Common Report & Upload Engine

User Guide

Version **2025.03**

List of Abbreviations

Term	Explanation
BF	Börse Frankfurt
BFZ	Börse Frankfurt Zertifikate
CRE	Common Report Engine
CUE	Common Upload Engine
CRLF	Carriage return line feed
DBAG	Deutsche Börse AG
LSOC	Legally Segregated Operationally Commingled
PuTTYgen	Putty Key Generator
RDF	Reference Data File
REGEX	Regular Expression
RSA	Rivest, Shamir and Adleman (public-key cryptosystem)
SFTP	SSH File Transfer Protocol
SSH	Secure Shell
WinSCP	Windows Secure Copy (a free and open-source SFTP and FTP client for Windows)

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1 General information

The Common Report Engine (CRE) allows a centralized provision of reports and non-transactional files from multiple exchange markets. The service is provided as a SSH File Transfer Protocol (SFTP) server and allows participants to easily retrieve all their reports and non-transactional files from a sole source. The Common Upload Engine (CUE) is a separate part of the CRE which allows admitted participants of the DBAG Group the upload of participant data to dedicated services provided by DBAG Group.
Participants can automate the download and upload of data files via SFTP.

This service is independent from the existing trading and clearing infrastructure, and participants can choose their preferred hardware platform and operating system.
Communication with the CRE and CUE is based on OpenSSH. The OpenSSH server authenticates users using the standard methods supported by the SSH protocol (https://www.openssh.com/specs.html).

All examples provided in this document refer to either the OpenSSH distribution or the PuTTY installable package for Windows.

1.1 Intended Audience

This document is intended for system developers, system and security administrators maintaining their systems to interact with the CRE and/or CUE services offered by DBAG. It assumes that the reader is familiar with OpenSSH public/private key pair authentication methods (i.e. handling of public/private key pair) and the use of SFTP clients and/or scripts.

The purpose of this document is to provide an overview on how to obtain access to the CRE and/or CUE, how to deposit keys in the Member Section https://membersection.deutsche-boerse.com and how to manage the download and/or upload of files and reports.

1.2 SSH File Transfer Protocol

This document refers to “SFTP” in numerous instances. To avoid misunderstandings, “SFTP” stands for the “SSH File Transfer Protocol” as defined here: https://www.sftp.net

1.3 SSH/SFTP tools

While access to SSH based services is part of most Unix based distributions, PuTTY is open-source software that is available for MS Windows. It can be used to easily establish SSH and SFTP sessions (http://www.putty.org).

2 Overview

2.1 Features and Functionality

Download (CRE):

- The Common Report Engine is the primary system that provides access to reports and files for all Deutsche Börse T7 cash and derivatives markets, EEX, Eurex Clearing's C7, C7 SCS, EurexOTC Clear, Eurex Clearing Prisma, Buy-In Agent and "Regulatory Reporting Eurex and FWB (Non-MIFIR Reporting)". Participants can download the reports and files they are interested in.
- An extended history of at least 10 business days is maintained on the CRE for all reports and files.
- Participants may set up more than one connection to access the CRE from various locations depending on their business requirements.
- The reports can be downloaded manually or automated (by using a script).

Upload (CUE):

- Files can be uploaded to the admitted service environments (such as simulation & production).
- All uploads will be virus checked.
- All uploads will have a functional plausibility a check, e.g. if the naming convention is correct or whether the file is corrupt.
- Participants will receive an initial response if the uploaded file fulfils the initial upload requirements.
- The CUE will automatically transfer to the admitted service.

2.2 Security, Authorisation and Access

To access CRE and CUE, a compliant key must be issued, and two types of keys can be used:

1. Ed25519 (Edwards Curve 25519) is an elliptic curve key and signature algorithm that uses EdDSA and Curve25519, offering strong security and small key sizes, which provide fast key generation and authentication.
2. OpenSSH SSH-2 RSA keys are generated with a minimum length of 4096 bits (no maximum defined) and use SHA256, SHA384, or SHA512 for the signature algorithm.

Please note: A circular announcing the end of support of the obsolete keys will be published in suitable time before the obsolete keys are removed from the CRE and CUE in 2025.

In general, the setup process for the participant involves the following three steps:

1. Generating a compliant public/private key pair
2. Creating a CRE and/or CUE user and uploading the public key in the Member Section
3. Logging into the CRE and downloading reports and/or logging into the CUE and uploading files via SFTP client.

To provide a secure service, the OpenSSH key-based authentication method is used. This eliminates the need to transmit login passwords over the Internet. The public key must be generated and uploaded to the Member Section, while the participant keeps the private key.

- Participants need to provide a public/private key pair to access their reports. It is recommended to limit access to the CRE and CUE using dedicated IP addresses.

The illustration below provides an overview on how to access the CRE and/or CUE and how to set up the access process to download/upload all necessary files.

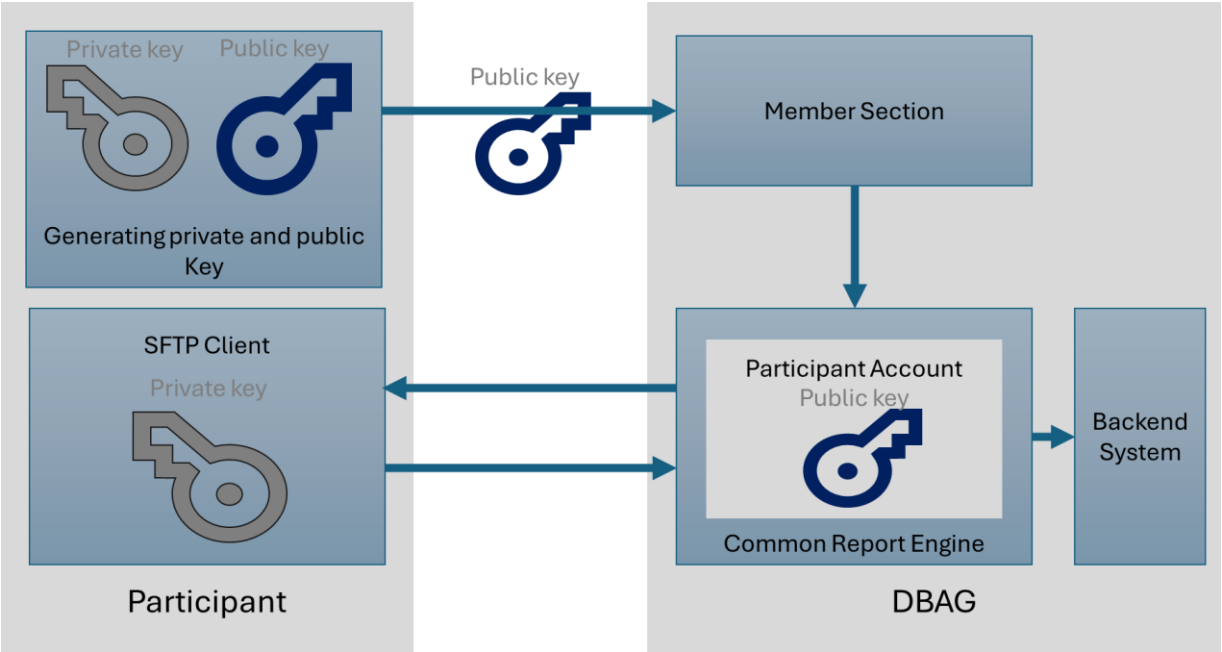

Figure 1: Process overview to connect to the CRE

Note: The figure above is not a true representation of servers and networks involved but rather provides a simplified functional overview which is similar for the CRE and the CUE setup.
The public key is provided to the CRE or CUE via the Member Section.
The private key always remains in the hands of the user. The user will need the individual private key at any time a login to the CRE or CUE is attempted.
It is recommended to create a public/private key pair for every user connecting to the CRE and/or CUE.

2.3 Hardware Requirements

There are no specific hardware requirements to access the CRE and/or CUE servers. The servers can be accessed from any computer running a SFTP client program.

2.4 Software Requirements

A SFTP client compliant with the latest Open SSH version is required to connect to the CRE or CUE.

- OpenSSH provides a large suite of secure tunnelling capabilities, several authentication methods, and sophisticated configuration options.
- DBAG has disabled all known insecure Ciphers, Key Exchange Algorithms and MAC Algorithms for the SSH server.

Known secure parameters for each method are listed below:

Key Exchange Algorithms:

- ✓ curve25519-sha256
- ✓ curve25519-sha256@libssh.org
- ✓ diffie-hellman-group18-sha512
- ✓ diffie-hellman-group14-sha256
- ✓ diffie-hellman-group16-sha512
- ✓ diffie-hellman-group-exchange-sha256
- ✓ ecdh-sha2-nistp256
- ✓ ecdh-sha2-nistp384

- ✓ ecdh-sha2-nistp521

Ciphers (encryption Algorithms):

- ✓ chacha20-poly1305@openssh.com
- ✓ aes256-gcm@openssh.com
- ✓ aes128-gcm@openssh.com
- ✓ aes256-ctr
- ✓ aes192-ctr
- ✓ aes128-ctr

MAC Algorithms:

- ✓ hmac-sha2-512-etm@openssh.com
- ✓ hmac-sha2-256-etm@openssh.com
- ✓ umac-128-etm@openssh.com
- ✓ hmac-sha2-512
- ✓ hmac-sha2-256

Host-Key Algorithms:

- ✓ rsa-sha2-256
- ✓ rsa-sha2-512
- ✓ ssh-rsa (deprecated)
- ✓ ed25519

3 Setup process

3.1 User Administration

Before the CRE and/or CUE can be accessed, a user account must be set up and the OpenSSH public key must be uploaded in the Member Section. This task can be performed by the "Technical User Administrator." Administration rights to become a "Technical User Administrator" may be requested using the Member Section.

Navigate to: "Member Section" https://membersection.deutsche-boerse.com → Technical Connection→ Requests & Configuration → Self Service Certificates → "Report Engine User" or "Upload Engine User"

An overview of all existing and already created CRE or CUE users are displayed, and it is possible to edit, modify or delete existing users by simply selecting them from the list.
All users can be identified by their UserID, which is generated during the account setup process. A UserID looks like this example: 1027709_000001

- The first part, 1027709 is the so-called DBAG business partner ID which is used in the Member Section for identification of a participant (Legal Identity). A business partner may have several memberships, for instance Eurex, Xetra, Eurex Repo & EEX; each membership is represented by a Member ID.
- The second part, 000001 is a sequential user number, automatically assigned by the system.

In addition, new users can be created in the Member Section:
The new input screen will be opened by clicking on "Create User" where all necessary user information needs to be entered.

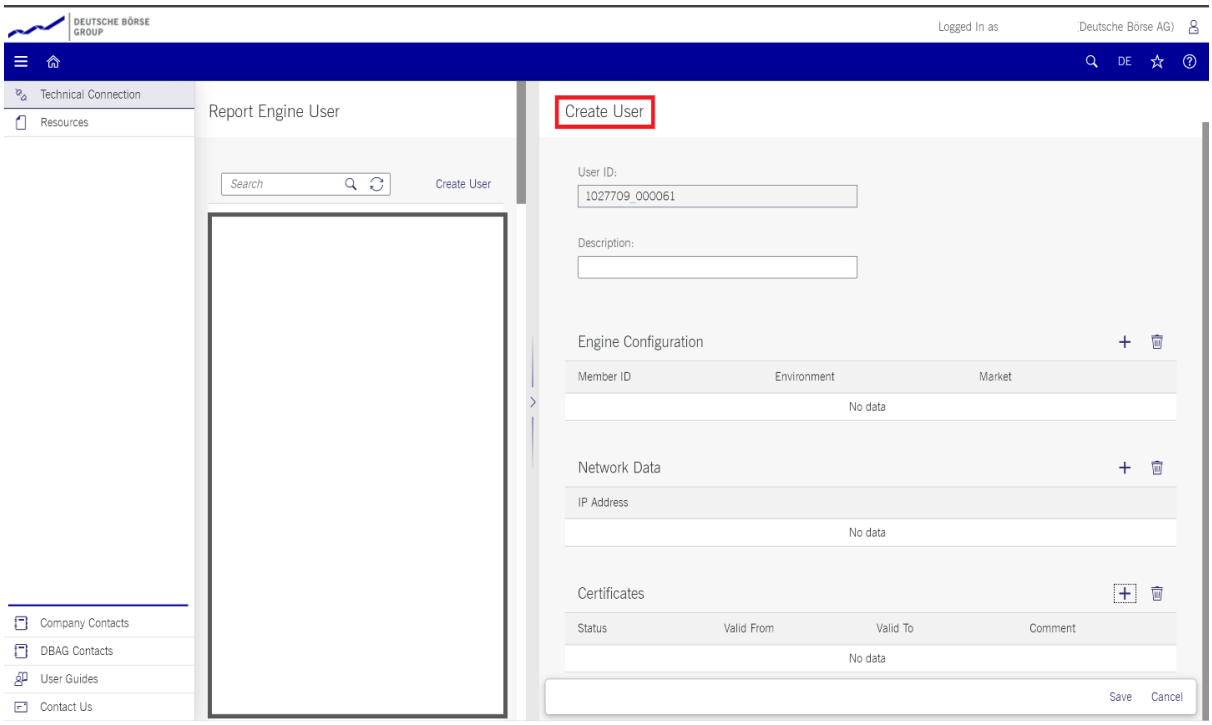

Figure 2: Input screen in the Member Section to create a new user (in this example a CRE user, the process for CUE users is identical).

