

CONFIGURATION OF MQ COMMUNICATIONS FOR THE A2A COMMUNICATION INTERFACE

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I Background

KDPW’s electronic communications via the A2A communication interface is implemented using MQ connections set up with the MQ manager A2Aenv, where env stands for the environment: PRD – production environment, TST – test environment. The test environment of the MQ communication layer may include several test environments for different services.

II MQ manager configuration

II.1. A2Aenv queue manager configuration attributes

Some of the A2Aenv queue manager configuration attributes are different from the IBM default values. The following are relevant to communications with third parties (Participants):

QM attribute	Default value	A2Aenv value
CCSID	<i>depends on platform</i>	819
MAXMSGL	4 194 304	104 857 600
VERSION	<i>none</i>	09010001

II.2. A2Aenv queue manager network parameters

Communications with A2Aenv MQ managers use TCP/IP protocols. The queue manager network parameters are as follows:

Service environment	Queue manager name	IP address	TCP port
PRD	A2APRD	195.136.21.56	1434
TSTA	A2ATST	195.136.21.57	1434
TSTB	A2ATST	195.136.21.57	1434

III Available MQ connectivity options

The A2Aenv MQ manager supports simultaneous MQ traffic for various services provided by KDPW. According to internal standards, each service available to Participants in each environment is assigned a different set of MQ channels, which gives KDPW more flexibility to align with Participants’ complex IT infrastructures.

KDPW’s internal standard includes two types of two-way MQ connections with third parties:

- 1) client-to-server, using one server connection channel (SVRCN)

In this configuration, KDPW A2Aenv queue manager defines an MQ channel and two local MQs: input (INP) which handles messages from the Participant to KDPW, and output (OUT) which handles messages from KDPW to the Participant. An MQ client on the Participant’s end connects with the queue manager via the channel.

- 2) server-to-server using two channels (SDR-RCVR)

In this configuration, a queue manager is used both on KDPW’s and on the Participant’s end. Two MQ channels are defined on KDPW’s end: a sender channel and a receiver channel. The participant’s queue

manager handles corresponding channels. Two MQs are handled on KDPW’s end: local input (INP) which handles messages from the Participant to KDPW, and remote output (OUT) which handles messages from KDPW to the Participant. The Participant’s queue manager handles corresponding MQs: remote output (INP) which handles messages to KDPW and local input (OUT) which handles messages from KDPW.

IV System user authentication

The key MQ connection authentication mechanism is the TLS protocol with PKI certificates issued by KDPW’s Certification Authority. A single certificate is issued to each Participant in both communication layer environments: PRD and TST. It can be used to authenticate the Participant’s system (an MQ client or an MQ manager) when setting up the connection to the A2Aenv queue manager for any service set up for the Participant.

V MQ channel configuration

V.1. MQ channel configuration attributes

Some of the MQ channel configuration attributes in the A2Aenv queue manager are different from the IBM default values. The following are relevant to communications with Participants:

QM attribute	Default value	A2Aenv channel value
COMPMSG	NONE	ZLIBFAST
DISCINT	999999	6000
MAXMSGL	4 194 304	104 857 600
SSLCIPH		TLS_RSA_WITH_AES_256_CBC_SHA256
SSLPEER		<i>Common name taken from the “subject” field of the counterparty’s certificate</i>

For server-to-server connections, the same values must be set up in the Participant’s queue managers. In this configuration, to enable KDPW’s queue manager name verification, the following channel attributes must be set up on the Participant’s end:

Environment	MQ channel attribute	Participant’s MQ channel value
PRD	SSLPEER	CN=A2APRD
TSTA	SSLPEER	CN=A2ATST
TSTB	SSLPEER	CN=A2ATST

V.2. MQ channel name schema

The names of all MQ communication channels handled by A2Aenv queue managers must follow the schema below:

srv.senv.code.con

where:

srv - service

serv – service’s environment name (available values: PRD, TSTA, TSTB)

code – Participant’s code within the service

con – connection type:

C – server connection (*SVRCN) for client-to-server,

KU – KDPW-Participant for server-to-server, receiver (*RCVR) on Participant’s end,

UK – Participant-KDPW for server-to-server, sender (*SDR) on Participant’s end.

VI Handling COA for server-to-server connections

Some of KDPW’s services use Confirmation of Arrival (COA) MQ reporting to log the arrival of MQ messages. To enable the transmission of confirmations to the A2Aenv queue manager, the queue manager on the Participant’s end must be configured as follows:

1) If the name of the transmission queue to the A2Aenv queue manager in KDPW is different than the manager name (depending on the PRD/TSTA/TSTB environment), set up a manager alias in the Participant’s queue manager.

