



FWB / Eurex – Client & Member Reference Data Upload How to connect via SFTP & upload files

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1. Introduction

In order to comply with the MiFID II reporting obligations, trading participants will have to provide reference data (Client ID- short/ long code; certified Algo IDs) to the trading venues. For the upload of the respective data, we will offer customers the possibility to securely send files via the Secure File Transfer Protocol (SFTP) in addition to the file upload via the Xetra or Eurex Member Section.

In order to securely send files to the SFTP Xetra or Eurex server, the trading participant first needs to have a valid Legal Entity Identifier (LEI) and a separate SSH key pair (public/private key). For the time being, the trading participants are asked to generate this key pair themselves and send only the public key to customer.readiness@deutsche-boerse.com in **open SSH format** in order to validate the correctness of the LEI and import it into the server. Section 3 describes how such key pairs are generated in detail.

Please note that one LEI is always linked to just one SSH key and with this, the trading participant can provide data required for Xetra and/ or Eurex reference data as well as for Deutsche Börse Regulatory Reporting Hub services. If a trading participant is already a Regulatory Reporting Hub user and has created the SSH key already, this key has to be used for all services.

This document

- Describes how to generate keys in order to connect to a SFTP server
- Explains step-by-step how to utilize user-friendly SFTP clients to get access to the server
- Describes how to generate correct inbound files
- Covers necessary contact data for technical and functional support.

2. Technical Pre-Conditions

Below are the hardware and software requirements to connect to the Xetra / Eurex server using SFTP protocol.

2.1. Hardware requirements

There are no particular hardware requirements to access to the Xetra / Eurex server via native internet. The server can be accessed with any computer running a SFTP client program. Trading Members connecting to the Common Report Engine (CRE) via a leased line can use the same connection for the transmission of short/long code mapping files. Please refer to the respective IP addresses for native internet or leased line connection in the text below.

2.2. Software requirements

To transfer files to or from a server via SFTP, a SFTP client is required. Our SFTP offering was tested with the following two commonly used clients:

- WinSCP (version 5.1.4)
- TurboFTP (version 6.30)

In this guide we describe the use of two commonly used clients in order to connect to the server successfully. Other SFTP client program like FileZilla are options that can be used but they are not described here.

3. How to generate and save SSH key pair

Please note that we recommend separate SSH key pairs for Simulation and Production for security reasons. In addition, only the public keys in the Open SSH format will be accept in our environments.

In Windows, PUTTY Key Generator (PuTTYGen) can be used to generate your SSH key pair. Note that the key pairs generated should be different. First, if needed download the PuTTYGen from the PuTTY download page PuttyGen Site and install it on your computer. Second, obtain and prepare to use a text editor such as Notepad++ that does not insert unwanted characters and metadata into a text file. After that, follow the steps below:

Step 1: Open the PuTTYGen application and select RSA for Type of key to generate and choose the key length for Number of bits in a generated key. The key length must be at least 2048.

2				Pu	TTY Ke	y Gen	erator	6		?	×
ile	Key	Conversio	ns ł	Help							
Key	6										
No	key.										
Act	ions										
Acti	ions herate	a public/priv	vate ke	ey pair					Gen	erate	
Acti Ger Loa	ons herate id an e	a public/priv	vate ke	ey pair file					Gen	erate	
Acti Ger Loa Sav	ions herate id an e ve the g	a public/priv xisting privat	rate ke te key ey	ey pair file		Sa	ve publi	c key	Gen Lo Save pri	erate vad	cey l
Acti Ger Loa Sav Pan	ions nerate id an e ve the g ameter	a public/priv xisting privat generated ko	rate key te key ey	ey pair file		Sa	ve publi	c key	Gen Lo Save pri	erate ad	.ey
Acti Ger Loa Sav Pan Typ	ions nerate id an e ve the g ameter ne of ke RSA	a public/priv xisting prival generated ko s	rate key ey te: DSA	ey pair file	() ECI	Sa	ve publi	c key	Gen Lo Save pri	erate Nad Wate H	(ey

Figure 1 - Select the type and length of keys

Step 2: Click on the Generate button to get the prompt requesting to move the mouse for generating some randomness in keys. Then your keys will be created.