1. Description (optional):
   In the field "Description" a brief description of the user should be given. Please note that the description is not the User ID. Any description of the user may be entered here.
   The User ID field itself will be filled by the system automatically.

2. Engine Configuration:
   "Engine configuration" needs to be clicked to enter the "MemberID," a "Market" and an "Environment." A selection of all applicable combinations for this specific user will be displayed from which a choice can be made.

For all market directories supported by the CRE (underlying markets), the relevant associated markets are now available for selection as a mandatory element during setup.

Please note: One user can have access for multiple combinations of member IDs, markets, and environments, but not more than 13 entries.

Examples of combinations for underlying markets:

Market	Underlying Market
EEX	EUREX
Eurex Repo	EUREX
Malta Stock Exchange	XETRA

For a complete overview refer to Appendix C.

3. Network Data (Optional):
   Access for a user can be restricted to a single IP address. An additional IP address can be added by clicking on "Add Row." This is optional, but highly recommended by DBAG. Select an IP address and click on "Remove Row" to remove it.
   The address pattern entered here will be included in the configuration file for this user account. A wildcard (*) can be used in the pattern to represent zero or more characters. To combine multiple patterns, a pattern list can be used; each pattern must be on a new line. To prevent mistakes a logical check of the IP address is provided.
4. Certificate:
   The certificate refers to the public SSH key created as described in chapter 3.1. The certificate/public key is only used to authenticate a user/role. The user/role permissions (i.e. access to member/market/etc.) have been assigned in step 2 of this chapter.
   The creation of a private/public key pair for every user that may connect to the CRE and/or CUE is recommended.
   A public key must be uploaded by clicking 'Upload Certificate'. A popup window will appear asking you to upload the OpenSSH public key. Browse to the location of the key and click 'Add'.

   Please note: Network details and certificate changes take 1 working day to become active.

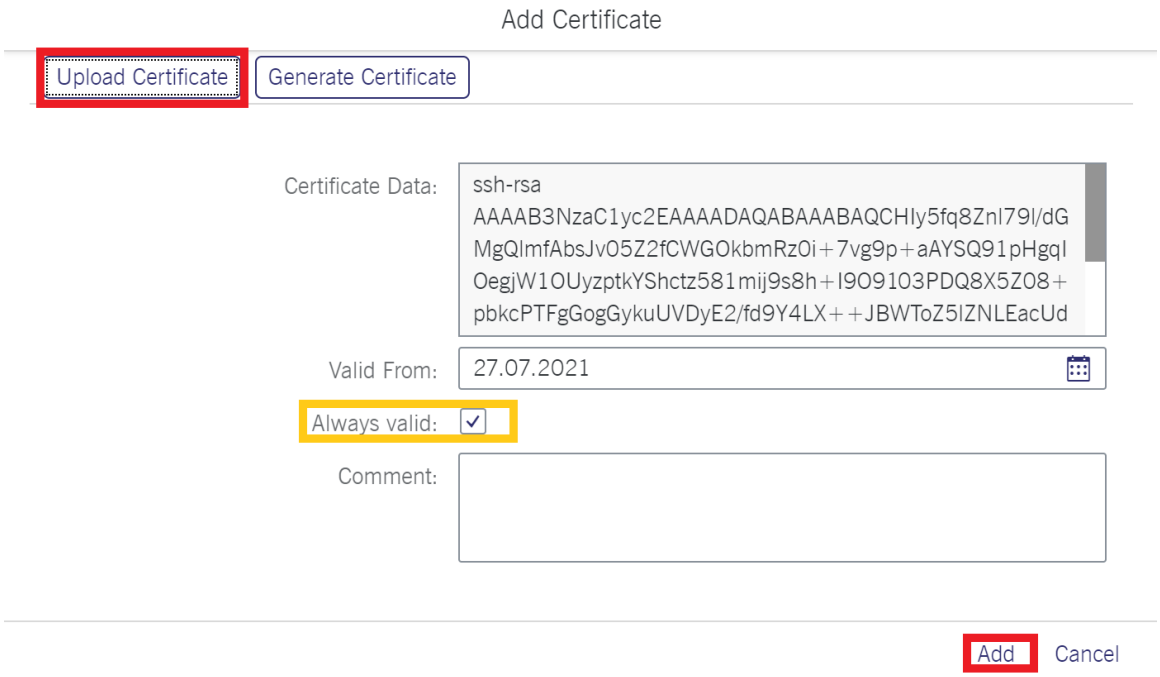

Figure 3: Popup screen to upload the public key

The private key file must be accessible for the participant's SFTP client but should never be sent to DBAG.

Key expiration:

Users will be notified by email in due time about an upcoming expiration. At the latest one day before a certificate/public key expires, the existing key needs to be prolonged (upload the existing key once more and define a new expiration date) or a new private/public key pair must be generated, and the newly generated public key needs to be uploaded.

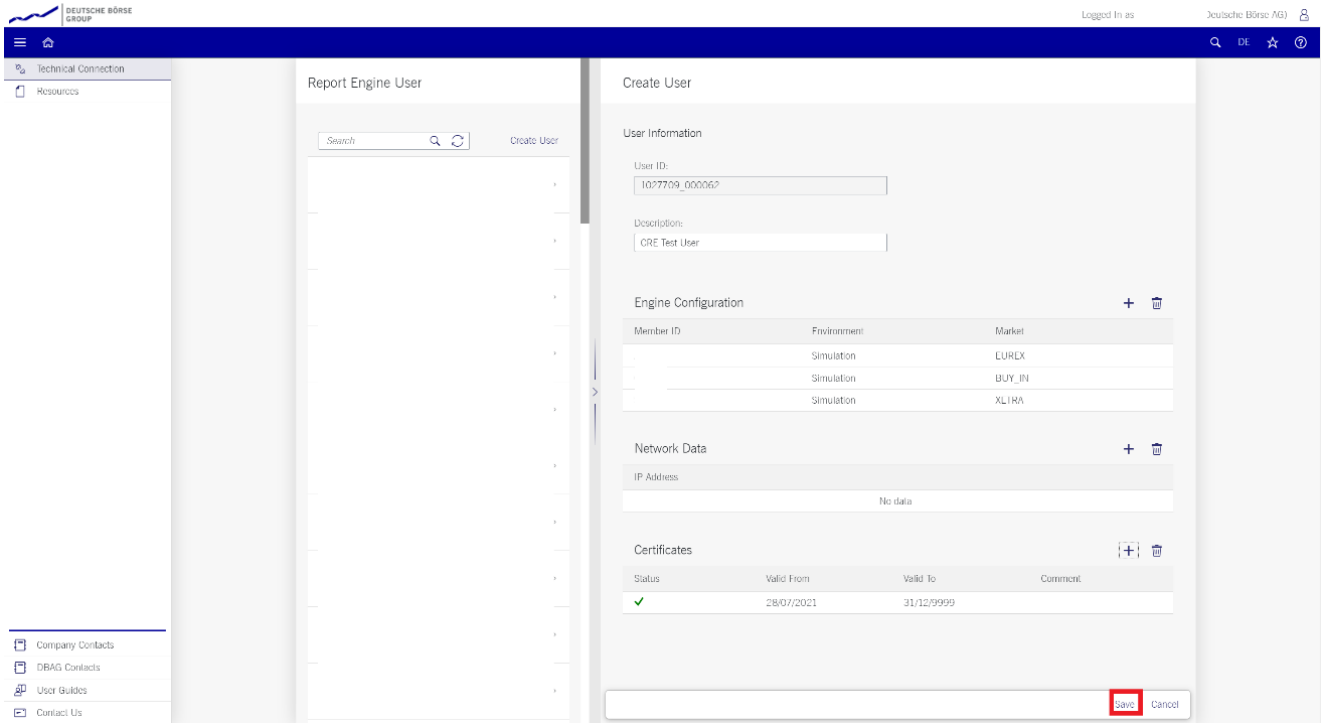

Figure 4: Exemplary CRE user information after the successful creation of a CRE user

The generated UserID is displayed in the Report Engine User-, respectively Upload Engine User -Overview table, as well as in the field UserID when selecting a user in the table on the main screen.

All Central Coordinators and their deputies are informed via e-mail whenever a new CRE and/or CUE user has been successfully setup, modified or deleted.

Due to technical restrictions and introduction of the public folder, more than 13 environments per UserID for one IP destination and port should not be added!

When initially creating a CRE and/or CUE user, the information will be available after two business days. All subsequent changes to a user become active after the next business day.

3.2 How to generate and save a SSH key pair

As mentioned in Chapter 2, public/private keys are used for authentication by the CRE and CUE infrastructure. The participant must generate the key pair.
There are two types of keys that can be used:

1. Ed25519 (Edwards Curve 25519) is an elliptic curve key and signature algorithm that uses EdDSA and Curve25519, offering strong security and small key sizes, which provide fast key generation and authentication.
2. OpenSSH SSH-2 RSA keys are generated with a minimum length of 4096 bits (no maximum defined) and use SHA256, SHA384, or SHA512 for the signature algorithm.

- Once the parameters above are set, the key can be generated.
- The key generation process will produce public and private keys. See details about key handling and usage in sections below.
- Save the public key files and private key files for future use.
- The private key should never be transferred over an insecure network, e.g. via e-mail, and it should only remain in the possession of the participant.
- It is highly recommended to protect the key file with an individualised passphrase. This will encrypt the private key when it is saved in a secure location on the local machine. Using passphrases for batch SSH-keys requires familiarity with the SSH-agent authentication subsystem. Participants should be aware that the use of strong encryption methods and encrypted SSH-keys is advisable but will raise administration efforts and system complexity.
- To generate an SSH public/private key, various freeware tools are available for download from the Internet, such as PuTTY or OpenSSH.

3.2.1 Generate Certificate within the Member Section

Alternatively, the SSH key can be created in the Member Section by pressing the “Generate Certificate” button.

Please Note: The Key Generator does only produce SSH-2 RSA key with 4096 bits and is not able to produce Ed25519 elliptic curve keys.

Click “Generate Certificate" to start the application.

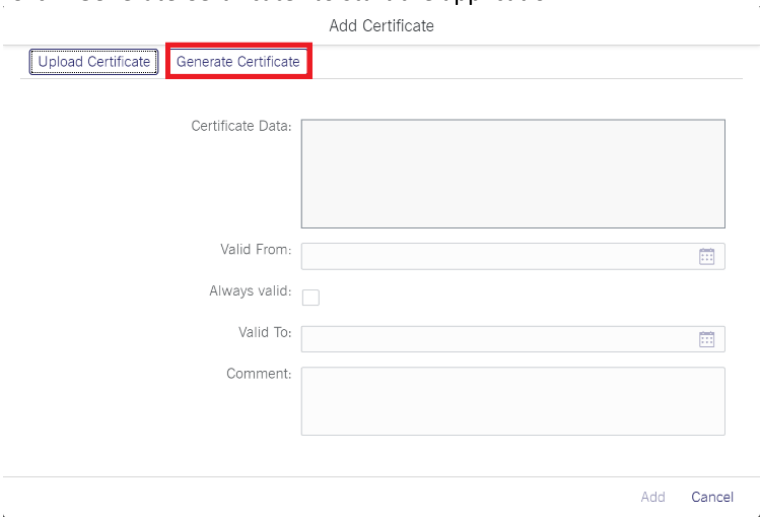

Figure 5: Generate Certificate (key pair)

Click "Generate" for a new keypair.

