



**HONG KONG INTERBANK
CLEARING LIMITED**
香港銀行同業結算有限公司

Hong Kong Trade Repository

Administration and Interface Development Guide

(Reporting Service)

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DOCUMENT HISTORY

Date	Updated By	Version	Amendment Summary
December 2011	HKICL	1.0	Initial publication
December 2012	HKICL	1.1	<ol style="list-style-type: none"> Added description about file uploading size limitation in section 2.1.2. Inclusion of the new SuppressUncertain event in section 2.1.2, and revise the applicable product sub-types of each request. Clarified the syntax allowed for user file reference in section 2.1.3. Added descriptions on the behavior of the system on processing bulk submission of trade events. Clarified that Event Date (i.e. agreement date) instead of Event Time is used for sequence checking (section 2.1.5.3). Added section 2.1.6.3 to describe the response file. Added descriptions on agent relationship maintenance in section 2.1.8. Added IP addresses for URLs (section 2.2.4, 3.2.1). In section 3.1.2.3, added a paragraph clarifying the accessibility of the system by existing eMBT/eCMT users, as well as requirements on their sender DN. Added section 4.3 to describe the character set supported for different types of data fields. Revised the list of return codes (section 4.4). Added a new appendix E for examples in XML Format (Reporting). Added a new appendix F for enumerations and coding schemes. Added a new document reference to Connect:Direct configuration guide. Renamed HKTR to HKTR-R throughout the document.
June 2013	HKICL	1.2	<ol style="list-style-type: none"> Changed the name of FINNet to ICLNet. In section 1.1, updated the target audience of this document. In section 2.1.3 and 2.1.6.3, added the description on case sensitivity issue on handling request and response file names. In section 2.1.5.3, revised the logic on determining the processing sequence of inputted trade event requests. In section 2.2.1, revised the way on reporting full novation / partial novation events. In section 2.2.4, the IP addresses are updated. In section 2.3, revised the description about the UI

Date	Updated By	Version	Amendment Summary
			<p>enquiry report.</p> <p>8. In section 3.1.2.3, the SWIFTNet services names are revised.</p> <p>9. Revised section 4.3, adding in description about character set support for different party IDs.</p> <p>10. Added a new section 4.4 describing the case sensitivity issue on various string data fields.</p> <p>11. Revised the list of return codes (section 4.5).</p>

Document References

	Document Name
[1]	SWIFT User Handbook
[1.1]	SWIFTNet Service Description (part of [1])
[1.2]	SWIFTNet Naming and Addressing Guide (part of [1])
[2]	SWIFTNet Link Error Codes
[3]	SWIFTNet Browse Implementation Guide
[4]	Consultation Paper on Logistical and Technical Arrangements for reporting to HKMA Trade Repository
[5]	File Transfer Service on ICLNet Connect Direct Configuration Guidelines

Abbreviations and Acronyms

Abbreviation/Acronym	Description
CSV	Comma Separated Value
eCMT	Central MoneyMarkets Unit Member Terminal
eMBT	Member Bank Terminal
FpML	Financial products Markup Language
FTS	File Transfer Server on ICLNet
GUI	Graphical User Interface
HKICL	Hong Kong Interbank Clearing Limited
HKMA	Hong Kong Monetary Authority
HKTR	Hong Kong Trade Repository
HKTR-R	Hong Kong Trade Repository Reporting Service
PDF	Portable Document Format
PDU	Protocol Data Units
SAB	SWIFTAlliance WebStation
SWIFT	Society Worldwide Interbank Financial Telecommunication
SWP	SWIFTAlliance Web Platform
UI	User Interface
XML	Extensible Markup Language

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1 INTRODUCTION

1.1 Purpose

The purpose of this document is to provide participants of Hong Kong Trade Repository Reporting Service (HKTR-R) the information required to:

- Access the HKTR-R system's UI functions through SWIFTNet Browse or Internet;
- Specify the SWIFT environment configuration required to access the HKTR-R system through SWIFTNet Browse and FileAct service;
- Develop systems where required to provide straight-through processing (STP) between the participant's back-office systems and the HKTR-R system through various channels provided.

Within each organization of HKTR participants (or simply referred to as "participants" hereafter), the target audience is:

- Developers who develop and support the interface to the HKTR-R system;
- System administrators who manage the SWIFT environment and its configuration;
- Compliance department;
- Departments responsible for trading and recording OTC derivatives trades; and,
- Those who plan for making system changes to meet the technical requirements of the HKTR-R system.

Moreover, this document includes the file specifications of supported formats for trade information submission by participants.

1.2 Scope

This document focuses on the ways to access the HKTR-R system through different channels. SWIFTNet service description information is also given, in order to support development and configuration of SWIFT solutions. Access to the HKTR-R system for STP through various channels is covered. Moreover, the participant needs access to the system via SWIFTNet Browse service or Internet, in order to obtain enquiry and report information as well as upload trade data and maintain operational parameters. SWIFTNet Browse and FileAct are standard SWIFTNet services and the details are not addressed in this document.

It is intended that this document should duplicate as little as possible information available from SWIFT. It should be read in conjunction with the standard SWIFT documentation set, with which the participant is expected to be familiar, in

particular the SWIFT User Handbook [1]. Other documents quoted in the Document References are for reference of further details on a specific topic.

2 PARTICIPANT INTERFACE

2.1 Trade Information Submission by Participants

2.1.1 Submission Channel

For the trade events supported by the HKTR-R system¹ and the cancellation requests² on trade event applicable for reporting, they are collectively referred as the trade event requests.

The HKTR-R system provides a UI function for participants to upload the trade event requests in a file according to the published standards.

Alternatively, participants can submit the trade event request file to the HKTR-R system through the File Transfer Service (“FTS”) on ICLNet or FileAct on SWIFTNet. The subscription of FTS and FileAct service are provided by HKICL and SWIFT respectively.

In summary, the HKTR-R system supports the following 3 methods of trade information submission by participants.

- FTS on ICLNet
- FileAct on SWIFTNet
- UI Upload

2.1.2 File Format

Each file submitted can contain one or multiple trade event requests in either of the following formats:

- XML (extended FpML)
- CSV

Please note that each file should contain no more than 50 requests, and that the file size should not be larger than 5M bytes.

To facilitate the generation of CSV request files, a set of standard Excel templates for various financial products will be provided to the participants. The participants can simply input the trade details according to HKICL published standards to the Excel template, and save the data worksheet as CSV file format using the “Generate CSV” button in the Excel template.

¹ For a list of products supported by the HKTR-R system, please refer to Appendix A section A.4.1 or Appendix B section B.1.

² For reporting, cancellation request is only applicable to Relink events.