8	Pu	TTY Key (Genera	ator			?	×
File Key Conversio	ons Help							
Key								
Please generate some	e randomness	by moving th	ne mous	e over the bl	ank ar	ea.		_
Actions						0		
Generate a public/priv	vate key pair					Gener	ate	
Load an existing priva	te key file					Loa	d	
Save the generated k	ey		Save	public key	Si	ave priva	ate ke	y
Parameters								
Type of key to generate RSA	ite: DSA	C ECDSA	Ą	O ED2551	9	⊖ SSH	-1 (R	SA)
Number of bits in a ge	nerated key:					2048		
	_		_	_	_	_	_	

Figure 2 - Generate randomness in keys

Step 3: Put a suitable comment in the **Key comment** field so that you will remember what the keys are used for. Also type a passphrase in the **Key passphrase** field to use when accessing the private key and confirm it in **Confirm passphrase** field. You could use a key without a passphrase, but this is NOT recommended. This

passphrase is designed to encrypt the private key on disk, so you will not be able to use the key without first entering the passphrase.

7	PuTTY Key	Generator	?
ile Key Conversi	ons Help		
Key			
Public key for pasting	into OpenSSH authorized	d_keys file:	
ssh-rsa AAAAB3NzaC1yc2E M116CNi +tbi8qsQ81tYwgaMs +umDZwRvMbIFNnf	AAAABJQAAAQEAk3ZXz IdybO9/NVTz/uacMkyyF f0mYWbEFLstlgiKET5tiO\	YxrKz2tNRQ8Qx5rT/fh lygsZHq2YshhGm0i1hC /07Nsmud72rsscjp4fXn	L9TziqbfISdqSKE
Key fingerprint:	ssh-rsa 2048 fe:a0:68:6	53:84:7c:47:e3:17f4:21	e4fa:9f:ec:39
Key comment:	my comments		
Key passphrase:	•••••	•	
Confirm passphrase:		• C)	
Actions			
Generate a public/pri	vate key pair		Generate
Load an existing priva	ste key file	1	Load
Save the generated l	key	Save public key	Save private key
Parameters			
	te.		
Type of key to generate RSA	DSA OECDS	A OED25519	SSH-1 (RSA)

Figure 3 - Enter comment and passphrase

Step 4: Click on the **Save private key** button to keep the private key securely in a local repository. The key should have the extension **".ppk"** and named according the following rule (See Figure 4):

LegalEntityIdentifier	.ppk
your LEI	extension

Figure 4: Naming convention for private key

Example: 529900G3SW56SHYNPR95.ppk

Step 5: As mentioned before, the public keys must be generated in the Open SSH format and only this format is supported by the SFTP service. Since using the "Save public key" button in the upper window of Figure 3 will save the key in the not supported PEM/OpenSSL format, users need to do the following to save the public key:

Select and copy the complete text in the box labelled **"Public key for pasting into OpenSSH authorized keys file"**. To do that, first open Notepad++ and confirm that the End of Line (EOL) format is set to **UNIX/OSX Format** as Figure 5 shows. This will ensure that there are no extraneous characters in the public key file.

