EURONEXT

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SHORT LONG CODE MANAGEMENT (SLC MANAGER)

Document type or subject

Short and long code mapping submission process to Euronext for purposes of Order Storage under MiFID II

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Contents

ABOUT THIS DOCUMENT

The purpose of this document is to introduce the Short Long Code (SLC) Manager GUI and API as well as data requirements for the submission of a mapping between short codes and long codes for Euronext Cash and Derivative Markets, Euronext Synapse, Euronext Block MTF, Sigma-X and Bourse de Luxembourg.

This document furthermore details the requirements to populate and upload MiFID II short codes and DEA Indicator by OrderID for Euronext Cash Markets and Bourse de Luxembourg, as outlined in the MiFID II Implementation Guide – Implementing MiFID II requirements for Euronext Cash Markets.

RTS 24 of MiFID II requires Trading Venues to be able to supply regulators with a wide range of order-related data. To gather this information, whilst avoiding sensitive information circulating on the non-encrypted order entry interface, the following 'short codes' have been deployed in order entry messages:

- ClientIdentificationShortCode - Short code corresponding to LEI, National ID, 'AGGR' (aggregated orders) or 'PNAL' (pending allocations);
- ExecutionWithinFirmShortCode - Short code corresponding to National ID, Algorithm ID, NORE (client execution decision maker);
- InvestmentDecisionWFirmShortCode - Short code corresponding to National ID or Algorithm ID
- NonExecutingBrokerShortCode - Short code corresponding to LEI.

To ensure that the Trading Venues can fulfil the requirements for Order Record Keeping under RTS 24, Members are requested to submit a mapping between short codes and corresponding long codes via the dedicated application **'SLC Manager'**.

TARGET AUDIENCE

This document is intended for **all** Euronext Trading Members across **all** Euronext markets, including Euronext Synapse and Euronext Block MTF. This document is furthermore applicable to Trading Members of Sigma-X and Bourse de Luxembourg.

Associated documentation

The following lists the associated documents for Euronext Cash and Derivative Regulated Markets, which should either be read in conjunction with this document or provide other relevant information to user:

- Optiq OEG client specifications;
- UTP Cash CCG Client Specifications;
- UTP Derivatives CCG client specifications;
- MiFID II Guidelines – Implementing MiFID II requirements for Euronext Cash Markets;
- MiFID II Technical Note - Introduction to the MiFID II technical changes – Cash;
- MiFID II Technical Note – Introduction to the MiFID II technical changes – Derivatives.

TERMS AND ACRONYMS

- **SLC Manager** – Short and Long Code Manager
- **GUI** – Graphic User Interface

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- **API REST** – Application Programming Interface REST compliant

CONTACT

For further information in relation to this Document as well as the Euronext MiFID II programme, please contact the dedicated MiFID II Support Desk mifid2@euronext.com.

Euronext Membership team, Customer Access Services team ("**CAS**") and Customer Technical Support Group ("**CTSG**") are furthermore available to support Clients in:

– configuring access to the test and production environments (CAS);
– processing Registration Forms (Membership);
– sending functional and technical information to Clients related to Euronext Projects (CTSG);
– answering technical and functional Client questions related to Euronext Projects (CTSG);
– assisting Clients in their testing and validation on the EUA (test) environment (CTSG);
– providing follow-up on Client conformance testing(CTSG); and
– assessing Clients' state of readiness with regards to technical changes (CTSG).

Euronext customer support teams are available Monday – Friday from 09:00 to 18:00 CET.

Team	Contact details
MiFID II Support Desk	▪ Email: MiFID2@euronext.com
Membership	▪ Email: EuronextMembership@euronext.com
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Customer Access Services	▪ Tel: +33 1 8514 8589 ▪ Email: CAS@euronext.com

1. TECHNOLOGY

1.1 SLC MANAGER

The SLC Manager is a Euronext web-based tool for submitting and managing data related to Order Record Keeping requirements for Trading Venues under RTS 24, providing:

- **A secure solution with certificate-based authentication:**
  - o SecureID® card for GUI access;
  - o Login/Password attribution and 2FA (two-factor authentication) for API access.
- **Confidentiality management through resilient access controls:**
  - o Independent administrator user profile to manage access rights to add, view, modify, delete and export files per user.
- **High ease of connectivity with upload and data management possibilities via GUI and API REST:**
  - o Supported file upload formats: .dat;
  - o Delta file management via Form Submission into GUI.
- **Centralised administration for all Euronext markets and Euronext hosted solutions;**
- **Fast feedback of file quality with error detection.**

1.2 SATURN WEB SERVICE

The **SLC Manager** is offered as a functionality within **Saturn Web Services**. Saturn Web Services is the technical solution that has been deployed by Euronext in the context of MiFID II to securely host Euronext Trade Publication (APA) and Transaction Reporting (ARM) services, Commodities Position Limit Reporting, and the short and long code management tool SLC Manager.

The services in the Saturn API are exposed as Web Services:

- *Message format*: REST;
- *Transport mechanism*: HTTPS.

The Saturn REST API allows multiple formats: JSON, XML and .dat file.

1.3 RECOMMENDED BROWSER CONFIGURATION

To fully benefit from this Web application, Euronext recommends using Internet Explorer 11.0 or higher, Chrome or Firefox version 51.0.

2.   ACCESS AND USER MANAGEMENT

2.1   MEMBER ACCESS

The SLC Manager is offered as a functionality within the Euronext Regulatory Reporting Solution, hosted on Saturn. To obtain access to the functionality, Member Connectivity Administrators (MCAs) are required to submit a service access request using the Saturn Access web form(s) available on Euronext Connect. Members will be provided with SecurID® Card for GUI access by Euronext Customer Access Service (CAS). To obtain a Certificate for API access, Members are invited to submit a request directly via the Saturn interface using the Digicert link. Euronext will validate the request and the Member will receive the Certificate by email. The Member or appointed service provider shall install the Certificate and use it to access Saturn via API. Customers are requested to contact CTSG after testing to confirm that they were able to successfully upload files for reporting purposes.

Access will initially only be granted for the EUA environment. To obtain access to the Production environment, Euronext requires all Members to:

1.   become familiar with the Terms and Conditions governing access to and use of the Euronext Regulatory Reporting Solution;

2.   return by **4 December 2017** to Euronext Membership the Registration Form duly completed with information relevant to the use of the Euronext Regulatory Reporting Solution.

Relevant documentation
Euronext Reporting Solution - Registration Form
Euronext Reporting Solution - Terms and Conditions

2.2   ACCESS FEES

Access to the Web-GUI

Access to the web-GUI is based on a personal RSA SecurID® card. The access is free up to two (2) User-IDs per Member using the Service(s). User profiles may be split across the EUA and Production environments as deemed appropriate. A charge will be applied for Members with three (3) or more User-IDs.

Number of User-IDs	Fee for 3 years use (€)
1 ≤ 2 (standard)	N/A
Each additional user	200

Access to the Web-API

WEB-API access will be defined by Investment Firm through the GUI. The access is free for up to six (6) API Logins per Member using the Service(s). For Investment Firm requesting more than six (6) API Logins per Member using the Service(s), an additional annual fee is applied.

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Number of API Logins	Annual Fee (€)
1 ≤ 6 (standard)	N/A
Package for 9	150
Each additional 3 logins thereafter	100

Firms signing up to more than one service on the platform may receive more complimentary accesses. See the Euronext website for more information.

2.3   USER ADMINISTRATION MANAGEMENT

Administrators are assigned by Euronext Membership during the SLC Manager onboarding process. The SLC Manager enables the Administrator to set rights per *User* via the SLC Admin tool:

ADD NEW PROFILE

SLC Manager profile	VIEW	CREATION	UPDATE	DELETE
Users Management	☐		☐	
Business Unit Management	☐			
User Reset Password	☐		☐	
User Unlock			☐	
Profile Management	☐	☐	☐	☐
User Activity	☐			
Dashboard ARM	☐			
Dashboard ARM Trades	☐	☐	☐	
Upload ARM Trades	☐		☐	
Dashboard Commodities	☐	☐	☐	
Upload Commodities	☐		☐	
SLC manager	☑	☑	☑	
Upload SLC	☑		☑	

CANCEL   CREATE

User profiles can be set up with the following rights:

Functionality	description	Rights
SLC manager	This function allows the user to manage short and long codes SLC (create a new SLC, amend or cancel an exesting SLC)	View, Create, Update

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Upload SLC	This function allows the user to upload a list of short and long codes via a .dat file and view the list of uploaded files	View, Update

Please note: For Members who already have access to other services within Saturn Web Services, the User access configuration will stay the same but can be amended per Saturn functionality.

3.   SESSION HANDLING

The Euronext SLC Manager allows for high ease of connectivity through both GUI and API REST. The following section explains how to start the SLC Manager in order to communicate with the application. More precisely, it tells you how to:

•   Log-in;

•   Log-out.

No previous installation is necessary.

3.1 LOGGING IN

The following table provides the links to connect to the Saturn Web/API application in the EUA and Productions environments.

Environment	URL Saturn GUI	URL Saturn Web Services
PEUA	https://saturn-h.euronext.com	https://saturn-api-h.euronext.com
PRODUCTION	https://saturn-p.euronext.com	https://saturn-api-p.euronext.com

WEB-GUI

Access to the SLC Manager GUI is based on a personal RSA SecurID® card. To log in to the GUI, do the following:

1.   Start your Web browser;

2.   Enter the appropriate secure domain address;
The SLC Manager log-in page will be displayed:
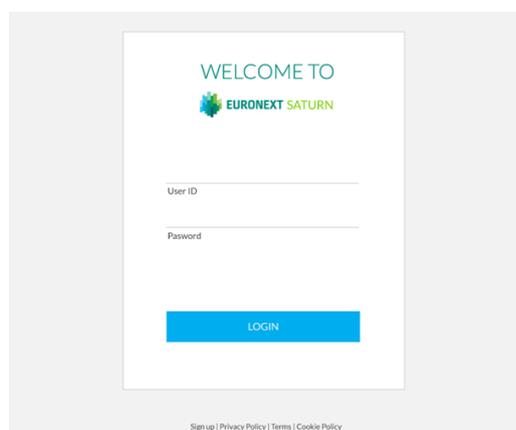
When the SLC Manager log-in page appears, type in your **User ID** and your **Password** using the SecurID® card[1] as follows:

1.   Type your pin-code into the SecurID® card;

2.   Your password will be displayed on the SecurID® screen;

3.   Enter your User ID and password in the log-in fields;

4.   Click **LOGIN** to verify your ID and Password.

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[1] The User ID, SecurID® card and associated PIN are provided by Customer Access Services (CAS)

Please enter your password and ID quickly and accurately. The password displayed on the SecurID card is updated every 30 seconds. If you make a mistake when entering your login information, your request is rejected and the SLC Manager log-in page reappears for you to try again.

