

# **TAIWAN FUTURES EXCHANGE**

## **TCP/IP TMP Messaging Specifications**

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- **Introduction**

- **TCP/IP TMP Network**

For the sake of improving the quality of the order placement process, TAIFEX has constructed a TCP/IP based system that adopts a TMP (Taifex Message Protocol) transmission protocol (called TMP message or TMP protocol from hereon), and TMP utilizes the asynchronous transmission method. In addition, to shorten the transmission time and expedite the processing time, data in the TCP/IP based system is binary coded.

Due to the asynchronous transmission, every TMP message must be numbered. The numbers of messages sent by FCMs (inbound for TAIFEX) and those of messages received from TAIFEX (outbound from TAIFEX) are discrete. Both sides must make sure the numbers of messages received and sent are sequential.

TAIFEX has also expanded the data input format. Previously, data input had to follow a fixed format. Now another format is allowed to improve system flexibility. For example, previously product ID could only be expressed by letters. Now there is an option of denoting product ID using numerals (refer to Product and Time Process Group Definition File (P08/PA8)).

- **TCP/IP TMP Network's Domain Name System Server (DNS System)**

TAIFEX has built a domain name system server (DNS System) for the TCP/IP TMP Network for connection purposes.

- **TCP/IP TMP Network's SFTP Server**

TAIFEX has built a SFTP server for the TCP/IP TMP Network for file transfer purposes. Two SFTP servers are provided for each production environment trading session (regular trading session: sftp1.taifex:22999, sftp2.taifex:22999; after-hour trading session: sftp1.taifex1:22999, sftp2.taifex1:22999).

For each trading session, the file contents of the two SFTP servers are identical, and the two servers are redundant for each other. One or two SFTP servers are provided for each testing environment (regular trading session: sftp1.test.taifex:22999, sftp2.test.taifex:22999; after-hour trading session: sftp1.test.taifex1:22999, sftp2.test.taifex1:22999).

The SFTP server sets a password and public key expiration of 90 days. The user needs to change the password and the public key periodically. The number of unique passwords or public key that must be used before a user can re-use old one is three. If a password expires, new password automate reset by server. If a public key expires, the user cannot log in to the SFTP server with the public key until the user update the public key. When making three unsuccessful login attempts within a period, the connection IP will lock for 15 minutes.

When the client connects to the SFTP server, if a “Host key verification failed error” message appears; the server host key recorded by the client may be different or changed. The user can delete the host key and record it again. The user need to solve this problem by themselves.

Note: There are many options, both free and paid applications, available on the open market. TAIFEX does not specifically recommend or support any third party SFTP client

software. Please check with your internal information security to determine an existing standard within your organization.

- **TCP/IP TMP Network's Order and Execution Report Line**

TCP/IP TMP Network's order and execution report line allows order placement, order acceptance and execution reports, and in addition, requests for and replies to trade session status, bulletin notices, file requests, and notices of file ready.

- **TCP/IP TMP Network's Clearing Member Order and Execution Report Line**

TCP/IP TMP Network's clearing member order and execution report line allows clearing members to receive the order and execution information of its downline FCMs.

- **TCP/IP TMP Network's Drop Copy Service (TMPDC Session)**

TCP/IP TMP Network's Drop Copy Service (TMPDC Session) allows FCMs to receive the copies of thier order and execution report.

## **1. System Initiation Steps**

### **TAIFEX TCP/IP TMP Network's DNS Server**

TAIFEX will publish the IP address of the dedicated DNS System for the TMP Network. Prior to connecting to the TAIFEX connection server, FCMs should use the domain name of the target server (the naming rules will be described in subsequent sections) to inquire the IP address of the TAIFEX connection server obtained by the DNS System. As TAIFEX will decide on a daily basis the assignment of connection server based on the FCM lines and traffic, it is necessary for FCMs to inquire the IP address of the latest designated connection server obtained by the DNS System before each connection. The FCM should do the same each time after an episode of network disconnection, instead of using the IP address of the previous connection server, since TAIFEX might switch connection server dynamically when the existing connection server malfunctions.

### **Formal Environment**

FCMs must set DNS according to two DNS Systems provided at the TAIFEX Production Site where DNS System 1 is the principal server, and DNS System 2 is the auxiliary server. When the TAIFEX Production Site is unable to function, FCMs should switch to the DR site DNS System as announced by TAIFEX.

### **Testing Environment**

There is a dedicated test DNS server for the test environment with the connection server being changed to <the seven characters of FCM ID>.test.session<session\_id>. <protocol>.<system\_name>.taifex:<port> (the Domain Name naming rules are explained in the sections below)

TAIFEX provides the basic data of Connection Port Mapping File (P07), where each FCM will have their own P07 file which the FCM can download from TAIFEX file server before connecting every day (TAIFEX will announce more than one file server for downloads).

File example: P07 (see [File Transfer and Bulletin] for the naming of P07 file where connection\_svr\_name and port\_no are separated by a comma and 0x0A is used as line delimiter). The following example assumes there are four session\_id. The same principle applies if there are multiple session\_id.

P07.20.F001

connection_svr_name	delimiter	port_no
f001000.session1.tmp.fut.taifex	,	10016
f001000.session2.fix.fut.taifex	,	10010
f001000.session3.tmpcm.fut.taifex	,	10009
f001000.session3.tmpdc.fut.taifex	,	10013

P07.10.F001

connection_svr_name	delimiter	port_no
f001000.session1.tmp. opt.taifex	,	10001
f001000.session2.fix.opt.taifex	,	10017
f001000.session3.tmpcm.opt.taifex	,	10011
f001000.session3.tmpdc.opt.taifex	,	10015

If a FCM applies for an order and execution report line, the FCM will receive a set consisting of host name and port number in the following format from TAIFEX for business connection:

<The seven characters of FCM ID >.session<session\_id>.<protocol>. <system\_name>.taifex: <port>, in which the protocol contains fix, tmp, tmpcm (for tmpcm connection, see the section on Clearing member order and execution report Line), tmpdc.

Connection example:

f001000.session2.fix.opt.taifex:10017

Description:

If FCM F001000 uses FIX format and likes to place a TXO order, and session\_id=2, FCM learns from P07 file that TXO port\_no=10017 for session2 FIX message. So the FCM will connect to “f001000.session2.fix.opt.taifex:10017”. Port\_no is unique to allow the same FCM server to run multiple

programs to connect simultaneously to different TAIFEX servers with different system\_name and port\_no.

