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Vestima

Investment Funds Services

Swift User Guide

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Foreword

Vestima, the investment fund order routing, execution and management service from CFCL, streamlines, simplifies and standardises all aspects of investment funds trading.

Optionally linked with CBL's clearing, settlement and custody services, Vestima can provide participants with secure straight-through processing from order input through to settlement instructions issuance and final settlement, if required. For order issuers (OIs), this means direct, immediate access to a wide network of order handling agents (OHAs), eliminating any need to track down unfamiliar funds and contact the relevant agents. OHAs, meanwhile, benefit from a real-time connection to a significant client base and get STP trades from a single technical counterparty.

Vestima order processing is simple and easy to use. The OI creates an order on screen using a standard template; Vestima transmits the order to the appropriate OHA for completion; and a confirmation is returned immediately to the OI. The order is now ready for settlement.

Vestima can accept orders through the Vestima web browser interface or via Swift and all OIs and OHAs can use either option at any time. This choice of format provides flexibility for all participants and brings the maximum range of funds within easy reach of a broad client base.

CFCL offers two options for clients, Vestima and VestimaPRIME, that are automated order routing services. Vestima provides a highly automated service aimed towards mutual funds, whereas VestimaPRIME targets complex and alternative investment funds. Unless otherwise stated, VestimaPRIME is to be considered an integral part of the Vestima services provided by CFCL, and the term Vestima also refers to VestimaPRIME.

Foreword

Contact details

For further information or if you have specific questions regarding the Vestima system and/or communications with CFCL, you can contact Client Services in Luxembourg as follows:

Telephone:	+352-243-38110	Connectivity Support for access/configuration issues
	+352-243-32833	Vestima Client Services for business queries
	+352-243-32555	Vestima Product information
Fax:	+352-243-638110	Connectivity Support
Email:	csvestima@clearstream.com	Vestima Client Services for business queries
	connectlux@clearstream.com	Connectivity Support
Website:	www.clearstream.com	CFCL website

If you need assistance with Vestima, it would be helpful if you have the following information to hand before contacting CFCL:

- Your organisation name and Vestima Identity (ID);
- Your name, telephone and fax numbers and your email address;
- Your Swift Distinguished Name (DN) address (for ISO 20022).
- Your Swift address (for ISO15022)
- Details of the inquiry (please have full details available).

Participants should note that, as is normal practice within financial organisations, CFCL has implemented telephone line recording to ensure that the interests of CFCL and of its participants are protected against misunderstandings or miscommunications.

Areas subject to telephone line recording include Client Services. The recorded lines are the subject of an ongoing formal maintenance and quality control programme to ensure their continued effective and appropriate deployment and operation.

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The address of Vestima

ISO 20022

Messages to and from Vestima come from the following Distinguished Name (DN):

ou=vestima,o=dbfclull,o=swift for Vestima and VestimaPrime

Vestima uses the following Swift InterAct services for the above DN:

swift.if.ia for product network messages

swift.if.ia!p for test and training messages

ISO 15022

Messages to and from Vestima use the addresses as follows:

- DBFCLULLXXX for production network messages, and
- DBFCLUL0XXX for test and training messages