Remarks:

For reporting services, Full Novation business event can be reported as Full Termination event (or Amendment event with zero outstanding notional), followed by a New Trade event.

Partial Novation business event can be reported as Partial Termination event (or Amendment event with non-zero outstanding notional), followed by a New Trade event.

The following is the list of Trade Event Requests for FpML:

FpML Message	Description	Applicable Product Sub-types
eventActivityReport	Request the following trade events: New Trade, Amendment, Partial Termination, Full Termination, Withdrawal, Quit, Backloading, Relink or Suppress Uncertain.	Partial Termination: IRS Floating vs. Fixed, Basis Swap, Overnight Index Swap Other events: IRS Floating vs. Fixed, Basis Swap, Overnight Index Swap, FX Non Deliverable Forward
eventActivityReportRetracted	Cancel the following trade event: Relink	IRS Floating vs. Fixed, Basis Swap, Overnight Index Swap, FX Non Deliverable

The following is the list of Trade Event Requests for CSV:

Excel Template	Description	Applicable Product Sub-types
Reporting View		
Reporting - IR - Floating vs Fixed (New Trade, Amendment, Backloading)	Request the New Trade, Amendment or Backloading trade event.	IRS Floating vs. Fixed, Overnight Index Swap
Reporting - IR - Floating vs Floating (New Trade, Amendment, Backloading)	Request the New Trade, Amendment or Backloading trade event.	Basis Swap

Excel Template	Description	Applicable Product Sub-types
Reporting - FX - FX NDF (New Trade, Amendment, Backloading)	Request the New Trade, Amendment or Backloading trade event.	FX Non Deliverable Forward
Reporting - All (Full Termination, Partial Termination)	Request the Full Termination or Partial Termination trade event.	Partial Termination: IRS Floating vs. Fixed, Basis Swap, Overnight Index Swap Full Termination: IRS Floating vs. Fixed, Basis Swap, Overnight Index Swap, FX Non Deliverable
Reporting - All (Withdrawal, Quit)	Request the Withdrawal or Quit trade event.	IRS Floating vs. Fixed, Basis Swap, Overnight Index Swap, FX Non Deliverable
Reporting - All (Relink)	Request or Cancel the Relink trade event.	IRS Floating vs. Fixed, Basis Swap, Overnight Index Swap, FX Non Deliverable
Reporting - All (Suppress Uncertain)	Request the Suppress Uncertain trade event	IRS Floating vs. Fixed, Basis Swap, Overnight Index Swap, FX Non Deliverable

For the file specifications, refer to section 4.

2.1.3 Identification of Request File

The HKTR-R system mandates the file naming convention to ensure the uniqueness of the files submitted.

The file name is in the following format:

treq-<participant id>-<generation date>-<user file reference>.xxx

Format String	Description
treq	The request file name prefix. Must be “treq” in lowercase.
<participant id>	HKTR Participant ID (Submitting party). ID in uppercase and lowercase characters will be treated in the same way.
<generation date>	Date of file generation in yyyyymmdd format
<user file reference>	It is an in-house unique reference assigned by the participant which can be up to a maximum of 30 characters in length. For information of allowable character set on this field, please refer to section 4.3. This user file reference must be the same as the file reference quoted in the file header of the file content. Moreover, the two file references must match in a case-sensitive manner.
xxx	Either CSV or XML file extension depending on the request's encoding format. File extension in uppercase and lowercase characters will be treated in the same way.

Following this naming convention, the participant should generate a unique file name for each request file. The HKTR-R system supports multiple submissions of files per day for the same participant.

2.1.4 Bulk Submission of Trade Events

The HKTR-R system allows the submission of a trade event request file which contains multiple trade events. The HKTR-R system will then process the trade event requests according to their order in the request file for each trade.

To ensure the files correlated to the same trade can be processed in sequence by system, participants should send a new request file after the response file of the previous request file is received.

2.1.5 Validation of Trade Event Request

2.1.5.1 Format and Syntax Checking

The HKTR-R system will firstly validate the file content, such as the control totals, to ensure the file content integrity and consistency.

For XML formatted request files, they will be checked against the XML schema

that will be published to the participants. For CSV formatted request files, they will also be checked against the corresponding CSV template definitions. If the XML/CSV request file does not conform to HKICL's published standards, the request file will be rejected immediately and no trade event request is processed. Otherwise, each trade event request in the file will be examined in accordance with HKICL's validation rules.

2.1.5.2 Unique Reference

Participants are required to specify a unique file reference in the file header for each trade event request file submitted to the HKTR-R system. Each trade event level request must also be assigned with a unique event request reference. Refer to section 4.1 and 4.2 for the exact field names in different request file formats.

2.1.5.3 Sequence Checking

For any post trade event received, the HKTR-R system will process the events in chronological order according to their order in the request file for each trade. If there are more than one intra-day post trade events for the same trade, participants are required to put the post trade events within the file according to the correct (agreement) date sequence.

2.1.6 Request Handling and Response File

2.1.6.1 Handling of Rejected Request

If validation on a trade event request fails, the HKTR-R system will reject that request and return the rejection reason in a response file to the submitting participant. As a result, the response file will contain the validation results of individual trade event requests indicating whether they are accepted or rejected by the system. Refer to section 4.5 for the list of return codes and their corresponding descriptions.

Rejected trade event requests will not be further processed by the system, and they will not be kept in the HKTR-R system.

2.1.6.2 Handling of Accepted Request

For a valid trade event request, the HKTR-R system will proceed to process it according to its event types (e.g. New Trade event, post trade event, or cancellation requests). Valid trade event requests will be kept in the HKTR-R system as historical records and can be enquired through the trade history view of UI enquiry function.

For a cancellation request, the HKTR-R system will update/cancel the corresponding trade event.

2.1.6.3 Identification of Response File

For every request file submitted to the HKTR-R system, a response file will be generated and returned to the participant after each trade event request in the request file has been processed.

The response file contains one response record corresponding to each trade event request record. However, when there is exceptional situation in which some response records cannot be properly formatted due to critical errors identified in the trade event requests, the whole request file will be rejected with a file-level response code.

Similar to the request file, the response file can be in either extended FpML or CSV format. The HKTR-R system will generate the response file in the same format as the request file's.

The file name is in the following format:

trsp-<participant id>-<generation date>-<user file reference>-<TR file reference>.xxx

Format String	Description
trsp	The response file name prefix. Must be "trsp" in lowercase.
<participant id>	HKTR Participant ID. Always in uppercase characters.
<generation date>	Date of file generation in yyymmdd format.
<user file reference>	It is an in-house unique reference assigned by the participant in the request file.
<TR file reference>	It is a unique file reference generated by the HKTR-R system.
xxx	Either CSV or XML file extension depending on the request's encoding format. Always in lowercase characters.

