

z/OS Client-side Security Exit for Depository Trust Clearing Corporation Installation and Operation Manual



Capitalware Inc.
Unit 11, 1673 Richmond Street, PMB524
London, Ontario N6G2N3
Canada
sales@capitalware.com
<https://www.capitalware.com>

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1 Introduction

1.1 Overview

z/OS Client-side Security Exit for Depository Trust Clearing Corporation (z/SX4DTC²) is a new solution that allows a company to perform verification with a Depository Trust Clearing Corporation queue manager. The client-side security exit operates with IBM MQ v5.3.1, v6.0, v7.0, v7.1, v8.0, v9.0, v9.1 and v9.2 for z/OS environments. It works with Sender, Server, and Cluster-Sender channels of IBM MQ queue manager.

The z/SX4DTC² solution is comprised of a client-side security exit.

The z/SX4DTC² solution is licensed as '*Licensed As Free*' meaning a user can freely download the software and use it (i.e. Same as how IBM licenses MQ Client software.). If the user wants support for z/SX4DTC² then they can purchase a support subscription from Capitalware.

Note: SunGard's Loanet division requires the EXACT same format as the client-side Security Exit for Depository Trust Clearing Corporation. Therefore, if your company is interacting with Loanet and requires a client-side MQ Security Exit, you can use z/SX4DTC².

1.2 Executive Summary

The z/SX4DTC² solution contains a client-side security exit.

The major features of z/SX4DTC² are as follows:

- Performs verification with a Depository Trust Clearing Corporation queue manager
- Provides logging capability for all outbound connection requests regardless if they were successful or not.

1.3 Prerequisites

This section provides the minimum supported software levels. These prerequisites apply to client-side installations of z/SX4DTC².

1.3.1 Operating System

z/SX4DTC² can be installed on any of the following supported servers:

1.3.1.1 IBM z/OS

- IBM z/OS v1.4 or higher

1.3.2 IBM MQ

- IBM MQ for z/OS v5.3.1, v6.0, v7.0, v7.1, v8.0, v9.0, v9.1 and v9.2

2 Installing z/SX4DTC²

This section describes how to install z/SX4DTC².

2.1 Client-side Security Exit

2.1.1 z/OS Installation

To install the SX4DTC² for z/OS, first unzip the **mqsui_zos-setup.zip**. The zip file contains 2 z/OS XMIT prepared datasets.

- **SX4DTC2.LOAD.ZOS** is the XMIT dataset that contains the z/OS load-module.
- **SX4DTC2.SYSIN.ZOS** is the XMIT dataset that contains a sample initialization file for the server-side security exit and sample MQSC script to define MQ channels with the security exits.

Steps to install the server-side security exit:

1. ftp the z/OS XMIT prepared datasets to the z/OS LPAR.

```
ftp -s:mqsui.ftp z/OS_hostname
```

```
your-z/OS-userid  
your-z/OS-password  
  
binary  
quote SITE recfm=fb lrecl=80 blksize=3120  
put SX4DTC2.LOAD.ZOS  
put SX4DTC2.SYSIN.ZOS  
quit
```

If the user receives the following error message then they will need to pre-allocate the z/OS datasets:

```
ftp> put SX4DTC2.LOAD.ZOS  
200 Port request OK.  
550-SVC99 RETURN CODE=4 S99INFO=0 S99ERROR=38656 HEX=9700 S99ERSN code X'000003F3'.  
550 Unable to create data set xxxxx.SX4DTC2.LOAD.ZOS for STOR command.  
ftp> put SX4DTC2.SYSIN.ZOS  
200 Port request OK.  
550-SVC99 RETURN CODE=4 S99INFO=0 S99ERROR=38656 HEX=9700 S99ERSN code X'000003F3'.  
550 Unable to create data set xxxxx.SX4DTC2.SYSIN.ZOS for STOR command.
```

To pre-allocating the XMIT datasets go to option 3.2 of ISPF and allocate both datasets: SX4DTC2.LOAD.ZOS and SX4DTC2.SYSIN.ZOS.

Use the following dataset attributes when allocating both datasets:

Space	
Units	BLOCKS
Primary Quantity	40
Secondary Quantity	40
Directory Blocks	0
DCB Parameters	
RECFM	FB
LRECL	80
BLKSIZE	3120
DsnType	Blank

After the user has pre-allocated the datasets, they can redo the ftp commands.