Vestima ISO 20022 Message Exchange (MX) reference specifications

| Business process	ISO 2022 Message Name	ISO 20022 Message Identifier	ISO 15022 Message Type Equivalent	OIs Vestima RCV	OIs Vestima SND	OHAs Vestima RCV	OHAs Vestima SND
Subscription	Order	SbcptOrdr	setr.010	MT502NEWM	✓			✓
Subscription	Order Cancellation Request	SbcptOrdrCxlReq	setr.011	MT502CANC	✓			✓b
Subscription	Order Confirmation	SbcptOrdrConf	setr.012	MT515NEWM		✓	✓	
Subscription	Order Confirmation Cancellation Instruction	SbcptOrdrConfCxlInstr	setr.047	MT515CANC		✓b	✓	
Redemption	Order	RedOrdr	setr.004	MT502NEWM	✓			✓
Redemption	Order Cancellation Request	RedOrdrCxlReq	setr.005	MT502CANC	✓			✓b
Redemption	Order Confirmation	RedOrdrConf	setr.006	MT515NEWM		✓	✓	
Redemption	Order Confirmation Cancellation Instruction	RedOrdrConfCxlInstr	setr.051	MT515CANC		✓b	✓	
Switch	Order	SwtchOrdr	setr.013	MT502NEWM	✓			✓b
Switch	Order Cancellation Request	SwtchOrdrCxlReq	setr.014	MT502CANC	✓			✓b
Switch	Order Confirmation	SwtchOrdrConf	setr.015	MT515NEWM		✓	✓	
Switch	Order Confirmation Cancellation Instruction	SwtchOrdrConfCxlInstr	setr.055	MT515CANC		✓b	✓	
Status	Order Instruction Status Report	OrdrInstrStsRpt	setr.016	MT509INST		✓	✓	✓b
Status	Order Cancellation Status Report	OrdrCxlStsRpt	setr.017	MT509CAST		✓	✓	✓b
Status	Order Confirmation Status Report	OrdrConfStsRp	setr.057	MT509INST/CAST				✓b
Status	Securities Message Rejection	tSctiesMsgRjctn	semt.001	MT509INST/CAST	✓	✓	✓	✓

a. OI=Order Issuer; OHA=Order Handling Agent; RCV=Receiving; SND=Sending.

b. Use is excluding VestimaPRIME.

Message flows

ISO 20022

The general flow of Swift messages for investment fund transactions is as in the following figure:
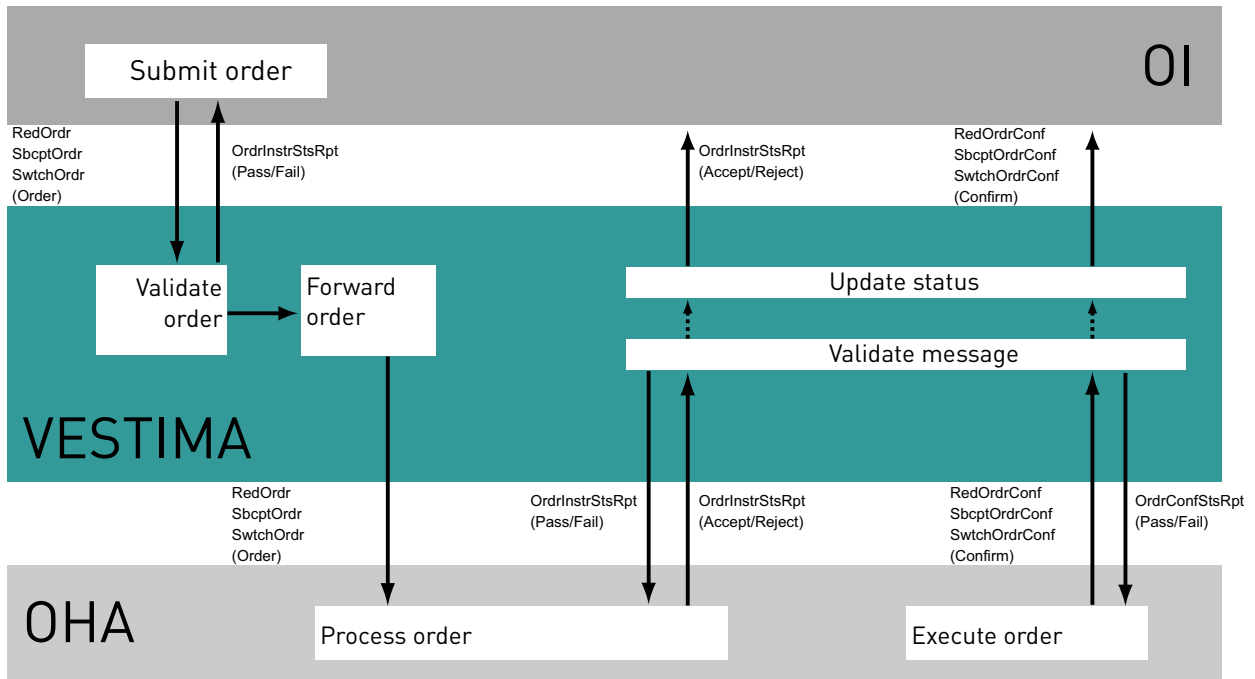
The following sections describe how Swift messages are exchanged with Vestima.