2.1.7 Configuration Maintenance

The HKTR-R system requires participants to configure specific parameters through the UI function prior to trade information submission and report collection.

2.1.7.1 FileAct Configuration

The following parameter requires configuration:

- SWIFT FileAct Distinguished Name (DN) – the DN applicable to the participant's submitting trade data via SWIFTNet FileAct. Multiple FileAct DNs may be configured by participants for use in the HKTR-R system.

The parameter can be viewed and maintained by participants using the View/Maintain Participant Details UI functions. Please refer to the User Manual for the details of the UI functions.

2.1.7.2 FTS Configuration

For FTS, Connect:Direct software with Secure+ feature is used by participants to submit trade event requests and receive reports. The data will be carried across ICLNet, which provides reliable and secure network.

Many financial institutions in Hong Kong are currently using the FTS on ICLNet for various purposes. New FTS users are required to contact HKICL for the subscription of the service and the arrangement of the necessary testing and set-up.

For the submission of trade event request files, the participant's Connect:Direct server is required to initiate a Connect:Direct process to the FTS server hosted by HKICL. Participants have to provide the following information for the file transfer process:

Argument	Description
File Name	The file name of the trade event request.
Connect:Direct Process Name	The process name to be provided by HKICL that will handle the file transfer.
HKTR-R Notification Shell Script	The shell script name of HKTR-R system to be provided by HKICL that will process the trade event request file.

Participants can optionally define a job in its Connect:Direct server, which will invoke a job to process the trade event request response files returned by HKICL.

A spreadsheet template will be distributed to the participants for their inputs of FTS configurations for trade event request response files such as Output File Path, Output File Name and Batch Job to be triggered at participants' servers.

2.1.8 File Submission by Agent

An Agent can submit the request file on behalf of a participant.

Upon the receipt of a request file from an Agent, the HKTR-R system will check whether the submitting party is authorized to submit the request file on behalf of the corresponding trade party. If not, the HKTR-R system will reject the request file.

Under the current phase, the agent relationship is maintained by HKMA only, according to the information provided by HKTR-R participants.

2.2 UI Functions

Participant users can use online functions provided by the HKTR-R system via the following means:

- SWIFTNet Browse service via SWIFTAlliance Webstation (SAB) / SWIFTAlliance Web Platform (SWP)
- Internet

2.2.1 User Authentication via SWIFTNet Browse

When accessing SWIFTNet channel, the participant to which the user belongs is identified through the SWIFTNet User Certificate associated with the user's SAB/SWP. The use of SWIFTNet User certificate to authenticate the user provides a two-factor authentication process.

After the successful authentication and login to SWIFTNet, the HKTR-R system UI function can be invoked through the pre-defined URLs on browser workstations in each environment. On the initiation of the URL, the user is presented with a HKTR-R login screen on which the user is required to enter his/her user name and password.

Each user account has an associated SWIFT User Distinguished Name (DN). This SWIFT User DN is maintained using the Maintain User Account UI function. This function supports the addition and deletion of DNs. The HKTR-R system will ensure that the user account's SWIFT User DN is not shared between different participants during user account maintenance.

The URL used by the participants to login to the primary site through SWIFTNet is different from the URL for access to the DR site.

Details of the set-up required for SWIFTNet Browse are covered in SWIFT's documents listed in the Document References and are not considered in this document.

2.2.2 Internet User Authentication Using SSL Client Certificates

Participant users that access the HKTR-R system via the Internet are required to be authenticated when logging in using an SSL Client certificate (digital certificate). This is configured through the Maintain User Account UI function provided by the HKTR-R system. The URL associated with the access through Internet is the same one used for connecting to the primary or DR site.

At the time of user login, in addition to entering the user's Participant ID, User Name and Password, the user's SSL certificate is retrieved and forwarded to the HKTR-R system with the logon request. The login screen allows the user to select a certificate from the browser's certificate repository.

The credentials of the user's certificate are validated as follows:

- The user's certificate is checked for expiry;
- The certificate must be signed by a Certification Authority (CA) that is designated as a trusted CA by HKICL;
- The certificate is checked against the consolidated list of revoked certificates maintained for the HKTR-R system.

If this validation fails, the login request is rejected. The HKTR-R system will ensure that the SSL Client certificate associated with the user account can be shared within own participant but not shared between different participants during user account maintenance. The certificate revocation lists for the agreed CAs are maintained in the HKTR-R system and are updated periodically.

Digital certificate issued by the following authorized CAs will be supported by the HKTR-R system:

i) Local Certification Authority:

- Digi-Sign Certification Services Limited ("Digi-Sign")
- Hongkong Post

ii) Global Certification Authority:

- Geotrust
- Verisign

Please note that the list of CAs above is not finalized and subject to change in future.

2.2.3 Client Software Requirements

For accessing to the HKTR-R system for UI functions via SWIFTNet Browse service:

- SWIFTAlliance Webstation (SAB) or SWIFTAlliance Web Platform (SWP)
- SAB/SWP supported Windows versions
- SAB/SWP supported Microsoft Internet Explorer versions

For accessing to the HKTR-R system for UI functions via Internet:

- Windows XP Professional SP3 / Vista Business SP2 / Windows 7 Professional SP1
- Microsoft Internet Explorer version 7 / 8 / 9

For the generation of the CSV using Microsoft Office Excel:

- Microsoft Office Excel 2007 / 2010

2.2.4 URL for UI Functions via Internet

The HKTR-R system implementation provides a browser-based user interface through Internet for enquiry, report viewing and administrative functions.

The URLs available to participants are as follows:

URL	IP Address	Purpose
https://tr.cmu.org.hk/tr/login	175.45.36.150 (Production) 125.214.247.30 (Disaster Recovery)	Production and Disaster recovery site
https://truat.cmu.org.hk/tr/mem/login	175.45.36.152	Member test
https://truat.cmu.org.hk/tr/sim/login	175.45.36.152	Simulation test

2.3 Report Collection by Participants

The reports generated by the HKTR-R system are broadly classified into the following three types:

- (1) System reports – Reports are generated in off-line batch mode at pre-defined time or after a specific event, in PDF format (for administrative functions reports) or CSV format (for trade related reports except the trade event request capture report), and can be delivered via file transfer or viewed/downloaded via UI function;
- (2) Enquiry-Initiated User Requested reports – Reports are generated in background mode, in PDF (for administrative functions reports) or CSV (for trade related reports) format. Users can check report generation status, view or download the generated report via the View Report List function; and
- (3) UI Enquiry reports – Reports that are tied to the enquiry functions. The report shows the real-time enquiry result. Reports generated are sent to the browser front-end for user's viewing. The user can then save the report or print it out. Saved enquiry results are in CSV format.