Please note: The SLC Manager allows for three log-in attempts. After the third log-in attempt, the SecureID® card will be blocked and the SLC Manager will not accept further log-in attempts. The following window will appear after three incorrect submissions of the password:

> Your SecureID Card is blocked, please click **here** or contact Euronext Membership Customers Connectivity (tel +33 185 148 589).
>
> Please note: Unblocking your SecureID Card® by telephone requires your personal 12 digit identification code.

API REST

Please refer to section 6 and section 7 of this document.

3.2 LOGGING OUT

WEB-GUI

To log-out, click on the "LOGOUT" icon in the Admin block of the application screen.

Users will automatically be logged out of the system after 10 minutes of inactivity.

API REST

Function:

Function name: Logout

Request EndPoint: /SaturnWebServices/rest/Authentication/Logout

Method: POST

4. SHORT AND LONG CODE MAPPING SUBMISSION

The following chapter outlines the terms of reference for the submission of a mapping between short codes and long codes.

4.1 DATA STRUCTURE REQUIREMENTS

All data submitted must adhere to the file format, naming convention, data structure requirements and validation rules outlined in the following section.

FILE FORMAT AND NAMING CONVENTION

Expected file format: DAT, extension: .dat.

File name must be appear as follow:
ShortLongCodes_[date]_[member_code]_[market_code]_[sequence].dat
ex: ShortLongCodes_20170601_00014956_1_01.dat

Field name	Description	Values	Mandatory	Format	Rejections cases
ShortLongCode	Prefix	ShortLongCodes	Yes	Alpha	Not equal to 'ShortLongCodes'
date	Date of the file	YYYYMMDD Example: 20170601	Yes	Format: YYYYMMDD	Not a valid date
member_code	Member code is Alphanumeric, 8 char. Applied by Euronext or hosted solutions to Members.	Letters, numbers, Fixed- length -8 char. Left padded with '0' where Member code is less than 8 characters	Yes	Alphanum 8 char	Not on 8 chars
market_code	Market code In case of presence on two markets, Client must sent two reports, one for each market.	1 - Euronext Cash or Derivatives Markets 2 Bourse de Luxembourg 3 - Sigma-X 4 Euronext Synapse 5 Euronext	Yes	Integer	Values not in (1,2,3,4,5)

		Block MTF			
sequence	To add in case of multiple subsequent deliveries for a given day.	Between 01 and 99 digit	Yes	Integer	Validation rules: Must be defined between 01 and 99 digit. if more than 99 files need to be submitted for the same Market during the same day, sequence can restart from 01 Rejection cases: 1) Contains less than 2 characters 2) Contains special characters, accentuated characters, punctuation marks 3) Contains letters
.dat	File extension	.dat	Yes	Alpha	Not equal to ".dat"

DATA STRUCTURE AND VALIDATION RULES

The following data structure is required for the purposes of short code and long code mapping in .dat.
The first line must contain the label of the fields in any order.

The labels of the fields are listed below in the fire column of the tab, please note that the labels are case sensitive.

sShortCode|sLongCode|cCodeType|dEffectiveDate|dEndDate|

Examples:
- 4670|LONGCODE67|3|2019-07-18|2026-07-18|
- 18691|LONGCODE7492|4|2021-08-13|2025-08-13|
- -22280|LONGCODE5097|4|2021-04-19|2022-04-19|
- -14390|LONGCODE10343|6|2018-04-15|2024-04-15|

Field label	Format	Description	Values	Mandatory	Rejection Cases	Message
sShortCode	Integer	Short code that is used by the Participant in order entry	Integer within the range of numerical values, as detailed in the respective external client	Yes	1) Not an Integer, or a value not within the range of numerical	1- [sshortcode] [1001] can't be null 2- [sshortcode]

			specifications[2]		values, as identified in the respective external client specifications for the various short code fields. 2- Value already used with another Long Code 3- Short Code reserved values '1' = long code 'AGGR' (aggregated orders) '2' = long code 'PNAL' (pending allocations) '3' = long code 'NORE' (where execution decision was made by a client)	[1010] <value> must be greater than or equal to -2147483647 3- [sshortcode] [1011] <value> must be less than or equal to 2147483647 3-[sShortCode] [1003] mustn't be equal to 1, 2 or 3
sLongC ode	AlphNu m	Long code that will be populated for the purposes of MIFID Order Record Keeping (RTS 24).	Alphanumerical values with maximum length of - 35 when cCodeType = 2, 3, 5 - 50 when cCodeType = 4, 6 - 20 when cCodeType = 1, 7	1) Yes	1-Empty 2- Max length exceeds 35 when cCodeType = 2, 3, 5 3- Max length exceeds 50 when cCodeType = 4, 6 4-Max length exceeds 20 when cCodeType = 1, 7 5- Contains invalid characters other than # and Capiltal letters	1-[slongcode] [1004][can't be null 2-[slongcode] [1020] must be less than or equal to 35 3-[slongcode] [1021] must be less than or equal to 50 4- [slongcode] [1022] must be less than or equal to 20 5- [slongcode] [1023][Invalid characters
cCodeT ype	Integer	This field gives the type of	'1' – Client Identification as a	Yes	1-Empty	1- [codetype] [1030] can't be

---

[2] Members are required are required to generate their own short codes. In case of an ISV Algo, the member may rely on the ISV to generate a short code, provided that negative short code ranges are applied.

		field that is short coded	LEI '2' – Client Identification as a National ID '3' – Investment Decision Within Firm as a National ID '4' - Investment Decision Within Firm as an Algo. '5' – Execution Within Firm as a National ID '6' – Execution Within Firm as a Algo '7' – Non Executing Broker Code as a LEI		2- Values not in (1,2,3,4,5,6,7)	null 2-[codetype] [1006] should be greater than or equal to 1, and less than or equal to 7
dEffectiveDate	Date	Date as of which the short and long code mapping is effective.	Format: YYYY-MM-DD	Yes	1- Empty 2- Effective date < Current date	1-[deffectivedate] [1035] can't be null 2-[deffectivedate] [1007] Incorrect Effective Date, must be greater than or equalto Current Date;
dEndDate	Date	When filled, indicates when the registration for the short and long code mapping is no longer effective End date must be greater than the effective date.	Format: YYYY-MM-DD	No	1- EndDate < EffectiveDate	1-[denddate] [1008] Incorrect End Date, must be greater than or equal to Effective Date

Examples of Long codes

Types	Regular expression
LEI	[A-Z0-9]{18,18}[0-9]{2,2}
National ID	(([A-Z]{2,2}[A-Z0-9]{1,33})|([A-Z]{2,2}[0-9]{8}[A-Z]{1}[AZ#]{

	4}[A-Z]{1}[A-Z#]{4}))
MIC	[A-Z0-9]{4,4}

4}[A-Z]{1}[A-Z#]{4}))

[A-Z0-9]{4,4}

4.2   DATA SUBMISSION

For purposes of mapping short codes and long codes, the SLC Manager allows for three data submission functionalities:

- o   File upload via SLC Manager GUI (.dat);
- o   Form Submission via SLC Manager GUI;
- o   File upload via API REST (.dat).
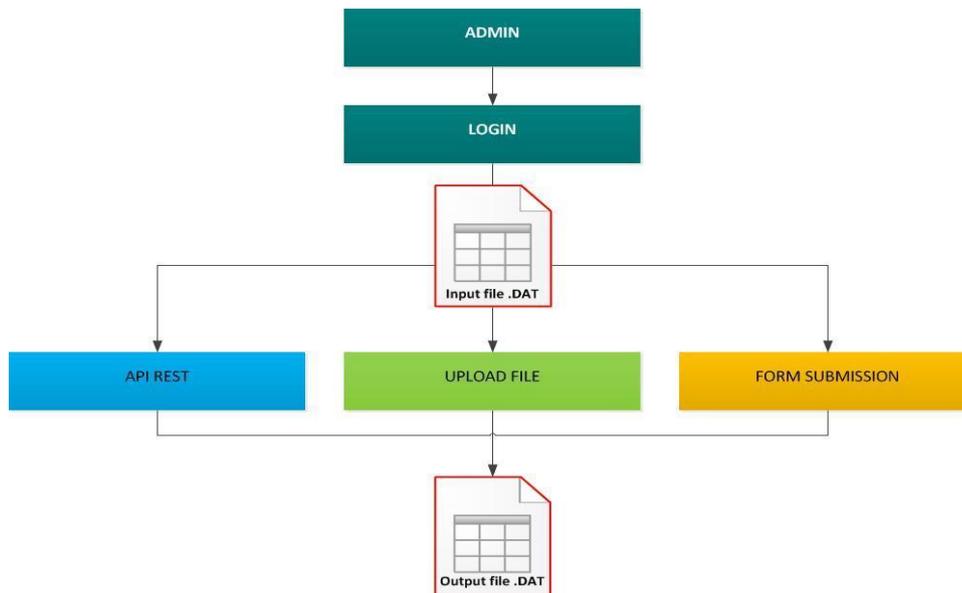
The following section describes the procedures for each of the data submission functionalities.

4.2.1   FILE UPLOAD VIA WEB GUI

The following section introduces the file upload possibilities via the SLC Manager GUI.

To upload a new mapping file via the SLC Manager GUI, Members are required to:

1) Complete the mapping file according to the data structure and validation rules outlined in section 4.1 of this document[3] ;
2) Save the mapping file according to the file format and naming convention outlined in section 4.1 of this document;
3) Connect to SLC Manager (see the section 3.1 "Logging- in") and go to the "Upload file" screen;
4) Browse the local .dat file and select it via "Choose" button;
5) Click to "Upload" button to send the mapping file to Euronext server or "Cancel" to exit the action.

