

# Connectivity Specifications Shareholder Rights Directive 2

Version 1.0 / 15-03-2021

## Revision history

<b>Date</b>	<b>Version</b>	<b>Description</b>	<b>Author</b>
March 2021	1.0	Initial version	BME IT



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## 1 Introduction

### 1.1 Scope of this manual

This document describes the methods offered by BME for connecting the systems of Entities to SRD2 application. In this regard, the SRD2-GATE is an intermediate component responsible for all the tasks involving communications with the SRD2 application and the affected components thereof. The aim of this is to exclusively segregate business functionality from intercommunication with external elements.

The SRD2-GATE allows for this interoperability through a battery of protocols established as the only approved channels for connecting with the aforesaid application.

### 1.2 Connectivity

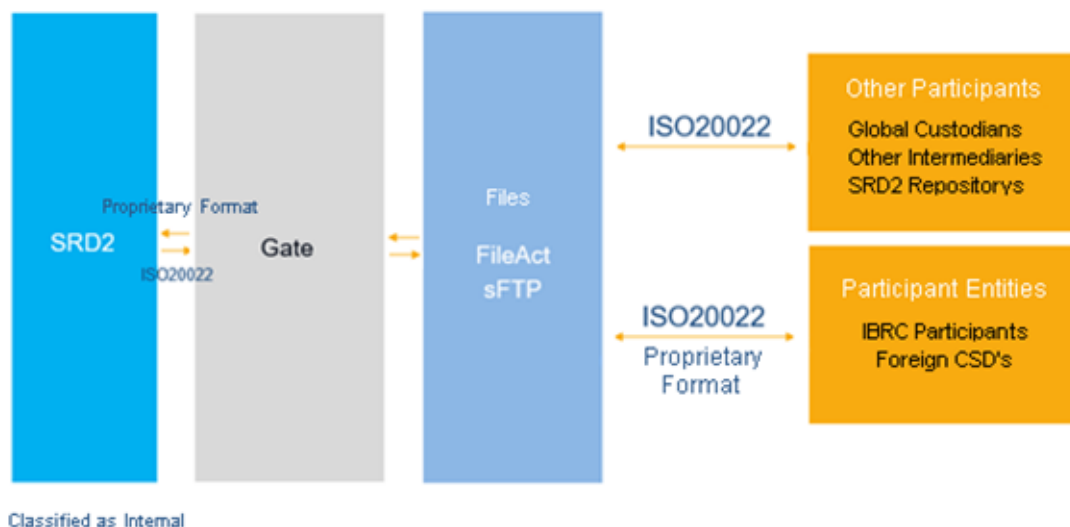
The specifications for each of the approved channels are described in other sections of this document. These channels comprise the basic and necessary "transmission" channel for the various messaging formats described in other sections of this document. This section does not therefore include a description of messages and/or files, focusing instead on the various mechanisms for point-to-point transfer of messages

The following communication and transport mechanisms are in place:

- Connectivity via SFTP
- Connectivity via the SWIFT network, in batch mode by FileAct

CONNECTIVITY CHART

SRD2 - CONNECTIVITY DIAGRAM



1.3 Communication channel concept

Entities must request access to at least one communication channel to be able to interact with the SRD2-GATE. These virtual channels enable the entity to exchange its files with the SRD2 system.

## 2 Connectivity via SFTP

### 2.1 Introduction

The SRD2-GATE provides SFTP transmissions for sending and receiving files. Communication with the SRD2-GATE is based on OpenSSH. OpenSSH authenticates users using standard methods supported by the SSH protocol.

With SFTP, the data transferred between the client and the server is encrypted, preventing unauthorized users from accessing the data. Transfers are made using the public and private keys provided by SSH.

The entity uses the SFTP connection to send files and the SRD2-GATE is ready to detect their receipt and launch the associated processes.