The following channels are supported by the HKTR-R system:

- FTS on ICLNet
- FileAct on SWIFTNet
- Browser retrieval - through UI functions

The means of browser retrieval is always available by default. For system reports with multiple report formats, each report format can be configured to be delivered via FTS and/or FileAct as the additional delivery channel.

Depending on the report type of system reports, the delivery channel can be configured on a participant basis using Maintain Report Schedule UI function.

2.3.1 FTS Configuration Spreadsheet Template

A spreadsheet template will be distributed to the participants for their inputs of FTS configurations for each system report such as Output File Path, Output File Name and Batch Job to be triggered at participants' servers.

2.3.2 SWIFTNet FileAct

For the configuration information required for reports received through SWIFTNet FileAct service, refer to section 2.1.7.1 for details.

2.3.3 SWIFTNet Browse

The HKTR-R system provides functions for users to browse reports in PDF file format. Users should ensure that their PC workstations are installed with the necessary client software for viewing PDF files.

For the configuration information required to use SWIFTNet Browse service, refer to section 3.2 for details.

3 USE OF SWIFTNET SERVICES

3.1 SWIFTNet FileAct Service

SWIFTNet FileAct is used as one of the channels for the participants to submit trade information to the HKTR-R system and/or receive response files/reports generated by the HKTR-R system. The specific SWIFTNet FileAct messaging implementation used is Store-and-Forward.

3.1.1 Overview of SWIFTNet FileAct Message

The SWIFTNet FileAct message is composed of two components – (i) a Protocol Data Units (PDU) header which contains addressing information and a cryptographic element used to authenticate the message, and (ii) a payload containing the actual file content.

3.1.2 FileAct PDU

The FileAct PDU contains addressing information, additional service-specific information such as non-repudiation, and any authentication information for the message.

Note that only the UTF-8 encoding scheme is supported for SWIFTNet FileAct XML messages.

SWIFTNet addressing in the FileAct PDU is derived from the Request Type, Sender Distinguished Name (DN), Receiver DN, and SWIFTNet Service name.

The PDU message structure and the permitted values for parameters are described as follows:

Element name	Permitted Values
Saa:DataPDU	
Saa:Revision	
Saa:Header	
Saa:Message	
Saa: MessageIdentifier	refer to section 3.1.2.1
Saa: Sender	
Saa: DN	refer to section 3.1.2.2
Saa: Receiver	
Saa: DN	refer to section 3.1.2.2
Saa: NetworkInfo	
Saa:Service	refer to section 3.1.2.3
Saa: FileLogicalName	refer to section 2.1.3

3.1.2.1 Request Types for SWIFTNet Service

The Request Type for HKTR-R system's FileAct service is "demt.001". This is validated by SWIFT and the HKTR-R system.

3.1.2.2 SWIFTNet Sender and Receiver Addressing

The following table defines the Sender and Receiver DN to be used for the HKTR-R system.

For an overview of how Sender and Receiver addressing works in the context of SWIFTNet, refer to [1.2].

Sender DN	Receiver DN	Purpose
Any of the production participant DNs configured within the HKTR-R system.	ou=tr,o=hkikhkh,o=swift	Production
Any of the pilot participant DNs configured within the HKTR-R system.	cn=trsintest,ou=test,o=hkikhkh,o=swift	Simulation test (Note 1)
Any of the pilot participant DNs configured within the HKTR-R system.	cn=trmemtest,ou=test,o=hkikhkh,o=swift	Member test (Note 2)

Note:

1. Simulation test is to allow participants to get familiar with the operations of the HKTR-R system on an end-to-end basis under a production-like testing environment.
2. Member test is for those participants to test their straight-through processing (STP) interfaces to the HKTR-R system.

3.1.2.3 SWIFTNet Service Name

Two separate services are respectively defined to facilitate provisioning of FileAct and GUI Browse services at SWIFT.

For the existing eMBT/eCMT users who would like to access HKTR-R system through SWIFTNet Browse service, no subscription is required since the SWIFTNet Browse service for HKTR-R system is the same as that for eMBT/eCMT.

However, for SWIFTNet FileAct service, separate service subscription is required although the existing SWIFT's Closed User Group (CUG) for Browse service with HKICL will be used, that is, the same CUG for eMBT/eCMT.

For SWIFTNet Browse service, the service is defined for participants using GUI. These participants are required to subscribe the 1st and 2nd levels of their sender

DNs only (i.e. o=BIC8,o=SWIFT). Participants are then free to add or remove their users without intervention by SWIFT or HKICL after their initial provisioning. It greatly reduces the administrative overhead for the participants. For subscription of SWIFT's services, participants need to contact SWIFT for further information.

Both SWIFTNet services are available in the production and pilot phases of the project.

SWIFTNet Service	Service Name	SWIFTNet Environment	Purpose
hkicl.rtgs.fileact	Hong Kong RTGS Store-n-Forward FileAct Service (Live)	Production (Live service)	FileAct Production
hkicl.rtgs.gui	HK RTGS Browse (Live)	Production (Live service)	GUI Production
hkicl.rtgs.fileact!p	Hong Kong RTGS Store-n-Forward FileAct Service (Pilot)	Production (Pilot service)	FileAct Member Test and Simulation Test
hkicl.rtgs.gui!p	HK RTGS Browse (Pilot)	Production (Pilot service)	GUI Member Test and Simulation Test

3.1.2.4 Additional Information Contained in the PDU

SWIFTNet Non-Repudiation feature is not supported by the HKTR-R system, and the following rule applies:

Element Name	Usage
Saa:DataPDU	
Saa:Header	
Saa:Message	
Saa:SecurityInfo	
Saa:SWIFTNetSecurityInfo	
Saa:IsNRRequested	Not allowed to be set. If set, the message is rejected by SWIFT.

SWIFTNet Copy feature for FileAct is not supported by the HKTR-R system, and the following rule applies:

Element Name	Usage
Saa:DataPDU	
Saa:Header	
Saa:Message	
Saa:NetworkInfo	
Saa:SWIFTNetNetworkInfo	

Saa:IsCopyRequested	Not allowed to be set. If set, the message is rejected by SWIFT.
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The possible duplicate emission indicator specified in the PDU is ignored by HKTR-R system.

3.1.2.5 FileAct Signature

Messages are authenticated using the SNL cryptographic protocols as implemented using the SignatureList. The SwSec:Signature element contains a number of elements, used in FileAct requests as follows:

Element Name	Permitted Values
SwSec:Signature	
SwSec:KeyInfo	
SwSec:SignDN	SWIFTNet FileAct DN configured by participants in HKTR-R system. Refer to section 2.1.7 for details.