2. Log on to z/OS LPAR and issue the following TSO RECEIVE commands:

```
TSO RECEIVE INDATASET(SX4DTC2.LOAD.ZOS)
TSO RECEIVE INDATASET(SX4DTC2.SYSIN.ZOS)
```

After issuing the above commands, the following product datasets will appear:

- **+HLQ+.CPTLWARE.SX4DTC2.LOAD** is the dataset that contains the z/OS load-module.
- **+HLQ+.CPTLWARE.SX4DTC2.SYSIN** is a dataset that contains a sample initialization file for the server-side security exit and sample MQSC script to define MQ channels with the security exits.

2.1.2 z/SX4DTC² DataSets

z/SX4DTC² solution is comprised of 2 datasets: +HLQ+.CPTLWARE.SX4DTC2.LOAD and +HLQ+.CPTLWARE.SX4DTC2.SYSIN.

2.1.2.1 +HLQ+.CPTLWARE.SX4DTC2.LOAD

- **SX4DTC2** is the actual security exit z/OS load-module that will be invoked by the MQ Server component.

2.1.2.2 +HLQ+.CPTLWARE.SX4DTC2.SYSIN

- **SX4DTC2I** is a sample initialization file for the server-side security exit.
- **Depository Trust Clearing CorporationMQSC** is a sample MQSC script to define MQ channels with the security exits.

2.1.3 z/OS CHIN JCL

This section describes the required JCL for z/SX4DTC².

2.1.3.1 CSQXLIB DDName

The z/SX4DTC² load-module needs to be put in the executable path for the CHINIT started-task. There are 2 options for achieving this:

1. Add the dataset to the CSQXLIB concatenation of the CHINIT's CSQXLIB.

```
//CSQXLIB DD DISP=SHR,DSN=+MQHLQ+. +QMGRNAME+.USERAUTH  
// DD DISP=SHR,DSN=+HLQ+.CPTLWARE.SX4DTC2.LOAD
```

2. Or copy the SX4DTC2 load-module to your existing MQ exit / link-edited parameter dataset. Here is a sample JCL to copy the SX4DTC2 load-module:

```
//COPY1 EXEC PGM=IEBCOPY,REGION=1024K  
//SYSPRINT DD SYSOUT=*  
//SYSUT3 DD DSN=&&SYSUT3,UNIT=SYSDA,DISP=(,DELETE),  
// SPACE=(CYL,(5,1))  
//SYSUT4 DD DSN=&&SYSUT4,UNIT=SYSDA,DISP=(,DELETE),  
// SPACE=(CYL,(5,1))  
//*  
//IN DD DISP=SHR,DSN=+HLQ+.CPTLWARE.SX4DTC2.LOAD  
//*  
//OUT DD DISP=SHR,DSN=+MQHLQ+. +QMGRNAME+.USERAUTH  
//*  
//SYSIN DD *  
COPYMOD OUTDD=OUT,INDD=((IN,R))  
S M=SX4DTC2  
/*
```

2.1.3.2 SX4DTC2I DDName

SX4DTC2I is the DDName that points to a dataset containing the IniFile parameters.

Add the following line to the CHINIT's JCL.

```
//SX4DTC2I DD  
DISP=SHR,DSN=+HLQ+.CPTLWARE.SX4DTC2.SYSIN(SX4DTC2I)
```


3 Configuring Client-side Security Exit

This section describes how to configure the client-side security exit.

3.1 Specifying Credentials directly in the Channels SCYDATA

Security User Data (SCYDATA) field must NOT exceed 32 characters.

To explicitly set the Company, UserID and Password in the channel's SCYDATA field then set SCYDATA as follows:

C=yourcompany;U=youruserid;P=yourpassword

where :

- yourcompany is the company's Depository Trust Clearing Corporation Id
- youruserid is the company's UserID as given by Depository Trust Clearing Corporation
- yourpassword is the company's Password as given by Depository Trust Clearing Corporation

E.g. z/OS

```
DEFINE CHANNEL ('TEST.CHL') CHLTYPE(SDR) +  
  TRPTYPE(TCP) +  
  SCYEXIT('SX4DTC2') +  
  SCYDATA('C=A001;U=roger;P=mypwd') +  
  REPLACE
```

3.2 Security User Data (SCYDATA)

z/SX4DTC² supports 2 ways to specify an IniFile via the Security User Data (SCYDATA) field: DD Name and DD Name with a Member Name.