After hour trading system has another DNS Server, and the after-hour session (night session) data is also available in regular trading dns. The night session file (P07/PA7/P12, etc.) of after-hours trading will update and reload the night session data of regular trading dns when the previous after-hours trading system stops.

The naming rule of production system of after hour trading system is:

<fcm\_id(7 characters)>.session<session\_id>.<protocol>.<system\_name>.taifex1

The naming rule of testing environment is:

<fcm\_id(7 characters)>.test.session<session\_id>.<protocol>.<system\_name>.taifex1

## System Type

The TAIFEX trading system would use a system ID (system\_type) to distinguish between different systems. When a FCM makes the connection, its system would be connected to a corresponding TAIFEX system based on the system\_type indicated in the message. On the other hand, system\_type could be used to distinguish data generated by different systems, ex. sftp file. System IDs (system\_type) currently defined by TAIFEX include:

- 10: Options (the second digit is 0 during regular market hours)
- 20: Futures (the second digit is 0 during regular market hours)
- 11: Options (the second digit is 1 during after-market hours)
- 21: Futures (the second digit is 1 during after-market hours)

### session\_id (Connection ID):

session\_id is a connection ID that a FCM could use for connection. If a FCM has two or more session\_id, the FCM can connect from two or more hosts at the same time. 'session\_id' is also used as connection ID. The Link Subsystem allows simultaneous logon by FCMs by identifying all session\_id assigned to the FCM. That is, the number of simultaneous sessions for the FCM connection is fixed. The FCM may use any of the TAIFEX-assigned session\_id for logon. But for simultaneous connection, different sessions cannot use the same session\_id value.

## 2. Message Format

### 2.1 Common message format

#### Binary transmission mode

The TCP/IP based network transmits data in binary mode which saves bandwidth and increases the transmission speed. Binary byte follows the big-endian byte order. For example, the hexadecimal value of 12345 is 0x3039 with the first byte being 0x30 and the second byte being 0x39. When there is an error in the checksum of data, return to L10 to reconnect.

#### Principles for the naming of message type

- A message code that starts with the English letter L means link layer, a Link Subsystem message, which communicates in back-and-forth mode.
- A message code that starts with the English letter R means response layer, a Trading Subsystem message that can communicate in an asynchronous manner, meaning the next message can be sent without waiting for a response.
- If the definition of message field is the same as the FIX tag, the message is named using a mixture of upper case and lower case letters.
- The field names of other messages are compatible with C language (all in lower case).

### Field data type

Data type	Length	Remark
char	1	Bit mode data
char[8]	8	8-bit data
uint8	1	Positive integer, range 0~255
int8	1	Integer, range -128~127
uint16	2	Positive integer, range 0~65535
int16	2	Integer, range -32768~32767
uint32	4	Positive integer, range 0~4294967295
int32	4	Integer, range -2147483648 ~ 2147483647
int64	8	Integer, range -9223372036854775808 ~9223372036854775807

### TMP time format (msg\_time)

No.	Field	Data Type	Field Name	Remark
1	epoch_s	int32	Seconds since the epoch	Seconds since the epoch(00:00:00 UTC 1970/1/1), refer to Time Format
2	ms	uint16	One thousandth of a second	Unit: 1/1000 sec

### 2.1.1 TMP Common message header (hdr)

No.	Field	Data Type	Field Name	Remark
1	msg_length	uint16	Message length	The value is the total number of bytes behind the msg_length field up to before the CheckSum field.
2	MsgSeqNum	uint32	Message sequence	As explained below.
3	Msg_time	msg_time	Message time	Refer to: <u>Time Format</u>
4	MessageType	uint8	Message code	
5	Fcm_id	uint16	FCM ID	ref: P06(set by FCM itself on line application)
6	session_id	uint16	TCP connection session number	session_id (set by FCM itself on line application)



Each and every new order, cancels or changes order of R01/R31 or R02/R32 or R03 or R22 or R09/R39 message will be assigned a message sequence number ((MsgSeqNum) as a unique identification code(R03 message would be enter 0 in the field of MsgSeqNum when status\_code is 1 or 99). The MsgSeqNum for the connecting parties are independent of each other. The connecting parties are each responsible for maintaining the sequence of messages they send (TAIFEX send new order, cancels or changes order of R02/R32,R03 and R22. FCM send new order, cancels or changes order of R01/R31 and R09/R39), and monitoring the sequence of messages received (TAIFEX receive new order, cancels or changes order of R01/R31 and R09/R39. FCM receive new order, cancels or changes order of R02/R32, R03 and R22) to ensure message accuracy. In the initial connection process, the default MsgSeqNum starts with 1, which continues to increment throughout the order or report process until the entire process ends. By monitoring the continuity of MsgSeqNum, the FCM and TAIFEX can know whether any order or report message is missing. If the message sequence is not as expected, the system will send a “return to logon” message to make sure the transmission of data between the parties is accurate.

The method to check the integrity of MsgSeqNum is session based. For example, if the first protocol message which required with non-zero MsgSeqNum is 10. (FCM send to Taifex), then the following MsgSeqNum should be 11, 12,...,100.

Then, the communication is broken. We suggest set the first MsgSeqNum starting from 101. Even starting from 90 is appropriate (Taifex won't verify it), but the following number should be 91, 92,... in this situation.

## 2.1.2 Order numbering

No.	Field	Data Type	Field Name	Remark
1	order_no	char [5]	Order number	The format of order No. (All 5 characters can be alphanumeric.)
2	ord_id	uint32	Order sheet serial number	Enter order sheet serial number

Changes of order No. under different protocol:

Protocol	TMP		FIX			
Field	order_no	ord_id	ClOrdID(12 digits) when sending supplemental file		OrigClOrdID(12digits)	
			order_no	ord_id	order_no	ord_id
Order input 5 lot	abc45	0000001	abc45	0000001		
1. decrease 1 lot	abc45	0000002	abc45	0000002	abc45	0000001
2. decrease 1 lot	abc45	0000003	abc45	0000003	abc45	0000002
3. decrease 1 lot	abc45	0000004	abc45	0000004	abc45	0000003
Query	abc45	0000004	abc45	0000004		
Order deletion	abc45	0000005	abc45	0000005	abc45	0000004

If a FCM places a cross-protocol (TMP, FIX) order, it is suggested that the FCM uses only the order cancel and request functions.

## 2.1.3 Use of Product ID

The trading message will allow numeric product ID in addition to text product ID. The text product ID is in the form of an ASCII character string, ex.: TXO09200C8. In addition, TAIFEX will assign a unique number to all tradable products in each session, which is the numeric ID of the product. In TCP/IP transaction message, the numeric product ID has unit16 data type.