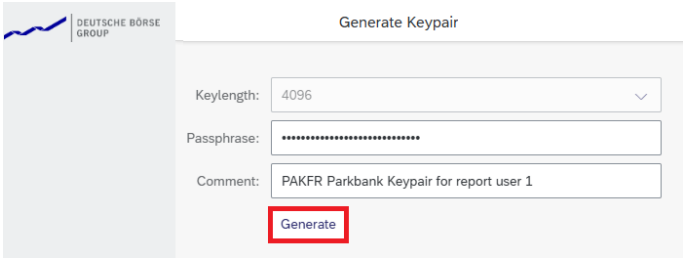

Figure 6: Key length & Generate key pair

Save your public and private key

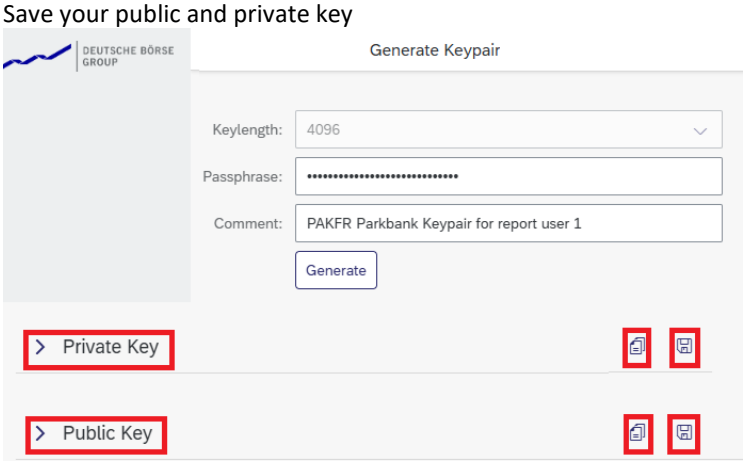

Figure 7: Save public and private key

The last step is to save the changes: Click on “Save” to automatically create the UserID

3.2.2 Example for key generation using PuTTYgen (MS Windows)

See the following example of key pair generation. The example uses the RSA key generation, the Elliptic Curve key Ed25519 (Edwards Curve 25519) can be created in the same way.

- Make sure the latest stable version of PuTTYgen is being used.

- Set key parameters type and bit number as shown below.
- Follow the instructions on the screen and move the mouse over the blank area for a while.

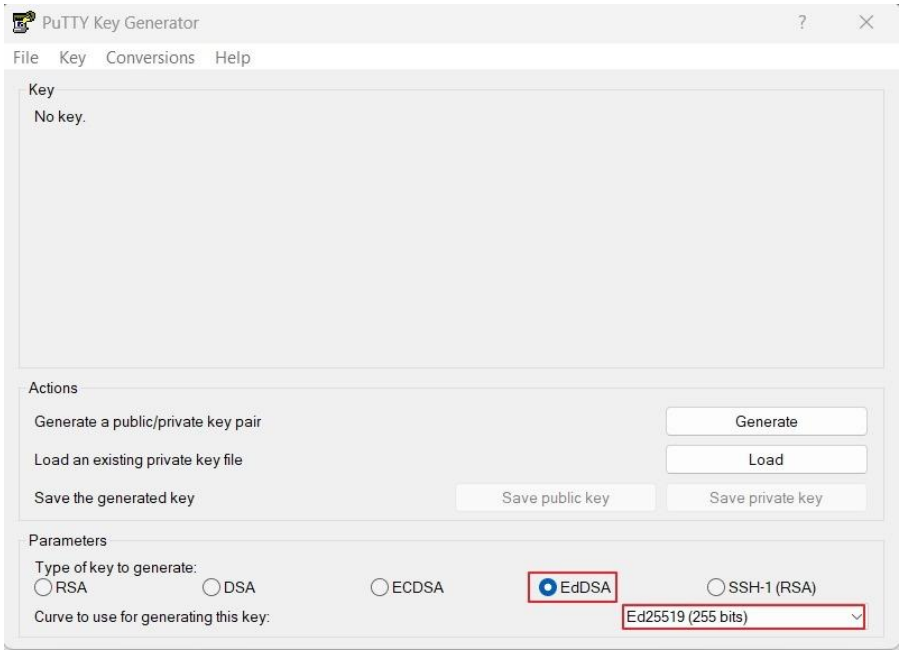

Figure 8: Generate key (screenshot of PuTTYgen)

- The private key must be accessible for the participant's SFTP client to login successfully. By clicking the buttons highlighted in Figure 9, participants can save their private and public keys in the PuTTY format for further use with the PuTTY tools or WinSCP.

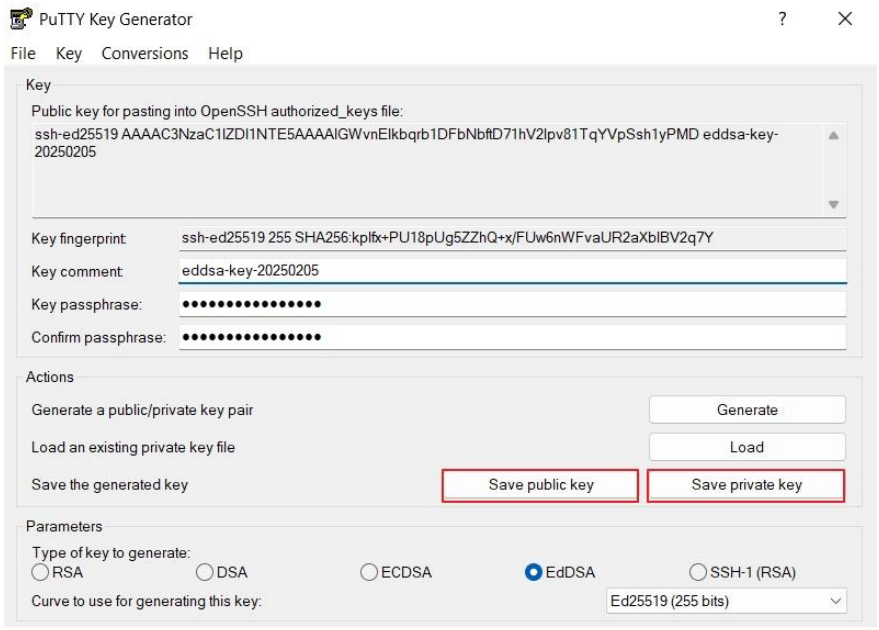

Figure 9: Saving the generated public and private keys in the PuTTY format (screenshot from tool PuTTYgen)

- The OpenSSH private key can also be exported in the OpenSSH format for use with other software working with OpenSSH keys (such as Unix SFTP).

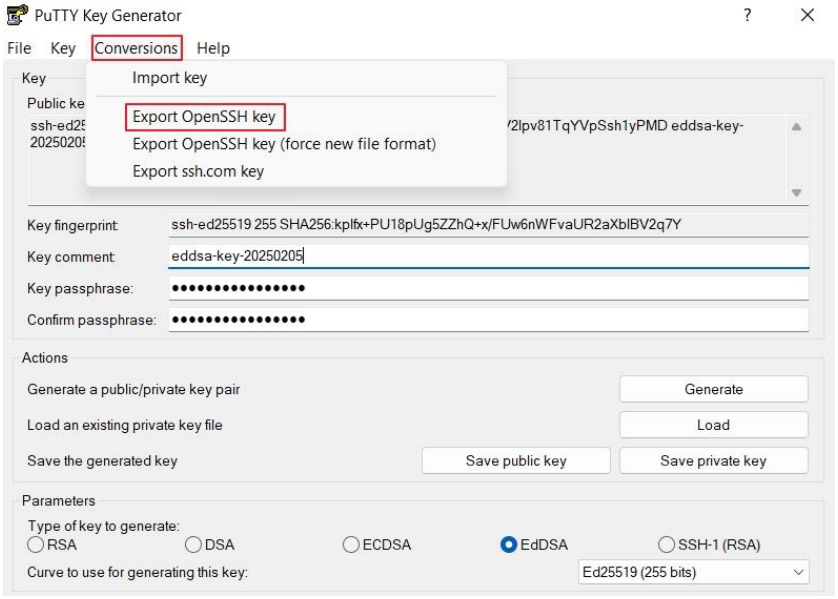

Figure 10: Saving the OpenSSH private key for future use (screenshot from tool PuTTYgen)

- The public key must be saved in OpenSSH format to be uploaded to DBAG Member Section. Public keys must consist of one line only.
- Copy the marked text from PuTTYgen to a text editor, such as notepad (within one line) and save it with the extension ".pub".
- Make sure that this line has no "End Of Line" character (EOL) at the end!

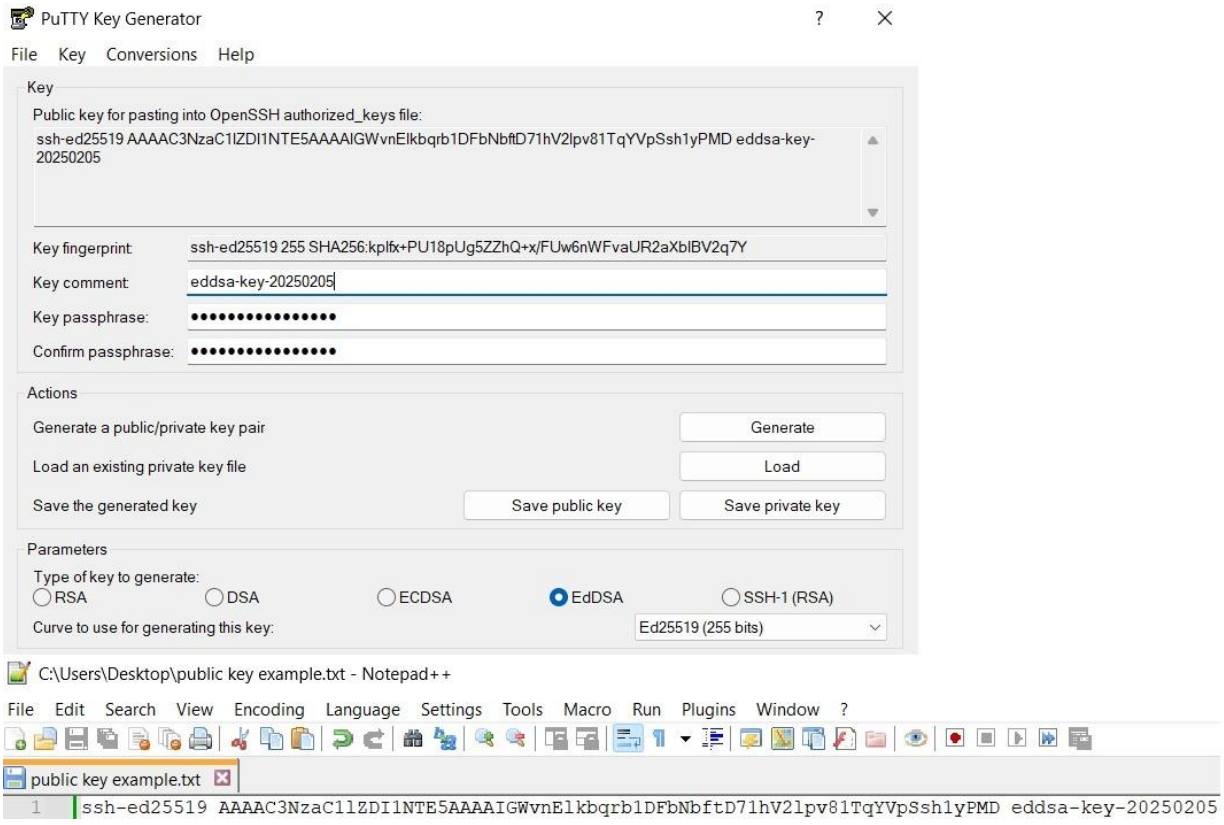

Figure 11: Saving the public key for DBAG Member Section upload (screenshot from tool PuTTYgen and Notepad++)

- Public keys must consist of one line only. Only public OpenSSH keys in this format can be used and can be successfully uploaded in the DBAG Member Section.
- After uploading, the participant must wait for the configuration data (users, keys, markets, etc.) to be transferred to the CRE and/or CUE database. Usually, this processing takes place in the late evening.
- After initial setup, access to the CRE and/or CUE is generally available after two business days. (After the first working day access will be possible but folders will be empty, after the second working day downloading and uploading of reports and files will be possible). Changes to existing users will take effect the following day.