General flow

1. An Order Issuer (OI) sends either a subscription (setr.010), redemption (setr.004) or switch (setr.013) order to Vestima. It is created and enriched using reference data that is held within the Vestima system.

2. Vestima sends the order message (setr.010, setr004 or setr.013) to the appropriate OHA.

3. If the Order Handling Agent (OHA) returns an order instruction status report (setr.016) to Vestima acknowledging its reception, Vestima will forward the order status message to the OI.

4. Following execution of the order, the OHA sends a confirmation to Vestima, it is either a subscription (setr.012), redemption (setr.006) or switch (setr.015) order confirmation message.

5. The confirmation is enriched and Vestima sends the appropriate confirmation message (setr.012, setr.006 or setr.0.15) to the OI.

Message validation

- If an inbound message is invalid, Vestima sends an order instruction status report (setr.016). The sender must then send another message with corrected data. CFCL may attempt to repair an invalid message sent to VestimaPRIME.

- If an inbound message is valid and the sender has requested positive validation replies, Vestima generates and sends the order instruction status report (setr.016) message.

Communicating with Vestima via Swift

Provision checking

For redemption order (setr.004) and redemption leg of a switch order (setr.013) message that are subject to provision checking by CFCL, the following applies to Vestima excluding VestimaPRIME:

- If the initial provision check is successful, the order is immediately made available to the OHA.

- If the initial provision check fails, depending on the OI's preferences Vestima will either:

  - Immediately reject the order, send an order instruction status report (setr.016) message to the OI and the flow is halted; or

  - Send an order instruction status report (setr.016) message to the OI with Conditionally Accepted status reason code AWRM. The order remains valid but is held, pending sufficient provision. If the further provision check is successful, Vestima sends either a redemption (setr.004) or switch (setr.013) order message to the OHA and sends an order instruction status report (setr.016) message to the OI and the normal flow is resumed. If no provision check is successful before the pending period (1 week) has expired, Vestima rejects the order, sends an order instruction status report (setr.016) message to the OI and the flow is halted.

Order rejection by the OHA

The OHA can reject an order (including orders that have been acknowledged by the OHA) at any time after it has been forwarded and before it is confirmed.

1. The OHA sends an order instruction status report (setr.016) message to Vestima rejecting the order.

2. Vestima sends an order instruction status report (setr.016) message to the OI and the flow is halted. The OI must send a new order.

Cancellation requests

The OI can request the cancellation of a particular order, as follows:

1. The OI sends a cancellation request to Vestima, either a subscription (setr.011), redemption (setr.005) or switch (setr.014) order cancellation request message.

2. If the order has been forwarded to the OHA prior to the cancellation request and the OHA does not process cancellation requests, Vestima sends an order cancellation status report (setr.017) message to the OI rejecting the cancellation request and the original order continues in the normal flow.

   If the underlying order had not yet been forwarded to the OHA (for example, because it is pending provisioning in Vestima), it is cancelled and Vestima sends an order cancellation status report (setr.017) message to the OI and the flows of the cancellation request and of the original order end here.

   If the original order was forwarded to an OHA who does process cancellation requests, then Vestima sends a cancellation request to the OHA as relevant; when using ISO 20022 it is either a subscription (setr.011), redemption (setr.005) or switch (setr.014) order cancellation request message.