Each user has an exclusive directory for their files. In this directory there will be 2 folders: input and output. The files sent by the Entity are deposited in the input folder. The files generated by SRD2 to the Entity are found in the output folder. The SRD2-GATE does not send files via SFTP to Entities. The Entity has to use the SFTP “get” commands to collect the files generated by BME system

### 2.2 SFTP requirements

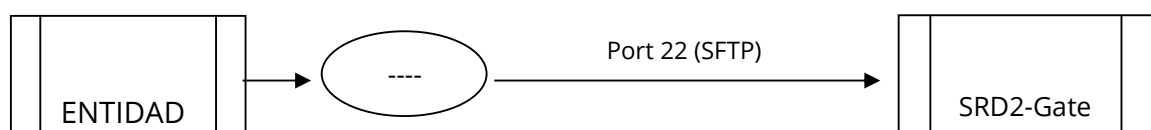
El The SRD2-GATE has an SFTP server for connections to entities.

The Entity needs an SFTP client for sending and capturing files to and from the SRD2-GATE.

SSH version 2 must be used. Additional information on OpenSSH is available at: <http://www.OpenSSH.com>. Preferably, 2,048-bit RSA keys should be used.

#### 2.2.1 Communication structure

Example network and firewall routing with the relevant equipment in the entity to permit access to the servers.



### 2.3 SFTP Connectivity

For an Entity to be able to use this type of connectivity, it must complete the appropriate forms with the parameters required to establish communication:

Among others, the following are required:

## 2.3.1 Users

BME assigns a user ID to the entity to be used when establishing an SFTP connection with BME. This is one of the parameters provided in the relevant form. This user will have their own working directory, with both **input** and **output** folders, as specified before. Entity must deposit files to SRD2 in **input** folder. On the other hand, **output** folder will contain the files generated in BME for the entity.

## 2.3.2 Creation of keys

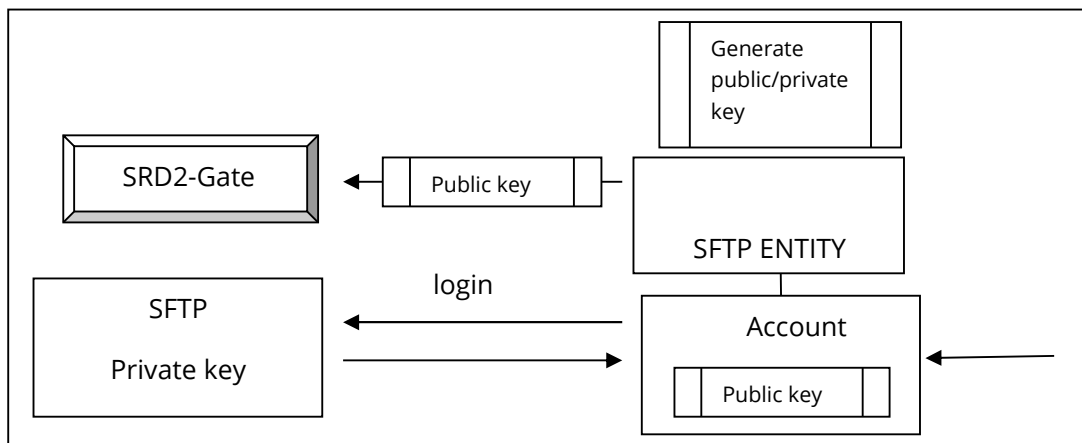
To provide a secure service and enable automatic exchange of files without passwords, the OpenSSH authentication

Two basic components are involved in SFTP file transfers: verification of the server and client authentication. These two components use public and private keys to authenticate the communication between the client and the server.

The entity will generate two keys -one public and one private- and sends the first of these to BME, which stores this encrypted key on its server for use during the SFTP connection. The entity sends the public keys to BME by email

Initial connectivity testing is then carried out to verify communications between the two parties.

The following illustration describes access to the SRD2-GATE



## 2.4 File Compression

Compressed files may be exchanged in transmissions. File compression significantly improves transmission times.

BME supports GNU ZIP (gzip) and zip compression. These generate compressed files with the same name as the original, but with a "GZ" or "ZIP" extension, respectively.

The entity decides whether it wants to use file compression. If it chooses this option, compression applies in both directions and for all file types.

Entities may not send a compressed file to BME containing more than one data file.