Please note that the public key does NOT have to be signed by a certification authority.

4 Connecting to the CRE and/or CUE

Participants may use a SFTP client of their choice to access the CRE and/or CUE server to upload files or download their reports.
The CRE and CUE does not offer any interactive SSH sessions nor any kind of browser access.
The following information is required to log into the servers:

- UserID which has been generated by successfully setting up a new user in the Member Section
- The IP address of the CRE and/or CUE
- The private ssh key that matches the public key uploaded in the Member Section.

Please Note: The CRE and CUE will allow a maximum of 50 sessions per user. Therefore, please make sure that unused sessions are closed, and the user is logged out.

4.1 CRE Connectivity Data

The CRE is divided into instances.

Instance 1 gives access to reports of the following markets and services:
- T7 cash markets including Xetra (XETR + XFRA) and partner exchanges.
- T7 derivatives markets including Eurex and EEX
- Eurex Clearing's C7
- Eurex Clearing's PRISMA
- EurexOTC Clear
- C7 SCS

Instance 2 gives access to reports of the following markets and services:
- Eurex Repo
- Buy-In Agent
- Regulatory Reporting Eurex and FWB (Non-MIFIR Reporting)

The IP's used for access to the CRE are shown in the following table:

CRE infrastructure IP addresses					
	Leased line		Internet	Port	
	A	B		Public	Private
Instance 1	193.29.90.67	193.29.90.99	193.29.90.132	2221	2222
Instance 2				2231	2232

4.2 CUE Connectivity Data

The CUE is divided into instances.

Instance 1 gives upload access to files of the following service:
- LSOC

Instance 2 gives upload access to files of the following service:

- Regulatory Reporting Eurex and FWB (Non-MIFIR Reporting, Short Code, and Algo ID upload)

The IP's used for access to the CUE are shown in the following table:

CUE infrastructure IP addresses				
	Leased line		Internet	Port
	A	B		
Instance 1	193.29.90.70	193.29.90.102	t.b.a.	2251
Instance 2	193.29.90.88	193.29.90.119	193.29.90.158	2261

If a client is being used to connect to the CRE and/or CUE, the client will prompt once to accept the DBAG Server Host Key, The Server Host Key will be remembered for future logins by the client.

If a customized script is being used to access, the Server Host Key fingerprint must be integrated where ap-prpriate. The DBAG Server Host Key for the CRE and/or CUE can be found by using “ssh-keyscan.” “ssh-keyscan” is used to collect the public SSH host keys, which can then be entered into the “known_hosts”.

Participants can find functional information on the Deutsche Börse website under the MiFID II and MiFIR sections Deutsche Börse Xetra - MiFID II and MiFIR .

4.3 Verification of connectivity to the CRE & CUE

Connectivity to the CRE and CUE can be tested via Telnet:

- Test the connection using Telnet

Figure 12: Test of CRE using telnet

Alternatively use netcat:

- nc -z -w5 193.29.90.158 2261
- Output: Connection to 193.29.90.158 port 2261 succeeded!

or Open SSL:

- openssl s_client -connect 193.29.90.158:2261

WinSCP is an open-source free SFTP client, SCP client, FTPS client and FTP client for MS Windows.
Its main function is file transfer between a local and a remote computer. Beyond this, WinSCP offers scripting and basic file manager functionality.
Source : http://winscp.net/eng/index.php

4.4 Using WinSCP to connect to the CRE and/or CUE

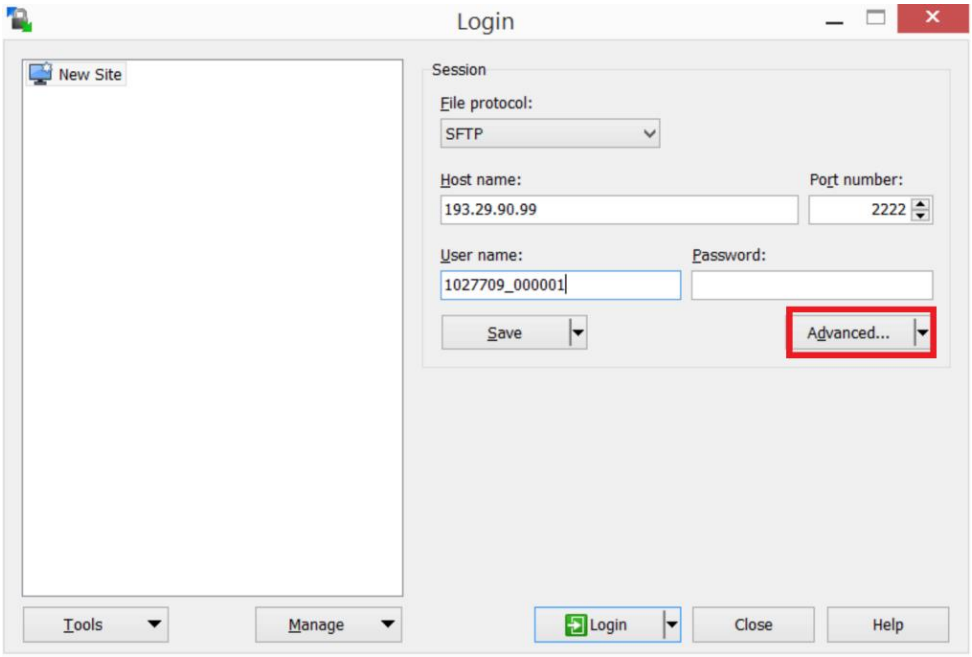

Figure 13: Input screen required to log in to the CRE and /or CUE – input IP and Port (in this case CRE Instance 1 – "private" folder)

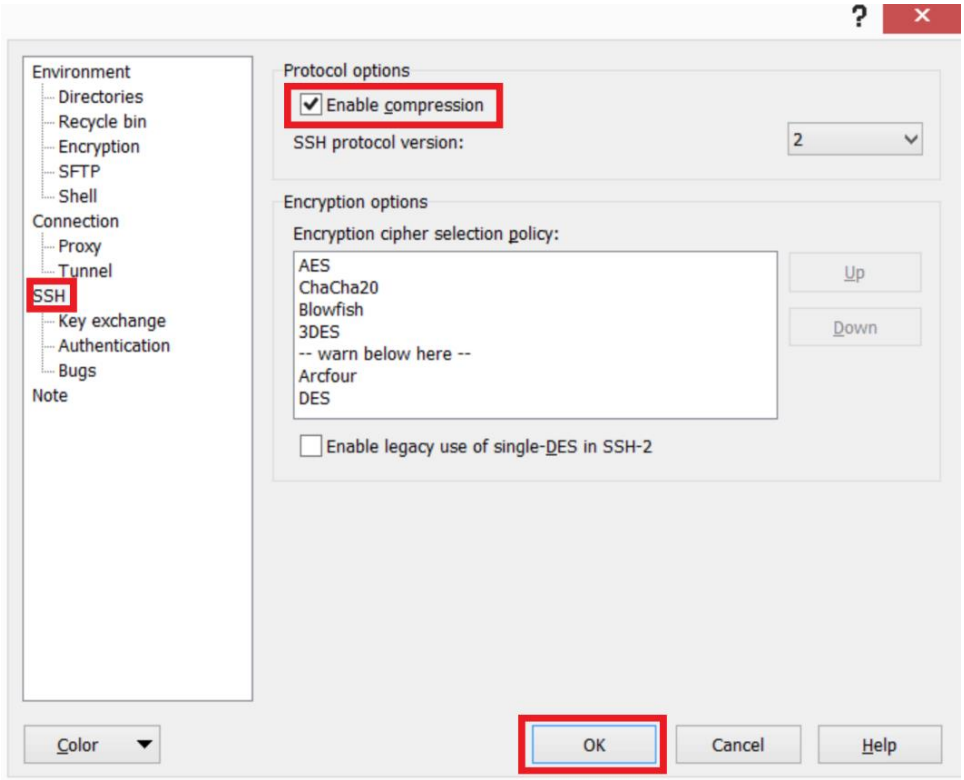

Figure 14:Enable compression for SSH transfer

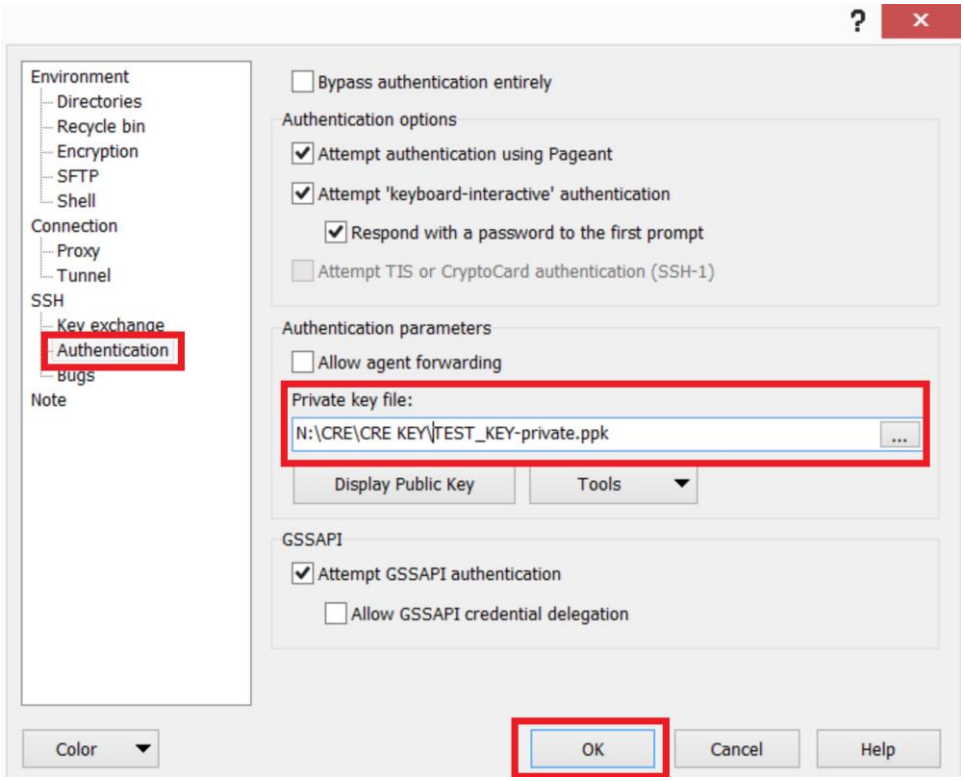

Figure 15: Location of the private key file to be entered.

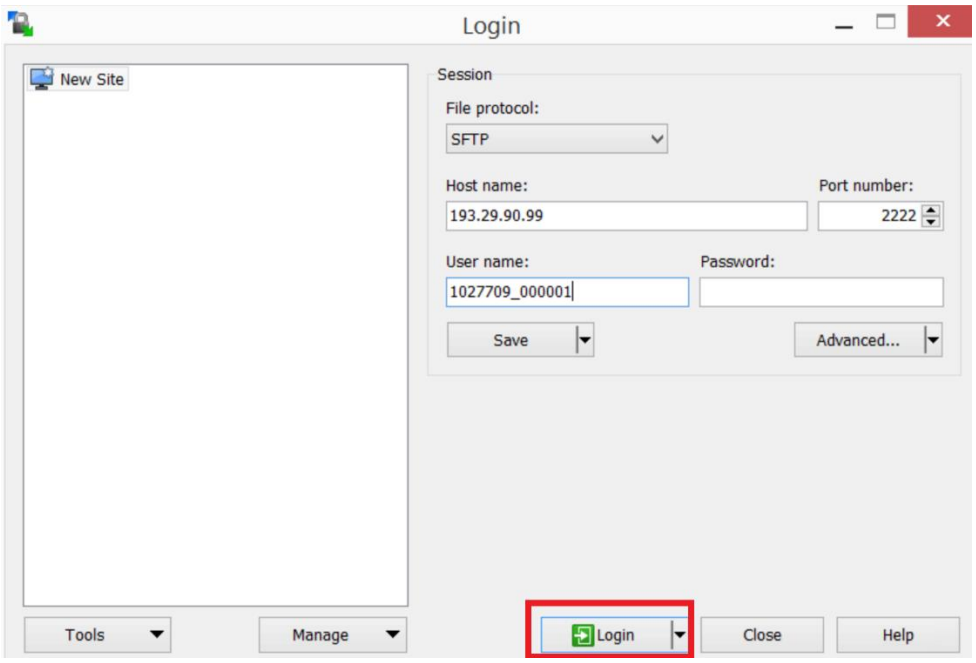

Figure 16: Successful login to the CRE with WinSCP

4.5 Troubleshooting and Debugging Examples

If problems connecting to the CRE and/or CUE arise, please contact the DBAG Technical Account Manager. Detailed information about what exactly happened, what the problem is including error messages and screen-shots are required to diagnose such problems.