3.2 SWIFTNet Browse Service

SWIFTNet Browse is used as a messaging service that is available through the use of SWIFTAlliance WebStation (SAB) or SWIFTAlliance Web Platform (SWP). SWIFTNet Browse provides a highly secure browser-based implementation, with the additional security option of invoking SWIFTNet InterAct requests via the web browser. The implementation has two parts:

- Secured http, (https protocol), with certificate installed on HKICL's web server only (i.e. one-way SSL is used and SWIFT's web browser certificate at client side is not required);
- SWIFTNet InterAct messaging for login which requires additional user authentication using the facilities provided by SWIFTNet InterAct. However, this InterAct message is transparent to the participants.

3.2.1 URL for UI Functions via SWIFTNet Browse

The HKTR-R system implementation provides a browser-based user interface using the SWIFTNet Browse for enquiry, report viewing and administrative functions.

The URLs of the SWIFTNet Browse services for Live and Pilot available to the participants are as follows:

URL	SWIFTNet Environment	IP Address	Purpose
https://hkicl-tr.swiftnet.sipn.swift.com/tr/login	Production (Live service)	149.134.0.50	Production site
https://hkicl-tr-dr.swiftnet.sipn.swift.com/tr/login	Production (Live service)	149.134.0.51	Disaster recovery site
https://hkicl-tr-pilot-memtest.swiftnet.sipn.swift.com/tr/mem/login	Production (Pilot service)	149.134.0.95	Member test
https://hkicl-tr-pilot-simtest.swiftnet.sipn.swift.com/tr/sim/login	Production (Pilot service)	149.134.0.93	Simulation test

For information on SWIFTNet Browse, refer to the SWIFTNet Service Description in [1.1].

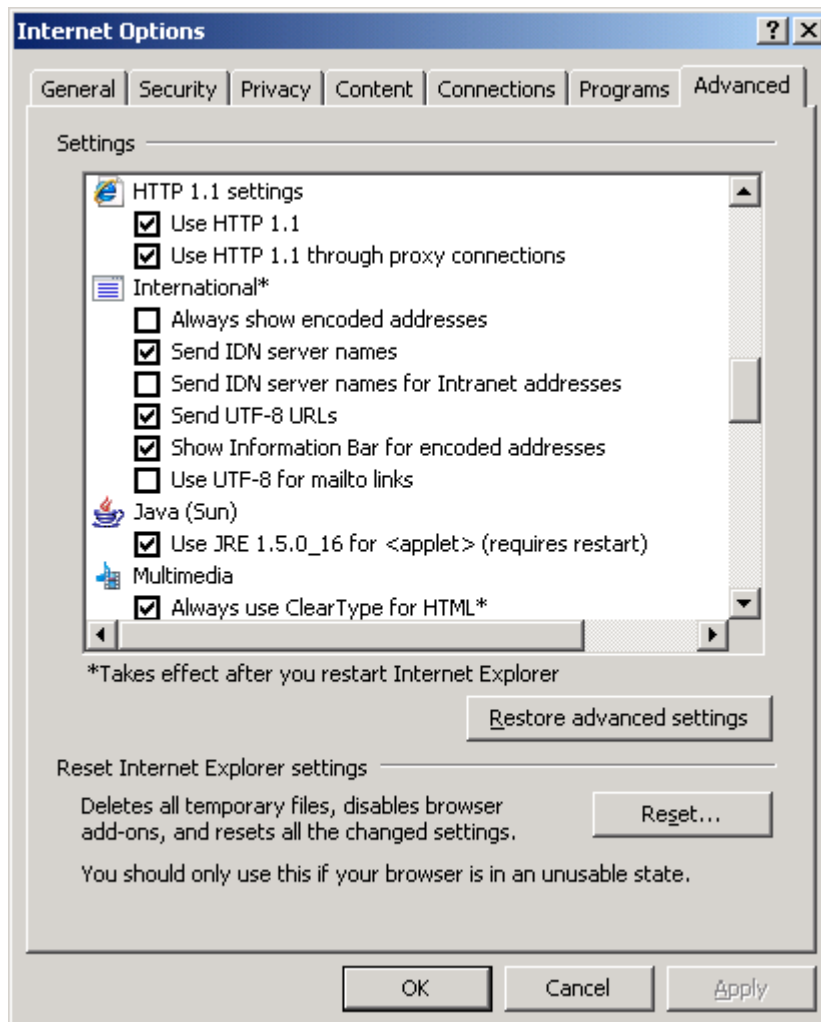
3.2.2 Browser Configuration

The participants' browsers (Internet Explorer) need to be properly configured to access SWIFTNet Browse service. In particular, to achieve optimal performance for a better response time, users need to enable the following browser options to support HTTP data compression.

Procedure:

- Select the Internet Options from the Internet Explorer Tools menu.
- Select the Advanced tab.
- Verify the following options under HTTP 1.1 settings are enabled.
 - “Use HTTP 1.1” and
 - “Use HTTP 1.1 through proxy connections”

The following diagram shows the two options under Internet Options of Internet Explorer.



Moreover, the option of browser cache setting (i.e. the Temporary Internet Files and History Settings of Internet Explorer) is one of the factors that affect performance. To achieve better performance, make sure sufficient disk space is allocated for browser cache.

For other browser configuration recommended for SWIFTNet Browse service, refer to SWIFT's documentation [\[3\]](#) for details.

4 FILE SPECIFICATION

The trade event request can be submitted in either extended FpML or CSV format. For every request file submitted to HKTR-R system, a response file will be returned to the participant. Similar to the request file, the response file can be in either extended FpML or CSV format. The HKTR-R system will generate the response file in the same format as the request file's.

Refer to Appendix A, B, C, D, E and F for the FpML file specification, CSV file specification, Excel templates, validation rules, schemas and examples, and Enumeration and Coding Scheme respectively.

4.1 File Level Reference

Participants are required to specify a unique file reference (File Reference) in the file header for each of their trade event request files submitted to the HKTR-R system. Likewise, the HKTR-R system will specify its own unique file reference in the file header for each of the response files returned to the participants. In addition, the HKTR-R system will put the participants' file reference to a field called "Request File Reference" in the corresponding response file so that the participants can correlate the response file returned by the HKTR-R system to their submitted trade event request file.

The presentation of the file reference varies for the different formats (extended FpML or CSV). The following is the field name of the file reference used in FpML and CSV:

	Field Path in Extended FpML	Field Name in CSV
Request	/requestDocumentHeader/tr:fileReference	File Reference
Response	/responseDocumentHeader/requestFileReference	Request File Reference

4.2 Event Level Reference

Similar to the File Level Reference, each event level request and response includes an event request reference which correlates the request and response of the event.