After mapping file upload, the SLC Manager offers a range of data management functions:

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[3] A template file is available for download in the Upload file screen

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Icon	Action	Result
	View status	Display the upload status by clicking on the "Status" icon. In case of unsuccessful upload all errors are displayed. In case of success- the message "Succeed to insert, X of lines"
	View List of files uploaded to SLC Manager	Display the list of short and long code mappings uploaded in the SLC Manager tab.
	Refresh	Update the display of the uploaded files

Uploaded data are checked against the data structure and validation rules set out in section 4.1 of this document instantly. Successfully uploaded files are displayed in the upload file screen with the "success" icon .

In case of unsuccessful upload, the SLC Manager will display the uploaded file with the "error" icon .

In case of successful upload with errors in the content of the file, the SLC Manager will display the uploaded file with the "icon " and the error list under the concerned file name.

STATUS	NAME	SIZE	UPLOADED DATE
✓	ShortLongCodes_20170814_12345678_1_01.dat	154 B	2017-09-12 09:43:47
✓	ShortLongCodes_20170814_12345678_1_01.dat	154 B	2017-08-31 14:47:47
✓	ShortLongCodes_20170814_12345678_1_01.dat	154 B	2017-08-30 16:43:48
✓	ShortLongCodes_20170814_12345678_1_01.dat	154 B	2017-08-29 18:04:09
✖	ShortLongCodes_20170728_12345678_1_01.dat	535 B	2017-08-28 16:11:47
	Unknown fields: AAsShortCodeAA,BGsLongCodeDF,DRcCodeTypeML,PLOdEffectiveDateOKLA,QKMOdEndDateMKOO,		
✖	ShortLongCodes_20170728_12345678_1_01.dat	535 B	2017-08-28 16:08:48
✖	ShortLongCodes_20170728_12345678_1_01.dat	535 B	2017-08-28 16:08:47
⚠	ShortLongCodes_20170803_12345678_2_05.dat	249 B	2017-08-28 15:43:08
	Line [2] field sShortCode is required		

To correct an unsuccessful upload, correct the error displayed in the error table. When corrected, upload the file with an amended sequence number via the same upload procedure.

4.2.2   FORM SUBMISSION VIA WEB GUI

In addition to a file upload, the SLC Manager GUI allows the user to enter or update the short code and long mapping via Web Form. The following section introduces how to enter and manage data directly into the SLC Manager GUI.

To enter short and long code mapping directly into the SLC Manager GUI, access the SLC Dashboard and click the icon for "Mapping file details", which displays all submitted mapping files. The mapping file details allows for the following available actions:

Icon	Action	Outcome
	Refresh	Update the display, transmit all recent data uploads
	Create by copy the line	Copy the selected line. This function is useful to create a new line based on the informations existing in a previous inserted line.
	Export data	Export selected lines in .dat format. Following columns are included in the download file : Record date, short code, long code, code type, market identifier, effective date, end date
	Cancel the line	Cancel the selected lines
	Edit	Open the overlay with all fields in mode edition of selected line. If more than one line is selected, the error message is displayed
	Add new line	Open the overlay with a new line form

To enter a new short and long code mapping directly into the SLC Manager, click "Add new line" and submit the relevant data adhering to the data structure and validation rules outlined in section 4.1 of this document.

4.2.3   FILE UPLOAD VIA API REST

The following section describes the fundamentals of the SLC Manager API, the REST compliant interface to publish (POST), obtain (GET) or delete (DELETE) the short and long code mapping by upload file (.dat).

All files submitted through the API must adhere to the data structure requirements outlined in section 4.1 of this document.

Access:

Please refer to section 6 and section 7 of this document.

The Upload function must be used by client to upload a file in .dat format.

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Function:

Function name: upload

Request EndPoint: /SaturnWebServices/rest/files/upload

Method: POST

Request Body :

This endpoint accepts a request body in one of the following formats:

Name	Type	Description	Notes	Validations
Type	"FormData"			
FieldValues	List of FieldValue	A list of key/value pairs identifying the form data (field name / value)		

Expected file contents

File: .dat

Response Codes and Error Messages

The response is a structured object containing the total number of available items and the list itself.

The response 200 indicates successful upload. The response 600 indicates unsuccessful upload. Other responses, such as 4xx and 5xx, indicate that the item was not updated in the registry.

Sucessful upload example:

```
{
    "code":200,
    "data":[
        {
            "type":"uploadedFileStatus",
            "fileName":" ShortLongCodes_20170601_00014956_1_01.dat",
            "size":6144,
            "status":"W",
            "tid":1022,
            "uploadedDate":"2017-09-12T12:54:25"
        }
    ],
    "msg":"OK",
    "recordCount":1
}
```

4.2.4   GetUploaded

EXAMPLE OF THE GETUPLOADED FUNCTION:

Function name: GetUpload

Request EndPoint: /SaturnWebServices/rest/files/getuploaded

Method: GET

4.2.5   GetUpload response data

RESPONSE DATA PARAMETERS:

Name	Type	Data Type	Required	Description
Code	Attribute	Int	Yes	Status of the function. 200 – OK
Data	Element	Sequence of data	Yes	Detailed description of uploaded data

SEQUENCE OF DATA:

Name	Type	Data Type	Required	Description
Type	Attribute	String	Yes	Name of statistics : UploadedFileStatus
Filename	Attribute	string	Yes	.dat file name
Msg	Attribute	Int	Yes	Detailed message by trade and column
Size	Attribute	String	Yes	File size
Status	Attribute	String	Yes	E
Tid	Attribute	int		Treatment ID sequential number
uploadedDate	Attribute	date	Yes	"YYYY-MM-DDTHH:MM:SS

```
{
  "code":200,
  "data":[
    {
      "type":"uploadedFileStatus",
      "fileName":" ShortLongCodes_20170601_00014956_1_01.dat ",
      "msg":[[slongcode] must be less than or equal to 20 "],
      "size":6144,
      "status":"E",
      "tid":1022,
      "uploadedDate":"2017-09-12T12:54:25"
    }
  ],
  "msg":"OK",
  "recordCount":1
}
```

Possible returned **status** codes:

200 – OK

600 – FAILED

4.3   DATA MANAGEMENT RULES

Maximum file size

The maximum size of a single mapping file is 1MB. Mapping files larger than 1MB are to be uploaded separately, with an independent sequence number. It is possible to upload up to 5 (five) files simultaneously.

Frequency and timing

The submission of a short and long code mapping is only required if there are changes to existing mapping data or if short codes have been used in order entry that have not previously been declared.

SLC Manager is available Monday - Friday between 06:30 am and 10:30 pm CET. Members are required to upload the file via the SLC manager via GUI or API REST before 10:30 pm CET on the day of trading.

Updating an existing short code

Users of SLC Manager can manage existing short code by either uploading a new .dat file (via GUI or API REST) or amending the information directly into the SLC Manager GUI.To update an existing short code, users may submit the existing short code with updated information, using an EffectiveDate greater or equal than short code's current EndDate.

Cancelling an existing short code

To cancel a ShortCode, users have to resend the same ShortCode/CodeType but with an EndDate, equal to or greater than CurrentDate.

5. SHORT CODE AND DEA INDICATOR BY ORDERID SUBMISSION

The following section sets out the terms of reference for populating the MiFID II short codes and DEA indicator by OrderID in an end of day flat file via SLC Manager. **This procedure may only be used by Members of Euronext Cash Markets and Members of Bourse de Luxembourg who have not identified the relevant parties to an order upon order submission.**

5.1 DATA STRUCTURE REQUIREMENTS

All data submitted must adhere to the file format, naming convention, data structure and validation rules outlined in the following section.

FILE FORMAT AND NAMING

Expected data format: DAT, extension: .dat

File name must be appear as follow:
OrderIDShortCodes_[date]_[member_code]_[market_code]_[sequence].dat
ex: OrderIDShortCodes_20170425_00014956_1_01.dat

Field name	Description	Values	Format	Rejections cases
OrderIDShortCodes_	Prefix	OrderIDShortCodes_	Alpha	Not equal to 'OrderIDShortCodes'
date_	Date of the file	YYYYMMDD

Example 20170601 | Format:YYYYMMDD | Not a valid date |
| member_code_ | Member code is Alphanumeric, 8 char.

Applied by Euronext or Euronext hosted solution to Members . | Letters, numbers, Fixed- length -8 char.

Left padded with '0' where participant code is less than 8 characters | Alphanum 8 char | Not on 8 chars |
| market_code_ | Market code

In case of presence on two markets, Client must sent two reports, one for each market. | 1 - Euronext Cash

2 – Bourse de Luxembourg | integer | Values not in (1,2) |
| sequence | To add in case of multiple subsequent deliveries for a given day. | Between 01 and 99 digit | Integer | Validation rules: Must be defined between 01 and 99 digit. if more than 99 files need to be submitted for the |

				same Market during the same day, sequence can restart from 01 Rejection cases: 1) Contains less than 2 characters 2) Contains special characters, accentuated characters, punctuation marks 3) Contains letters
.dat	File extension	.dat	Alpha	Not equal to ".dat"

DATA STRUCTURE

Expected data format: pipe as a sign separator (| separated values) and each line is closed by "|",extension: .dat.

The first line must contain the label of the fields in any order.

The labels of the fields are listed below in the fire column of the tab, please note that the labels are case sensitive.