## 2.5 File delivery modes

Los Files are only sent to the PTI-GATE by the entity. The PTI-GATE is set up to detect when it receives files and to launch the relevant applications.

However, files are not sent from the PTI-GATE to the entity.

The following steps have been established to ensure **files transmission integrity**:

- Send files with the predetermined name and the extension '.TP' (temporary file).
- Once the error-free file transmission has been completed, the temporary file can be renamed at the destination:
  - If the file is compressed, the extension is changed to '.GZ' or '.ZIP'.
  - If the file is not compressed, the '.TP' extension is changed to that of the original file.

## 2.6 File capture modes

The entity connects to the PTI-GATE server to get the files from the relevant subdirectory /output.

## 2.7 File naming convention

The maximum length for file names is 61 characters. The file name can have a maximum of 6 fields, separated by "\_", with the extension separated by ".".

### 2.7.1 Detailed description

This section provides a more exhaustive definition of the format.

Field	T	L	F	O	Description
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<p><b>T</b> – Field Type:</p> <ul style="list-style-type: none"> <li><b>A</b> – Alfanumeric field</li> <li><b>N</b> – Numeric field</li> </ul> <p><b>L</b> – Maximum Field Length</p> <p><b>F</b> – Field Length Type:</p> <ul style="list-style-type: none"> <li><b>F</b> – Fixed length.</li> <li><b>V</b> – Variable length.</li> </ul> <p><b>O</b> - Required</p>
---

Field	T	L	F	O	Description
Environment	A [0-9A-Z ]	4	F	X	Environment
Source	A [0-9A-Z]	20	V	X	Logical source of the file
Destination	A [0-9A-Z]	20	V	X	Logical destination for the file
Information type	A [0-9A-Z]	8	V	X	File type (IDAPI)
Date	N [0-9]	8	F	X	File date
Time	N [0-9]	8	F	X	File time
Dot				X	
Extension	A [A-Z]	3	V	X	File type

- **Environment:** This is used to identify the working environment and must therefore always be completed with the appropriate content (“FORM”, “PROD”).
  - **Source and destination:** As the entity can send and receive files from various other entities, BME needs to know the issuer and recipient of the transmission. It can contain a BIC (11 chars), a LEI code (20 chars) or a 4-chars code.
    - **Source:** entity code sending the file. Files sent from the entity to SRD2 contain the BIC or LEI. Response files from SRD2 to the entity contain “SRD2”.
    - **Destination:** entity code receiving the file. Files sent from the entity to SRD2 contain “SRD2”. Response files from SRD2 to the entity contain the BIC or LEI.
  - **Information type:** This enables identification of the file type. This is used in a similar way to other file transfer systems with BME (IDAPI).
  - **Date and time:** This identifies the date and time at which the file was created. The format is YYYYMMDD\_HHMMSScc. It is advisable that this field should be unique for each file, as it will serve to unequivocally identify each of the files transmitted. However, the SRD2-GATE does not carry out any verification of this. Time length must be 8 characters.
  - **File extension:** This is a chain of characters attached to the end of the file name, after a dot: its main purpose is to differentiate the content of the file.
    - “GZ” = file compressed using gzip.
    - “ZIP” = file compressed using zip.
    - “TP” = temporary file.
- Valid file extensions for files that are not compressed include:
- XML, DAT, TXT, CSV, etc...

## 2.7.2 Examples file names

Source	Destination	File name	Remarks
ENT1	SRD2	FORM_ENT1_SRD2_RRRR_20130324_11224422.TP	Environment=testing Information type "RRRR" Extension TP temporary file
ENT1	SRD2	FORM_ENT1_SRD2_RRRR_20130324_11224422.DAT	Environment=testing Not compressed file
SRD2	ENT1	PROD_SRD2_ENT1_RRRR_20130324_11224422.GZ	Environment=production Compressed file

## 2.8 SFTP Operations

In order to understand the sequence of transmission commands and File naming convention, there must be an exchange of application forms between BME and the entity.