3. If the OHA executes the cancellation request:

   a) The OHA sends an order cancellation status report (setr.017) message to Vestima to confirm the execution of the cancellation.

   b) Vestima sends an order cancellation status report (setr.017) message to the OI, the status of the underlying order is set to "cancelled" and the flows of the cancellation request and of the original order end here.

4. If the OHA rejects the cancellation request:

a) The OHA sends an order cancellation status report (setr.017) message to Vestima rejecting the cancellation request.

b) Vestima sends an order cancellation status report (setr.017) message to the OI and the flow of the cancellation request ends here; the underlying order continues its normal flow.

Confirmation by the OHA

The OHA can confirm an order, as follows:

1. The OHA sends a confirmation to Vestima. It is either a subscription (setr.012), redemption (setr.006) or switch (setr.015) order confirmation message.

2. If the inbound message is valid and the sender has requested positive validation replies, Vestima generates and sends an order confirmation status report (setr.057) message to the OHA. If the inbound message is invalid, Vestima generates and sends an order confirmation status report (setr.057) message to the OHA.

Note: To support a wide range of usage by different OHAs and maintain coexistence with OIs using Vestima with other communications protocols than ISO 20022, two types of information in incoming order confirmations have special processing.

1. Numeric values with a decimal precision exceeding six decimal digits are rounded to six decimals using half to even method. This concerns the elements dealing price details > value > amount, dealing price details > taxable income per share and foreign exchange details > exchange rate.

2. Some occurrences of transaction overhead > individual fee are converted, and the applied amounts and applied rates are conditionally aggregated, into a transaction overhead > individual fee > type > code of either COMM or ADDF. Please see Vestima's detailed ISO 20022 reference specifications for further information.

Order confirmation cancellation and amendment by the OHA

1. An OHA can cancel a previously sent order confirmation by means of the appropriate message type:

   - setr.047 for a subscription order confirmation cancellation instruction;

   - setr.051 for a redemption order confirmation cancellation instruction;

   - setr.055 for a switch order confirmation cancellation instruction.

   The order confirmation cancellation message can be followed by an appropriate new order confirmation message with the amendment indicator set to true:

   - setr.012 for a new subscription order confirmation;

   - setr.006 for a new redemption order confirmation;

   - setr.015 for a new switch order confirmation.

2. If the order confirmation cancellation and new order confirmation are valid, Vestima sends the OI the appropriate messages as per the above definitions.

Securities message rejection due to non-business reasons

The securities message rejection (semt.001) is used to reject a message that has been received but cannot be acted on. The securities message rejection (semt.001) is recommended for returning a technical status in response to a received message.

The following are typical rejection scenarios, where messages received are rejected due to technical inconsistencies:

- "Unauthorised message originator", if the DN of the originator of the message specified in RelatedReference is not recognised;

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- "Unsupported message type", if the type, the variant or the version of the message in RelatedReference are not supported;
- "Unauthorised message type", if the type of the message specified in RelatedReference is not compatible with its sender's role (distributor, transfer agent, etc);
- "Invalid or unrecognised business reference", if the request contains an invalid or unrecognised business reference.