5	Р	uTTY Key Ger	erator	? ×						
File Key Conversion	ns Help									
Key										
Public key for pasting into OpenSSH authorized_keys file:										
ssh-rsa AAAAB3NzaC1yc2EAAAABJQAAAQEAk3ZXzYwKz2tNRQ8Qx5rT/fhL9TziqbfISdqSKE M116CNi +tbi8qsQ81tYwgaMsIdybO9/NVTz/uacMkyyRygsZHq2YshnGm01hCXP3yLk +umDZwRvMbIFNnfOmYWbEFLstlgjKET5tiOVO7Nsmud72rsscip4fXmSBAqHNWj767r										
Key fingerprint: ssh-rsa 2048 fe:a0:68:63:84:7c:47:e3:17f4:21:e4fa:9f:ec:39										
Key comment: my comments										
Key passphrase:		•••••								
Confirm passphrase:		•••••								
Antinen										
Generate a public/priv	ate key pa	ir		Generate						
Load an existing privat	e kev file			Load						
Save the generated ke	av	S	ve public kev	Save private key						
	-7		into public itoy	cure pirtute itely						
Turne of key to generat										
RSA	DSA	○ ECDSA	O ED25519	O SSH-1 (RSA)						
Number of bits in a ger	nerated key	y:		2048						
	_									
- End of Line (EOL) format is set to UNIX/OSX Format										
П V	- End o	of Line (EOL) fo and paste the	ormat is set to content into t	UNIX/OSX Format						
	- End o - Copy *I	of Line (EOL) for and paste the new 1 - Note	ormat is set to content into t pad++	UNIX/OSX Format						
File Edit Search V TextFX Plugins Wit	- End o - Copy *I View En ndow ?	of Line (EOL) for and paste the new 1 - Note coding Langua	prmat is set to content into t pad++ ge Settings 1	UNIX/OSX Format the editor						
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File Edit Search Vir TextFX Plugins Wir Compared Compared	- End o - Copy *I View En ndow ? © @	of Line (EOL) for and paste the new 1 - Note coding Langua	ormat is set to content into t pad++ ge Settings I ⊇ C 曲 %	UNIX/OSX Format the editor —						
File Edit Search V TextFX Plugins With Co Co C	- End o - Copy *I View En ndow ? © @	of Line (EOL) for and paste the new 1 - Note coding Langua & m m 2 m m 2 m m 2 M m 1 M m 2 M m	prmat is set to content into t pad++ ge Settings C # ^b S	UNIX/OSX Format the editor Macro Run X I R R I I I I I						
File Edit Search Vir TextFX Plugins Wir Compared Compared	- End o - Copy *I View En ndow ? © @ @	of Line (EOL) for and paste the new 1 - Note coding Langua and	ormat is set to content into t pad++ ge Settings □ P C # *	UNIX/OSX Format the editor —						
File Edit Search V TextFX Plugins With Color Color Color Color Color Color Color Color Color Color Color Color Color Color Color Col	- End o - Copy *I View En ndow ?	of Line (EOL) for and paste the new 1 - Note coding Langua (&) (ormat is set to content into t pad++ ge Settings □	UNIX/OSX Format the editor Macro Run X I R R I I I III Ak32XzYxrKz2tNR						
File Edit Search V TextFX Plugins Wi Compared Compared Co	- End o - Copy *I View En ndow ? © © © • AAAAB:	of Line (EOL) for and paste the new 1 - Note coding Langua (&) () () () () () () () () () () () () () (ormat is set to content into t pad++ ge Settings □ P C m ^b S ► AAABJQAAAQE	UNIX/OSX Format the editor Macro Run X Macro Run X Ak32XzYxrKz2tNR						
File Edit Search Vir TextFX Plugins Wir Color Color Co	- End o - Copy *I View En ndow ?	of Line (EOL) for and paste the new 1 - Note coding Langua () () () () () () () () () ()	ormat is set to content into t pad++ ge Settings □ P C = # 4 AAABJQAAAQEI	UNIX/OSX Format the editor -						

Figure 5 - Save the public key in the open SSH format via Copy & Paste

The public key file however should have the extension **".pub"** so that it will be readable by a regular text editor like Notepad++. The name of the public key must follow the rule (See Figure 6):

LegalEntityIdentifier	.pub
your LEI	extension

Figure 6: Naming convention for public keys

Example: 529900G3SW56SHYNPR95.pub

After generating the key pair, the user has to keep/store the private key in a safe place. The public key needs to be send via email to the customer.readiness@deutsche-boerse.com for validation and activation.

This key fingerprint is shown on the PuTTYGen window (Figure 8). In our example the hash value is equal to "fe:a0:68:63:84:7c:47:e3:17:f4:21:e4:fa:9f:ec:39".