The ssh client's -v switch allows you to run ssh in verbose mode so that it echoes debugging information about the SSH connection progress, which is useful for debugging connections, authentication, and any configuration problems. There are various levels of verbosity; using multiple -v flags increase the verbosity (maximum verbosity level is 3).
The two most common errors are described as examples below.

4.5.1 Error 1: No matching SSH key found

```
$ sftp -oPort=2222 -vvv 1027709@193.29.90.67

Connecting to 193.29.90.67...
OpenSSH_4.3p2, OpenSSL 0.9.8e-fips-rhel5 01 Jul 2008
debug1: Reading configuration data /root/.ssh/config
debug1: Reading configuration data /etc/ssh/ssh_config
debug1: Applying options for *
debug2: ssh_connect: needpriv 0
<--- SNIP --->
debug3: preferred gssapi-with-mic,publickey,keyboard-interac-
tive,password
debug3: authmethod_lookup publickey
debug3: remaining preferred: keyboard-interactive,password
debug3: authmethod_is_enabled publickey
debug1: Next authentication method: publickey
debug1: Offering public key: first_name last_name (2010-10-11)
debug3: send_pubkey_test
debug2: we sent a publickey packet, wait for reply
debug1: Authentications that can continue: publickey
debug1: Offering public key: rsa-key-20110217
debug3: send_pubkey_test
debug2: we sent a publickey packet, wait for reply
debug1: Authentications that can continue: publickey
debug1: Offering public key: rsa-key-20101207
debug3: send_pubkey_test
debug2: we sent a publickey packet, wait for reply
Received disconnect from 193.29.90.67: Too many authentication fail-
ures for 1027709_000001
Couldn't read packet: Connection reset by peer
```

4.5.2 Error 2: No key used at all

```
$ sftp -oPort=2222 -vvv 1027709_000001@193.29.90.67

Connecting to 193.29.90.67...
OpenSSH_4.3p2, OpenSSL 0.9.8e-fips-rhel5 01 Jul 2008
debug1: Reading configuration data /root/.ssh/config
debug1: Reading configuration data /etc/ssh/ssh_config
debug1: Applying options for *
debug2: ssh_connect: needpriv 0

<--- SNIP --->

debug1: Authentications that can continue: publickey
debug3: start over, passed a different list publickey
debug3: preferred gssapi-with-mic,publickey,keyboard-interac-
tive,password
debug3: authmethod_lookup publickey
debug3: remaining preferred: keyboard-interactive,password
debug3: authmethod_is_enabled publickey
debug1: Next authentication method: publickey
debug1: Offering public key: /root/.ssh/kdump_id_rsa
debug3: send_pubkey_test
debug2: we sent a publickey packet, wait for reply
debug1: Authentications that can continue: publickey
debug1: Trying private key: /root/.ssh/id_rsa
debug3: no such identity: /root/.ssh/id_rsa
debug1: Trying private key: /root/.ssh/id_rsa
debug3: no such identity: /root/.ssh/id_rsa
debug2: we did not send a packet, disable method
debug1: No more authentication methods to try.
Permission denied (publickey).
Couldn't read packet: Connection reset by peer
```

The complete command line switch overview may be found in the SFTP manual page.
Please be aware that no interactive session is possible (SCP), only SFTP service is supported.
For troubleshooting with DBAG please be able to provide the above-mentioned log/debug information.

4.6 Download reports and files (CRE)

Participants can use the SFTP client of their choice to access the CRE server. Once logged in, participants can access their reports and files either manually, by browsing their folder(s) on the server, or automatically via a script.
In case a connection to the CRE is not possible or an existing connection was interrupted please do not try to login again in truly brief time intervals (i.e. several tries every few seconds), but rather wait a short duration (a minute or more) and then try again. If this has been tried a few times and still no connection can be established, please contact DBAG Technical Support.

4.6.1 Automated Download: Sample Script

To provide an indication of the level of effort to be put into the programming of a script, a sample script for the widely used bourne-again shell (bash) is provided below:

```
#! /bin/bash

if [ $# -ne 6 ]; then
    echo
    echo "Usage:"
    echo "`basename $0 ` <ssh key file> <sftp user> <CRE node>
<member id> <environment> <market>"
    echo
    exit 15
fi

keyfile=$1
user=$2
node=$3
member_id=` echo -n $4 |tr -s [:upper:] [:lower:]`
env=`echo -n $5 |tr -s [:lower:] [:upper:]`
market=`echo -n $6 |tr -s [:upper:] [:lower:]`
sftp=/usr/bin/sftp
echo=""
date=`date  +%Y%m%d`
echo "
    cd $member_id/$env/$market
    get "$date"*
    exit " | $sftp -C -i $keyfile -b - $user@$node
```

Please keep in mind that this script has been kept simple and universal and may need customisation to meet individual requirements.
Since this is an example for an operating system running a bash shell, please note the WinSCP is also capable of scripting and automated job processing on MS Windows.

4.7 Uploading Files (CUE)

Participants may use the SFTP client of their choice to access the CUE's server. After successful login, participants will be able to upload their files.

In case a connection to the CUE is not possible or an existing connection was interrupted please do not try to login again in noticeably brief time intervals (i.e. several tries every few seconds) but rather wait a short duration (a minute or more) and then try again. If this has been tried a few times and still no connection can be established, please contact DBAG Technical Support.

4.8 CRE and CUE Availability

The Common Report Engine and Common Upload Engine are designed to be available 24 hours a day, 7 days a week. However, we cannot always guarantee uninterrupted access. The system may be subject to occasional downtime due to scheduled maintenance, unexpected technical issues, or other unforeseen conditions.
The following circumstances restrict access to the CRE and CUE:

- Regular member database software maintenance is executed daily on the CRE and CUE at about 05:45 & 17:45 CET/CEST. Depending on the instance this takes up to 30 minutes. During this time, every single key is not available for a couple of seconds/minutes. This simply means that the user will not be able to log into a new session, but existing sessions will not be disconnected. Additionally, there is maintenance on the CUE instances starting after 23:30 for at least 30 minutes up to 40 minutes, where the servers are shut down and all existing connections will be disconnected, and no new sessions can be opened during this time (reconnect after midnight).
- Several downtimes per year for general hardware maintenance, typically during Saturdays/Sundays.
- Permanent session login is not supported.
- Following hardware maintenance, a new login needs to be performed.
- Scripts fetching reports automatically from the servers should be configured according to these restrictions.
- Deutsche Börse reserves the right to impose technical limitations on the number of requests allowed per time and counterparty, if necessary. It is recommended to keep an interval of at least 1 or 2 minutes between each connection attempt to the CRE.

5 Structures and Naming Conventions

5.1 Directory structure in the CRE private member folders

After a successful login, the user is placed to the chrooted file system root (/) - the home directory.
Users will not be able to access any files outside their home directory and subdirectories.
A business partner home directory may look like the sample below (user view).

Example 1	Example 2
/ +---abcex ¦ +---P ¦ ¦ +---eurex ¦ ¦ +---date ¦ +---S ¦ +---eurex ¦ +---date +---abcfr +---AS ¦ +---P ¦ +---eurex ¦ +---date +---S +---CCP ¦ +---date ¦ +---eurex ¦ +---date ¦ +---xetra +---date	----pakfr +---AS ¦ +---P ¦ +---xetra ¦ ¦ +---date ¦ ¦ ¦ +---xetra_ffm2 ¦ +---date ¦ +---S +---xetra ¦ +---date ¦ +---xetra_ffm2 +---date

Figure 17: Examples of directory structure in the member folder hierarchy

The first level of directories corresponds to the respective MemberID configured, followed by the environment (Production or Simulation) - (second directory level) and the market and date, where:

- AS=Advanced Simulation (Available only for Eurex Repo)
- P=Production
- S=Simulation

In example 1, member ABCEX has been configured for the Eurex production and simulation, and ABCFR has simulation environments for Eurex and Xetra and C7 SCS and the production environment for Eurex.
In example 2, member PAKFR has been configured for the Xetra and Börse Frankfurt production environment and for the Xetra and Börse Frankfurt simulation environment.
Please note that neither the directory structure nor access permissions can be manipulated by Deutsche Börse or the individual user. Access to member IDs, environments and markets is solely configured by the participant's Central Coordinator/ Technical User Administrator in the Member Section and "translated" into permissions for directories on the CRE.
Since CRE users are restricted to read-only (CUE users additionally can upload files) access to the CRE file system, file and directory operations are limited to commands like cd, get, help, ls, pwd, etc. Any operation on directories

or files within the file system that may incorporate or require manipulations to the file system content are not permitted.

5.2 Directory structure in the CRE public folders

Public folders publish non-transactional and non-participant specific reports and files. This is made possible using a shared folder called "publi" on the CRE. Participants can browse this "publi" directory using the same permissions they use to access transactional and participant-specific reports and files. To access public folders on Instance 1, participants must use port 2221 instead of port 2222. To access public folders on Instance 2, participants must use port 2231 instead of port 2232.

Example 3

```
+---publi
    +---AS
    +---P
    ¦   +---CCP
    ¦   +---eurex
    ¦   +---xetra
    ¦   +---xetra_ffm2
    +---S
        +---CCP
        +---eurex
        ¦   +---20120814
        ¦   +---20120823
        +---xetra
        +---xetra_ffm2
```

Fig 16: Examples of directory structure in public folders.

For the CRE public section, the same directory structure is applicable as for the CRE participant folders. Please refer to chapter 5.1 for further details about the directory structure.

5.3 CUE Structure

CUE report and file naming conventions and further procedures are described in a separate documentation issued by the respective service.

6 Report and File Naming Conventions

The CRE has the following REGEX (regular expression) pattern as naming conventions:

```
[0-9]{2}[0-9A-Z]{8}[0-9A-Z]{5}[0-9]{8}[A-Z0-9\_\-]{0,34}\.[A-Z]{3}
\.ZIP
```

Maximum length of a report file name is 64 characters!

The naming conventions in the CRE public folders are the same as in the CRE member folders, whereas all reports and files in the CRE public folders use the member ID PUBLI.

Please Note: Report and file naming conventions and further procedures for the CUE are described in a separate document issued by the respective service.

Versioning
In case a report or file needs to be corrected (due to inconsistencies, incompleteness, or corrupted data) the original zip file name will be modified. A versioning indicator will be added with a convention of
-V[0-9]{2}, starting with -V01 and maximum versions of -V99.
Please note: Report names will always be static. Delivery of the latest version of a given report can only be observed with the help of the versioning indicator added to the name of the corresponding zip file.

Examples for reports or files:
Original version: 01RPTCI731PAKFR202103160900.XML.ZIP
1st correction: 01RPTCI731PAKFR202103161000-V01.XML.ZIP
2nd correction: 01RPTCI731PAKFR202103161000-V02.XML.ZIP
[…]
Please note that the versioning indicator additionally applies to all report and file naming conventions for zip containers below.