### 2.8.1 File transmission from an Entity to SRD2-Gate

- Production environment, not compressed file

Entity with BIC AAAAAAAAAAAA sends a file to destination SRD2

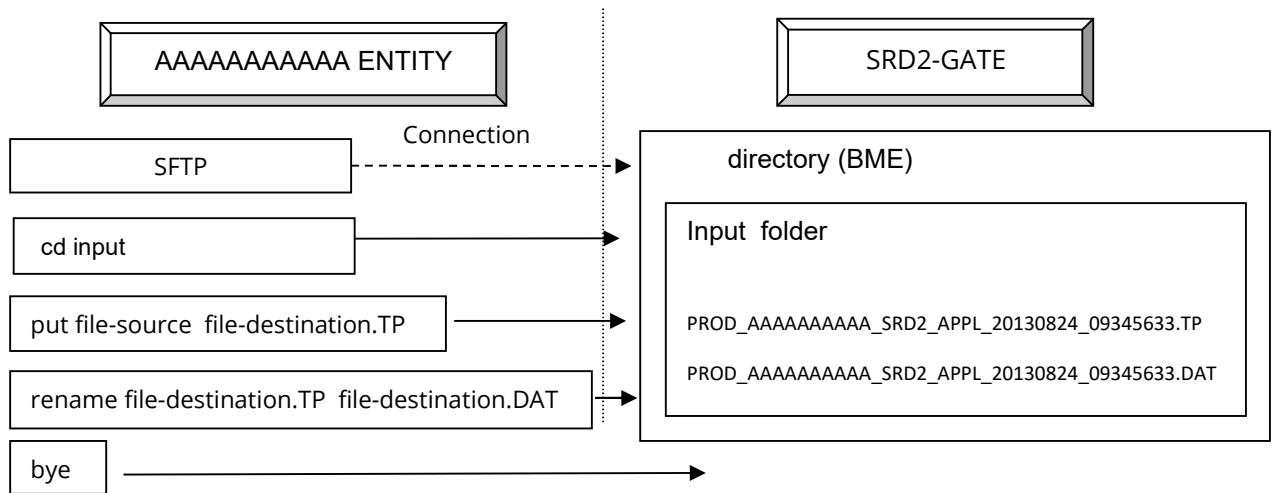
Sequence of transmission commands:

1. Connection of the Entity to SRD2-Gate
2. Go to the remote folder input
3. **put** file-source file-destination.TP (temporary file)
4. Rename the file in BME with the extension "DAT"
5. **bye** (disconnection)

File naming convention:

Temporary file → PROD\_AAAAAAAAAAAA\_SRD2\_APPL\_20130824\_09345633.TP

Not compressed file → PROD\_AAAAAAAAAAAA\_SRD2\_APPL\_20130824\_09345633.DAT



- Testing environment, compressed file

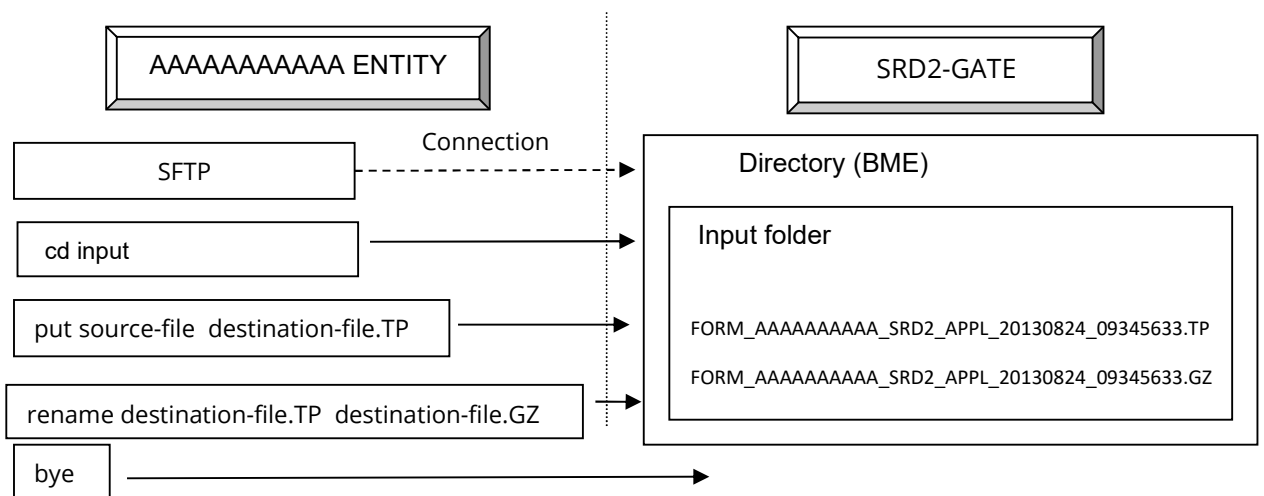
Entity AAAAAAAAAA sends a file to destination SRD2.