FCMs can obtain the definitions of text product ID and numeric product ID in “Product and Time Flow Group Definition File (P08/PA8).” The FCM should download the file every day from the TAIFEX file server before connecting.

Example:

P08/PA8 contains a set of product data as follows:

prod_id_s	pseq	flow_group
TXO09200C8	200	1

It means the numeric product ID of TXO09200C8 is 200.

In the trading message format, the field should carry TXO09200C8 in case of text product ID (symbol), and unit 16 value of 200 in case of numeric product ID.

#### 2.1.4.1 Numeric product ID (symbol\_num)

No.	Field	Data Type	Field Name	Remark
1	pseq1	uint16	First leg product ID	Minimum value 1, refer to <u>Product ID and Multi-leg Order</u>
2	pseq2	uint16	Second leg product ID	0 means single order
3	leg_side	uint8 [2]	Buy/sell code of both legs	1: Buy, 2: Sell
4	comb_op	uint8	ID of multi-leg order	0: Single order; 1: Price spread (/), 2: Time spread (/), 3: Straddle (:); 4: Strangle (:); 5: Conversion(-) & Reversals(-).
5	filler	uint8 [13]	Make up field length	

#### 2.1.4.2 Text product ID (symbol\_text)

No.	Field	Data Type	Field Name	Remark
1	symbol	char [20]	Text product ID	

#### 2.1.4.3 Numeric product ID (long\_symbol\_num)

No.	Field	Data Type	Field Name	Remark
1	pseq1	uint16	First leg product ID	Minimum value 1, refer to: <u>Product ID and Multi-leg Order</u>
2	pseq2	uint16	Second leg product ID	0 means single order
3	leg_side	uint8 [2]	Buy/sell code of both legs	1: Buy, 2: Sell
4	comb_op	uint8	ID of multi-leg order	0: Single order; 1: Price spread (/), 2: Time spread (/), 3: Straddle (:); 4: Strangle (:); 5: Conversion(-) & Reversals(-).
5	filler	uint8 [33]	Make up field length	

#### 2.1.4.4 Text product ID (long\_symbol\_text)

No.	Field	Data Type	Field Name	Remark
1	symbol	char [40]	Text product ID	

## 2.2 Link Subsystem

For FCMs to connect to the TAIFEX system, the time out between Link Subsystem messages is 10 seconds. The general transfer flow is as follows:

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed
...	<-	L30	Logon notice

FCM	Direction	TAIFEX	Remark
L40	->	...	Request logon
...	<-	L41	Resend report message
L42	->	...	Resend report message confirmed
...	<-	L50	Activate application system
L60	->	...	Activate application system confirmed
...	<->	...	All kinds of order (Rxx) or transaction (Cxx) messages

Activate wakeup call message (initiated by FCM)

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call

If TIMEOUT is over and TAIFEX has not responded to L10

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...		No response	It could be: (1) TAIFEX hasn't turned on the system; (2) malfunction on the part of TAIFEX; (3) Internet failure; or (4) TAIFEX did not receive the last message
L10	->	...	FCM resends wakeup call

If TIMEOUT is over and FCM has not responded to L10

FCM	Direction	TAIFEX	Remark
...	<-	L10	TAIFEX resends Wakeup call
No response			It could be: (1) malfunction on the part of FCM; (2) Internet failure; or (3) FCM did not receive the last message
...	<-	L10	TAIFEX resends Wakeup call

FCM sends “wakeup call confirmed” message

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed

If TIMEOUT is over and FCM has not sent “wake up call confirmed” message L020

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
No response			It could be: (1) malfunction on the part of FCM; (2) Internet failure; or (3) FCM did not receive the last message
...	<-	L10	TAIFEX resends wakeup call

TAIFEX sends “logon notice” message

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed
...	<-	L30	Logon notice

If TIMEOUT is over and TAIFEX has not sent “logon notice” message L30

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed

FCM	Direction	TAIFEX	Remark
...		No response	It could be: (1) malfunction on the part of TAIFEX; (2) Internet failure; or (3) TAIFEX did not receive the last message
L10	->	...	FCM resends wakeup call

FCM sends “request logon” message

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed
...	<-	L30	Logon notice
L40	->	...	Request logon

If TIMEOUT is over and FCM has not sent “request logon” message L40

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed
...	<-	L30	Logon notice
No response			It could be: (1) malfunction on the part of FCM; (2) Internet failure; or (3) FCM did not receive the last message
...	<-	L10	TAIFEX resends wakeup call

TAIFEX sends “Resend report” message

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call

FCM	Direction	TAIFEX	Remark
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed
...	<-	L30	Logon notice
L40	->	...	Request logon
...	<-	L41	Resend report message

If TIMEOUT is over and TAIFEX has not responded with resend report message L41

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed
...	<-	L30	Logon notice
L40	->	...	Request logon
...		No response	It could be: (1) malfunction on the part of TAIFEX; (2) Internet failure; or (3) TAIFEX did not receive the last message
L10	->	...	FCM resends wakeup call

FCM sends “Resend report message confirmed” message

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed
...	<-	L30	Logon notice
L40	->	...	Request logon



FCM	Direction	TAIFEX	Remark
...	<-	L41	Resend report message
L42	->	...	Resend report message confirmed

If TIMEOUT is over and FCM has not sent “Resend report message confirmed” message L042.

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed
...	<-	L30	Logon notice
L40	->	...	Request logon
...	<-	L41	Resend report message
No response			It could be: (1) malfunction on the part of FCM; (2) Internet failure; or (3) FCM did not receive the last message
...	<-	L10	TAIFEX resends wakeup call

TAIFEX sends “activate application system” message

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed
...	<-	L30	Logon notice
L40	->	...	Request logon
...	<-	L41	Resend report message
L42	->	...	Resend report message confirmed

FCM	Direction	TAIFEX	Remark
...	<-	L50	Activate application system

If TIMEOUT is over and TAIFEX has not sent “activate application system” message L050

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed
...	<-	L30	Logon notice
L40	->	...	Request logon
...	<-	L41	Resend report message
L42	->	...	Resend report message confirmed
...		No response	It could be: (1) malfunction on the part of TAIFEX; (2) Internet failure; or (3) TAIFEX did not receive the last message
L10	->	...	FCM resends wakeup call

FCM sends “activate application system confirmed” message

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed
...	<-	L30	Logon notice
L40	->	...	Request logon
...	<-	L41	Resend report message
L42	->	...	Resend report message confirmed

FCM	Direction	TAIFEX	Remark
...	<-	L50	Activate application system
L60	->	...	Activate application system confirmed