le Key Conversio	nns Heln	
ie key conversio	nis Tiep	
Key		
Public key for pasting	into OpenSSH authorized_keys file:	
ssh-rsa AAAAB3NzaC1vc2E4		^
M116CNi +tbi8qsQ81tYwgaMsl +umDZwRvMbIFNnf(ldyb09/NVTz/uacMkyyRygsZHq2YshhGm0i1hCXP3yLlk OmYWbEFLstlgiKET5tiOV07Nsmud72rsscjp4fXmSBAqHNWj767r	~
M116CNi +tbi8qsQ81tYwgaMsi +umDZwRvMbIFNnft Key fingerprint:	ldyb09/NVTz/uacMkyyRygsZHq2YshhGm01hCXP3yLlk OmYWbEFLstlgiKET5tiOVO7Nsmud72rsscjp4fXmSBAqHNWj767r ssh-rsa 2048 fe.a0:68:63:84:7c:47:e3:17f4:21:e4fa:9f:ec:39	v
M116CN +tbi8qsQ81tYwgaMsl +umDZwRvMbIFNnf(Key fingerprint: Key comment:	ldybO9/NVTz/uacMkyyRygsZHq2YshhGm0i1hCXP3yLlk OmYWbEFLstlgjKET5tiOVO7Nsmud72rsscjp4fXmSBAqHNWj767r ssh-rsa 2048 fe:a0:68:63:84:7c:47:e3:17:f4:21:e4.fa:9f:ec:39 my comments	~
M116CN +tbi8qsQ81tYwgaMsl +umDZwRvMbIFNnft Key fingerprint: Key comment: Key passphrase:	ldybO9/NVTz/uacMkyyRygsZHq2YshhGm0i1hCXP3yLlk OmYWbEFLstlgiKET5tiOVO7Nsmud72rsscjp4fXmSBAqHNWj767r ssh-rsa 2048 fe.a0:68:63:84:7c:47:e3:17f4:21:e4fa:9f:ec:39 my comments	~

Figure 7: Hash value of the public key

4. How to connect to the SFTP server

To connect via SFTP there exist specialized and appropriate clients. In this document, only two clients are introduced: TurboFTP and WinSCP.

4.1. Using TurboFTP client

TurboFTP is an easy-to-use FTP client program with an Explorer-like interface that allows browsing remote directories, downloading or uploading files with drag and drop operation. Here are the steps needed to follow.

4.1.1 Collecting session details

Before connecting to the server, users first need to consider the following information:

- Site Address: this is the IP address of the SFTP server (environment). Ensure the valid IP address is inserted (see below).
- **Port:** this is the port number of the connection. Note that SFTP usually uses port 22 by default; you need to adapt it to 24.
- User ID: this should equal to the LEI of your organisation.

Native Internet IP addresses valid as of 15 October 2018:

Environment	IP Address	Port number
Simulation	194.36.239.242	24
Production	194.36.239.243	24

Leased Line IP addresses valid as of 15 October 2018:

Environment	IP Address	Port number
Simulation A-Side	193.29.90.72	2242
Simulation B-Side	193.29.90.104	2242
Production A-Side	193.29.90.71	2241
Production B-Side	193.29.90.103	2241

To use TurboFTP the following further information is also required:

- Site Name: a user will be asked to provide a name for a server connection. The Site Name will be saved to the FTP Address Book allowing for an easy selection of the server connection.
- Initial Local Directory: this is an optional directory. It is recommended to name the folder in which the user's test cases are available.
- 4.1.2 Connecting to the SFTP server

In order to connect via TurboFTP, users need to do the following:

Step 1: Start TurboFTP and a Login Dialog will appear.



Figure 8 - TurboFTP login dialog

ย	Addre	ess Book	c				? ×
	General	Connect	Files	Bookmarks	Sync	Security	
	Site Na	me:					
	FTP Si	tes					
	Site Add	dress:			Port:		
					21	*	
	Ano	nymous Log	jin				
	User ID	ti -	Pas	isword:			
						Show	
	Initial R	emote Folde	er:				
	Initial Lo	ocal Folder:				(iller)	
	Descrip	tion:					
						^	
						~	
New Site New Folder Delete			Impo	đ	Connect		Close

Step 2: Open menu-item "Connect" and click on "Address Book". The user should see the following screen:

Figure 9 - Open Address Book

Step 3: Right-Click on "New Site" and key in your session details as described in Subsection 4.1.1 in the "General" tab:

0		Addr	ess Book	c				?	×
FTP Sites FTP Sites Cryptography Cryptogr	^	General Site Na your Site Ad 194.3 General Site Ad Sit	Connect me: site name dress: 6.239.249 mymous Lo); LEI kemote Fold coal Folder to your in non:	Files Files (e.g. a) gin Pas itial loca	Bookmarks ccount nam isword:	Sync e) Port: 24	Security		
New Site New Folder D	elete			Impo	rt	Connect		Clos	e

Figure 10 - Enter session details within General tab

Step 4: Switch to the **"Security"** tab and check the blue-framed boxes as Figure 11 shown below. After that, enter the following input parameters:

- Password Encryption is based on SHA1 hash algorithm
- Secure Connection Type should be set to SFTP over SSH2
- **Port** number equals **24**
- Public Key is the path to the folder in which the public key is stored
- Private key is the path to the folder in which the private key is stored
- Password is the passphrase used to protect the private key

FIF Stes	A General Conn	ect Files Bookmarks	Sync Security	
Archives Cyptography Games Hardware Linux	Password En Not End MD4 (S MD5 (S	ncryption rypted /Key) /Key)	SHA-1	
E Music	Secure Conne	ction Type:	Port:	
⊕ ⊡ Online Service	SFTP over S	SH2	v 24 🔹	
your site name	Use keybo Public key	ard-interactive authenticati	ion	
	Private key:	path to private l	ey key	
	Private key: Password:	path to private I passphrase (Leave blank for no	key ne)	

Figure 11 - Enter session details within Security tab

Step 5: Next, click on the "**Connect**" button to login. If the login was successful, the user should see a window like the following showing a "Login successful" message, the connection details (the user ID and the IP address of the server) as well as the remote directory which contains the relevant folders for submission (Figure 12). These folders are described as follows:

- The **Cash_Market_-_XETR_XFRA** folder: this is the location where the inbound files need to be uploaded by trading participants for processing Xetra (XETR) and Börse Frankfurt (XFRA) reference data.
- The Eurex_Derivatives_-_XEUR folder: this is the location where the inbound files need to be uploaded by trading participants for processing Eurex reference data.
- Xetra/ Eurex reference data must not be placed in any other folder except the two mentioned above.

🤣 (529900G3SW56SH	iYNPR95@194.36.239.249:24) - TurboFTP	
Connect View	Command Directory Session Tools Help	
Server:	← Login:	Password: Port: 21 🔿 🖼 🗙
💭 - 🚿 🔬	ƙ 🚿 🏛 😮 🜲 🕆 🦊 🗡 📘	🔄 🗟 🍇 😤 🖗 🚫 📃 🎘 🎘 🤴 🔆 🖨 🗳 👘
🚱 🗈 🚔 Syste	em (C:)	
Name	Size Modified	Name
S Parent Direc		5 Parent Directory
MSOCache	7/18/2017 7:15	ARCHIVE
Program Files	10/17/2017 2:0	Cash_MarketXETR_XFRA
퉬 Program File	11/14/2017 2:3	Eurex_DerivativesXEUR
퉬 ProgramData	11/14/2017 2:3	🕌 IN
퉬 Users	6/7/2017 2:40	
Windows	10/27/2017 1:2	UT OUT
custinv.cfg	181 2/13/2009 1:56	
		.bash_logout 33
		bash_profile 176
		J. bashrc 134
		zshrc 658
	ll cooll C\	[Demete] 194 26 229 249-24
6 Folders	, 1 File, 7 Total Listed (1 KB / 33.07 GB Free)	7 Folders, 4 Files, 11 Total (1 KB) Listed
Local	Size Remote	STATUS:> Crypto negotiation done, Client to serv
		STATUS:> Authenticating with method 'publickey'
		STATUS:> Login successful.
		COMMAND:> Resolve path '.'
		1
		COMMAND:> LIST remote dir '/'
•	m	, List done
Ready		🔒 Queue: 0 KB (0)

Figure 12 - Successful login via TurboFTP

The user is now connected and can upload files via TurboFTP.

4.1.3 How and where to upload files

After connecting to the server, users can upload files using the Drag & Drop function. Before starting with uploading any file, the user should take into account the file requirements listed in Section 5. Users should first adjust their files according these requirements, before uploading them via TurboSFTP as follows:

- Select the local files or directories to be transmitted from the local directory
- Drag selected files and drop them into the remote target folder named "Cash_Market_-_XETR_XFRA" or "Eurex_Derivatives_-_XEUR" depending on the market a file refers to.