The presentation of the event request reference varies for the different formats (extended FpML or CSV). The following is the field name of the event request reference used in FpML and CSV:

	Field Path in Extended FpML	Field Name in CSV
Request	/tradeEventRequestDocument/requestDocumentDetails/ eventActivityReport/ header/messageId	Event Request ID
Response	/tradeEventResponseDocument/responseDocumentDetails/ header/inReplyTo	In Reply To

4.3 Supported Character Set

The following table shows the character set supported for different types of data fields:

Data Fields	Available character sets	Unicode Code Point
All types of data fields except those mentioned below	Basic Latin including English alphabets, numbers and symbols.	0020 – 007E
File reference	Alphanumeric characters and underscore, i.e. ‘A’ to ‘Z’, ‘a’ to ‘z’, ‘0’ to ‘9’ and ‘_’.	0030 – 0039, 0041 – 005A, 005F, 0061 – 007A
User / agent trade reference, User / agent event reference, event request ID	Alphanumeric characters, hyphen, underscore and colon, i.e. ‘A’ to ‘Z’, ‘a’ to ‘z’, ‘0’ to ‘9’, ‘-’, ‘_’ and ‘:’.	002D, 0030 – 003A, 0041 – 005A, 005F, 0061 – 007A
Party ID - HKTR Entity ID, Party ID - SWIFTBIC	Alphanumeric characters, i.e. ‘A’ to ‘Z’, ‘a’ to ‘z’, ‘0’ to ‘9’	0030 – 0039, 0041 – 005A, 0061 – 007A
Party name	Basic Latin including English alphabets, numbers and symbols, Latin-1 supplement including Cent sign, Pound sign, Yen sign and German, Latin-Extended-A including French	0020 – 007E, 00A0 – 00FF, 0100 – 017F
Special terms, Bilateral comments and Remarks	Basic Latin including English alphabets, numbers and symbols, Carriage Return (CR) and Line Feed (LF) characters, Latin-1 supplement including Cent sign, Pound sign, Yen sign and German, Latin-Extended-A including French	000A, 000D, 0020 – 007E, 00A0 – 00FF, 0100 – 017F

4.4 Case sensitivity on string data fields

Below is a summary on handling string field case sensitivity.

Item no.	String Fields	Processing logic
1	<p>All types of string fields except those mentioned in item (2) and (3) below.</p> <p><u>Applicable fields highlights</u> All trade references, all event references, file references, event request IDs, party name, bilateral comments, etc.</p> <p><u>Fields with possible values stated in the Field Definition of Appendix C - Excel templates</u> Highlights:</p>	<p>These field values remain undistorted, and field values are compared <i>case-sensitively</i>.</p>

	<i>File-level fields:</i> Purpose, Submitting Party (Type), Reporting Party (Type) <i>Event-level fields:</i> Action, Trade Event, Reporting For - Type, Executing Broker / Prime Broker (FX NDF only), Counterparty Executing Broker / Prime Broker (FX NDF only).	
2	Party ID – HKTR Entity ID, Party ID – LEI, Party ID – SWIFTBIC, Party ID – CICR, Party ID – BRN, Party ID – User defined code	For these fields, upper and lower case characters are accepted for user input. They will then be transformed and processed in upper case characters by the system.
3	FX product – Rate source page, FX product – Rate source page heading	

4.5 Return Code

Upon the receipt of a request, the HKTR-R system returns either a normal response message indicating that the processing result is successful, or an exception message in case of failure. The exception message carries a 6-character Return Code with the corresponding description to specify the reason of failure.

Return Code	Description
DB0001	Trade Event Request duplicated.
DR2013	{0} : Unadjusted Termination Date must be after unadjusted Effective Date.
DR2035	Value Date in FX Leg must be equal to or after the Trade Date.
DR2039	{0} : Payer Party Reference must not be equal to Receiver Party Reference.
DR2045	Exchanged Currency 1 must not be equal to Exchanged Currency 2.
DR3003	Fail to find a trade version with matched linking fields between the Relink From and Relink To.
DR3004	Not allowed to amend the trade, as there is another active / matured trade existing in the system with same uniqueness field (UTI / User Trade Reference / Agent Trade Reference / combination of Confirmation Platform ID and CP Trade Reference / Bilateral Comments).
DR4003	User Trade Reference ({0}) must be unique (except the status of the trade is withdrawn/quit/terminated) for the {1}.

Return Code	Description
DR4004	The target trade for the trade event must exist and the status is active, matured or quitted by the system.
DR4011	The Event Date ({0}) of the post trade event must be equal to or later than the Event Date of the last processed event.
DR4013	{0} event is not applicable to {1}.
DR4014	The Asset Class ({0}), Product Type ({1}) and Product Sub-type ({2}) in the Amendment event must be the same as the original trade.
DR4015	The trade event can be cancelled only when the trade event exists and the status is "Unmatched".
DR4016	The Change in Notional Amount ({0}) must be smaller than the current notional amount of the trade.
DR4017	Invalid value in the change in notional amount ({0}) or outstanding notional amount ({1}). The sum of the change in notional amount and the outstanding notional amount should be equal to the current notional amount.
DR4034	The notional amount/currency in the two legs of the swap must be the same.
DR4035	The party type and ID of Reporting For must be same as the payer in one of the legs. (Trade Party: {0})
DR4038	The payer party of one leg must not be equal to the payer party of the other leg.
DR4039	The party type and ID of Reporting For must be same as the payer in one of the exchanged currencies. (Trade Party: {0})
DR4041	The payer party of one currency must not be equal to the payer party of the other currency.
DR4043	UTI ({0}) must be unique for the reporting party within the reporting view (except the status of the trade is withdrawn/quit/terminated).
DR4045	The Event Effective Date must be equal to / after the Agreement Date.
DR4047	Modifying the Trade Date is not allowed.
DR4054	User Event Reference ({0}) must be unique (except the status of the trade event is cancelled) for the {1}.
DR4055	Modifying the notional currency (for IR) or exchanged currency (for FX) is not allowed.
DR4058	Agent Event Reference ({0}) must be unique (except the status of the trade event is cancelled) for the agent.
DR4059	Agent Trade Reference ({0}) must be unique (except the status of the trade is withdrawn/quit/terminated) for the agent.
DR4063	Agent Event Reference is required for the agent.
DR4064	User Event Reference is required for the {0}.
DR4065	Agent Trade Reference is required for the agent.