6.1 CRE General Report Naming Conventions

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	i.e. 00 Eurex Clearing Production
[0-9A-Z]{8}	Report name	i.e. RPTTC540
[0-9A-Z]{5}	Member ID	i.e. PAKFR
[0-9]{8}	Business date	YYYYMMDD
[A-Z]{4}	Market Identifier Code (MIC)	Example : XETR for Xetra
[A-Z0-9_\-]{0,34}	Flexindicator 1 to 4 Timestamp Sequence number …	Optional Optional Optional Optional
\.	Dot	
[A-Z]{3}\.ZIP	Extension for compressed reports	CSV.ZIP, LIS.ZIP, TXT.ZIP, XML.ZIP, PDF.ZIP

Flexindicator "1" and "2" translate to "timestamp" and "sequence number" respectively. Enhancements may be made to the indicator in the future. Depending on the type of report, the indicator may remain empty.

Compression:
Reports and Files are provided in a compressed format. Compressed reports and files can be identified by the respective suffix. Depending on the market, the suffixes comprise:

Description	Suffix	Example
ZIP Format	(.ZIP)	(FILRDF for Eurex or Xetra)
Compressed text format	(.TXT.ZIP)	(CB001 for Eurex)
Compressed XML format	(.XML.ZIP)	(CB001 for Eurex)

6.1.1 Derivatives Markets Report Naming Conventions

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	00 (Production, Eurex Clearing) 01 (Simulation, Eurex Clearing) 90 (Production, Eurex Trading) 95 (Simulation, Eurex Trading)
[0-9A-Z]{8}	Report name	i.e. 00RPTCB012 = report "TC540" (Prod.)
[0-9A-Z]{5}	Member ID	i.e. PAKFR
[0-9]{8}	Business date	YYYYMMDD
[0-9A-Z]{5}	Flexindicator 1	Only for 00 and 01: Eurex Clearing Member Id
[A-Z]{4}	Flexindicator 2	intraday/end of day identifier
[A-Z]{4}	Flexindicator 3	Exchange Market Identifier Code (MIC)
[A-Z]{0-10}	Flexindicator 4	Clearing Report Naming Extension
\.	Dot	
[A-Z]{3}\.ZIP	Extension for compressed reports	CSV.ZIP, LIS.ZIP, TXT.ZIP, XML.ZIP, PDF.ZIP

Example Eurex Clearing report Prod	00RPTCE755GDBXX20210319GDBXX.TXT.ZIP
Example Eurex Clearing report Simu	01RPTCE755GDBXX20210319GDBXX.TXT.ZIP
Example Eurex Trading report Prod	90RPTRD125DGBXX20210319XEUR.TXT.ZIP
Example Eurex Trading report Simu	95RPTRD125DGBXX20210319XEUR.TXT.ZIP
Example Eurex Clearing Report Prod with naming extension	00RPTCDESGDGBXX20241123GDBXXCOLLATERAL.CSV.ZIP

MIC codes:
XEUR Eurex
XEEE European Energy Exchange*

*European Energy Exchange might also use alternative MIC codes for market segments

6.1.2 Cash Markets Report Naming Conventions

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	51 (Production Xetra) 52 (Simulation Xetra) 61 (Simulation Börse Frankfurt) 62 (Production Börse Frankfurt)
[0-9A-Z]{8}	Report name	i.e. RPTTC810
[0-9A-Z]{5}	Member ID	i.e. PAKFR
[0-9]{8}	Business date	YYYYMMDD
[A-Z]{4}	Flexindicator 1	MIC Code
[A-Z0-9]{2}	Flexindicator 2	T7 Indicator
\.	Dot	
[A-Z]{3}\.ZIP	Extension for compressed reports	CSV.ZIP, LIS.ZIP, TXT.ZIP, XML.ZIP

Example Xetra report Prod	51RPTCB068GDBXX20210319XETRT7.TXT.ZIP
Example Xetra report Simu	52RPTCB068GDBXX20210319XETRT7.TXT.ZIP
Example Börse Frankfurt report Prod	61RPTCB068GDBXX20210319XFRAT7.TXT.ZIP
Example Börse Frankfurt report Simu	62RPTCB068GDBXX20210319XFRAT7.TXT.ZIP

Current list of valid MIC codes for T7 Cash markets:	
XETR	Xetra
XMAL	Malta Stock Exchange
XBUL	Bulgarian Stock Exchange
XFRA	Deutsche Börse AG / Börse Frankfurt

6.1.3 C7 SCS Report Naming Conventions

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	20 (Production), 21 (Simulation)
[0-9A-Z]{8}	Report name	i.e. RPTCE270
[0-9A-Z]{5}	Member ID	i.e. PAKFR
[0-9]{8}	Business date	YYYYMMDD
[0-9]{2}	Flexindicator 1	settlement/continuous run number
[0-9A-Z]{5}	Flexindicator 2	C7 CSC reporting run type
\.	Dot	
[A-Z]{3}\.ZIP	Extension for compressed reports	CSV.ZIP, LIS.ZIP, TXT.ZIP, XML.ZIP

Example C7 SCS report Prod 20RPTCE897ABCFR20201013.XML.ZIP

Example C7 SCS report Simu 21RPTCE897ABCFR20201013.XML.ZIP

6.1.4 Eurex Repo Report Naming Conventions - Private Folders

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	14 (Production) 15 (Simulation) 19 (Advanced Simulation)
[0-9A-Z]{8}	Report name	i.e. RPTMTX01
[0-9A-Z]{5}	Member ID	i.e. PAKFR
[0-9]{8}	Business date	YYYYMMDD
[0-9]{2}	Counter	01
[0-9 A-Z]{8}	Extract Name	The extract name provided by the member, filled with trailing zeros to the 7th character. 8th character is “S” for scheduled extract or “N” for Run Now.
[0-9 A-Z]{5}	Segment	e.g. GCP00
\.	Dot	
[A-Z]{3}\.ZIP	Extension for compressed reports	CSV.ZIP, XLS.ZIP

Example Eurex Repo report Prod 14RPTMTX01002XX2019032813GCPOOL0SGCP00.XLS.ZIP

Example Eurex Repo report Simu 15RPTMTX01002XX2019032813GCPOOL0SGCP00.XLS.ZIP

6.1.5 Eurex Repo Report Naming Conventions - Public Folder

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	14 (Production) 15 (Simulation)
[0-9A-Z]{8}	File name	RPTEAS01
[0-9A-Z]{5}	Member ID	PUBLI
[0-9]{8}	Business date	YYYYMMDD
[0-9A-Z_\-]{0,34}	Flexindicator 1 Flexindicator 2	Report Group definition: "GCPOO" (GCP Baskets) "REPOM" (REPO Baskets) n.a.
\.	Dot	
[A-Z]{3}\.ZIP	Extension for compressed files	CSV.ZIP, LIS.ZIP, TXT.ZIP, XML.ZIP

Example Eurex Repo file Prod 14RPTEAS01PUBLIYYYYMMDDGCPOO.CSV.ZIP

14RPTEAS02PUBLIYYYYMMDDREPOM.CSV.ZIP

Example Eurex Repo file Simu 15RPTEAS01PUBLIYYYYMMDDGCPOO.CSV.ZIP

15RPTEAS02PUBLIYYYYMMDDREPOM.CSV.ZIP

6.1.6 EurexOTC Clear and Eurex Risk Operation Report Naming Conventions

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	OTC Clear: 84 (Production EurexOTC) 85 (Simulation EurexOTC) Risk Operation: 00 (Production Risk) 01 (Simulation Risk)
[0-9A-Z]{8}	Report name	i.e. RPTCB202
[0-9A-Z]{5}	Member ID	i.e. GDBXX
[0-9]{8}	Business date	YYYYMMDD
[0-9]{6}	Flexindicator 1	Time HHMMSS, used only for intraday reports
[0-9]{0,10}	Flexindicator 2	unique identifier (trade id)
\.	Dot	
[A-Z]{3}	Extension for compressed reports	TXT.ZIP, CSV.ZIP, XML.ZIP

Example EurexOTC end-of-day report Prod	84RPTCB202GDBXX20210319.XML.ZIP
Example EurexOTC intraday report Prod	84RPTCI205GDBXX20210319105934.XML.ZIP
Example EurexOTC end-of-day report Simu	85RPTCB202GDBXX20210319.XML.ZIP
Example EurexOTC intraday report Simu	85RPTCI205GDBXX20210319105934.XML.ZIP

6.1.7 Buy-In Agent Report Naming Conventions

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	04 (Production) 05 (Simulation)
[0-9A-Z]{8}	Report name	i.e. RPTBIxxx
[0-9A-Z]{5}	Member ID	i.e. GDBXX
[0-9]{8}	Business date	YYYYMMDD
n.a.	Flexindicator 1	n.a.
[A-Z]{4}	Flexindicator 2	n.a.
\.	Dot	
[A-Z]{3}\.ZIP	Extension for compressed reports	CSV.ZIP, XML.ZIP, TXT.ZIP, PDF.ZIP

Example Buy-In Agent report Prod 04RPTBI000MEMIDYYYYMMDD.PDF.ZIP

Example Buy-In Agent report Simu 05RPTBI000MEMIDYYYYMMDD.PDF.ZIP

6.2 CRE General File Naming Conventions

Files, such as theoretical price files in Eurex or instrument reference data files are called non-transactional reports. The naming conventions for non-transactional reports are slightly different from report naming conventions.

6.2.1 T7 Derivatives Markets File Naming Conventions

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	90 (Production) 95 (Simulation)
[0-9A-Z]{8}	Filename	i.e. RPTCB012
[0-9A-Z]{5}	Member ID	i.e. PUBLI
[0-9]{8}	Business date	YYYYMMDD
[A-Z]{4}	Flexindicator 1	intraday/end of day identifier
n.a.	Flexindicator 2	n.a.
\.	Dot	
[A-Z]{3}\.ZIP	Extension for compressed files	CSV.ZIP, LIS.ZIP, TXT.ZIP, XML.ZIP

Example Eurex Trading file Prod 90FILTRFCPPUBLI20210316XEUR.CSV.ZIP

Example Eurex Trading file Simu 95FILTRFCPPUBLI20210316XEUR.CSV.ZIP

6.2.2 T7 Derivatives Markets Reference Data File (RDF) Naming Conventions

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	90 (Production) 95 (Simulation)
[0-9A-Z]{8}	Report name	i.e. FILRDF01
[0-9A-Z]{5}	Member ID	PUBLI
[0-9]{8}	Business date	YYYYMMDD
[A-Z]{4}	Flexindicator 1	Exchange Market Identifier Code (MIC)
[A-Z]{4}	Flexindicator 2	n.a.
[0-9A-Z]{5}	Timestamp	UTC second of the year when the initial file (sequence number 000) was created, base36 encoded
[0-9]{3}	Sequence number	000 – 999
\.	Dot	
[A-Z]{3}\.ZIP	extension for compressed files	XML.ZIP

Example Eurex RDF Prod	90FILRDF01PUBLI20210316XEUR3SY6F000.XML.ZIP
Example Eurex RDF Simu	95FILRDF01PUBLI20210316XEUR3SY6F000.XML.ZIP
Example EEX RDF Prod	90FILRDF01PUBLI20210316XEEE3SY68001.XML.ZIP
Example EEX RDF Simu	95FILRDF01PUBLI20210316XEEE3SY68001.XML.ZIP

6.2.3 T7 Xetra File Naming Conventions

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	51 (Production) 52 (Simulation)
[0-9A-Z]{8}	Filename	i.e. FILLE01
[0-9A-Z]{5}	Member ID	i.e. PUBLI
[0-9]{8}	Business date	YYYYMMDD
[A-Z]{4}	Flexindicator 1	n.a.
n.a.	Flexindicator 2	n.a.
\.	Dot	
[A-Z]{3}\.ZIP	Extension for compressed files	CSV.ZIP, LIS.ZIP, TXT.ZIP, XML.ZIP

Example Xetra file Prod 51FILLEI01PUBLI20210319.CSV.ZIP

Example Xetra file Simu 52FILLEI01PUBLI20210319.CSV.ZIP

6.2.4 T7 Xetra Reference Data File (RDF) Naming Conventions in the Public Folder

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	51 (Production) 52 (Simulation)
[0-9A-Z]{8}	Report name and ID	FILRDF01(dynamic) FILRDF02 (static)
[0-9A-Z]{5}	Member ID	PUBLI
[0-9]{8}	Business date	YYYYMMDD
[A-Z]{4}	Flexindicator 1	Exchange Market Identifier Code (MIC)
[A-Z]{4}	Flexindicator 2	n.a.
[0-9A-Z]{5}	Timestamp	UTC second of the year when the initial file (sequence number 000) was created, base36 encoded
[0-9]{3}	Sequence number	000
\.	Dot	
[A-Z]{3}\.ZIP	extension for compressed files	XML.ZIP