n (529900G3SW56SHYNPR95@194.36.239.249.24) - TurboFTP			
Connect View Command Directory Session Tools Help			
Server: Login:	Password: Port: 21 🔿 🖼 🗙		
🚚 - 🖉 🎄 - 🍕 🏛 🕄 🚚 🏠 🙏 🗡	🔚 🔤 🖄 • 😤 🐴 📀 🖳 🍣 🛰 😼 🕼	Č	
🗱 🗈 🌗 20171109	- 🖗 🖻 🛛	•	
Name	Name	Size Date/Time	
S Parent Directory	S Parent Directory		
RTS2420171107XETRGDBXX20171107140001.csv_zip	ARCHIVE	11/9/2017 9:.	
RTS2420171108XETRGDBXX20171108140001.csv_zip	Cash_MarketXETR_XFRA	11/14/2017 1	
	Lurex_DerivativesXEUR	11/14/2017 1	
	in In	11/13/2017 4	
		10/11/2017 1	
	UT 🔒	11/14/2017 1	
		10/26/2017 1	
	bash_logout	33 10/11/2017 1	
	bash_profile	176 10/11/2017 1	
	bashrc	134 10/11/20171	
	zsnc	038 10/11/20171	
<	· · · · · · · · · · · · · · · · · · ·	•	
[Local] C:\Users\oa023\Desktop\SFTP Transfer\201711 2 Files, 2 Total Listed (2 KB / 33.06 GB Free)	[Local] C:\Users\oa023\Desktop\SFTP Transfer\20171109 [Remote] 194.36.239.249.24 2 Files, 2 Total Listed (2 KB / 33.06 GB Free) 7 Folders, 4 Files, 11 Total (1 KB) Listed		
Local Size R	lemote Host STATUS:> Crypto negotiation done, Cli	ent to server ciphe *	
	STATUS:> Authenticating with method	'publickey'	
	STATUS:> Login successful.		
	COMMAND:> Resolve path '.'		
	/		
	COMMAND:> LIST remote dir '/'	E	
· [m	List done	*	
Ready	🗎 Q	ueue: 0 KB (0) 🥥	

Figure 13 - Drag & drop the files into the input folder

If the files have been processed successfully, the trading participant receives a short message confirming that the data has been successfully transmitted. If not, the member receives an error message.

4.2. Using WinSCP client

WinSCP (Windows Secure Copy) is a free, open source file transfer tool for Windows. As with TurboFTP this client allows secure file transfers between the client's local computer and the remote server.

4.2.1 Collecting session details

The following connection information should be available for users in order to connect with WinSCP:

- Host name Host name: a user will be requested to provide the IP address of the SFTP server (environment). Ensure the valid IP address is inserted (see below).
- **Port number:** this is the port number of the connection.
- User name: this must be equal the LEI of your organisation.

Native Internet new IP addresses valid as of 15 October 2018:

Environment	IP Address	Port number
Simulation	194.36.239.242	24
Production	194.36.239.243	24

Leased Line IP addresses valid as of 15 October 2018:

Environment	IP Address	Port number
Simulation A-Side	193.29.90.72	2242
Simulation B-Side	193.29.90.104	2242
Production A-Side	193.29.90.71	2241
Production B-Side	193.29.90.103	2241

Private key file: a user has to specify the path to his/her private key.

E

4.2.2 Connecting to the SFTP server

To get access to the server, users need to do the following:

Step 1: Start WinSCP and a Login Dialog will appear.

•	WinSCP Login	? ×
Session Session Logging Environment Recycle bin SFTP SCP/Shell Connection Proxy Tunnel SSH Key exchange Authentication Bugs Preferences	Session Ele protocol: SFTP Host name: User name: Private key file:	Port number: 22 💓 word:
Advanced options		
About Lange	Login S	Save 🛛 🕶 Close

Figure 14 - WinSCP login dialog

	WinSCP Login		? ×
Session 	Session Ele protocol: SFTP V Host name: 194.36.239.249		Pot number:
Connection Proxy Tunnel SSH Key exchange Authentication Bugs Preferences	User name: your LEI Private key file: path to your private key	Password:	Select color
Advanced options			
About Langua	ges Login	Save	Close

Step 2: First set the File Protocol as SFTP and then enter the login credentials described in Subsection 4.2.1.

Figure 15 - Login credentials in WinSCP

Step 3: Choose Directories under Environment and click on Browser button to select the path to the local directory, in which the files for submission are located.