Return Code	Description
DR4067	Agent Trade Reference of Trade Header ({0}) is not allowed for the {1}.
DR4073	The type of party must be a valid value defined in the HKTR-R service.
DR4081	For Full Termination, Outstanding Notional Amount must be zero.
DR4087	The Product Type specified must belong to the Asset Class specified. The Product Sub-type specified must belong to the Product Type specified.
DR4090	The related trade(s) for Relink must exist and the status is/are not withdrawn.
DR4102	Participant is not allowed to submit the trade event with event date outside the latest Reporting Obligation period.
DR4106	The trades of Relink From and Relink To must not be currently linking to each other.
DR4107	Trade cannot be self-linked.
DR4118	The Backloading Date must not be a future date.
DR4119	The Trade Date must not be a future date.
DR4120	The Backloading Date must be equal to or before the {0}.
DR4121	The Backloading Date should be equal to or after the Trade Date.
DR4123	The Trade Date must be on or before Termination Date.
DR4126	The combination of Confirmation Platform ID ({0}) and CP Trade Reference ({1}) must be unique for the reporting party within the reporting view (except the status of the trade is withdrawn/quit/terminated).
DR4128	The currencies of Change in Notional Amount and Outstanding Notional Amount must match with the trade currency of the original trade.
DR4130	The Trade Date ({0}) of New Trade event should not be earlier than the launch date ({1}).
DR4133	The party of Reporting For in the post trade event must be same as the party of Reporting For in the original trade. For Suppress Uncertain event, the Reporting For must be the counter trade party in the target trade.
DR4134	If the Reporting For is a TR entity with originating party, the Reporting Party must have effective originating relationship with the Reporting For on the event date.
DR4139	Bilateral Comments must be unique within the reporting view (except the status of the trade is withdrawn/quit) for the {0}.
DR4140	For backloaded trade, the event date ({0}) of post trade event must be later than the backloading date ({1}).
DR4142	Event Request ID ({0}) must be unique within the reporting view for the Submitting Party.
DR4146	Submitting party is ineligible to submit a trade event for the {0}.
DR4159	The Backloading Date ({0}) should not be earlier than the launch date ({1}).

Return Code	Description
DR4162	Special Terms is required with Special Terms Indicator is "Yes", not allowed otherwise.
DR4165	{0} : Party name must be provided except masked party.
DR4166	{0} : The party {1} is not valid TR participant or business entity.
DR4169	The {0} from event must match with {1} in trade.
DR4170	The Payer Party of {0} must match the Receiver Party of {1} and vice versa.
DR4171	The Change in Notional Amount and Outstanding Notional Amount cannot be zero.
DR4173	The Effective Date of post trade event must be before the Termination Date (for IR) or Value Date (for FX) of the target trade.
DR4178	The Effective Date of post trade event must be equals to or after the Trade Date.
DR4179	For the post trade events submitted by reporting party, either one of the following trade references can be used to correlate the post trade event to the target trade. TR Trade Reference, User Trade Reference and UTI
DR4180	CP Trade Reference is required when Confirmation Platform ID is not "OTHERS" or "PAPER"; Not allowed otherwise.
DR4181	UTI is required when UTI Indicator is "Yes"; Not allowed otherwise.
DR4183	Central Counterparty ID is required only when Clearing is "Yes"; Not allowed otherwise.
DR4185	The Fixing Date must be after the Trade Date and equal to or before Value Date.
DR4189	If Relink To is blank, the trade of Relink From ({0}) must be linked or unlinked.
DR4197	Change the counterparty from [party type: {0}, ID: {1}] to [party type: {2}, ID: {3}] is not allowed.
DR4198	The direction of trade parties can be changed only when the trade parties are same as the original trade.
DR4201	The Event Date ({0}) of the post trade event must be before the Termination Date (for IR) or Value Date (for FX) specified in that event.
DR4202	The Exchange Rate - Quoted Currency Pair Currency 1 and Exchange Rate - Quoted Currency Pair Currency 2 must be equal to the exchanged currencies.
DR4203	The party type and ID of the Trade Party 1 and Trade Party 2 in the trade header must be same as the trade parties in the trade details.
DR4208	The request is allowed by Overseas Incorporated AI only.
DR4209	The Suppress Uncertain Indicator {0} from the event must be different from the current value {1}.
DR4210	Agent is not allowed to submit Suppress Uncertain as the target trade is not linked with a trade submitted by the agent.
DR4213	Reporting For must not be masked party.

Return Code	Description
DR4214	The target trade for the trade event must exist and the status is not withdrawn.
DR4215	Agent is not allowed to cancel the event which is submitted by reporting party.
DR4216	Submitting party is ineligible to submit a Relink event for the reporting party {0}.
DR4217	If the notional amount (for IR) or payment amount of exchanged currency (for FX) of one of the legs is zero, the amount of other leg must be zero.
DR4218	If Relink To is not blank, at least one of the trades must be linked or single sided, for which this is unlinked originally.
DR4223	Participant is not allowed to submit the trade event outside the latest Reporting Obligation period.
DR4225	The Reporting Party of Relink From and Relink To must not be the same.
DR4226	The trade party of Relink From and Relink To must be TR participant with reporting service or business entity with designated relationship.
DR4227	The party of Reporting For must be same as the original trade.
DR4228	{0} : The Party Name should be consistent for a certain combination of Party Type {1} and Party ID {2}.
DR4229	Request for multiple Relink event on the same trade is not allowed until the previous Relink event is completed or cancelled.
DR4230	The target trade for the trade event must exist and the status is active.
DR4231	Change the party of Reporting For from [party type: {0}, ID: {1}] to [party type: {2}, ID: {3}] is not allowed.
DR4233	For the post trade events submitted by agent, either one of the following trade references can be used to correlate the post trade event to the target trade. TR Trade Reference, Agent Trade Reference, User Trade Reference and UTI
DR4236	Participant is not allowed to submit the trade event with event date outside the latest Reporting Obligation period.
DR4237	The Agreement Date must not be a future date.
DR4238	The counter trade party ({0}) of Relink From must be an Overseas Incorporated AI or a designated BE of an overseas incorporated AI.
DR4240	The Outstanding Notional Amount must be smaller than the current notional amount of the trade.
DR4241	The Event Date ({0}) of the post trade event must be before the original Termination Date (for IR) or Value Date (for FX) of the target trade.
DR4242	If the trade is quitted by the system, the Event Date ({0}) of the post trade event must be before or equal to the quitted date ({1}).
DR4243	It is not allowed to modify the trade party of a linked trade.
DR4245	Multiple trades are correlated for the post trade event.