3.2.1 SCYDATA with DD Name

In this case, only the DD Name is used to specify the IniFile. The DD Name provided in the SCYDATA field must match the DD Name in the CHIN's JCL. The DD statement's DSN keyword can contain either a fully qualified Partition DataSet with the Member name or a Sequential DataSet.

3.2.1.1 SCYDATA with DD Name using Partition DataSet

The CHIN's DD Name references the DSN keyword which contains the fully qualified Partition DataSet Name (highlighted in **red**) and member name (highlighted in **blue**). Since the Member Name is included in the CHIN'S DD DSN keyword, do not put the Member Name in the SCYDATA field.

e.g.

SCYDATA('DDName')

CHIN JCL using Partition DataSet

```
//SX4DTC2I DD DISP=SHR,DSN=+HLQ+.CPTLWARE.SX4DTC2.SYSIN(SX4DTC2I)
```

```
DEFINE CHANNEL ('TEST.CHL') CHLTYPE(SDR) +  
  TRPTYPE(TCP) +  
  SCYEXIT(SX4DTC2') +  
  SCYDATA('SX4DTC2I') +  
  REPLACE
```

3.2.1.2 SCYDATA with DD Name using Sequential DataSet

The CHIN's DD Name specifies a DSN which will contain the Sequential DataSet. As seen below, the DD Name in the SCYDATA field matches the DD Name in the CHIN's JCL.

e.g.

SCYDATA('DDName')

CHIN JCL using Sequential DataSet

```
//SX4DTC2I DD DISP=SHR,DSN=+HLQ+.CPTLWARE.SX4DTC2.SYSIN.SEQ
```

```
DEFINE CHANNEL ('TEST.CHL') CHLTYPE(SDR) +  
  TRPTYPE(TCP) +  
  SCYEXIT(SX4DTC2') +  
  SCYDATA('SX4DTC2I') +  
  REPLACE
```

3.2.2 SCYDATA with DD Name and Member Name

In this case, both the DD Name (highlighted in **red**) and the Member Name (highlighted in **blue**) are used to specify the IniFile since the DSN keyword of the DD statement only contains the Partition DataSet Name. In other words, the user specifies the Member Name as a parameter to the SCYDATA field. This is a dynamic configuration that allows for different IniFiles for different channels.

e.g.

```
SCYDATA('DDName(MemberName)')
```

CHIN JCL using Partition DataSet

```
//SX4DTC2I DD DISP=SHR,DSN=+HLQ+.CPTLWARE.SX4DTC2.SYSIN
```

```
DEFINE CHANNEL ('TEST.CHL') CHLTYPE(SDR) +  
  TRPTYPE(TCP) +  
  SCYEXIT(SX4DTC2') +  
  SCYDATA('SX4DTC2I(SX4DTC2I)') +  
  REPLACE
```

3.3 SENDER or SERVER Channel

This section describes the necessary entries to enable the client-side security exit. The MQ Administrator will need to update 2 fields of the SENDER (or SERVER) Channel that the client-side security exit will be applied to.

3.3.1 z/OS

On z/OS, SCYEXIT and SCYDATA will contain the following values assuming a default install.

- SCYEXIT
SX4DTC2
- SCYDATA
 - Explicitly set the credentials in the SCYDATA field
c=A001;u=roger;p=mypwd
 - Or specify the credentials in a file then input the filename in the SCYDATA field
SX4DTC2I

```
DEFINE CHANNEL ('TEST.CHL') CHLTYPE(SDR) +  
TRPTYPE(TCP) +  
SCYEXIT('SX4DTC2') +  
SCYDATA('C=A001;U=roger;P=mypwd') +  
REPLACE
```

4 Appendix A – Summary of Client-side IniFile (Optional)

The sample IniFile below is the z/SX4DTC² IniFile for z/OS. The IniFile supports the following keywords and their values:

```
LogMode=N
LogFile=SYSPRINT
#
Company=A001
UserID=Roger
Password=MyPwd
```

Note: Keywords are case sensitive.