	WinSCP Login ?	×
Session Stored sessions Logging Environment Directories Recycle bin	Directories Synchronize browsing Remember last used directory Remote directory:	
SFTP SCP/Shell Connection Proxy Tunnel SSH Key exchange Authentication Bugs Preferences	Local directory: path to your local directory Local directory is not used with Explorer interface. Directory reading options Image: Cache visited remote directories Image: Cache directory changes Image: Cache directory changes Image: Resolve symbolic links	
Advanced options	uuanes Login Save 🔽 Close	

Figure 16 - Set the path to the local repository

Step 4: Press "Login" to connect

3	WinSCP Login		? ×
Session Stored sessions Logging Environment Directories Recycle bin SFTP SCP/Shell	Session File protocol: SFTP V Host name: 194.36.239.249	Pagewood	Pot number:
Connection Proxy SSH Key exchange Authentication Bugs Preferences	your LEI Private key file: path to your private key		 Select color
Advanced options	ages Login	Save	Close

Figure 17 - Pressing "Login" to connect

Step 5: After clicking on "**Login**" a dialog screen will appear showing the personal data and will request to enter the corresponding "**Key passphrase**" set for the private key (if the private key has been protected):

🏊 Key passphrase - 529900G3SW56SHYNPR95@ 💌		
Searching for host Connecting to host Authenticating Using username "529900G3SW56SHYNPR95". Authenticating with public key "rsa-key-20170426-529900G3SW56SHYNPR§		
< >		
Passphrase for key 'rsa-key-20170426-529900G3SW56SHYNPR95':		
your passphrase of the private key		
OK Cancel Help		

Figure 18 - Enter a passphrase

Step 6: If the connection was successful, users will see the content of the default remote directory as shown here

Su 20171109 - 529900G3SW56SHYNPR95@194.36.239.249 - WinSCP	
Local Mark Files Commands Session Options Remote Help	
🖶 🔁 📚 Synchronize 🗾 🦑 👔 🛞 📦 Queue 👻 🏾 Transfer S	ettings Default 🔹 🥵 🗸
529900G3SW56SHYNPR95@194.36.239.249 💕 New Session	
📃 Desitop 🔹 🚰 🕎 🛛 🖛 🔹 🔶 🔂 🏠 🤩 🗞	🔋 🕌 / <root> 🔹 🚰 🛐 🛛 🖛 🔹 🐡 🖉 🔝 😭 🤁 🔯 Find Files 💁</root>
💵 🔐 Upload 👻 📝 Edit 👻 🗶 🛃 🖓 Properties 📑 New 👻 🛛 🕂 📼 💟	🛛 🔐 Download 👻 🃝 Edit 👻 🗱 🛃 Properties 📑 New 👻 🕀 🗁 💟
Name Size Ty	pe Name
Pa RTS2420171107XETRGDBXX20171107140001.csv_zip RTS2420171108XETRGDBXX20171108140001.csv_zip 1 KB CS	ren ARCHIVE Z Gash_MarketXETR_XFRA Eurex_DerivativesXEUR IN IN_COMMODITIES OUT OUT_COMMODITIES
<	+ (
0 B of 2.16 KB in 0 of 2	UB of UB in U of / 4 hidden
	G SF1P-3 Q 0:01:57

Figure 19 - Successful login via WinSCP

4.2.3 How and where to upload files

After connecting to the server users can upload files (for details about file requirements refer to Section 5) using Drag & Drop function. This works as follows:

- First select the local file to be transmitted from the local directory
- Then drag selected file and drop it into the remote target folder for the respective market

Bu 20171109 - 529900G3SW56SHYNPR95@194.36.239.249 - WinSCP	
Local Mark Files Commands Session Options Remote Help	
💽 🖶 🚝 🤯 Synchronize 🗾 🐙 👔 🏟 🎲 Queue 🔹 🏾 Transfer Se	ttings Default 🔹 🔗 🗸
529900G3SW56SHYNPR95@194.36.239.249	
📃 Desktop 🔹 🚰 🛐 🐗 🔹 🔶 🔁 🔂	📕 / <root> 🔹 🚰 🛐 🛛 🖛 🔹 🐡 👔 😭 🏠 🖗 Find Files 💁</root>
🔢 Upload 👻 📝 Edit 👻 🛒 🕞 Properties 🔷 New 🕶 🛛 🕂 📼 💟	🛿 🔐 Download 👻 📝 Edit 👻 💥 📝 Properties 📑 New 🕶 🛚 🕂 📼 💟
	/
Name Size Typ	e Name
RTS2420171107XETRGDBXX20171107140001.csv_zip 2 KB CSV RTS2420171108XETRGDBXX20171108140001.csv_zip 1 KB CSV	ARCHIVE Cash_MarketXETR_XFRA Eurex_DerivativesXEUR IN OUT OUT OUT_COMMODITIES
< III	
0 B of 2.16 KB in 0 of 2	0 B of 0 B in 0 of 7 4 hidden
	🔂 SFTP-3 🖳 0:01:57

Figure 250 - Drag & drop the files into the folder within WinSCP

If the files have been processed successfully, the trading participant receives a short message confirming that the data has been successfully transmitted. If not, the member receives an error message.