Date |OrderID|ISINCode|ShortCode1|ShortCode2| ShortCode3 |DEAIndicator|

Field name	Format	Len	Values	Description	Mandatory
Date	YYYY-MM-DD	10	YYYY-MM-DD Example 2017-06-01	Date of the order	Yes
OrdID	Integer	8	From 0 to 2^64-2	Number assigned by the Trading Engine upon successful validation of an incoming order. **Please note:** upon order modification, a new OrderID is generated by the Trading Engine. Members have to submit each OrderID even if the ShortCodes and DEAIndicators remain unchanged.	Yes
ISINCode	Alphanum	12		12-character alpha-numerical code that serves for uniform identification of a security, also known as Euronext Trading code	Yes
ShortCode1	Integer	4	From -2^31+1 to 2^31-1	ExecutionWithinFirmShortCode, MiFID II identifier of the trader {NationalID or identification of client } or algorithm {AlgoID} or responsible for the execution making	Yes
ShortCode2	Integer	4	From -2^31+1 to 2^31-1	MiFID II identifier for either one of the following: - InvestmentDecisionWithinfirmShortCode to identify the trader {NationalID} or algorithm {AlgoID} responsible for the investment decision making; or - ClientIdentificationShortCode to identify the client of the member or participant of the trading venue {NationalID, LEI, AGGR or PNAL}. In case there is DEA, the code of the DEA user shall be used.	Yes
ShortCode3	Integer	4	From -2^31+1 to 2^31-1	InvestmentDecisionWithinfirmShortCode to identify the trader {NationalID} or algorithm {AlgoID}	No

Field name	Format	Len	Values	Description	Mandatory
				responsible for the investment decision making To be used optionally and where applicable in combination with ShortCode2 populated as ClientIdentificationShortCode	
DEAIndicator	Integer	1	'1' Yes '0' No	Indicates whether the order was submitted via a Direct Electronic Access (DEA) connection or not. It must be set to 1 for DEA access	Yes

5.2 DATA SUBMISSION

For purposes uploading short codes and DEA indicator by OrderID for Euronext Cash Markets and Bourse de Luxembourg, the SLC Manager allows for two data submission functionalities:

- o File upload via SLC Manager GUI (.dat);
- o File upload via API REST (.dat).

5.2.1 FILE UPLOAD VIA WEB GUI

The following section introduces the file upload possibilities via the SLC Manager GUI.

FILE UPLOAD

To upload a new file via the SLC Manager GUI, Members are required to:

1) Complete the file according to the data structure and validation rules outlined in section 5.1 of this document[4];
2) Save the file according to the file format and naming convention outlined in section 5.1 of this document;
3) Connect to SLC Manager (see the section 3.1 "Logging-in") and go to the "Upload file" screen;
4) Browse the local .dat file and select it via "Choose" button;
5) Click to "Upload" button to send the file to Euronext server or "Cancel" to exit the action.

Icon	Action	Result
	View status	Display the upload status by clicking on the "Status" icon In case of unsuccessful upload all errors are displayed In case of success- the message "Succeed to insert, X of lines"
	View List of files uploaded to SLC Manager	Display the list of files uploaded to the SLC Manager
	Refresh	Update the display of the uploaded files

---

[4] A template file is available for download in the Upload file screen

Uploaded data are checked against the data structure and validation rules set out in section 5.1 of this document instantly. Successfully uploaded files are displayed in the upload file screen with the "success" icon .

In case of unsuccessful upload, the SLC Manager will display the uploaded file with the "error" icon .

In case of successful upload with errors in the content of the file, the SLC Manager will display the uploaded file with the "icon " and the error list under the concerned file name.

5.2.2   FILE UPLOAD VIA API REST

The following section describes the fundamentals of the SLC Manager API, the REST compliant interface to publish (POST) or obtain (GET) the upload file (.dat) for sumitting short codes and DEA indicator by OrderID.

All files submitted through the API must adhere to the data structure requirements outlined in section 5.1 of this document.

Access:

Please refer to section 6 and section 7 of this document.
The Upload function must be used by client to upload a file in .dat format.

Function:

Function name: upload

Request EndPoint: /SaturnWebServices/rest/files/upload

Method: POST

Request Body:

This endpoint accepts a request body in one of the following formats:

Name	Type	Description	Notes	Validations
Type	"FormData"			
FieldValues	List of FieldValue	A list of key/value pairs identifying the form data (field name / value)		

Expected file contents
File: .dat

Response Codes and Error Messages
The response is a structured object containing the total number of available items and the list itself.
The response 200 indicates successful upload. The response 600 indicates an unsuccessful upload. Other responses, such as 4xx and 5xx, indicate that the item was not updated in the registry.

Short Long Code Management (SLC Manager)

Sucessful upload example

```
{
    "code":200,
    "data":[
        {
            "type":"uploadedFileStatus",
            "fileName":" OrderIDShortCodes_20170425_00014956_1_01.dat ",
            "size":6144,
            "status":"W",
            "tid":1022,
            "uploadedDate":"2017-09-12T12:54:25"
        }
    ],
    "msg":"OK",
    "recordCount":1
}
```

5.2.3   GetUploaded

EXAMPLE OF THE GETUPLOADED FUNCTION:

Function name: GetUpload

Request EndPoint: /SaturnWebServices/rest/files/getuploaded

Method: GET

5.2.4   GetUpload response data

RESPONSE DATA PARAMETERS:

Name	Type	Data Type	Required	Description
Code	Attribute	Int	Yes	Status of the function. 200 – OK
Data	Element	Sequence of data	Yes	Detailed description of uploaded data

SEQUENCE OF DATA:

Name	Type	Data Type	Required	Description
Type	Attribute	String	Yes	Name of statistics : UploadedFileStatus
Filename	Attribute	String	Yes	.dat file name
Msg	Attribute	Int	Yes	Detailed message by trade and column
Size	Attribute	String	Yes	File size
Status	Attribute	String	Yes	E
Tid	Attribute	Int		Treatment ID sequential number
uploadedDate	Attribute	Date	Yes	"YYYY-MM-DDTHH:MM:SS

```
{
  "code":200,
  "data":[
    {
      "type":"uploadedFileStatus",
      "fileName":" OrderIDShortCodes_20170425_00014956_1_01.dat ",
      "msg":["line[2]ERROR:Incorrect format: 'X01' for column 'OrdID' at row 2 "],
      "size":6144,
      "status":"E",
      "tid":1022,
      "uploadedDate":"2017-09-12T12:54:25"
    }
  ],
  "msg":"OK",
  "recordCount":1
}
```

Possible returned **status** codes:
200 – OK
600 – FAILED

5.3 DATA MANAGEMENT RULES

Maximum file size

The file size is 1MB. Files larger than 1MB are to be uploaded separately, with an independent sequence number. It is possible to upload up to 5 (five) files simultaneously.

Frequency and timing

The file containing MiFID II short codes and DEA indicator by OrderID is to be submitted by Members who who have not identified the relevant parties to an order upon order entry.

Members wishing to make use of this functionality are required to submit the relevant information via the SLC Manager before 12:00 pm CET following the day of trading.

6.   PRE REQUISITE BEFORE USING API

6.1   ENGLISH SCREENSHOTS

Before using SATURN API REST you have to check that your connection is made with a valid intermediate certificate.

Please follow the different steps below so that The connection is fully established.

- Open your Internet Explorer navigator

- Go to Internet Options
- Click on 'Content' Tab
- Click on 'Certificates' button
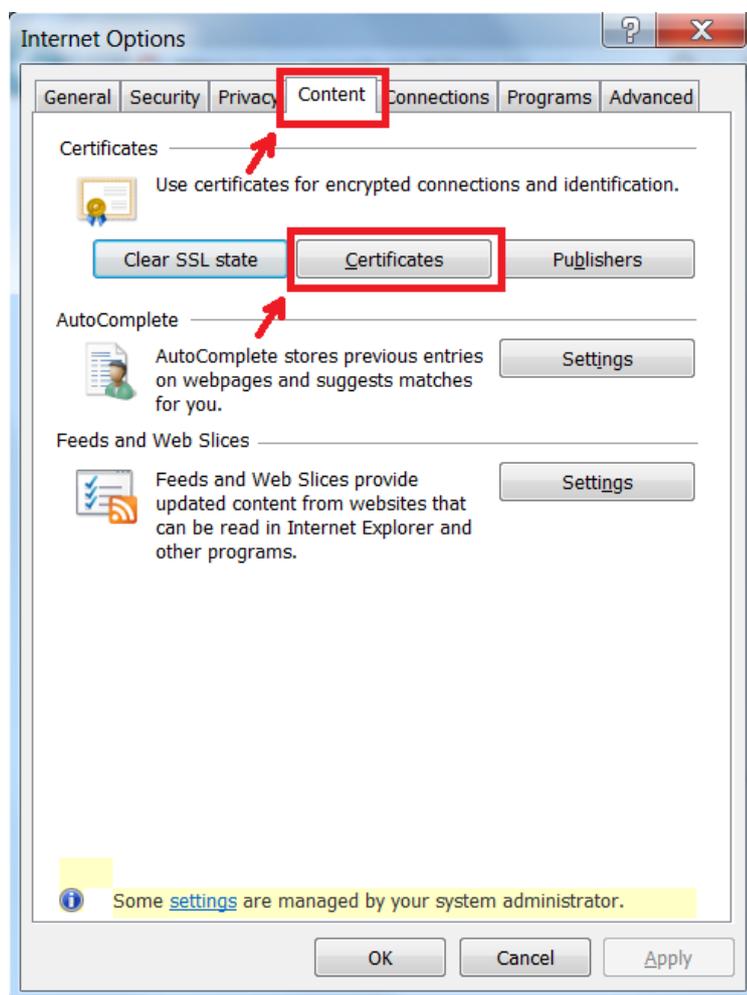
In the pop-in 'certificate' go to 'Intermediate Certification Authorities' and please check that you have the intermediate certificates Digicert:
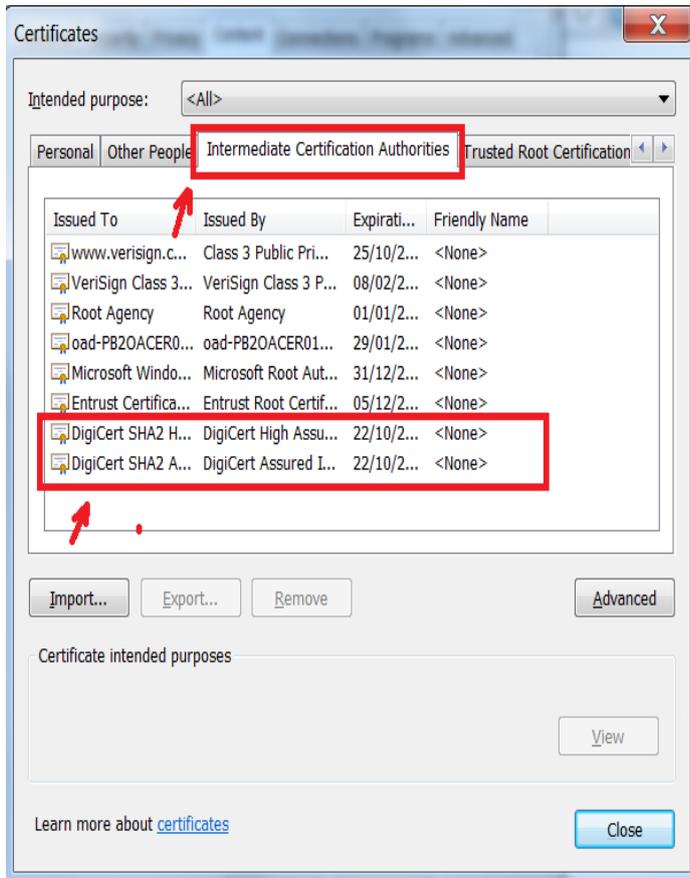
If any it is necessary to install them with executing the file attached "Certifdigicertclient.pfx" in this document, first click on 'Next':
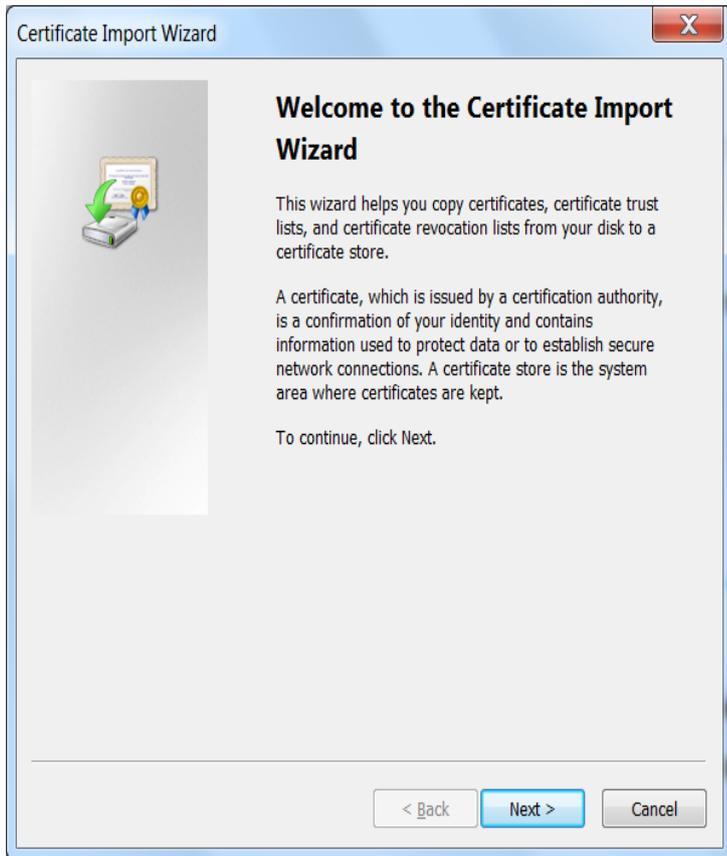
Short Long Code Management (SLC Manager)