ISO 15022

General flow
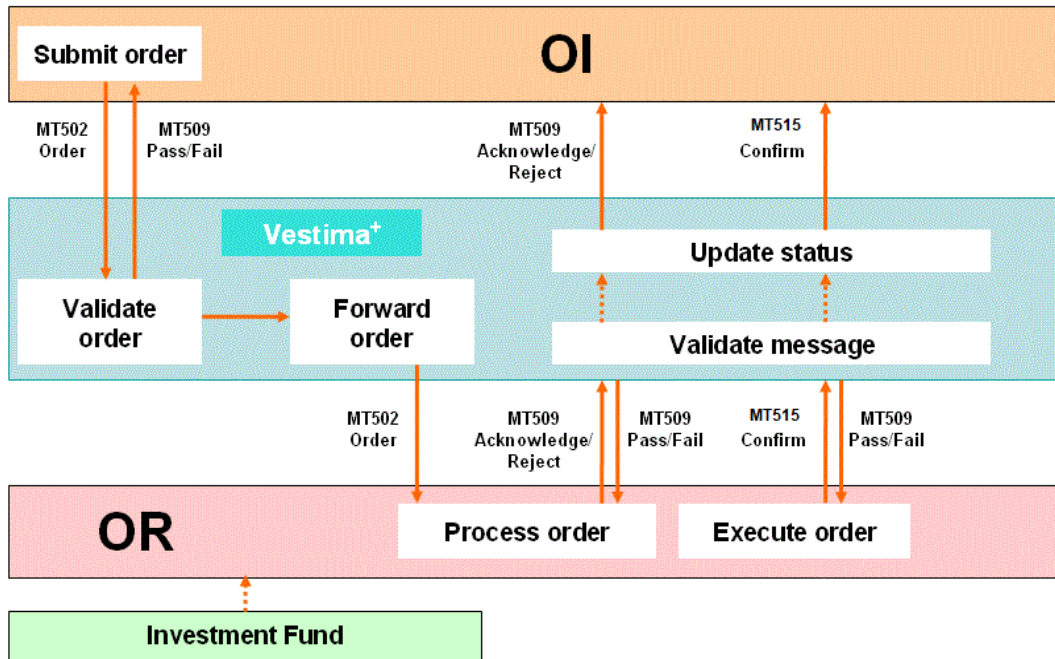
1. An OI sends an MT502 (:23G:NEWM) to Vestima. An order is created and enriched using reference data held within the Vestima system. The MT502 from the OI indicates whether the order is to be executed on the primary market or on a stock exchange.

2. Vestima sends an MT502 (:23G:NEWM) to the appropriate OR. If the OI has enabled positive validation replies, Vestima simultaneously sends an MT509 (:25D::IPRC/CEDE/PASS) to the OI.

3. If the OR returns an optional MT509 (:25D::IPRC//PACK) to Vestima acknowledging receipt of the order, Vestima sends an MT509 (:25D::IPRC//PACK) to the OI.

4. Following execution of the order, the OR sends an MT515 (:23G:NEWM) to Vestima.

5. The confirmation is enriched and Vestima sends an MT515 (:23G:NEWM) to the OI.

Message validation and provision checking

If an inbound message is invalid, Vestima sends an MT509 (:25D::IPRC/CEDE/FAIL). The sender must then send another message with corrected data.

For orders that are subject to provision checking by Vestima, the following apply as appropriate:

- A primary market redemption or switch-from leg:

- If the provision check fails, Vestima sends an MT509 (:25D::IPRC/CEDE/PROF) to the OI. The order remains valid but is held pending sufficient provision, during which period Vestima repeats the provision checking continuously.

- If a subsequent provision check is successful, the normal flow is resumed.

- If no provision check is successful before the pending period (one week) has expired, Vestima sends an MT509 (:25D::IPRC//REJT) to the OI and the flow is halted.

For orders that are valid and have passed the applicable checking (if any), the processing continues with step 2 of the General Flow described above.

Order rejection by the OR

The OR can reject an order at any time after it has been forwarded (including orders that have been acknowledged by the OR) and before it is confirmed.

1. The OR sends an MT509 (:25D::IPRC//REJT) to Vestima.

2. Vestima sends an MT509 (:25D::IPRC//REJT) to the OI and the flow is halted. The OI must send a new order.

Cancellation requests

The OI can request the cancellation of a particular order, as follows:

1. The OI sends an MT502 (:23G:CANC) to Vestima.

2. If the underlying order had not yet been forwarded to the OR (for example, because it is pending provisioning in Vestima), it is cancelled and Vestima sends an MT509 (:25D::CPRC//PACK) for the cancellation request to the OI and the flows of the cancellation request and of the original order end here.