Example Xetra T7 RDF Prod 51FILRDF01PUBLI20131218XETR*3OSKW*000.XML

51FILRDF02PUBLI20131218XETR.ZIP

Example Xetra T7 RDF Simu 52FILRDF01PUBLI20131218XETR*3OSKW*000.XML

52FILRDF02PUBLI20131218XETR.ZIP

Current list of valid Xetra MIC codes for Xetra T7:	
XETR	Xetra Frankfurt
XMAL	Xetra Malta
XBUL	Xetra Bulgaria

6.2.5 T7 Börse Frankfurt File Naming Conventions

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	61 (Production) 62 (Simulation)
[0-9A-Z]{8}	Filename	i.e. FILLE01
[0-9A-Z]{5}	Member ID	i.e. PUBLI
[0-9]{8}	Business date	YYYYMMDD
[A-Z]{4}	Flexindicator 1	Exchange Market Identifier Code (MIC)
n.a.	Flexindicator 2	n.a.
\.	Dot	
[A-Z]{3}\.ZIP	Extension for compressed files	CSV.ZIP, LIS.ZIP, TXT.ZIP, XML.ZIP

Example file Prod 61FILLEI01PUBLI20210319.CSV.ZIP

Example file Simu 62FILLEI01PUBLI20210319.CSV.ZIP

6.2.6 T7 Börse Frankfurt and Börse Frankfurt Zertifikate Reference Data

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	61 (Production) 62 (Simulation)
[0-9A-Z]{8}	Report name and ID	FILRDF02 (static) FILRDF01 (BF+BFZ, intraday)* FILRDF03 (BF) FILRDF04 (BFZ) FILRDF05 (BFZ BALFR) FILRDF06 (BFZ ICFFR)
[0-9A-Z]{5}	Member ID	PUBLI
[0-9]{8}	Business date	YYYYMMDD
[A-Z]{4}	Flexindicator 1	Exchange Market Identifier Code (MIC)
[A-Z]{4}	Flexindicator 2	n.a.
[0-9A-Z]{5}	Timestamp	UTC second of the year when the initial file (sequence number 000) was created, base36 encoded
[0-9]{3}	Sequence number	000
\.	Dot	
[A-Z]{3}\.ZIP	extension for compressed files	XML.ZIP CSV.ZIP

*Please note: Only the RDF01 incremental file will list potentially changed instrument attributes.

Example Börse Frankfurt RDF Prod	61FILRDF02PUBLI20190506XFRA.ZIP
	61FILRDF01PUBLI20190506XFRA6CMHD000.XML.ZIP
	61FILRDF01PUBLI20190506XFRA6CMHD000.CVS.ZIP
Example Börse Frankfurt RDF Simu	62FILRDF02PUBLI20190506XFRA.ZIP
	62FILRDF01PUBLI20190506XFRA6CMHD000.XML.ZIP
	62FILRDF01PUBLI20190506XFRA6CMHD000.CVS.ZIP

6.2.7 C7 SCS File Naming Conventions

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	20 (Production) 21 (Simulation)
[0-9A-Z]{8}	Filename	i.e. FPICTHEC
[0-9A-Z]{5}	Member ID	i.e. PAKFR
[0-9]{8}	Business date	YYYYMMDD
n.a.	Flexindicator 1	n.a.
n.a.	Flexindicator 2	n.a.
\.	Dot	
[A-Z]{3}\.ZIP	Extension for compressed files	CSV.ZIP, LIS.ZIP, TXT.ZIP, XML.ZIP

Example C7 SCS theoretical price file Prod 20FPICTHEBPUBLI20210319.TXT.ZIP

Example C7 SCS theoretical price file Simu 21FPICTHEBPUBLI20210319.TXT.ZIP

6.2.8 Eurex Clearing Prisma File Naming Conventions - Public Folder

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	00 (Production) 01 (Simulation)
[0-9A-Z]{8}	Report name	i.e. FILTHEOI
[0-9A-Z]{5}	Member ID	PUBLI
[0-9]{8}	Business date	YYYYMMDD
[0-9A-Z_\-]{0,34}	Flexindicator 1 Flexindicator 2	<file_type> <version> <tech_split_ident> _ <max_split_tech>
[A-Z]{3}\.ZIP	Extension for compressed files	CSV.ZIP, LIS.ZIP, TXT.ZIP, XML.ZIP

Examples Open interest theoretical price file Prod	00FILTHEOIPUBLI20210319EEXCNIEODX01_01.TXT.ZIP
Examples Open interest theoretical price file Simu	01FILTHEOIPUBLI20210319EEXCNIEODX01_01.TXT.ZIP
Examples of Other files (End of day, no technical split needed) Prod	00FILFOREXPUBLI20170807EUXCEODX.TXT.ZIP
	00FILRIMECPUBLI20170807EUXCEODX.TXT.ZIP
Examples of Other files (End of day, no technical split needed) Simu	01FILFOREXPUBLI20170807EUXCEODX.TXT.ZIP
	01FILRIMECPUBLI20170807EUXCEODX.TXT.ZIP

6.2.9 Eurex Clearing Prisma File Naming Conventions for Member Specific Files

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	00 (Production) 01 (Simulation)
[0-9A-Z]{8}	File name	i.e. FILTHEOI
[0-9A-Z]{5}	Member ID	i.e. PAKFR
[0-9]{8}	Business date	YYYYMMDD
[0-9A-Z_\-]{0,34}	Flexindicator 1 Flexindicator 2	<clgmember_id> <version> <tech_split_ident> _ <max_split_tech>
\.	Dot	
[A-Z]{3}\.ZIP	Extension for compressed files	CSV.ZIP, LIS.ZIP, TXT.ZIP, XML.ZIP

Example: Open interest theoretical price files intraday Prod	00FILTHEOIGDBXX20210319CBKFREUXCSODX01_01.TXT.ZIP
Example: Open interest theoretical price files intraday Simu	01ILTHEOIGDBXX20210319CBKFREUXCSODX01_01.TXT.ZIP
Example: Open interest theoretical price files EOD Prod	00FILTHEOGDBXX20210319CBKFREUXCEODX01_01.TXT.ZIP
Example: Open interest theoretical price files EOD Simu	01FILTHEOIGDBXX0210319CBKFREUXCEODX01_01.TXT.ZIP

6.2.10 Regulatory Reporting Eurex and FWB (Non-MIFIR Reporting)

Field	Meaning	Remark
[0-9]{2}	CRE Destination ID	88 (Production) 89 (Simulation)
[0-9A-Z]{8}	Report Name	TVEXT001 TVFBK001 TVBKU001
[0-9A-Z]{5}	Member ID	ABCLO
[0-9]{8}	Trading Date	YYYYMMDD
[0-9]{6}	Timestamp (for feedback files)	HHMMSS
[0-9A-Z]{4}	MIC	i.e. XEUR, XETR, XFRA
[0-9A-Z]{3}	File type	.CSV.ZIP

File name for a Venue Extract in the production environment is	88TVEXT001ABCLO20220304XEUR.CSV.ZIP
File name for a Venue Extract in the simulation environment is	89TVEXT001ABCLO20220304XEUR.CSV.ZIP
Feedback file to upload file Prod	88TVFBK001ABCLO20220305125959XEUR.CSV.ZIP
Feedback file to upload file Simu	89TVFBK001ABCLO20220305125959XEUR.CSV.ZIP
Backup enrichment feedback file Prod	88TVBKU001ABCLO20220304XEUR.CSV.ZIP
Backup enrichment feedback file Simu	89TVBKU001ABCLO20220304XEUR.CSV.ZIP

6.3 Corrupted Reports and Files

A report or file not following the naming conventions might be corrupt. Occurrence of such reports should be reported to Deutsche Börse Technical Key Account Management.
Example for a corrupted report: 01RPTTA111PAKFR20120301GDBXX.TXT.ZIP_INC

6.4 Historical Reports: Restore Directory

A new ‘restore’ directory can be created on the business day directory level of the member folders. This directory is created and populated if participants manually order the retransmission of historical files and reports that are no longer available on the CRE.
As usual ordering of historical reports needs to be arranged with the help of cts@deutsche-boerse.com
A directory will also be created and populated with reports or files that outdate the history-keeping period. An existing ‘restore’ directory will also be available for a minimum of 10 business days.

The download and saving of all relevant reports are recommended since the restore of reports older than 10 business days is liable to additional charges.

6.5 Streamlined EOL Encoding

All reports and files available on the CRE use a carriage return line feed character <CRLF> as line separator.

7 Appendix A

See examples of log file / output of successful connections to the CRE below.