If TIMEOUT is over and FCM has not sent “activate application system confirmed” message L060

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed
...	<-	L30	Logon notice
L40	->	...	Request logon
...	<-	L41	Resend report message
L42	->	...	Resend report message confirmed
...	<-	L50	Activate application system
No response			It could be: (1) malfunction on the part of FCM; (2) Internet failure; or (3) FCM did not receive the last message
...	<-	L10	TAIFEX resends wakeup call

Send all kinds of order or transaction messages

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed
...	<-	L30	Logon notice
L40	->	...	Request logon

FCM	Direction	TAIFEX	Remark
...	<-	L41	Resend report message
L42	->	...	Resend report message confirmed
...	<-	L50	Activate application system
L60	->	...	Activate application system confirmed
...	<->	...	All kinds of order (Rxx) or transaction (Cxx) messages

TAIFEX sends “end application system” message

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call
L20	->	...	Wake up call confirmed
...	<-	L30	Logon notice
L40	->	...	Request logon
...	<-	L41	Resend report message
L42	->	...	Resend report message confirmed
...	<-	L50	Activate application system
L60	->	...	Activate application system confirmed
...	<->	...	All kinds of order (Rxx) or transaction (Cxx) messages
...	<-	L70	End application system

FCM sends “end application system confirmed” message

FCM	Direction	TAIFEX	Remark
L10	->	...	Wake up call
...	<-	L10	Wake up call

FCM	Direction	TAIFEX	Remark
L20	->	...	Wake up call confirmed
...	<-	L30	Logon notice
L40	->	...	Request logon
...	<-	L41	Resend report message
L42	->	...	Resend report message confirmed
...	<-	L50	Activate application system
L60	->	...	Activate application system confirmed
...	<->	...	All kinds of order (Rxx) or transaction (Cxx) messages
...	<-	L70	End application system
L80	->	...	End application system confirmed

### 2.2.1 Wake up call message (L10)

In the logon phase of the Link Subsystem, both TAIFEX and the FCM can initiate a L10 wakeup call message. When Taifex received the wrong L10 message, will response L10 with error status\_code, then hang up for wait for a period time (currently setting as 0.1 second),

**Message ID:** 010

**Description:** Wake up call message, TAIFEX<->FCM

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:010 enter 0 for message sequence No. (MsgSeqNum)
2	status_code	uint8	Status code	Refer to <u>Error Message Tables</u>
3	start_in_bound_num	uint32	Order message start No.	assign zero
4	Checksum	uint8	Check sum	Checksum is the remainder of the sum of binary values of all characters starting from the front-end field up to the field right before the CheckSum field divided by 256; when any

No.	Field	Data Type	Field Name	Remark
				message shows CheckSum error, the system would return to L10.

### 2.2.2 Wake up call confirmed message (L20)

**Message ID:** 020

**Description:** Wake up call confirmed message, FCM->TAIFEX

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:020 enter 0 for message sequence No. (MsgSeqNum)
2	status_code	uint8	Status code	Refer to <u>Error Message Table</u>
3	CheckSum	uint8	Check sum	

### 2.2.3 Logon notice message (L30)

When TAIFEX is ready to send L30 logon notice message, TAIFEX system will calculate the sequence No. of the last message (end\_out\_bound\_num) sent by TAIFEX to the FCM in the session and include it in the L30 message to the FCM.

**Message ID:** 030

**Description:** Logon notice message, TAIFEX->FCM

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:030 enter 0 for message sequence No. (MsgSeqNum)
2	status_code	uint8	Status code	Refer to <u>Error Message Table</u>
3	append_no	uint16	Appended check value	This is a three-digit random number included in the logon notice message to FCM, and the FCM is asked to include it in its logon message sent to TAIFEX to the calculation of KEY-VALUE
4	end_out_bound_num	uint32	The last end message No.	The number of the last valid response message TAIFEX sent FCM (no action in “clearing member order and execution report line” and “TMPDC Session”)

No.	Field	Data Type	Field Name	Remark
5	system_type	uint8	System type	10: Options (the second digit is 0 during regular market hours) 20: Futures (the second digit is 0 during regular market hours) 11: Options (the second digit is 1 during after-market hours) 21: Futures (the second digit is 1 during after-market hours)
6	EncryptMethod	uint8	Encryption method	0 if unencrypted
7	Checksum	uint8	Check sum	

#### 2.2.4 Request logon (L40)

TCP/IP connection resend mechanism (end\_out\_bound\_num & request\_start\_seq)

After receiving L30, if the FCM determines that the range of messages need to be resent by TAIFEX based on the end\_out\_bound\_num received prior to disconnection, the FCM can send a L40 request logon message containing a request\_start\_seq, which represents the start sequence of messages requested from TAIFEX (that is, FCM sends a request\_start\_seq+1 and end\_out\_bound\_num message to request resend from TAIFEX).

If the client sends incorrect L40 three times, TAIFEX will lock the session.

**Message ID:** 040

**Description:** Request logon, FCM->TAIFEX

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:040 enter 0 for message sequence No. (MsgSeqNum)
2	status_code	uint8	Status code	Refer to <u>Error Message Table</u>
3	append_no	uint16	Appended check value	This is a three-digit random number included in the logon notice message to FCM, and the FCM is asked to include it in its logon message sent to TAIFEX to the calculation of KEY-VALUE
4	fcm_id	uint16	FCM ID	ref: P06

No.	Field	Data Type	Field Name	Remark
5	session_id	uint16	TCP connection session number	fcm_id + session_id – connection to trading system is allowed only if fcm_id and session_id are provided together
6	system_type	uint8	System type	10: Options (the second digit is 0 during regular market hours) 20: Futures (the second digit is 0 during regular market hours) 11: Options (the second digit is 1 during after-market hours) 21: Futures (the second digit is 1 during after-market hours)
7	ap_code	uint8	Application system code	4: FCM order/transaction, 8: Clearing member order/transaction report 6: FCM condensed version order/transaction 7:TMPDC Session
8	key_value	uint8	Key value	Key-value is a two-digit number at the thousandth and hundredth place of (append_no* password) (PASSWORD is set by FCM itself on line application).
9	request_start_seq	uint32	The start message No. this time	Refer to TCP/IP connection resend mechanism (end_out_bound_num & request_start_seq). (Enter 0 for “Clearing member order and execution report Line” and “TMPDC Session”)
10	cancel_order_sec	uint8	(TMP)Reject order second  (TMPCM/ TMPDC) reply datas pre	0: whatever the order is delay, the request will be accepted. >= 1: TAIFEX will base on the value to reject delay order request; if the order is delay, TAIFEX will return status code 242.  TMPCM/TMPDC session: Q:taifex doesn't flow control for reply