Sequence of transmission commands:

1. Connection of the entity to the SRD2-Gate
2. Go to the remote folder input
3. **put** file-source file-destination.TP (temporary file)
4. Rename file in BME with the extension "GZ" (compressed file)
5. **bye** (disconnection of the entity)

File naming convention:

- Temporary file → FORM\_AAAAAAAAAA\_SRD2\_APPL\_20130824\_09345633.TP
- Compressed file → FORM\_AAAAAAAAAA\_SRD2\_APPL\_20130824\_09345633.GZ



## 2.8.2 Capture of a file hosted in the BME System by an entity.

- Testing environment, compressed file

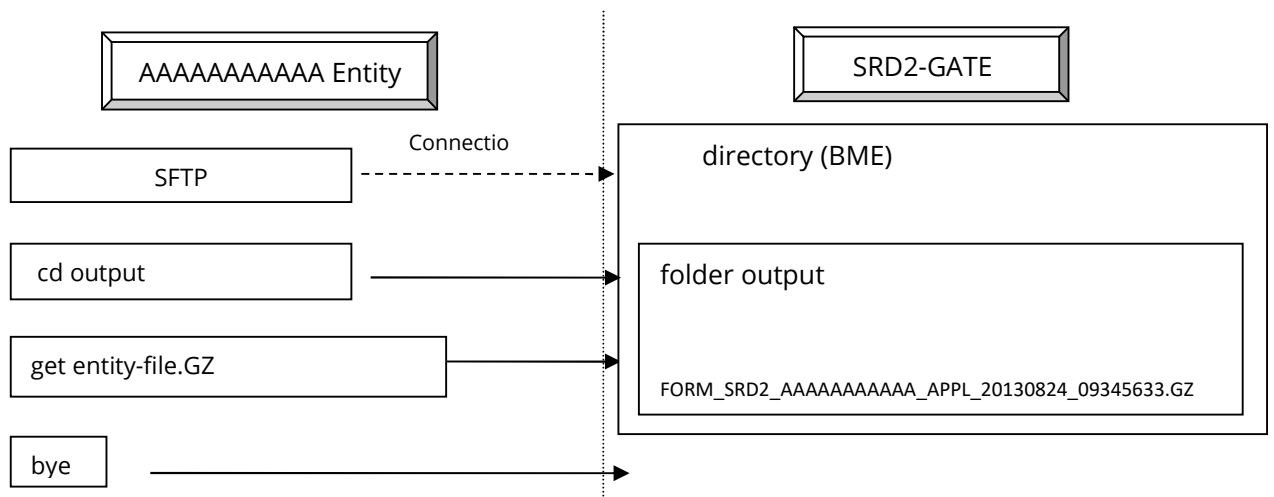
Entity AAAAAAAAAA connects to SRD2-Gate to fetch a file.

Sequence of transmission commands:

1. Connection of the entity to the SRD2-GATE
2. Go to the remote folder output
3. **get** file-Entity.GZ
4. **bye** (disconnection of the entity)

File naming convention:

Compressed file → FORM\_SRD2\_AAAAAAAAAA\_APPL\_20130824\_09345633.GZ



### 3 SWIFT Connectivity

Entities can use the SWIFT network and its FileAct service to communicate with BME SRD2 system.