7.1 Example of successful WinSCP connection log file

```
Debug level 1 is set:


. 2024-08-01 13:27:08.342 ------------------------------------------------
----------------------
. 2024-08-01 13:27:08.342 WinSCP Version 4.3.2 (Build 1201) (OS 5.2.3790 Ser-
vice Pack 2)
. 2024-08-01 13:27:08.342 Login time: Wednesday, August 01, 2024 1:27:08 PM
. 2024-08-01 13:27:08.342 ------------------------------------------------
----------------------
. 2024-08-01 13:27:08.342 Session name: 1027709_000001@193.29.90.67
. 2024-08-01 13:27:08.342 Host name: 193.29.90.67 (Port: 2222)
. 2024-08-01 13:27:08.342 User name: 1027709_000001 (Password: No, Key file:
Yes)
. 2024-08-01 13:27:08.342 Tunnel: No
. 2024-08-01 13:27:08.342 Transfer Protocol: SFTP
. 2024-08-01 13:27:08.342 Ping type: -, Ping interval: 30 sec; Timeout: 15
sec
. 2024-08-01 13:27:08.342 Proxy: none
. 2024-08-01 13:27:08.342 SSH protocol version: 2; Compression: Yes
. 2024-08-01 13:27:08.342 Bypass authentication: No
. 2024-08-01 13:27:08.342 Try agent: Yes; Agent forwarding: No; TIS/Crypto-
Card: No; KI: Yes; GSSAPI: No
. 2024-08-01 13:27:08.342 Ciphers: aes,blowfish,3des,WARN,arcfour,des;
Ssh2DES: No
. 2024-08-01 13:27:08.342 SSH Bugs: -,-,-,-,-,-,-,-,-
. 2024-08-01 13:27:08.342 SFTP Bugs: -,-
. 2024-08-01 13:27:08.342 Return code variable: Autodetect; Lookup user
groups: Yes
. 2024-08-01 13:27:08.342 Shell: default
. 2024-08-01 13:27:08.342 EOL: 0, UTF: 2
. 2024-08-01 13:27:08.342 Clear aliases: Yes, Unset nat.vars: Yes, Resolve
symlinks: Yes
. 2024-08-01 13:27:08.342 LS: ls -la, Ign LS warn: Yes, Scp1 Comp: No
. 2024-08-01 13:27:08.342 Local directory: default, Remote directory: home,
Update: No, Cache: Yes
. 2024-08-01 13:27:08.342 Cache directory changes: Yes, Permanent: Yes
. 2024-08-01 13:27:08.342 DST mode: 1
. 2024-08-01 13:27:08.342 ------------------------------------------------
----------------------
. 2024-08-01 13:27:08.358 Looking up host "193.29.90.67"
. 2024-08-01 13:27:08.358 Connecting to 193.29.90.67 port 2222
```

```
. 2024-08-01 13:27:08.358 Waiting for the server to continue with the ini-
tialisation
. 2024-08-01 13:27:08.358 Detected network event
. 2024-08-01 13:27:08.373 Detected network event
. 2024-08-01 13:27:08.373 Server version: SSH-2.0-OpenSSH_5.3
. 2024-08-01 13:27:08.373 We believe remote version has SSH-2 ignore bug
. 2024-08-01 13:27:08.373 Using SSH protocol version 2
. 2024-08-01 13:27:08.373 We claim version: SSH-2.0-WinSCP_release_4.3.2
. 2024-08-01 13:27:08.373 Waiting for the server to continue with the ini-
tialisation
. 2024-08-01 13:27:08.373 Detected network event
. 2024-08-01 13:27:08.373 Doing Diffie-Hellman group exchange
. 2024-08-01 13:27:08.373 Waiting for the server to continue with the ini-
tialisation
. 2024-08-01 13:27:08.420 Detected network event
. 2024-08-01 13:27:08.420 Doing Diffie-Hellman key exchange with hash SHA-1
. 2024-08-01 13:27:08.639 Waiting for the server to continue with the ini-
tialisation
. 2024-08-01 13:27:08.639 Detected network event
. 2024-08-01 13:27:08.967 Host key fingerprint is:
. 2024-08-01 13:27:08.967 ssh-rsa 4096
3b:c0:a4:8d:a2:a0:f7:2b:a1:2e:0c:b7:f4:02:9d:c7
. 2024-08-01 13:27:08.967 Initialised AES-256 SDCTR client->server encryption
. 2024-08-01 13:27:08.967 Initialised HMAC-SHA2 client->server MAC algorithm
. 2024-08-01 13:27:08.967 Initialised AES-256 SDCTR server->client encryption
. 2024-08-01 13:27:08.967 Initialised HMAC-SHA2 server->client MAC algorithm
. 2024-08-01 13:27:08.967 Waiting for the server to continue with the ini-
tialisation
. 2024-08-01 13:27:09.014 Detected network event
. 2024-08-01 13:27:09.014 Reading private key file "C:\Program
Files\putty\cre_test_1_priv.ppk"
! 2024-08-01 13:27:09.014 Using username "1027709_000001".
. 2024-08-01 13:27:09.014 Waiting for the server to continue with the ini-
tialisation
. 2024-08-01 13:27:09.076 Detected network event
. 2024-08-01 13:27:09.092 Offered public key
. 2024-08-01 13:27:09.092 Waiting for the server to continue with the ini-
tialisation
. 2024-08-01 13:27:09.092 Detected network event
. 2024-08-01 13:27:09.092 Offer of public key accepted
! 2024-08-01 13:27:09.092 Authenticating with public key "rsa-key-20110318"
. 2024-08-01 13:27:09.514 Waiting for the server to continue with the ini-
tialisation
. 2024-08-01 13:27:09.670 Detected network event
. 2024-08-01 13:27:09.670 Access granted
. 2024-08-01 13:27:09.670 Waiting for the server to continue with the ini-
tialisation
. 2024-08-01 13:27:09.873 Detected network event
. 2024-08-01 13:27:09.873 Opened channel for session
```

```
. 2024-08-01 13:27:09.873 Waiting for the server to continue with the ini-
tialisation
. 2024-08-01 13:27:10.076 Detected network event
. 2024-08-01 13:27:10.076 Started a shell/command
. 2024-08-01 13:27:10.076 ------------------------------------------------
----------------------
. 2024-08-01 13:27:10.076 Using SFTP protocol.
. 2024-08-01 13:27:10.076 Doing startup conversation with host.
> 2024-08-01 13:27:10.076 Type: SSH_FXP_INIT, Size: 5, Number: -1
. 2024-08-01 13:27:10.076 Sent 9 bytes
. 2024-08-01 13:27:10.076 There are 0 bytes remaining in the send buffer
. 2024-08-01 13:27:10.076 Waiting for another 4 bytes
. 2024-08-01 13:27:10.076 Detected network event
. 2024-08-01 13:27:10.076 Received 99 bytes (0)
. 2024-08-01 13:27:10.076 Read 4 bytes (95 pending)
. 2024-08-01 13:27:10.076 Read 95 bytes (0 pending)
< 2024-08-01 13:27:10.076 Type: SSH_FXP_VERSION, Size: 95, Number: -1
. 2024-08-01 13:27:10.076 SFTP version 3 negotiated.
. 2024-08-01 13:27:10.076 Unknown server extension posix-re-
name@OpenSSH.com="1"
. 2024-08-01 13:27:10.076 Unknown server extension statvfs@OpenSSH.com="2"
. 2024-08-01 13:27:10.076 Unknown server extension fstatvfs@OpenSSH.com="2"
. 2024-08-01 13:27:10.076 We believe the server has signed timestamps bug
. 2024-08-01 13:27:10.076 We will use UTF-8 strings for status messages only
. 2024-08-01 13:27:10.076 Limiting packet size to OpenSSH sftp-server limit
of 262148 bytes
. 2024-08-01 13:27:10.092 Getting current directory name.
. 2024-08-01 13:27:10.092 Getting real path for '.'
> 2024-08-01 13:27:10.092 Type: SSH_FXP_REALPATH, Size: 10, Number: 1296
. 2024-08-01 13:27:10.092 Sent 14 bytes
. 2024-08-01 13:27:10.092 There are 0 bytes remaining in the send buffer
. 2024-08-01 13:27:10.092 Waiting for another 4 bytes
. 2024-08-01 13:27:10.092 Detected network event
. 2024-08-01 13:27:10.092 Received 27 bytes (0)
. 2024-08-01 13:27:10.092 Read 4 bytes (23 pending)
. 2024-08-01 13:27:10.092 Read 23 bytes (0 pending)
< 2024-08-01 13:27:10.092 Type: SSH_FXP_NAME, Size: 23, Number: 1296
. 2024-08-01 13:27:10.092 Real path is '/'
. 2024-08-01 13:27:10.092 Listing directory "/".
> 2024-08-01 13:27:10.092 Type: SSH_FXP_OPENDIR, Size: 10, Number: 1547
. 2024-08-01 13:27:10.092 Sent 14 bytes
. 2024-08-01 13:27:10.092 There are 0 bytes remaining in the send buffer
. 2024-08-01 13:27:10.092 Waiting for another 4 bytes
. 2024-08-01 13:27:10.092 Detected network event
. 2024-08-01 13:27:10.092 Received 17 bytes (0)
. 2024-08-01 13:27:10.092 Read 4 bytes (13 pending)
. 2024-08-01 13:27:10.092 Read 13 bytes (0 pending)
< 2024-08-01 13:27:10.092 Type: SSH_FXP_HANDLE, Size: 13, Number: 1547
> 2024-08-01 13:27:10.092 Type: SSH_FXP_READDIR, Size: 13, Number: 1804
```

```
. 2024-08-01 13:27:10.092 Sent 17 bytes
. 2024-08-01 13:27:10.092 There are 0 bytes remaining in the send buffer
. 2024-08-01 13:27:10.092 Waiting for another 4 bytes
. 2024-08-01 13:27:10.248 Detected network event
. 2024-08-01 13:27:10.248 Received 1903 bytes (0)
. 2024-08-01 13:27:10.248 Read 4 bytes (1899 pending)
. 2024-08-01 13:27:10.248 Read 1899 bytes (0 pending)
< 2024-08-01 13:27:10.248 Type: SSH_FXP_NAME, Size: 1899, Number: 1804
> 2024-08-01 13:27:10.248 Type: SSH_FXP_READDIR, Size: 13, Number: 2060
. 2024-08-01 13:27:10.248 Sent 17 bytes
. 2024-08-01 13:27:10.248 There are 0 bytes remaining in the send buffer
. 2024-08-01 13:27:10.248 Read file '.' from listing
. 2024-08-01 13:27:10.248 Read file '..' from listing
. 2024-08-01 13:27:10.248 Read file 'gdbxx' from listing
. 2024-08-01 13:27:10.248 Waiting for another 4 bytes
. 2024-08-01 13:27:10.248 Detected network event
. 2024-08-01 13:27:10.248 Received 32 bytes (0)
. 2024-08-01 13:27:10.248 Read 4 bytes (28 pending)
. 2024-08-01 13:27:10.248 Read 28 bytes (0 pending)
< 2024-08-01 13:27:10.248 Type: SSH_FXP_STATUS, Size: 28, Number: 2060
< 2024-08-01 13:27:10.248 Status code: 1
> 2024-08-01 13:27:10.248 Type: SSH_FXP_CLOSE, Size: 13, Number: 2308
. 2024-08-01 13:27:10.248 Sent 17 bytes
. 2024-08-01 13:27:10.248 There are 0 bytes remaining in the send buffer
. 2024-08-01 13:27:10.248 Startup conversation with host finished.
. 2024-08-01 13:27:10.311 Session upkeep
. 2024-08-01 13:27:10.311 Detected network event
. 2024-08-01 13:27:10.311 Received 28 bytes (0)
. 2024-08-01 13:27:14.498 Session upkeep
. 2024-08-01 13:27:14.529 Closing connection.
. 2024-08-01 13:27:14.529 Sending special code: 12
. 2024-08-01 13:27:14.529 Sent EOF message
```

8 Appendix B

8.1 Markets and Markets Included

CRE	Market	Environment	Included Market	MIC Code
CRE Instance A	C7 SCS	PRODUCTION	C7 SCS	n.a.
		SIMULATION	C7 SCS	n.a.
	Derivatives Markets	PRODUCTION	EUREX EEX OTC Clear	XEUR XEEE n.a
		SIMULATION	EUREX EEX OTC Clear	XEUR XEEE n.a
	Cash Markets	PRODUCTION	XETRA MALTA SE BULGARIAN SE	XETR XMAL XBUL
		SIMULATION	XETRA MALTA SE BULGARIAN SE	XETR XMAL XBUL
	Börse Frankfurt	PRODUCTION	XETRA FFM2	XFRA
		SIMULATION	XETRA FFM2	XFRA
CRE Instance B	F7 Eurex Repo	PRODUCTION	F7 Eurex Repo	XEUP
		SIMULATION	F7 Eurex Repo	XEUP
	Eurex STS	PRODUCTION	BUY_IN_AGENT	n.a
		SIMULATION	BUY_IN_AGENT	n.a
	Regulatory Reporting	PRODUCTION	MIFID	XEEE, XEUR, XETR, XFRA
		SIMULATION	MIFID	XEEE, XEUR, XETR, XFRA

8.2 CRE Destination ID Number on each instance

CRE Instance 1:	**CRE Instance 2 :**
00 Eurex Clearing Production	04 Eurex STS Buy-In Agent Production
01 Eurex Clearing Simulation	05 Eurex STS Buy-In Agent Simulation
20 C7 SCS Production	14 Eurex Repo Production
21 C7 SCS Simulation	15 Eurex Repo Simulation
51 T7 Cash Market Production (XETR, XBUL, XMAL)	19 Eurex Repo Advanced Simulation
52 T7 Cash Market Simulation (XETR, XBUL, XMAL)	88 Regulatory Reporting Production (all markets)
61 T7 FFM2 Production (XFRA)	89 Regulatory Reporting Simulation (all markets)
62 T7 FFM2 Simulation (XFRA)	
84 Eurex OTC Production	
85 Eurex OTC Simulation	
90 T7 Derivatives Production (XEUR, XEEE)	
95 T7 Derivatives Simulation (XEUR, XEEE)	

9 Change Log

The change log serves as a record of the latest major changes.

Version	Date	Chapter, page	Change
2022.08	5 August 2022	4.1	Deleted Regulatory Reporting Hub from CRE B
2022.03	1 March 2023	all	Changed wording. • "Member area" & "Public area" to "member folder" & "public folder" • CRE "Area A" and "Area B" to CRE "Instance 1" and CRE "Instance 2"
2023.08	1 August 2023	6.4, 4.8 Chapter 6	Moved the CRE and CUE availability info to chapter 4.8 and updated the content. Minor enhancements for file descriptions.
2023.09	5 September 2023	Chapter 3	Re-ordering sub- chapters, deleting double entries and minor enhancements
2024.03	20 February 2024	Chapter 2.4 Chapter 3.2	Added Host-Key Algorithms Changed wording
2024.08	8 August 2024	all Chapter 2.2 Chapter 3.2 Chapter 6.1.1	Consolidated wording for CRE Destination Number and environment (production and simulation) List of abbreviations Added Ed25519 (Edwards Curve 25519) Added Ed25519 (Edwards Curve 25519) Added Flex indicator for clearing reports "Clearing Report Naming Extension"
2024.08	20 August 2024	Chapter 7.1 all	Updated the WinSCP connection log file. Changed wording
2025.03	15 March 2025	2.2 3.2 4.8 6	Text improvements (switch Ed25519 as first and RSA as second alternative) Updated screenshots and text improvements Updated availability description Small corrections and text improvements