Browse the file on your desktop and click on 'Next':
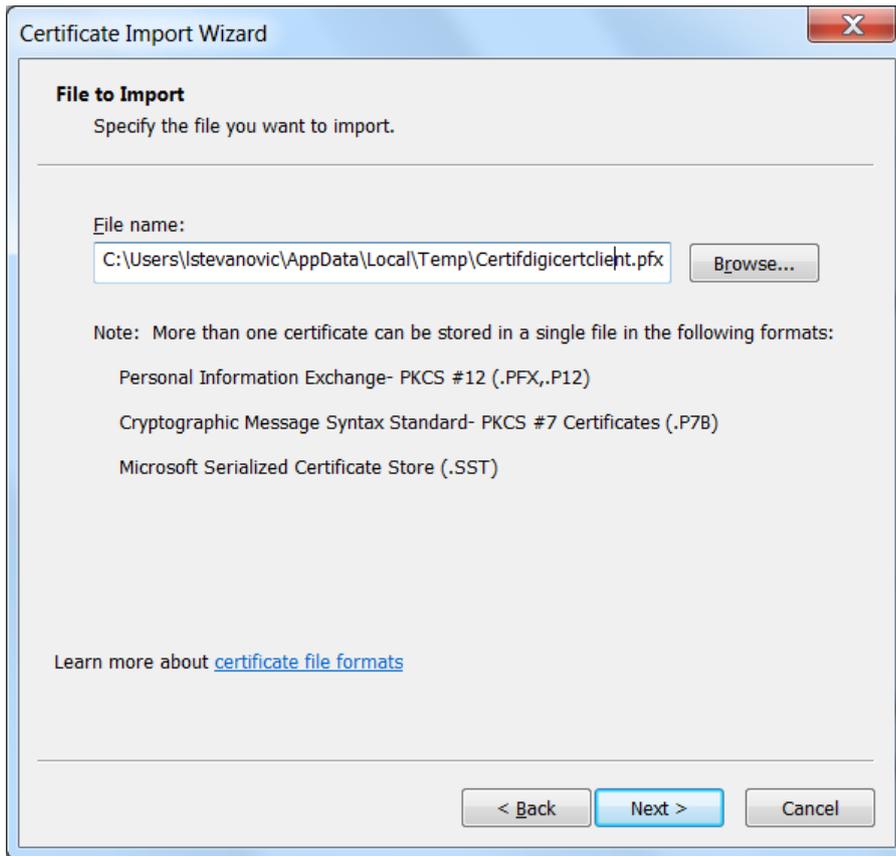
Certificate Import Wizard

File to Import
Specify the file you want to import.

File name:

C:\Users\lstevanovic\AppData\Local\Temp\Certifdigicertclient.pfx   Browse...

Note: More than one certificate can be stored in a single file in the following formats:

Personal Information Exchange- PKCS #12 (.PFX,.P12)

Cryptographic Message Syntax Standard- PKCS #7 Certificates (.P7B)

Microsoft Serialized Certificate Store (.SST)

Learn more about certificate file formats

< Back   Next >   Cancel

The password is Cer$!IF123 click on 'Next':

Tick on 'Automatically select the certificate store based on the types of certificate' and click on 'Next':
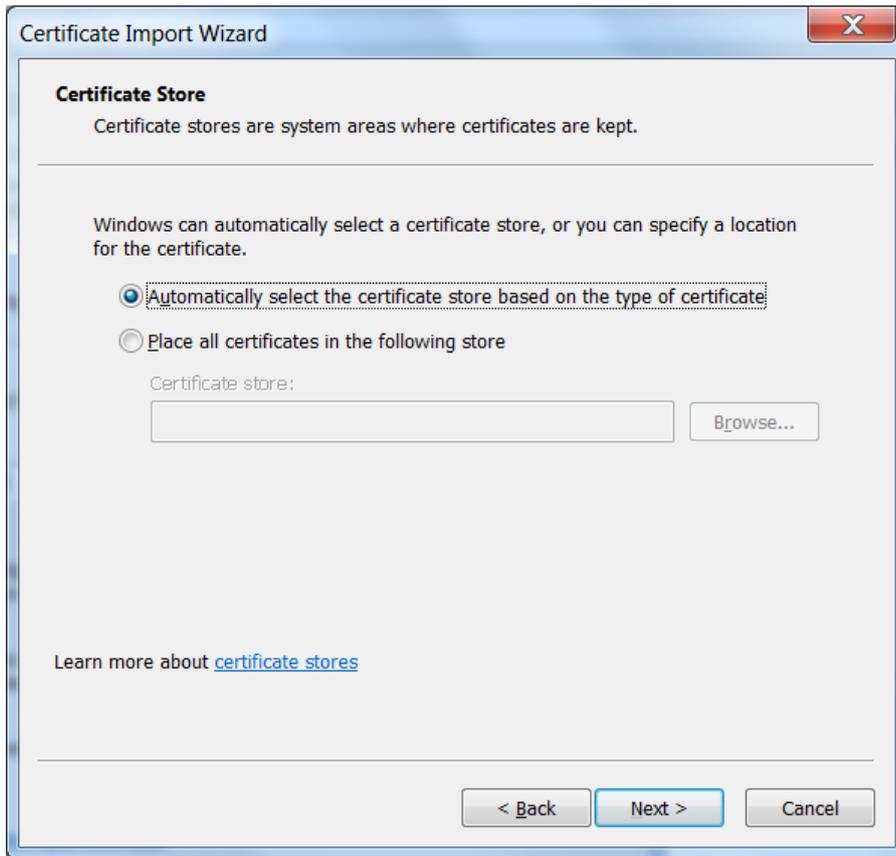
When the installation is finished you get the window below, click on 'Finish':
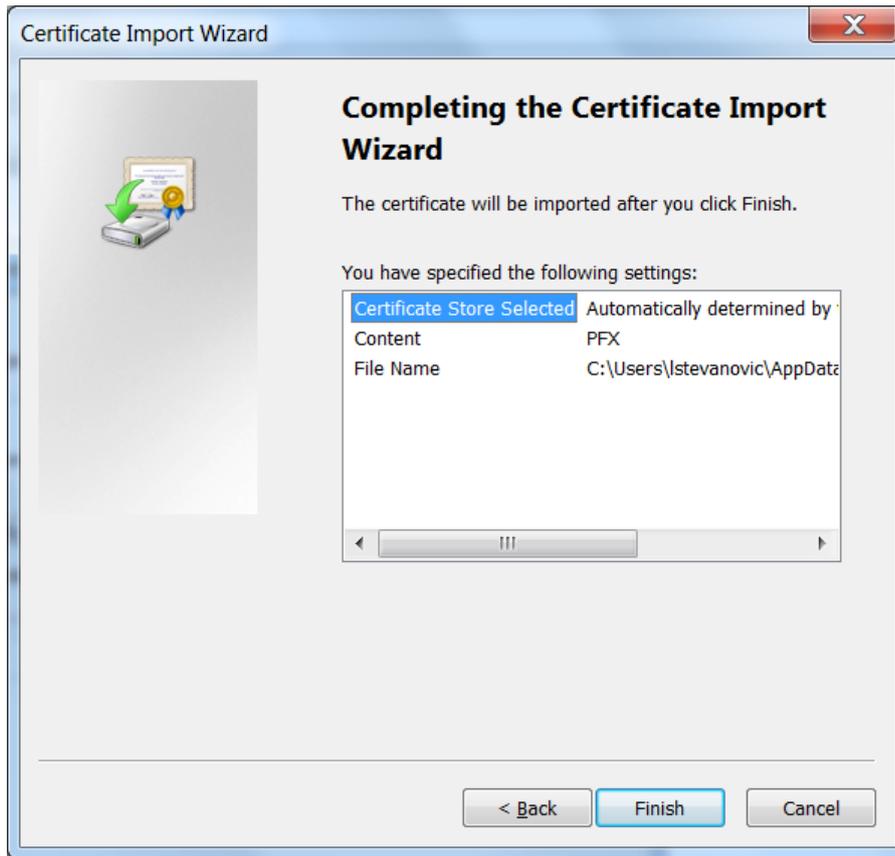
6.2   FRENCH SCREENSHOTS

Before using SATURN API REST Users have to check that connection is made with a valid intermediate certificate.