No.	Field	Data Type	Field Name	Remark
			second (unit: 100)	<p>data</p> <p>Please consider that the client processing speed (ex: bandwidth or socket buffer setting) when taifex send out mass data fail in moment, we must disconnection.</p> <p>1~255:taifex send reply data by by cancel_order_sec*100</p> <p>Ex:</p> <p>value=1, client can get 100 reply data in one second.</p> <p>value=5, client can get 500 reply data in one second</p> <p>value=10, client can get 1000 reply data in one second</p> <p>It is normal case that it is different between actual getting numbers of reply data and theoretical situation (uint8 range:0~255)</p>
11	CheckSum	uint8	Check sum	

### 2.2.5 Resend report message (L41)

If request\_start\_seq+1 is bigger than or equal to end\_out\_bound\_num, TAIFEX does not need to resend any message, but sends directly L50 activate application system message to FCM and waits for L60 activate application system confirmed message from FCM to complete the activation of application system under the Link Subsystem. All messages in Link Subsystem are transmitted asynchronously. If there is any mistake in the send/receive sequence, the Link Subsystem will go back to L10 send/receive mode. If request\_start\_seq is smaller than end\_out\_bound\_num, TAIFEX will include the data to be resent (messages in the interval between request\_start\_seq+1 and end\_out\_bound\_num) in L41 data field. In the case of transfer data larger then maxium size of one transmission, Taifex will transfer first L41 block, wait response L42 of FCM, then send the following L41 block.

**Message ID:** 041

**Description:** Resend report message, TAIFEX->FCM

No.	Field	Data Type	Field Name	Remark
-----	-------	-----------	------------	--------

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:041 enter 0 for message sequence No. (MsgSeqNum)
2	status_code	uint8	Status code	Refer to <u>Error Message Table</u>
3	is_eof	uint8	End-of-file symbol	0:No, 1: End of file
4	file_size	uint32	Total length of file sent	
5	data	uint8 [hdr.msg_length-15-6]	Data	Data contain all message between request_start_seq+1 and end_out_bound_num (unless if the message sequence No. is 0)  If L40 ap_code=4, using R02/R32 for order/transaction  If L40 ap_code=6, using R22 for order/transaction
6	Checksum	uint8	Check sum	

## 2.2.6 Resend report message confirmed (L42)

**Message ID:** 042

**Description:** Resend report message confirmed, FCM->TAIFEX

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:042 enter 0 for message sequence No. (MsgSeqNum)
2	status_code	uint8	Status code	Refer to <u>Error Message Table</u>
3	Checksum	uint8	Check sum	

## 2.2.7 Activate application system (L50)

**Message ID:** 050

**Description:** Activate application system, TAIFEX->FCM

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message	Message ID:050

No.	Field	Data Type	Field Name	Remark
			header	enter 0 for message sequence No. (MsgSeqNum)
2	status_code	uint8	Status code	Refer to <u>Error Message Table</u>
3	HeartBtInt	uint8	Seconds in synchronization	default: 30
4	max_flow_ctrl_cnt	uint16	Maximum flow per second	Inform FCM the limit of input per second in this session (no action in “clearing member order and execution report line” and “TMPDC Session”)
5	Checksum	uint8	Check sum	

## 2.2.8 Activate application system confirmed (L60)

**Message ID:** 060

**Description:** Activate application system confirmed, FCM->TAIFEX

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:060 enter 0 for message sequence No. (MsgSeqNum)
2	status_code	uint8	Status code	Refer to <u>Error Message Table</u>
3	Checksum	uint8	Check sum	

**Taifex trading system will calculate the round trip time from sending L50 message to receiving L60 message to determine the maximum peak flow per second. The time value used for calculation will be millisecond precision.**

## 2.2.11 Example of Link Subsystem Resend Mechanism

Example using R02/R32 :

Time	FCM	Direction	TAIFEX
1.	Send L10 MsgSeqNum=0, Start_in_bound_num=0	->	
2.		<-	Send L10 MsgSeqNum=0, Start_in_bound_num=0
3.	Send L20 MsgSeqNum=0	->	

4.		<-	Send L30 MsgSeqNum=0, end_out_bound_num=697
5.	Send L40 MsgSeqNum=0, request_start_seq=698	->	
6.		<-	Because don't require to resend, send L50 MsgSeqNum=0
7.	Send L60 MsgSeqNum=0	->	
8.	Send R01/R31 MsgSeqNum=253, order_no=A0253	->	
9.	Send R01/R31 MsgSeqNum=254, order_no=A0254	->	
10.	Send R01/R31 MsgSeqNum=255, order_no=A0255	->	
11.		<-	Send R02/R32 MsgSeqNum=698, order_no=A0253
12.	Send R09/R39 MsgSeqNum=256, order_no=A0256	->	
13.		<-	Send R02/R32 MsgSeqNum=699, order_no=A0254
14.	Received failed caused by connection broken	<-	Send R02/R32 MsgSeqNum=700, order_no=A0255
15.	Received failed caused by connection broken	<-	Send R02/R32 MsgSeqNum=701, order_no=A0256,Side=1
16.	Received failed caused by connection broken	<-	Send R02/R32 MsgSeqNum=702, order_no=A0256,Side=2
17.	Send R01/R31 MsgSeqNum=257, order_no=A0257	->	Received failed caused by connection broken

18.	Send R01/R31 MsgSeqNum=258, order_no=A0258	->	Received failed caused by connection broken
19.	FCM decide to re-connect after connection broken.		
20.	Send L10 MsgSeqNum=0, Start_in_bound_num=0	->	
21.		<-	Send L10 MsgSeqNum=0 start_in_bound_num =0
22.	Send L20 MsgSeqNum=0	->	
23.		<-	Send L30 MsgSeqNum=0 end_out_bound_num =702
24.	Send L40 MsgSeqNum=0 request_start_seq=699	->	
25.		<-	Send L41 MsgSeqNum=0 data=(original MsgSeqNum 700 to 702 message LOG); see description of L41 Data Field
26.	Send L42 MsgSeqNum=0	->	
27.		<-	Send L50 MsgSeqNum=0
28.	Send L60 MsgSeqNum=0	->	
29.	Send R01/R31 MsgSeqNum=260, order_no=A0257	->	
30.		<-	Send R02/R32 MsgSeqNum=703, order_no=A0257
31.	Send R01/R31 MsgSeqNum=261, order_no=A0258	->	
32.		<-	Send L10 MsgSeqNum=0, status_code=207 because the MsgSeqNum discontinued on the message which required fill

			MsgSeqNum.
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## Description of L41 Data Field

The data are included in the L41 data field because TAIFEX has received a L40 message from the FCM request\_start\_seq=699 requesting resend (that is, TAIFEX puts the original MsgSeqNum 700 –702 messages in the data).