There is a 'Closed User Group', which is the set up used by SWIFT to define the types of services used.

The following services can be used to exchange information:

- FileAct Real Time for file transmission

#### 3.1 Service SWIFTNet membership

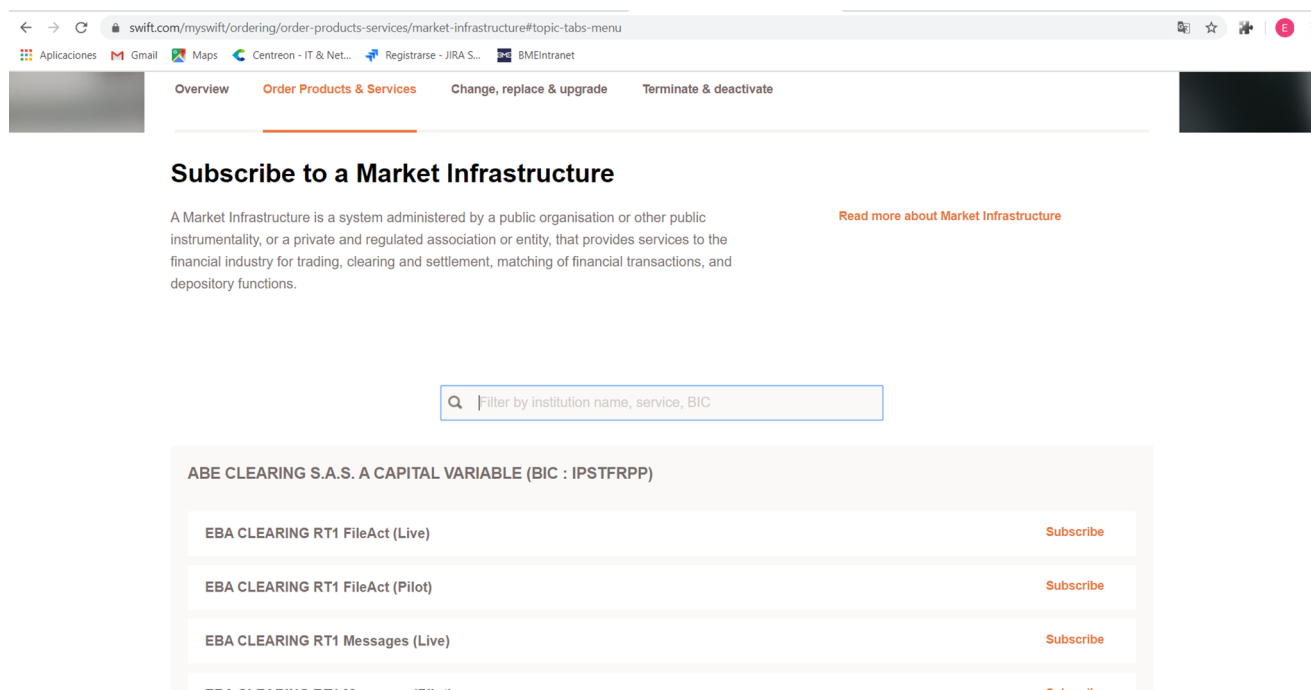
In order to communicate with Iberclear through SWIFTNet, an entity needs register in SWIFT. The requirements are:

- Must be SWIFT member with a BIC code.
- Must have infrastructure required for connecting to SWIFTNet
- Must be membership of the Iberclear "Closed User Group" (CUG). At first for testing services; afterwards for Production.

Membership can be managed in web [www.swift.com](http://www.swift.com):

- Ordering> Order products and services> Market Infrastructure

<https://www.swift.com/myswift/ordering/order-products-services/market-infrastructure#topic-tabs-menu>



Filtering by: IBRC

Search results for 'iberd' (filtered by IBRC):