Return Code	Description
DR4246	The target trade for the trade event must exist and the status is active/terminated.
DR4247	The Effective Date of post trade event must be before the Termination Date (for IR) or Value Date (for FX) specified in that event.
DR9001	Fail to find an unlink trade version for the Relink From trade ({0}).
DR9997	Application error: {0}
DR9998	Rejected as previous trade event is invalid.
FP0000	No file level error found.
FP0001	Invalid file extension.
FP0002	Invalid file name pattern.
FP0003	File name participant ID is different from the participant ID of the uploader.
FP0005	Invalid file purpose.
IN0011	Virus Check Failed.
MT0001	File reference already in use. [fileRef={0}, submittingPartyId={1}]
MT0002	Number of items specified in file header ({0}) does not match the number of items found in file content ({1}).
MT0003	Error parsing file header. {0}
MT0004	Wrong Submitting Party ID "{0}". It does not match with uploader's identity.
MT0007	The file reference "{0}" extracted from file name does not match the file reference "{1}" in file content.
MT0008	Error in transforming message item by FpML parser.
MT0009	The file purpose is "{0}" but the file contains unrelated element ({1}).
MT0011	The number of message items in submitting file should be between 1 and 50.
MT0012	The file capture date "{0}" is before the system launch date "{1}".
MT0013	The file contains invalid character set.
MT0014	The file purpose "{0}" is not supported by the system.
MT0015	Message version "{0}" is not supported.
MT0016	File content is empty.
MT0017	Uploading a file with purpose "{0}" through a channel of service "{1}" is not allowed.
MT1000	Specified product is not supported by the system.
MT1001	Sent-By Party "{0}" is not same as the submitting party "{1}" in the file header.
MT1002	Duplicated request ID "{0}" found for the same submitting party.
MT1003	Specified event type is not supported by the system. Please check if event type

Return Code	Description
	under TR namespace is used.
MT1004	Either the product type "{1}", product sub-type "{0}" or their combination is not supported by the system.
MT1005	There must be 2 and only 2 swapStream elements under the Swap element.
MT1006	There must be exactly 1 fixed leg and 1 floating leg for product type "{0}".
MT1007	There must be exactly 2 floating legs for product type "{0}".
MT1008	The FpML element "rateCalculation" can only be substituted by the FpML element "floatingRateCalculation".
MT1009	FpML validation failed. Error code = "{0}".
MT1010	The size of the list field "{0}" (with list size = "{1}") exceeds its maximum limit: "{2}".
MT1011	Coding scheme validation failed: Value "{1}" at field "{0}" is not allowed by the coding scheme defined in the system.
MT1012	The length of string field "{0}" (with string length = "{1}") exceeds its maximum length limit: "{2}".
MT1015	Failed in number value checking at field "{0}" with value = "{1}".
MT1016	For stubs in fixed leg, the presence of "resetDates", "floatingRate" or "stubRate" elements is prohibited.
MT1017	Duplicated party reference in party trade information.
MT1018	Duplicated partyId in party list.
MT1019	The number of tradeIdentifier exceeds its maximum allowed for the specified trade event type.
MT1020	<onBehalfOf> tag: {0}, if present, should be the same as the trade party in file header.
MT1021	Reporting Party "{0}" in file header is not the same as the Reporting Party "{1}" specified in ReportingFor element.
MT1025	Element "step" is not supported in the system.
MT1026	One and only one of Unique Transaction Identifier (UTI), Trade Reference, User Trade Reference and Agent Trade Reference should be provided.
MT1027	Empty message ID found.
MT1028	One and only one of Event Reference, User Event Reference and Agent Event Reference should be provided.
MT1029	Party information of {0} cannot be retrieved.
MT1030	The string field "{0}" should not be empty.
MT1031	Length of message ID "{0}" is too long.
MT1032	Missing/Incorrect XSI type on element <{0}>. Parent Class={1}.

Return Code	Description
MT1033	Element <{0}> is prohibited. Parent Class={1}.
MT1034	Failed in character set checking at field {0}. Character set {1}, value={2}.
MT1036	<onBehalfOf> tag: {0}, if present, should be the same as the reporting party in file header.
MT1037	The scheme "{0}" in element "{1}" with value = "{2}" is not supported by the system.
MT1038	The required scheme "{0}" in element "{1}" is missing.
MT1039	If the request is submitted by agent, <onBehalfOf> tag must exist.
MT1041	Invalid content in <relatedParty> element(s): {0}
MT1043	If the request is submitted by reporting party itself, <onBehalfOf> tag is not allowed.
MT1047	Invalid UTL. Field: "{0}"; Value: "{1}"; Reason: "{2}"
MT1048	Invalid UPI "{0}": {1}
MT1049	The value of the field "{0}" should be negative or zero.
MT1050	CP Party information cannot be retrieved.
MT1051	The tradeIdScheme "{0}" is not supported for the specified trade event type.
MT1053	The length of string field "{0}" (with string length = "{1}") is below its minimum length limit "{2}".
MT1054	String format validation failed for {0}: {1}
MT1055	Inconsistency found between FpML product element and product type value.
MT1056	The correlation ID "{0}" and the event ID "{1}" are not consistent.
MT1057	{0}: values of period and periodMultiplier must co-exist.
MT1058	<tradeId> values for {0} are not consistent among <partyTradeIdentifier> elements.
MT1062	Duplicated partyName in party list.
MT1065	<tradeId> values for {0} are not consistent among <partyTradeIdentifier> elements with partyReference = "{1}".
MT2000	Error parsing CSV item. {0}
MT2002	Invalid data for "{0}" [party ID="{1}", party type="{2}", party name="{3}"].
MT2003	No corresponding CSV template of "{1}" combination for {0}-th record in the CSV file.
MT2004	Duplicated request ID "{0}" found for the same submitting party.
MT2007	Empty request ID found.
MT2008	When non-deliverable indicator is "{0}", there should be {1} in non-deliverable

Return Code	Description
	block.
MT2009	Length of request ID "{0}" is too long.
PT0001	({0}), which is mandatory field, is blank.
PT0002	Error in conditional checking. {0}
PT0003	Product Type / Product Sub-type / Asset Class field: {0} is inputted incorrectly.
PT0004	{0} is/are {1} required for {2}.
PT0006	Agent Event Reference ({0}) is not allowed for the {1}.
PT0007	User Event Reference ({0}) is not allowed for the agent.
SE0210	System in restricted operating mode, the operation is not allowed.
SE0216	Not allowed during housekeeping period.
SE0217	Not authorized to access.
SE0218	The agent is not authorized to submit file for the participant.
SE0219	{0} is in restricted operating mode, operation not allowed.
SE0220	Organization is not authorised to perform the operation.
SE0222	The participant {0} is not in active status.
SE0224	Organization is not authorised for the requested service.
SE0225	The event source is not authorized for this trade party.
SE0300	Not authorized to access the data.
SE0301	The agent is not allowed to submit trade event on behalf of the participant for this product sub-type via this channel.
SE0302	Non-trading participant agent is not allowed to submit trade event on behalf of itself.
SY0061	Duplicated file name.

Note:

- The parameters {0}, {1} and {2} indicate the additional information if any when runtime error is encountered.

END OF DOCUMENT