   If the order has been forwarded to the OR prior to the cancellation request and the OR does not process cancellation requests, Vestima sends an MT509 (:25D::CPRC//REJT) for the cancellation request to the OI and the original order continues in the normal flow.

   If the original order was forwarded to an OR who does process cancellation requests, then Vestima sends an MT502 (:23G:CANC) to the OR.

3. If **the OR executes the cancellation request:**

   a) The OR sends an MT509 (:25D::CPRC//PACK) to Vestima to confirm the execution of the cancellation.

   b) Vestima sends an MT509 (:25D::CPRC//PACK) to the OI, the status of the underlying order is set to "cancelled" and the flows of the cancellation request and of the original order end here. If **the OR rejects the cancellation request:**

   a) The OR sends an MT509 (:25D::CPRC//REJT) to Vestima.

   b) Vestima sends an MT509 (:25D::CPRC//REJT) to the OI and the flow of the cancellation request ends here; the underlying order continues its normal flow.

Confirmation

When the OR confirms the execution of an order:

1. The OR sends an MT515 (:23G:NEWM)) to Vestima.

2. Vestima sends an MT515 (:23G:NEWM)) to the OI.

3. The confirmed order details form the basis for settlement and Vestima may issue settlement instructions on behalf of one or both of the participants (see the Vestima Service Model).

Confirmation cancellation and replacement

If the OR wants to cancel a previously sent confirmation:

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1. The OR sends an MT515 (:23G:CANC) to Vestima.

2. Vestima sends an MT515 (:23G:CANC) to the OI.

If the OR wants to replace a previously sent confirmation, the confirmation must first be cancelled as above. Then:

3. The OR sends an MT515 (:23G:NEWM) as a replacement to Vestima, referencing the original underlying order.

4. Vestima enriches the confirmation and sends an MT515 (:23G:NEWM) as a replacement to the OI, referencing the original underlying order.

5. Vestima generates cancellations and/or replacements of any settlement instructions relating to the original confirmation that are pending settlement and that were originally generated by Vestima.

Note: The settlement agents of the OI and of the OR are responsible for the cancellation, replacement and/or reversal of instructions that have settled and/or were not generated by Vestima.

Switch orders

Switch orders are available for primary market trades only and use the same message flow as subscriptions and redemptions. However, the following specific rules must be observed:

- The OI must send consecutive MT502 (:23G:NEWM) messages for each leg of the switch order, that is, a single redemption (switch-from) leg message followed by one or more subscription (switch-to) leg messages.

- Vestima sends consecutive MT502 (:23G:NEWM) messages to the OHA, one for each leg of the switch.

- Status messages for message validation, provision checking, trading limits checking, OHA acknowledgement etc., are sent only once per switch order, using the reference of the redemption leg.

- Status messages from the OHA that reference a subscription leg are ignored by Vestima and are not processed.

- The OHA must send consecutive MT515 (:23G:NEWM) messages to Vestima, one for each leg of the switch.

- Vestima will send consecutive MT515 (:23G:NEWM) messages to the OI, one for each leg of the switch.

- MT502 (:23G:CANC) and MT515 (:23G:CANC) messages are issued for the redemption leg only but affect the entire switch order.

- MT502 (:23G:CANC) messages from the OI and MT515 (:23G:CANC) messages from the OHA that reference a subscription leg are ignored by Vestima and are neither processed nor forwarded.

Message specifications

Detailed ISO specifications of the messages implemented by Vestima are available in MyStandards by requesting membership to the Vestima Community. CFCL accepts new community requests from clients who have linked their Swift login accounts to their corporate email addresses; private ones are not accepted.

Log into MyStandards:

- Click on Groups;

- Find and click on the "Clearstream" group in the lower part of the screen;

- Click on "Clearstream Fund Centre" under the Sub-groups heading;

- Click on the Request Access button for the Vestima Community under the Open Community heading;

- Once the access has been granted, login into MyStandards and move your cursor to the "person" icon;

- Select MyProfile from the pop-up menu;

- Click on the Vestima Community. The Vestima guideline collections are displayed.

