NOALE	Configuration (including suppression) of IDOC acknowledgements.
IDX1	Maintenance of port configuration.
IDX2	Maintenance of IDOC metadata.
IDX5	IDOC message monitoring.
WE02	Display IDOCs.
WE05	List IDOCs.
WE20	Configure partner agreements. (Mostly done on ERP system side, but nevertheless helpful.)

To use the Java-stack IDOC monitoring, you need either the `NWA_SU PER ADM IN_ PI_IDOC` or the `NWA_RE ADO NLY _PI _IDOC` role.

❶ If Java-IDOC-monitoring doesn't show any messages, you have to activate it first. Go to /nwa ❯ Configuration ❯ Infrastructure ❯ Application Resources. Then choose "Resource adapters", then "JavaIdocAdapter" and then set the *persistance*-property to *true*.

🗐 IDOC Setup (Java Stack)

SAP PI to ERP (configuration on PI)
 ▸ Create default IDOC destination in /nwa with name scheme `XI_IDO C_D EFA ULT _DE ST_ <SI D>_ <CL NT>`. After creating the destination check it with the *ping destination* button.
 ▸ Use this destination in the IDOC receiver channels.

SAP PI to ERP (configuration on ERP)
 ▸ Create a user for the SAP PI system, which can be used in the SAP PI destination. (As explained above.) Usually this user is named: `Z_CPI C.`

ERP to SAP PI (configuration on PI)
 ▸ You have to create a IDOC-resource-adapter on PI. Go to /nwa ❯ Configuration ❯ Infrastructure ❯ Application Resources. Click *Create New Resource* ❯ *New Resource Adapter*.
 ▸ Choose *SAPJRATemplate* and name the adapter like this: `inboun dRA _<S ID> _<C LNT>.`
 ▸ Define the values for *ProgramId*, *GatewayServer* and *GatewayService* in the resource adapter's properties. Afterwards give those values to the ERP administrator.
 ▸ Use this resource adapter in the IDOC sender channels.

⚐ IDOC Setup (Java Stack) (cont)

ERP to SAP PI (configuration on ERP)

▸ Open transaction `SM59` and create a destination of type `T`.

▸ Set the fields *ProgramId*, *GatewayServer* and *GatewayService* with the values received from the SAP PI administrator.

▸ Activate *Unicode* in the destination's settings.

▸ Use the newly configured destination in the partner agreement/ALE configuration in transaction `WE20`.

🛏 Fight Timeouts (Both Stacks)

Where / What	How to set?
Soap-A-dapter | Sender	Open channel. Add parameter to the adapter's own module at the module tab. If *Module Name* is `CallSa pAd apter` name the parameter `syncTi meout`. If *Module Name* is `...XIS OAP Ada pte rBean` then name the parameter `XI.Timeout`. Give the timeout in milliseconds as parameter value.
Soap-A-dapter | Receiver	Open channel. Add parameter to the adapter's own module at the module tab. Use `XMBWS.T imeout` as parameter name and set the timeout in milliseconds as parameter value.
JDBC-A-dapter | Receiver	There are two points to configure timeout: 1 - module tab, 2 - Advanced Mode parameters. 1) Switch to module tab, add a paramter-set to the adapter's own module. Use `syncTi meout` as parameter name and set the timeout in milliseconds as parameter value. 2) Switch to *Advanced*-tab, check *Advanced Mode* and add the following two parameters to the *Additional Parameters*-table: `query T imeout` with timeout in seconds (e.g. `600` for 10 minutes). `sqlque ryt imeout` with timeout in seconds (e.g. `600` for 10 minutes).

⛏ Fight Timeouts (Both Stacks) (cont)

Adapter Engine | Sender	Introduction: *Useful for sync ABAP proxy interface from ERP to Single Stack. SOAP Sender timeout only configures how long the sender channel will wait for response from PI pipeline. To define how long the SOAP sender channel will keep the connection to the sending ERP/ABAP proxy open, you can use the following setup.* Go to `/nwa` ❯ Configuration ❯ Infrastructure ❯ Java System Properties ❯ Services. Choose the entry `XPI Adapter: XI`, switch to its `Properties`-tab and set the timeout in milliseconds for the parameter named `xiadap ter.in bou nd.t im eou t.d efault`. ❶ Be careful this affects all incoming synchronous SOAP/XI communication! To trigger the new parameter, restart the adapter. Therefore go to `/nwa` ❯ Operations ❯ Systems ❯ Start &Stop ❯ Java Services. Select `XPI Adapter: XI` and click *restart*-button.
Integration Engine | Receiver	Introduction: *If you're sending data from Integration Engine or ERP, etc. systems, usually the default ICM timeout is used. You have two options to raise this timeout.* 1) Open transaction `sm59`, open the appropriate destination, switch to the *Special Options*-tab and configure the `Set timeout` option. 2) Raise the global ICM timeout by opening transaction `RZ11`, then open the parameter `icm/co nn_ timeout` and change its value. In addition open the RZ11-parameter `icm/se rve r_p ort _<x x>` and set the parameter `TIMEOU T=< timeout in s>`. ❶ Attention: This change is system-wide and needs a restart of the ABAP-stack afterwards.

🛌 Fight Timeouts (Both Stacks) (cont)

Integration Engine | Processing	Introduction: *Besides network timeouts also processing timeouts can occur when processing in IE/AAE takes longer than configured.* To raise the global ICM processing timeout, open transaction `RZ11`, then open the parameter `icm/se rve r_p ort _<x x>` and append the following value-pair to its parameter `PROCTI MEO UT= <ti meout in s>`. ❶ Attention: This change is system-wide and needs a restart of the ABAP-stack afterwards. Learn more over here: https://goo.gl/Sh5Jfp 💡 Hint: *If you want to test this changes without restart, you can make them temporary (until next restart) by opening transaction `smicm`, opening "Services" (`Shift+F1`) and doing the changes there.

🚀 Tools to rocket your productivity

Realcore Developer Suite for PI/PO: Helps to compare ESR object or create mapping or interface documentations. *Available via SAP Appstore or Realcore Sales Team.*

Realcore Support Tools for PI/PO: Helps to quickly create support/error mails with payload attachments, download payloads to disk, solve SSL errors and much more. *Available via Realcore Sales Team.*

SoapUI: Useful for SOAP webservice testing and for creation of SOAP/REST webservices (=mockup services). Choose OpenSource/Community edition. https://goo.gl/qD42Z9

Postman: Helps to test REST apis including header and payload handling. https://goo.gl/7pgbFV

DBeaver: Helps to view, edit and work with nearly any database. Runs without installation. https://goo.gl/zqGDA9

Notepad++ (+ XML Tools): The XML swissknife/editor. Go to plugin manager and install "XML Tools". https://goo.gl/zAsd4N

Fiddler: Sniffing proxy to view raw HTTP requests. Is even able to decrypt and view HTTPS traffic. Useful for analysis. https://goo.gl/rSWeFA

🔗 Helpful Resources

Overview of NWA short links: https://goo.gl/YB3CYU

List of useful transactions and short-urls: https://goo.gl/ky1m5F

Note: *The entries above contain links to helpful web-resources. For better readability all links were shortened.*