- SOCIEDAD DE GESTION DE LOS SISTEMAS DE REGISTRO, COMPENSACION Y LIQUID. DE VALORES, S.A. (IBERCLEAR) (BIC : RGTRESMM)**
  - REGIS-TR European Trade Repository (Live) [Subscribe](#)
  - REGIS-TR European Trade Repository (Test) [Subscribe](#)
- SOCIEDAD DE GESTION DE LOS SISTEMAS DE REGISTRO, COMPENSACION Y LIQUID. DE VALORES, S.A. (IBERCLEAR) (BIC : IBRCESMM)**
  - iberclear.vuc (Live) [Subscribe](#)
  - iberclear.vuc!p (Test) [Subscribe](#)

SWIFTNet Service Subscription

SOCIEDAD DE GESTION DE LOS SISTEMAS (IBRCESMM) Market Infrastructure :  
iberclear.vuc!p (Test)  
SWIFTNet service = iberclear.vuc!p / Test

Enter the requested information.

The orange arrow icon indicates mandatory fields

Please use this form to manage a subscription to a SWIFTNet Service under the conditions of the [SWIFTNet Service Description](#)

Registered customer information

Consulting Services and Training Option

Please indicate if you would like to get assistance from SWIFT Training and/or Consulting Services for the implementation of this SWIFTNet service.

I want to be contacted by SWIFT to further discuss my Training and Consulting Services requirements. 2.01

Order information

Your own Purchase Order Reference	<input type="text"/>	3.01
Sales partner	<input type="text" value="S.W.I.F.T. SCRL"/>	3.02
SWIFT commercial quotation reference	<input type="text"/>	3.03
SWIFT account manager email address	<input type="text"/>	3.04

CUG category always is 'member'.

Default values for SWIFTNET Address and Traffic routing for real time services can be modified by the entity by adjusting to its characteristics:

- End-point for FileAct traffic: **memb\_file**

Entity must fix the SNLid to service this communication.

### 3.2 File naming convention

The file name can have a maximum of 5 fields, separated by “\_”.

**LogicalFilename** format is:

**InformationType\_BIC\_Code\_AAAAMMDD\_HHMMSSCC**

Field	Type	Length	Fixed/Variable	Description
InformationType	A [0-9 A-Z]	6	F	FileAct Code
BIC	A [0-9 A-Z]	11	F	Entity BIC
Code	A [0-9 A-Z]	4 or 20	F	XXXX or LEI(20)
Date	N [0-9]	8	F	File Date
Time	N [0-9]	8	F	File time

Where:

- **InformationType:** to identify file type.
- **BIC:** to identify entity by the BIC11. There must be used Production BICs.
- **Code:** to identify different codes for an entity. It can contain a LEI (20 char). When it’s not necessary, it is completed with ‘XXXX’.
- **Date and Time:** this identifies the date and time at which the file was created. The format is YYYYMMDD\_HHMMSScc. It is advisable that this field should be unique for each file, as it will serve to unequivocally identify each of the files transmitted. However, the SRD2-GATE does not carry out any verification of this. Time length must be 8 characters.

### 3.3 File compression

Compressed files may be exchanged in SRD2 transmissions. File compression significantly improves transmission times.

The parameter **‘File Info’** must specify ZIP to compress files.

### 3.4 Transmission parameters

SwiftNet will be:

- **iberclear.vuclp** for testing environment.
- **iberclear.vuc** for Production environment.



'Request Type' is always: **sese.xxx**

Request/Responder DN in SRD2 will be:

- **o=ibrcesmm,o=swift**

Entities must communicate his own Request/Responder DN by completing the corresponding form.

## 4 Appendix A – Types of file valid for SRD2-Gate

As follows, the file types that can be exchanged through SRD2-Gate are detailed.

Format	IDAPI	FileAct code
HTITU12	HTITU12	<b>SRD012</b>
HTITU13	HTITU13	<b>SRD013</b>
seev.045.001.01	SEEV045	<b>SRD045</b>
seev.046.001.01	SEEV046	<b>SRD046</b>
seev.047.001.01	SEEV047	<b>SRD047</b>
seev.048.001.01	SEEV048	<b>SRD048</b>
seev.049.001.01	SEEV049	<b>SRD049</b>

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[www.iberclear.es](http://www.iberclear.es)  
[entidadesiberclear@grupobme.es](mailto:entidadesiberclear@grupobme.es)



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