## 2.3 Maintenance of Connection State during Order Processing

### 2.3.1 Confirm connection message (R04)

During the message exchange idle periods, the connecting parties will regularly generate confirm connection and connection confirmed messages to monitor the state of communication. The interval between a confirm connection message and the response to such a message will be determined by TAIFEX in the L50 activate application system, and the connecting parties will use the same interval. That is, if either party finds that there is no new message from the other party after the number of seconds as set in the field of HeartBtIntField in L50 has elapsed, the party should send a “confirmed connection (R04)” message to the other party, and the other party should respond a “connection confirmed (R05)” message. At this time, the trading system will check the FCM and TAIFEX connection time error. If the error is significant (greater than 0.5 second), the system will send an error message 200 (significant system time error) but continue to operate. If either party send a “confirmed connection (R04)” message to the other party, and the other party didn’t respond a “connection confirmed (R05)” message exceeding 5 seconds. It definitely does need to be disconnected.

L50 HeartBtInt field default value is 30 seconds. If the client does not response in 30 seconds , TAIFEX will send R04 to the client. If the client does not response the R04 in 5 seconds, TAIFEX will disconnect the client.

FCM	Direction	TAIFEX	Remark
R04	->	...	FCM sends R04
...	<-	R05	TAIFEX responds R05
...	<-	...	Other operations
...	<-	R04	TAIFEX sends R04
R05	->	...	FCM responds R05

**Message ID:** 104

**Description:** Confirm connection message, TAIFEX<->FCM

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message	Message ID:104, enter 0 for message sequence

No.	Field	Data Type	Field Name	Remark
			header	No. (MsgSeqNum)
2	status_code	uint8	Status code	Refer to <u>Error Message Table</u>
3	Checksum	uint8	Check sum	

### 2.3.2 Connection confirmed message (R05)

**Message ID:** 105

**Description:** Connection confirmed message, TAIFEX<->FCM

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:105, enter 0 for message sequence No. (MsgSeqNum)
2	status_code	uint8	Status code	Refer to <u>Error Message Table</u>
3	Checksum	uint8	Check sum	

### 2.3.3 Trade session status request (R11)

After a FCM has sent a “activate application system confirmed (L60)” message, the FCM can send a “trade session status request (R11)” to make query, and TAIFEX will respond with a “trade session status report (R12)”, based on which the FCM can determine whether the trading system is halted.

FCM can make query of trade session status via R11 message. When it is SubscriptionRequestTyp=0 in R11, it means the FCM is inquiring the current session status, for example:

FCM	Direction	TAIFEX	Remark
R11	->	...	FCM subscribes to trade session status (SubscriptionRequestTyp=0)
...	<-	R12	TAIFEX responds the current trade session status

When SubscriptionRequestTyp=1, it means the FCM is inquiring the current session status and subscribing to subsequent changes of status, ex.:

FCM	Direction	TAIFEX	Remark
R11	->	...	FCM subscribes to trade session status (SubscriptionRequestTyp=1)
...	<-	R12	TAIFEX responds to FCM each time the system changes
...	...	...	

...	<-	R12	TAIFEX responds to FCM each time the system changes
-----	----	-----	---

When SubscriptionRequestTyp=2, it means the FCM cancels the status change subscription, ex.:

FCM	Direction	TAIFEX	Remark
R11	->	...	FCM subscribes to trade session status (SubscriptionRequestTyp=2)
...	<-	R12	Successful subscription cancellation

When there is an error:

FCM	Direction	TAIFEX	Remark
R11	->	...	FCM subscribes to trade session status
...	<-	R12	Error occurs and check R12 status_code

#### Message ID: 111

**Description:** Trade session status request, FCM ->TAIFEX

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:111 enter 0 for message sequence No. (MsgSeqNum)
2	status_code	uint8	Status code	Refer to <u>Error Message Table</u>
3	TradeReqID	uint16	Status request No.	Correspond to R12 TradeReqID
4	flow_group_no	uint8	Flow group No.	For flow group No. requested, FCM can obtain information from P08/PA8 file (Product and Flow Group Definition File)
5	SubscriptionRequestType	uint8	Status subscription type	0: current status, 1: current + subsequent changes, 2: cancel status subscription
6	Checksum	uint8	Check sum	

### 2.3.4 Trade session status report (R12)

#### Message ID: 112

**Description:** Trade session status report, TAIFEX ->FCM



No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:112 enter 0 for message sequence No. (MsgSeqNum)
2	status_code	uint8	Status code	Refer to <u>Error Message Table</u>
3	TradeReqID	uint16	Status request No.	Correspond to R11TradeReqID
4	flow_group_no	uint8	Flow group No.	For flow group No. requested, FCM can obtain information from P08/PA8 file (Product and Flow Group Definition File)
5	TradeStatus	uint8	Trade status	0: unknown, 1: halted, 2: open, 3: closed, 4: pre-open, 5: Non-Cancel Period Refer to: <u>Trade Session Status</u>
6	Checksum	uint8	Check sum	

## 2.4 Order Input

FCM	Direction	TAIFEX	Remark
R01/R31	->	...	Order input
...	<-	R02/R32 or R22 (order input)	To FCM: Order status report
...	<-	R02/R32 (order input)	To clearing member: Clearing member Order status report
...	...	...	Order immediately or subsequently filled, if any
...	<-	R02/R32 or R22 (order execution)	To FCM: order execution report
...	<-	R02/R32 (order execution)	To clearing member: order execution report
R01/R31	->	...	Order input
...	<-	R03 (error)	Error report
R01/R31	->	...	Order input request
...	<-	R02/R32 or R22	Order status report
R01/R31	->	...	Order input request
...	<-	R03 (error)	Error report