Example for KDPW’s A2ATST queue manager:

```
DEFINE QREMOTE (A2ATST) RNAME(' ') RQMNAME(A2ATST)
```

```
XMITQ(name_of_transmission_queue_to_A2ATST)
```

2) Grant +put and +passid authority to the transmission queue for the user whose name is defined in the MCAUSER field of the *RCVR channel handling communications with KDPW in the Participant’s queue manager.

VII MQ queue configuration

VII.1. MQ queue configuration attributes

Some of the MQ queue configuration attributes in the A2Aenv queue manager are different from the IBM default values. The following are relevant to communications with Participants:

Queue attribute	Default value	A2Aenv channel value
DEFPSIST	NO	YES
MAXMSGL	4 194 304	104 857 600

For server-to-server connections, the same values must be set up in the Participants’ queue managers.

VII.2. MQ queue name schema

The names of all message queues in MQ communications handled by A2Aenv queue managers must follow the schema below.

srv.env.code.direction

where:

srv - service

serv - service's environment name (available values: PRD, TSTA, TSTB)

code – participant code within the service (Sender ID)

direction - MQ direction (available values: INP – messages from the Participant to KDPW, OUT – messages from KDPW to the Participant)

VIII Fixed values of MQ message MQMD header fields

The following settings should be fixed when developing applications to handle MQ communications with KDPW on the Participant's end:

CodedCharSetId = 1208

IX Participant information required by KDPW

To configure connections handling MQ communications for the Participant's selected service in a given KDPW environment, the Participant is required to provide the following information:

- the selected connectivity option (client-to-server or server-to-server)
- the contact details of the Participant's person responsible for MQ configuration
- the network to handle the connection (Internet/Frame-Relay/MPLS)
- the Participant's IP addresses for connections with A2Aenv
- the contact details of the Participant's person responsible for network configuration
- for the server-to-server configuration also the following:
 - the name of the Participant's queue manager
 - the IP address and the TCP port of the manager's listener. If the Participant has a back-up queue manager(s), their parameters should also be provided.

The information above should be provided by email to di_serwis@kdpw.pl.

X Telecommunication line configuration

Participants may connect with the A2Aenv queue manager via the following networks:

1) Internet

Transmissions must be secured with VPN (Lan to Lan) as follows:

Protocol: IKE/IPSec (ESP)

Authentication: pre-share key

Encryption algorithm: AES-256

Hash function: SHA256 (SHA-1)

2) Frame-Relay

Supported operators: Exatel, Orange

Transmissions must be secured with VPN as follows:

Protocol: IKE/IPSec (ESP)

Authentication: pre-share key

Encryption algorithm: AES-256

Hash function: SHA256 (SHA-1)

3) MPLS

Supported operators: Exatel, Orange

Key MPLS parameters:

L3 type network

BGPv4 routing

Authentication and encryption: TLS protocol with PKI certificates, available in MQ managers.

XI Timeline of actions in the implementation of new A2Aenv queue managers

Date	Event
2020.01.11	A2ATST queue manager is available to third parties
2020.03.07	A2APRD queue manager is available to third parties
2020.01.11	Migration of connections of TR and ARM Participants using the TR communication channel from the TRTST queue manager to the A2ATST queue manager
2020.03.07	Migration of connections of TR and ARM Participants using the TR communication channel from the TRPRD queue manager to the A2APRD queue manager

XII Configuration changes in the migration of connections of TR and ARM Participants using the TR connection channel from the TRenv queue manager to the A2Aenv queue manager

Connections of Trade Repository Participants and ARM Participants who use the TR communication channel in the respective environments *env* (PRD – production environment, TST – test environment) will migrate from the existing TRenv queue managers to A2Aenv queue managers according to the timeline defined above. The migration will change certain connection parameters as presented in the table below.

PRD environment		
Connection parameter	Current value	New value
Queue manager name	TRPRD	A2APRD
MQ version	8.0.0.12	9.1.0.1
Queue manager CCSID	37	819
MQ channel SSL CipherSpec (SSLCIPH)	<i>depends on connection</i>	TLS_RSA_WITH_AES_256_CBC_SHA256

Network (SSLPEER)	node	name	CN=TRPRD	CN=A2APRD
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TST environment				
Connection parameter		Current value	New value	
Queue manager name		TRTST	A2ATST	
MQ version		8.0.0.12	9.1.0.1	
Queue manager CCSID		37	819	
MQ channel SSL CipherSpec (SSLCIPH)		<i>depends on connection</i>	TLS_RSA_WITH_AES_256_CBC_SHA256	
Network (SSLPEER)	node	name	CN=TRTST	CN=A2ATST