Please follow the different steps below so that to establish a full connection.

- Open Internet Explorer navigator;
- Go to Internet Options;
- Click on 'Contenu' Tab;
- Click on 'Certificats' button.
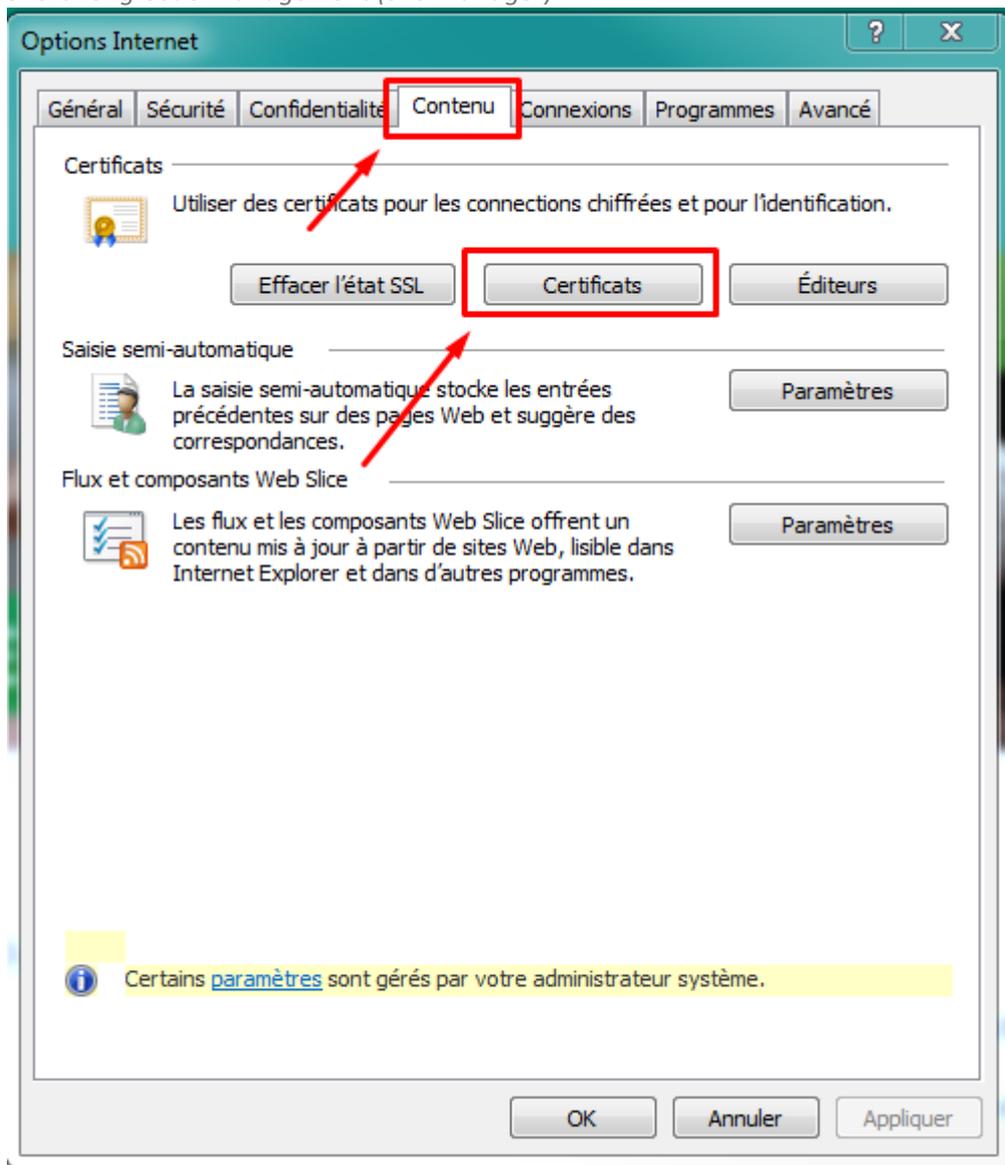
Short Long Code Management (SLC Manager)

In the pop-in 'Certificats' go to 'Autorités de certification intermédiaires' and please check that you have the intermediate certificates Digicert.
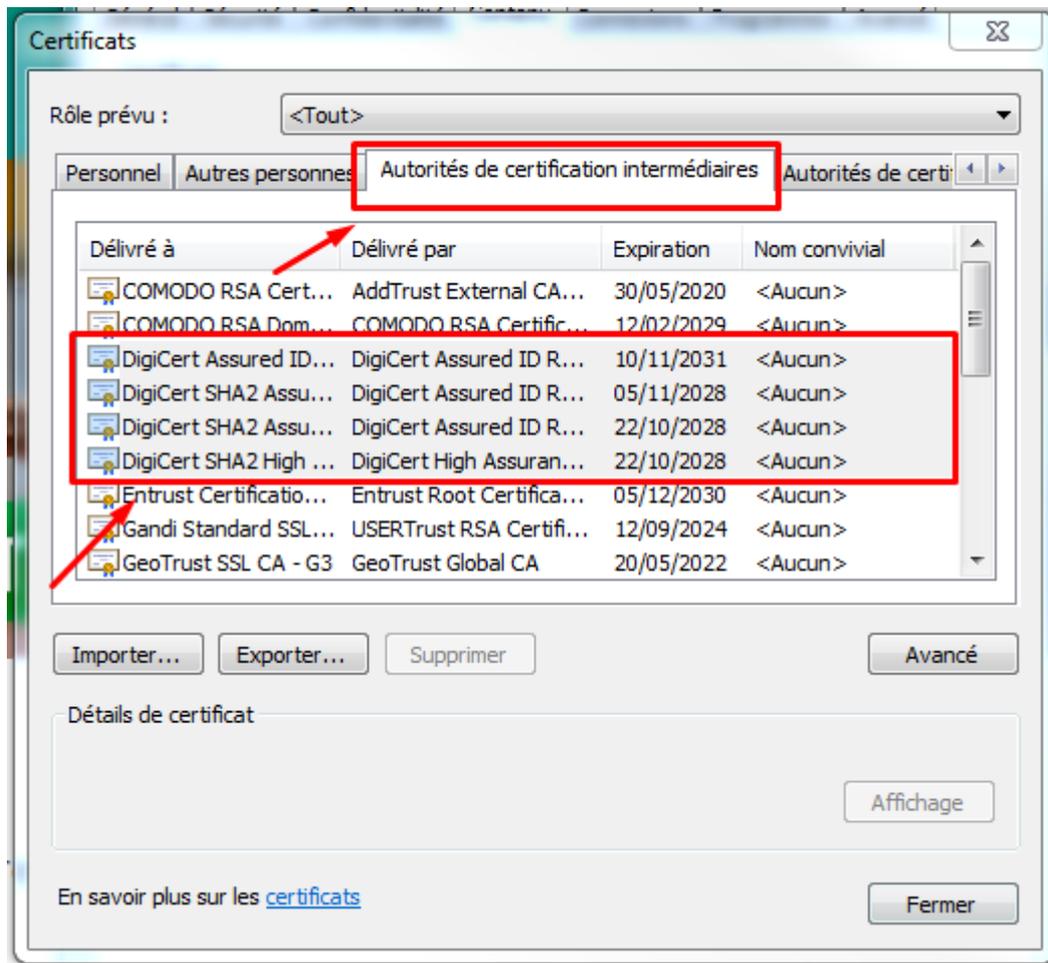
If any it is necessary to install them with executing the file attached "Certifdigicertclient", first click on 'suivant':
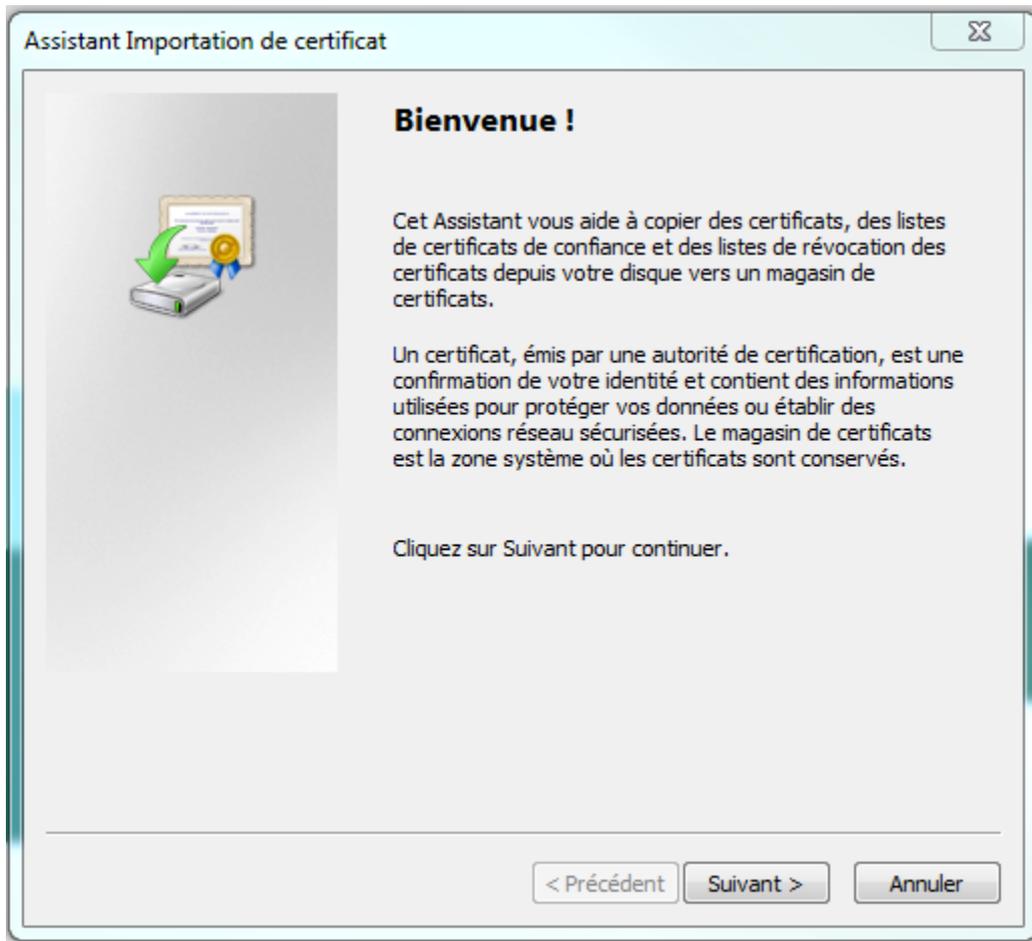
Browse the file on your desktop and click on 'Suivant':
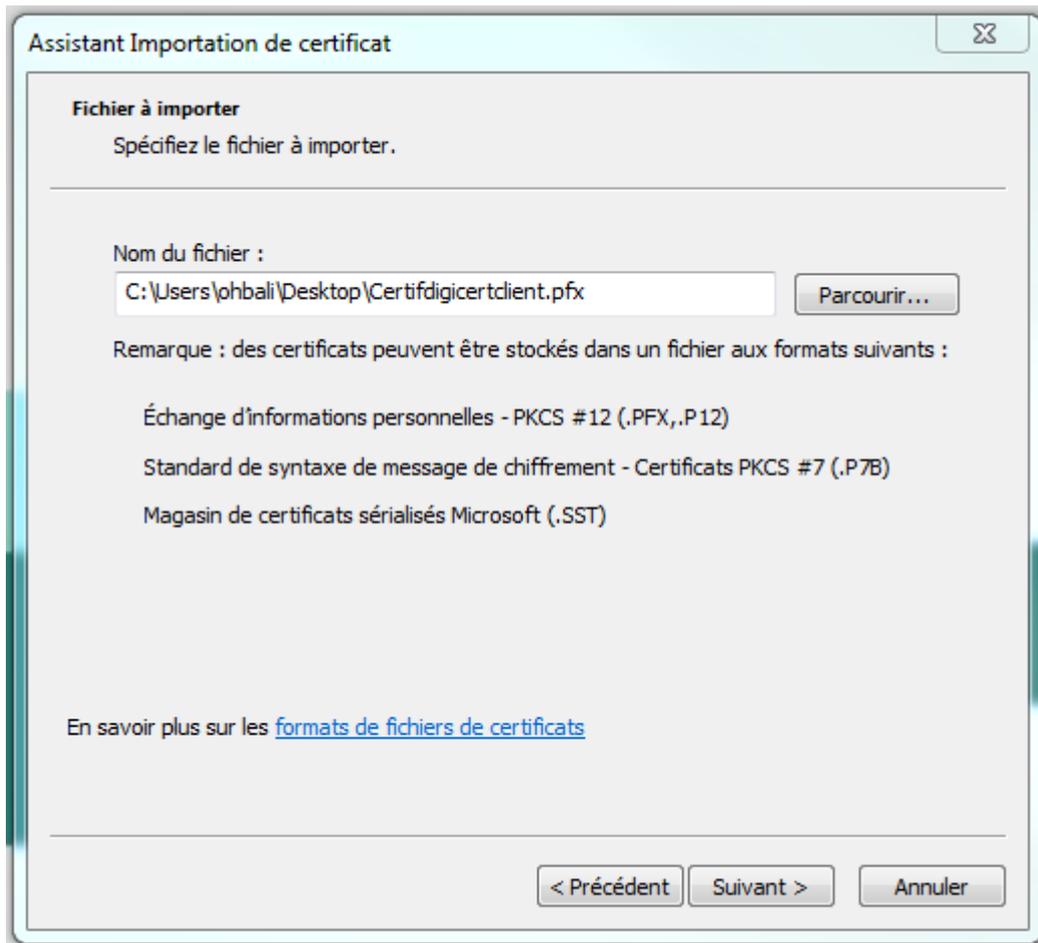
The password is Cer$!IF123 click on 'Suivant':