<b>FCM</b>	<b>Direction</b>	<b>TAIFEX</b>	<b>Remark</b>
R07/R37	->	...	Price inquiry input
...	<-	R08/R38	Price inquiry reply
R07/R37	->	...	Price inquiry input
...	<-	R03 (error)	Error report
R09/R39	->	...	Quote input
...	<-	R02/R32 or R22 (new report)*2	To FCM: Price input report
...	<-	R02/R32 (clearing member)*2	To clearing member: Clearing member Order status report
...	...	...	Order immediately or subsequently filled, if any
...	<-	R02/R32 or R22 (order execution report)	To FCM: order execution report
...	<-	R02/R32 (clearing member order execution report)	To clearing member: order execution report
R09/R39	->	...	Quote input
...	<-	R03 (error)	Error report
...	<-	R03 (error)	Error report
R09/R39	->	...	Quote request
...	<-	R02/R32 or R22 (buy request reply)	Quote input report
...	<-	R02/R32 or R22 (sell request reply)	Quote input report
R09/R39	->	...	Quote request
...	<-	R03 (error)	Error report
...	<-	R03 (error)	Error report

#### **2.4.1 Order input (R01/R31)**

**Message ID:** 101/131

**Description:** Order input, FCM ->TAIFEX

No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data, enter 0 or text 0				
1	hdr	hdr	Common message header	R01 Message ID:101 R31 Message ID:131 When the trading system adds query order, it will enter 0 for message sequence No. (MsgSeqNum)	New	Decrease	Cancel	Modify Price	Query
2	ExecType	char	Execution type	0: New, 4: Cancel, 5:Decrease, M or m:Modify Price, I: Query	Y	Y	Y	Y	Y
3	cm_id	uint16	Clearing member ID	Enter clearing member ID ref: P06	Y	Y	Y	Y	N
4	fcm_id	uint16	FCM ID	ref: P06	Y	Y	Y	Y	Y
5	order_no	char [5]	Order No.	(All 5 characters can be alphanumeric.)	Y	Y	Y	Y	Y
6	ord_id	uint32	Order serial No.	Enter the serial No. of order (maximally 7-digit number)	Y	Y	Y	Y	Y
7	user_define	char [8]	FCM defined variable	When the trading system adds new order, deletes or changes order, it will automatically update this value in the order status	Y	Y	Y	Y	Y
8	symbol_type	uint8	Product ID format	R01(1: num, 2: text) R31(3: num, 4: text)	Y	Y	Y	Y	Y
9	sym	R01:symbol_x R31:long_symbol_x	Part product ID	The x part may be replaced by num or text	Y	Y	Y	Y	Y
10	Price	int32	Order price	Refer to <u>Order Price</u>	Y	N	N	Y	N
11	qty	uint16	Order quantity		Y	Y	N	N	N
12	investor_acno	uint32	Investor account No.		Y	N	N	N	N

No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data, enter 0 or text 0				
13	investor_flag	char	Investor ID code		Y	N	N	N	N
14	Side	uint8	Buy/sell code	1:Buy, 2: Sell	Y	Y	Y	Y	Y
15	OrdType	uint8	Order type	1:Market, 2:Limit, 3:Market with Protection(MWP)	Y	Y	N	Y	N
16	TimeInForce	uint8	Order condition	FOK:4 IOC:3 ROD:0	Y	N	N	Y	N
17	PositionEffect	char	Open/offset code	open:O (uppercase), close:C, daytrade:D open & specified position offsets:A(Options Only) Offset by FCM:7	Y	N	N	N	Y
18	order_source	char	Order Source	“D” means Leased Line or VPN or Closed private network, “A” means Application program interface (API), “M” means Mobile device, “W” means Web site, “P” means Personal computer, “V” means Voice, “G” means in writing or by telephone or telegram.	Y	Y	Y	Y	Y
19	info_source	char [3]	Market data source	Vendor Code means From Vendor, “999” means From FCM.(The Vendor Code published on TAIFEX website (Home > Market Data > Information Vendors))	Y	Y	Y	Y	Y
20	Checksum	uint8	Check sum		Y	Y	Y	Y	Y

### The investor\_acno field check method

Multiply the second digit of the fcm\_no by 1, the third digit by 3, the fourth digit by 7, the seventh digit by 1, and the first digit of investor\_acno (seven digits, less than seven digits must be preceded by 0) by 1, the second digit by 3, the third digit by 7, the fourth digit by 1, the fifth digit by 3, and the sixth digit by 7. Add the digit in ones place of all of the above numbers, divide the sum by 10 and take the remainder, then subtract the number by 10 to get the check code.

For example, if fcm\_no is F123456 and investor\_acno without check code is 123456, then the calculation process is as follows:

f1=the second digit of the fcm\_no multiplied by 1=1\*1=1

f2=the third digit of the fcm\_no multiplied by 3=2\*3=6

f3=the fourth digit of the fcm\_no multiplied by 7=3\*7=21, the digit in ones place is 1

f4=the seventh digit of the fcm\_no multiplied by 1=6\*1=6

a1=the first digit of the investor\_acno multiplied by 1=1\*1=1

a2=the second digit of the investor\_acno multiplied by 3=2\*3=6

a3=the third digit of the investor\_acno multiplied by 7 = 3\*7 = 21, the digit in ones place is 1

a4=the fourth digit of the investor\_acno multiplied by 1=4\*1=4

a5=the fifth digit of the investor\_acno multiplied by 3=5\*3=15, the digit in ones place is 5

a6=the sixth digit of the investor\_acno multiplied by 7 = 6\*7 = 42, the digit in ones place is 2

f1+f2+f3+f4+a1+a2+a3+a4+a5+a6=1+6+1+6+1+6+1+4+5+2=33, the digit in ones place is 3

So the check code is (10-3)=7, and the full investor\_acno is 1234567.

### Execution Reply after Modifying Price (ExecType=M or m)

ExecType=M: The order reply message and follow-up execution reply messages will be sent to the line where price-modification order is placed. The original line where new order is placed will never receive any execution reply message.

ExecType=m: The order reply message will be sent to the line where price-modification order is placed, but follow-up execution reply messages will be sent to the original line where new order is placed.

Example(one order):

FCM			TAIFEX		
Time	Input	Input line	Reply line	ExecType=M	ExecType=m
T	New	lineA	New reply	line A	lineA
T+1	Decrease	lineB	Decrease reply	lineB	lineB
T+2	Query	lineC	Query reply	lineC	lineC

T+3			Execution quity 1:	<u>Execution reply before Modifying price</u>	lineA	lineA
T+4	Modify Price	lineD		Modify Price reply	lineD	lineD
T+5			Execution quity 1:	<u>Execution reply after Modifying price</u>	<u>lineD</u>	<u>lineA</u>
T+6	Delete	lineE		Delete reply	lineE	lineE

In order to avoid confusion, FCM should use one type of ExecType field(ExecType = M or m) for modifying price.