Keyword	Description of client-side keywords
Company	<p>Company specifies the company Id to be used for Depository Trust Clearing Corporation verification.</p> <p>e.g. Company=A001</p>
LogFile	<p>LogFile specifies the location of the log file. The default is as follows:</p> <p>For z/OS: LogFile=SYSPRINT</p>
LogMode	<p>LogMode specifies what type of logging the user wishes to have. LogMode supports 4 values [Q / N / V / D] where Q is Quiet, N is Normal, V is Verbose and D is Debug. The default value is N.</p> <p>e.g. LogMode=N</p>
Password	<p>Password specifies the password to be used for Depository Trust Clearing Corporation verification.</p> <p>e.g. Password=abcdef</p>
UserID	<p>UserID specifies the UserID to be used for Depository Trust Clearing Corporation verification.</p> <p>e.g. UserID=fred</p>

5 Appendix B – z/SX4DTC² Upgrade Procedures

To upgrade an existing installation of z/SX4DTC² from an older version to a newer version, do please do the following in the appropriate section below.

1. Stop all of the channels using the z/SX4DTC² server-side security exit or stop the queue manager's CHIN (channel initiator).
2. ftp the z/OS XMIT prepared datasets to the z/OS LPAR.

ftp -s:mqssx.ftp z/OS_hostname

```
your-z/OS-userid
your-z/OS-password

binary
quote SITE recfm=fb lrecl=80 blksize=3120
put SX4DTC2.LOAD.ZOS
quit
```

If the user receives the following error message then they will need to pre-allocate the z/OS datasets:

```
ftp> put SX4DTC2.LOAD.ZOS
200 Port request OK.
550-SVC99 RETURN CODE=4 S99INFO=0 S99ERROR=38656 HEX=9700 S99ERSN code X'000003F3'.
550 Unable to create data set xxxxx.SX4DTC2.LOAD.ZOS for STOR command.
ftp> put SX4DTC2.SYSIN.ZOS
200 Port request OK.
550-SVC99 RETURN CODE=4 S99INFO=0 S99ERROR=38656 HEX=9700 S99ERSN code X'000003F3'.
550 Unable to create data set xxxxx.SX4DTC2.SYSIN.ZOS for STOR command.
```

To pre-allocating the XMIT datasets go to option 3.2 of ISPF and allocate both dataset: SX4DTC2.LOAD.ZOS

Use the following dataset attributes when allocating the dataset:

Space	
Units	BLOCKS
Primary Quantity	40
Secondary Quantity	40
Directory Blocks	0
DCB Parameters	
RECFM	FB
LRECL	80
BLKSIZE	3120
DsnType	Blank

After the user has pre-allocated the dataset, the user can redo the ftp commands.

- Log on to z/OS LPAR and issue the following TSO RECEIVE command:

TSO RECEIVE INDATASET(SX4DTC2.LOAD.ZOS)

After issuing the above command, the following product dataset will appear:

+HLQ+.CPTLWARE.SX4DTC2.LOAD is the dataset that contains the z/OS load-module.

- Start all of the channels using the z/SX4DTC2 server-side security exit or restart the queue manager's CHIN.

6 Appendix C – Capitalware Product Display Version

z/SX4DTC2 includes a program to display the product version number.

6.1 Examples

6.1.1 z/OS

To use the CWDSPVER program on z/OS, use the following JCL:

```
//CWDSPVER EXEC PGM=CWDSPVER,  
//SYSPRINT DD SYSOUT=*  
//STEPLIB DD DISP=SHR,DSN=+HLQ+.CPTLWARE.SX4DTC2.LOAD
```


7 Appendix D – Support

The support for z/SX4DTC² can be found at the following location (requires a support contract):

Online Help Desk Ticketing System at

www.capitalware.com/phpst/

By email at:

support@capitalware.com

By regular mail at:

Capitalware Inc.
Attn: z/SX4DTC² Support
Unit 11, 1673 Richmond Street, PMB524
London, Ontario N6G2N3
Canada

8 Appendix E – Summary of Changes

- z/SX4DTC² v1.0.5
 - Enhanced the code for dumping the pointers passed into exit.
 - Fixed an issue in the subroutine that removes trailing blanks
- z/SX4DTC² v1.0.4
 - Tuned the code that is called on entry
 - Tuned the logging code
- z/SX4DTC² v1.0.3
 - Fixed an issue in the logging framework where a constant was being modified.
- z/SX4DTC² v1.0.2
 - Enhanced logging - the LogFile keyword now supports the following tokens:
%QM% and %CHL%
- z/SX4DTC² v1.0.1
 - Fixed an issue with using "size_t" variable type when it should have been "int"
- z/SX4DTC² v1.0.0
 - Initial release.

9 Appendix F – License Agreement

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