Tick 'Sélectionner automatiquement le magasin de certificats selon le type de certificat' and click on 'suivant':
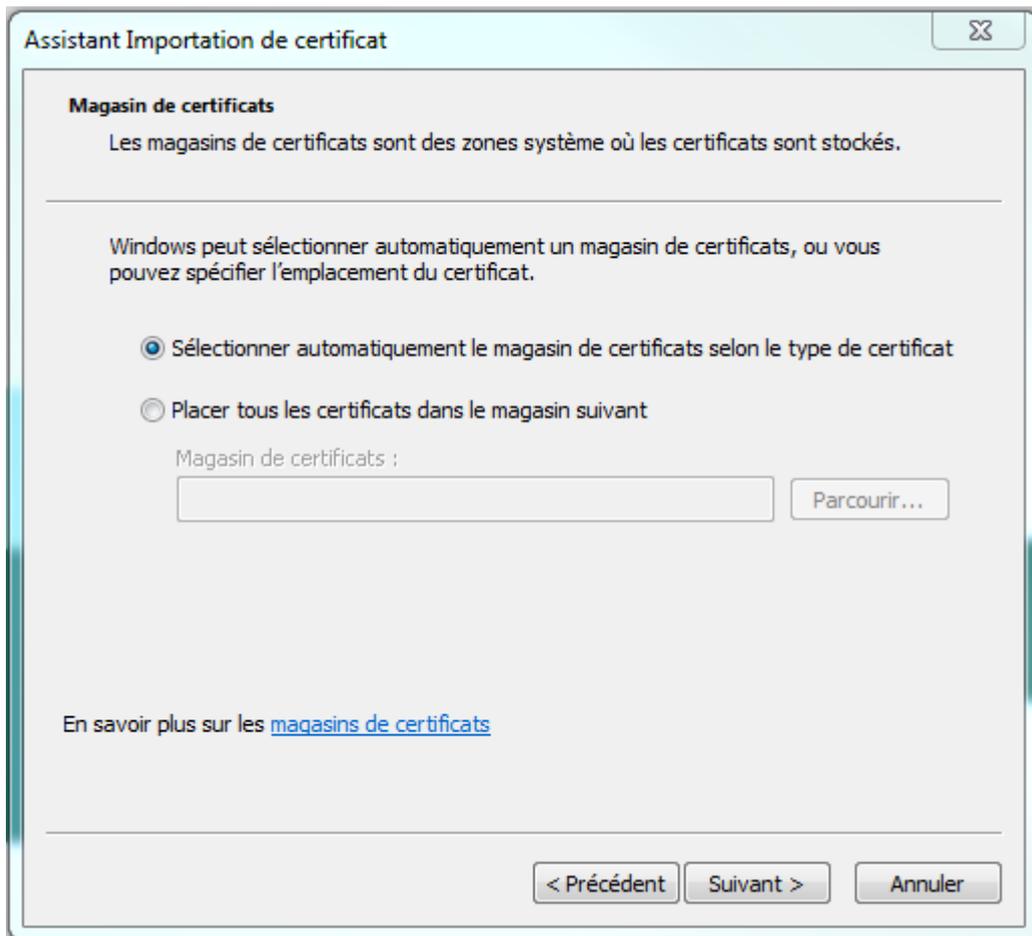
When the installation is finished you get the window below, click on 'Terminer':
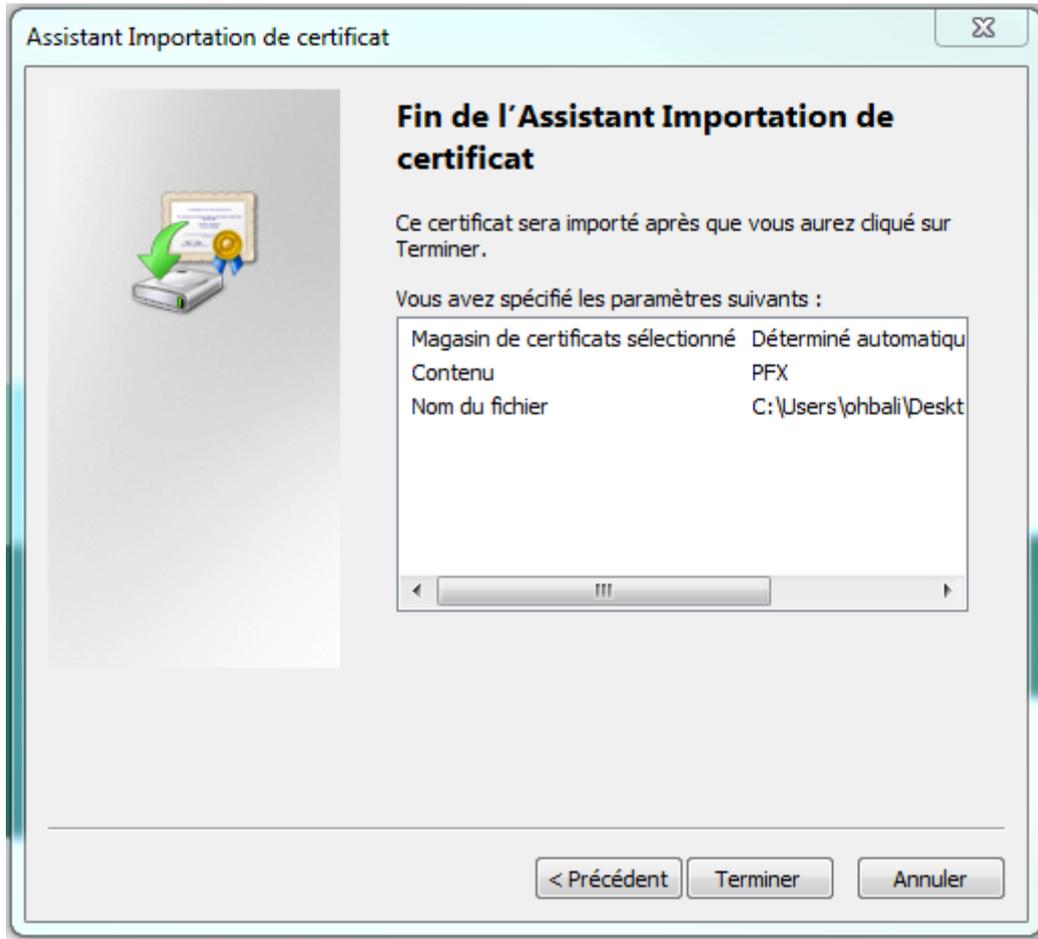
7. HOW TO SET UP A TEST

This section describes step by step how to test a function in Web service.