ISO 20022

Message validation

In the Vestima Community, detailed documentation of Vestima message characteristics are provided and clients may use them as baseline for creating their MX messages they want to exchange with Vestima.

MyStandards provides a message validation tool as well, the Readiness Portal, where clients' MX messages can be tested against Vestima message guidelines to ensure specification compliance.

Message flow testing

To support clients that wish to start using Vestima, CFCL provides a Vestima Client Test Environment (CTE).

In a subsequent test phase, CFCL provides, in the CTE, a replica of the Vestima production system for clients' end-to-end message flow testing. All order types and connectivity media supported by Vestima, including but not limited to MX messages, are available for message flow testing in the Vestima CTE. As the Vestima software level and client-specific configuration in the CTE are identical to the production implementation, clients can enjoy a production-like testing experience. This ensures a smooth conversion into production, upon successful test completion in the CTE.

Please contact your CFCL relationship manager for further information. For contact details, clients should refer to the CFCL section on the website.

XML and namespace declarations

As recommended by W3C and ISO 20022, the payloads in messages sent by Vestima to OIs and OHAs via SwiftNet InterAct use a namespace prefix of "Doc". The payloads begin with the following two declarations, where msg ID is the identifier of one of the messages listed in the table on page 5 with variant and version numbers:

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>

<Doc:Document xmlns:Doc="urn:iso:std:iso:20022:tech:xsd:msg ID">
```

OIs and OHAs may use another namespace prefix, or none at all, in the messages they send to Vestima.

Communicating with Vestima via Swift

Valid characters for use in message text

To ensure the successful handling of information, text data in messages sent to Vestima must include the following characters only:

Lower-case alphabetic:	a-z
Upper-case alphabetic:	A-Z
Numerics:	0-9
Special:	/ - ? : ( ) . , ' + and space

This set corresponds in general to the X-character set of ISO 15022 that is used in Swift FIN messages.

Messages containing characters that are not in the "Basic Latin" subset of the UNICODE character set should not be used, as the integrity of the information in the messages may be compromised.

ISO 15022

Percentage rates

All percentage rates, including those that are placed in :70E: narrative fields, are plain percentages (that is, 1 = 1% etc.).

Commissions, discount and charges

Commissions, discount and charges can be expressed either as percentage rates or as currency amounts. All such fields used within an order (that is, :92A::CORA, :19A::EXEC, etc.) must all contain either rates or amounts; in an MT502, a mixture is not permitted and, in an MT515, a rate is ignored if the related amount is present. CFCL recommends that amounts be used in preference to rates. For switch orders, only one of the legs may contain information about commissions, discount and charges.

The commissions, discount and charges provided by the OI in an MT502 are requested amounts or rates. The OR confirms the definitive values in the MT515. Vestima performs no validation between the requested and the confirmed values.

Trading parties

The trading party subsequence (B2) for the buying/selling participant is always required for the OI in the MT502 and must contain:

> :95R::BUYR/CEDE/xxxxxxxx

> **OR**

> :95R::SELL/CEDE/xxxxxxxx where xxxxxxxx is the Vestima participant ID provided to the OI by CFCL.

The OI must also use :97A::SAFE in this subsequence to indicate the portfolio ID setup in Vestima.

The requirements for populating the three other B2 subsequences (using party qualifiers :INVE, :STBR and :CLBR), accounts (:97A::SAFE) and commercial contract reference (:70C::PACO///COMC) varies per OR. Vestima is set up with the requirements of information that must be provided in new orders sent to ORs.

CFCL provides a service to maintain reference data for use in automatically populating these three trading parties on behalf of the OI, following the requirements of the OR of the ordered fund. An OI that uses this service does not need to use any of the three optional B2 subsequences in the MT502.

An OI that has elected not to use this service must populate the optional trading party subsequences according to the requirements of the OR of the ordered fund.