5. File submission guidelines

Before starting to upload any files to the server the submitters/users are kindly asked to consider some requirements regarding the file naming and formats. The purpose of these requirements is to

- provide guidance to users in the preparation of inbound files and
- ensure that uploaded files meet the technical specifications. Any file not meeting these specifications will be rejected and not processed - requiring corrective action.
- 5.1. General requirements

The following preconditions need to be satisfied before any upload:

The naming must follow the chronological sequence: Reporting reason (service identifier), Date (valid for), Market Identifier Code (MIC), MemberID, timestamp, data format incl. zip. Please find the examples including coloured file naming blocks below:

- Short-/ long code: RTS2420171011XEURGDBXX20171012103159.csv zip.
- Algo certificates: ALGO20171011XEURGDBXX20171012103159.csv_zip.

On the SFTP platform we do enforce the following checks:

• Main "format": (RTS24|ALGO)([0-9]+)([A-Z]{9})([0-9]+).(csv|csv_zip).

- Reporting reason (service identifier), should begin with either RTS24 or ALGO.
- Check Date format.
- Market Identifier Code (MIC), MemberID check is basically a charset check (A-Z characters in uppercase), combination of both should be 9 characters long.
- Check Timestamp format.
- Data format should be either csv zip or csv.

RTS 24/ ALGO file naming rule set:

Attributes	Attribute levels
Reporting reason (service identifier)	RTS24; ALGO
Date (valid for)	YYYYMMDD
Market Identifier Code (MIC)	4 characters (alphabetic) ("XEUR" for Eurex; "XETR" for Xetra, "XFRA" for Frankfurter Wertpapierbörse)
MemberID	5 characters (alphabetic)
Timestamp	YYYYMMDDhhmmss
Data format incl. zip indicator	.csv_zip; .csv

Only files delivered by 11:50 PM can be considered for data mapping for the business day T. The mapping will be done during the End of Day (EoD) process. The results will be published on T+1 in the respective reports available via the Common Report Engine.

5.2. Error Message

In case a submitted file does not match with the file naming rules described in section 5.1. the following error message will appear:

Error	23
8	Cannot create remote file '/Eurex_DerivativesXEUR/ALGOXEURGDBXX20171114103259.csv_zip'.
	Permission denied. Error code: 3 Error message from server: Permission denied.
	▼
	Abort Retry Skip Skip all Help

If you use WinSCP and your files are greater than 100KB, please disable the "temporary filename" option otherwise you will receive an error message.

Environment	Enable transfer resume/transfer to temporary filename for
Interface Window Commander Explorer Panels Coal Editors Transfer Drag & Drop Background Endurance Network Security Logging Integration	All files India de localite radiate to comportaly incident for All files India de localite radiate to comportaly incident for India de localite radiate to comport session, if it breaks during transfer India de localite radiate to comport session, if it breaks while idle Recognect after: India de localite radiate to comport session, if it stalls
Applications Commands Storage Updates	Reconnect after: 60 ★ seconds Keep reconnecting for: Unlimited ★ seconds

6. Known Limitations & Best Practice

- i) For the time being, no validation of the file content takes place, only for the file names as described in the section 5 (implementation of validation rules in progress).
- ii) All submitted files that do not match the data format as described above (.csv zip) will be deleted.
- iii) Please be aware that should you decide to use both upload methods (SFTP and the Webservice) on the same day (not recommended) that a sequencing of the files, by you, will be required.

7. Support Contacts

For technical queries related to the SFTP certificate creation and upload please contact your Technical Key Account Manager via your VIP number or send an email to: <u>cts@deutsche-boerse.com</u>.

For queries related to reference data for MiFIDII or the Legal Entity Identifier (LEI), please contact your Key Account Manager or send an email to: <u>customer.readiness@deutsche-boerse.com</u>.