7.1 ACCESS TO API VIA POSTMAN

The function taken in the example hereafter is AuthenticateUser. It allows a user to connect to the API. The screenshots are Software Postman examples:

Select in the combo box below the function POST (showed by the arrow in the following screenshot):
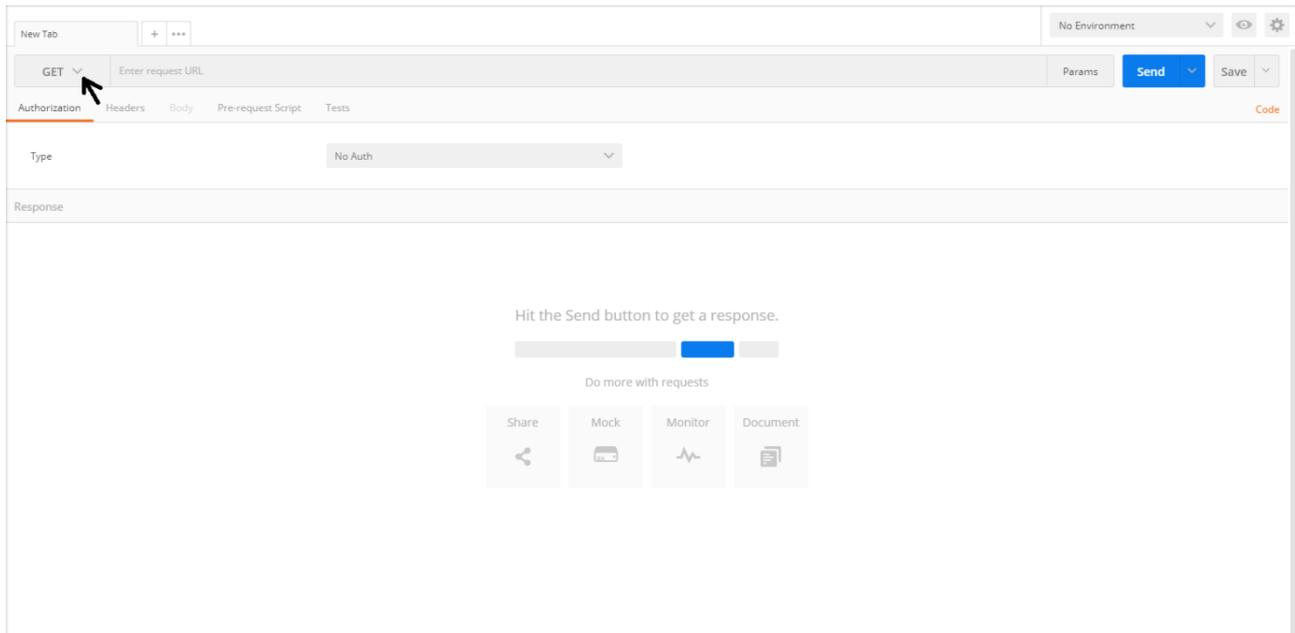
7.2 REQUEST ENDPOINT AND FUNCTION PARAMETER

All functions in this document have to be built as detailed below:

Function:

Function name: AuthenticateUser

Request EndPoint: /SaturnWebServices/rest/Authentication/ AuthenticateUser

Method: POST

Short Long Code Management (SLC Manager)

In Postman, select the method (POST) set up the URL followed by request end point:
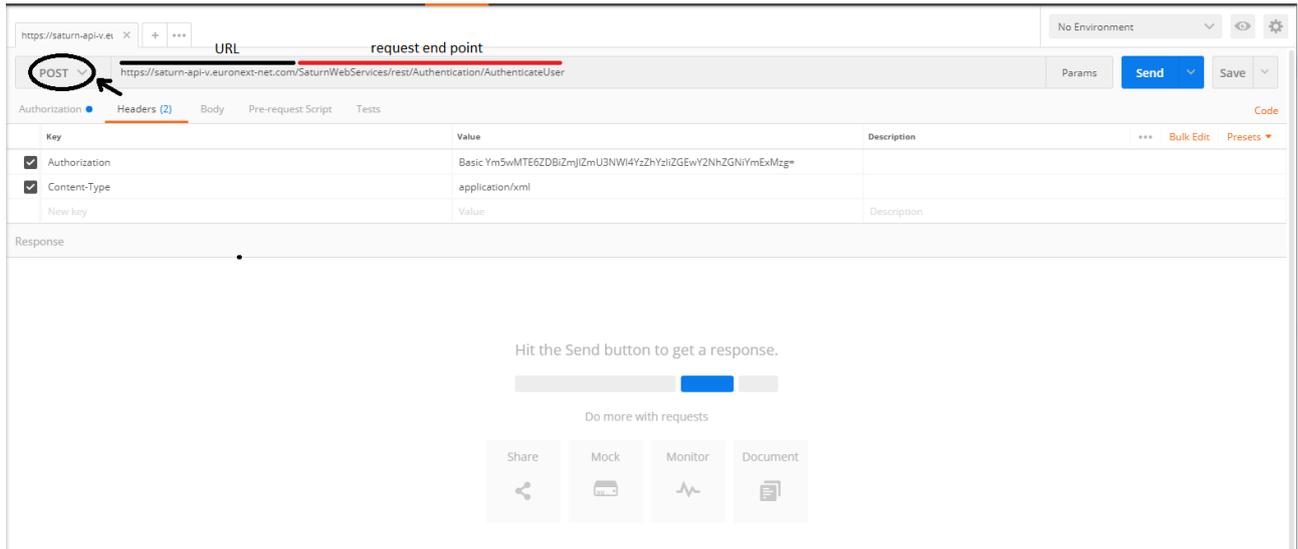
Request Body:

This endpoint accepts a request body in one of the following formats:

1. application/json;
2. application/xml.

In the screenshot below, xml is chosen as content type:
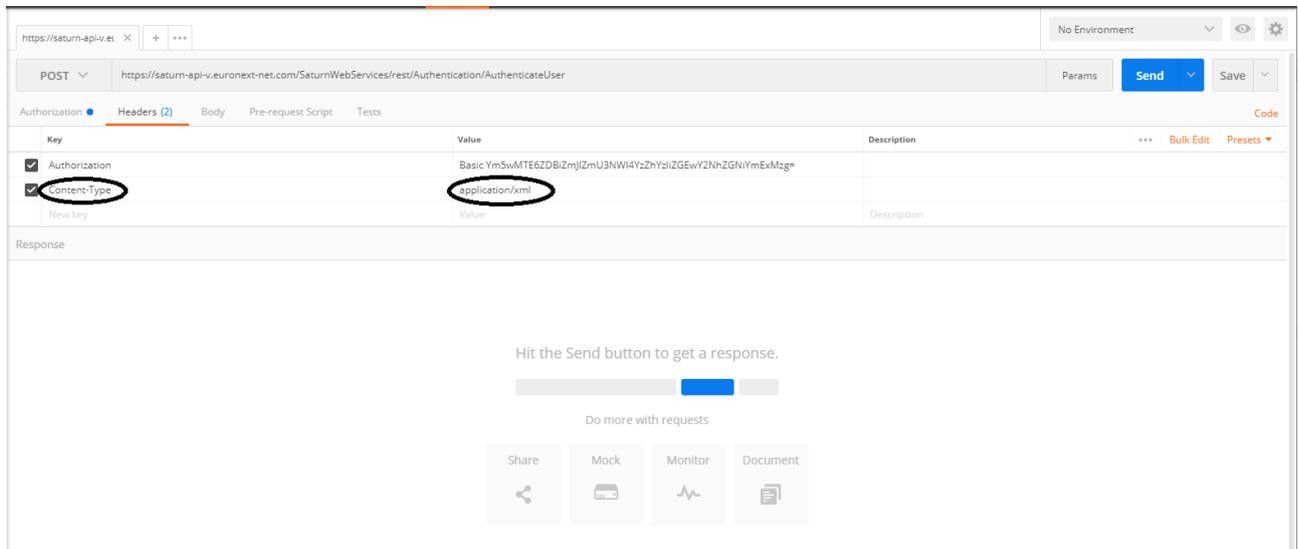
7.3   USERNAME AND PASSWORD ENCRYPTION

The last step is username and password encryption.

Request Parameters:

Name	Type	Data Type	Required	Description

Short Long Code Management (SLC Manager)

Name	Type	Data Type	Required	Description
Username:Password	Attribute	string	Yes	Concatenate Saturn username and password (MD5 encrypted) – Concatenation is encrypted in base 64

The User can take an encryption tool in the Internet of choice to convert the character string Username:Password.

As a result we can paste it in the field 'value':

7.4   RESULT

After clicking on SEND, the User will receive an acknowledge message:

The example above illustrates when a username and password is not granted, whilst the example below illustrates when a username and password is granted:

8.   HISTORY

VERSION N°	DATE	CHANGE DESCRIPTION
2.2	2017-11-13	- Adding new markets - Clarifications regarding timing of SLC Manager availability and delivery times - Authorize T+1 for short code and DEA submission per OrderID
2.1	2017-09-28	Add English screenshots for pre requisite API
2.0	2017-09-27	Updated user access policies, updated specifications for long and short code mapping, new specifications for short code and DEA submission per OrderID
0.1	2017-06-30	Initial version