### FCM defined variable (user\_define) field

When the trading system succeeds in deleting or changing the order, the value of the user\_define field in the execution report will be automatically updated in the order status as shown below:

FCM inputs				TAIFEX replies	
Time	Input	Order No.	user_define field at the time of order input	Reply	user_define field in reply
T	Order input 5 lot	abc45	U1	Order status report	U1
T+1	Decrease 1 lot	abc45	U2	Decrease succeeds report	U2( the value is updated because decrease is successful)
T+2	Order input (duplicate order)	abc45	U3	Duplicate order error report	U3
T+3	Query	abc45	U4	Query reply	U4
T+4				Order execution report	U2 (the same status value as that when decrease succeeded)
T+5	Modify price	abc45	U5	Modify succeeds report	U5( the value is updated because modify price is successful)
T+6	Query	abc45	U6	Query reply	U6

Executed  
3lot:

T+7				Executed 1 lot:	Order execution report	U5 (the same status value as that when modify price succeeded)
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### Open & specified position offsets define: (Optional)

Position Effect new value defines: A (open & specified position offsets), the order type A, is for adding new positions of options and specified position offsets. After the order is matched, except omnibus accounts, the clearing system will carry out specified position offsets according to the order execution report and in respect of open positions.

## 2.4.2 Order status report (R02/R32)

If L40 ap\_code=4, using R02/R32 for order/transaction

**Message ID:** 102/132

**Description:** Order status report, TAIFEX ->FCM

No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data						
					New	Decrease	Cancel	Modify Price	Query	Execution-single	Execution-multi-leg
1	hdr	hdr	Common message header	R02 Message ID:102 R32 Message ID:132  When the trading system adds query order, it will enter 0 for message sequence No. (MsgSeqNum)							
2	status_code	uint8	Status code	Enter 0 if normal	Y	Y	Y	Y	Y	Y	Y
3	ExecType	char	Execution type	0:New, 4:Cancel, 5:Decrease, F: Execution report, M or m:Modify Price, I: Request  6: New and Execution report	Y	Y	Y	Y	Y	Y	Y
4	cm_id	uint16	Clearing member ID	Enter clearing member ID ref: P06	Y	Y	Y	Y	Y	Y	Y
5	fcm_id	uint16	FCM ID	ref: P06	Y	Y	Y	Y	Y	Y	Y

No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data						
6	order_no	char [5]	Order No.	(All 5 characters can be alphanumeric.)	Y	Y	Y	Y	Y	Y	Y
7	ord_id	uint32	Order serial No.	Enter order serial No.	Y	Y	Y	Y	Y	Y	Y
8	user_define	char [8]	FCM defined variable	When the trading system adds new order, cancels or changes order, it will automatically update this value in the order status	Y	Y	Y	Y	Y	Y	Y
9	symbol_type	uint8	Product ID format	R02(1: num, 2: text) R32(3: num, 4: text)	Y	Y	Y	Y	Y	Y	Y
10	sym	R02:symbol_x R32:long_symbol_x	Part product ID	The x part may be replaced by num or text	Y	Y	Y	Y	Y	Y	Y
11	Price	int32	Order price	Refer to <u>Order Price</u> (For MWP, it is the price assigned by Matching Engine) (When status_code 48 for orders other than multi-leg options, it will be the upper or lower limit price of the product for dynamic price banding mechanism)	Y	Y	Y	Y	Y	Y	Y
12	qty	uint16	Order quantity		Y	Y	Y	Y	Y	Y	Y



No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data						
13	investor_acno	uint32	Investor account No.		Y	Y	Y	Y	Y	Y	Y
14	investor_flag	char	Investor ID code		Y	Y	Y	Y	Y	Y	Y
15	Side	uint8	Buy/sell code	1: Buy, 2: Sell	Y	Y	Y	Y	Y	Y	Y
16	OrdType	uint8	Order type	1:Market, 2:Limit, 3:MWP	Y	Y	Y	Y	Y	Y	Y
17	TimeInForce	uint8	Order condition	FOK:4 IOC:3 ROD:0  Quote automatically cancelled after a period of time:8	Y	Y	Y	Y	Y	Y	Y
18	PositionEffect	char	Open/ offset	open: O, close: C, daytrade: D,  Quote:9  open & specified position offsets: A (Options Only)  Offset by FCM:7	Y	Y	Y	Y	Y	Y	Y
19	LastPx	int32	Last execution price	Last execution price for execution report  0 for cancel/decrease order /modify price order	N	N	N	N	Y	Y	Y
20	LastQty	uint16	Last quantity executed	Last execution quantity for execution report  0 for cancel/decrease order /modify price order	N	N	N	N	Y	Y	Y
21	px_subtotal	int64	Cumulative weighted	px_subtotal divided by	Y	Y	Y	Y	Y	Y	Y

No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data						
			execution price	CumQty is the average price per contract							
22	CumQty	uint16	Total quantity executed		Y	Y	Y	Y	Y	Y	Y
23	LeavesQty	uint16	Remaining quantity		Y	Y	Y	Y	Y	Y	Y
24	before_qty	uint16	Remaining order quantity before match		Y	Y	Y	Y	Y	Y	Y
25	leg_side	uint8 [2]	Buy/sell code for both legs	0: Single order,1: Buy, 2: Sell	N	N	N	N	N	N	Y
26	leg_px	int32 [2]	Execution price for both legs	Refer to <u>Order Price</u> (When status_code 48 for multi-leg options orders, it will be the upper or lower limit price of the corresponding leg product for dynamic price banding mechanism)	N	N	N	N	N	N	Y
27	leg_qty	uint16 [2]	Quantity executed for both legs		N	N	N	N	N	N	Y
28	org_trans_time	msg_time	Original time of order input		Y	Y	Y	Y	Y	Y	Y
29	TransactTime	msg_time	Final time of change	Refer to: <u>Time Format</u>	Y	Y	Y	Y	Y	Y	Y
30	target_id	uint8	Target ID	FCM: 4 Clearing member	Y	Y	Y	Y	Y	Y	Y

No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data						
				Order status report:8 or 18 Clearing member order execution report:9 or 19 Execution report including head office and branch offices:3 or 13							
31	uniq_id	uint32	Unique ID	When target_id=4, it is a system unique No. (OrderID); When target_id=8,9,18,19, it is the report sequence No. (cm_sub_seq)	Y	Y	Y	Y	Y	Y	Y
32	rpt_seq	uint32	Report sequence No.	When target_id=4, it is session_seq; when target_id=8 or 9 or 18 or 19, it is cm_seq	Y	Y	Y	Y	Y	Y	Y
33	protocol_type	uint8	Source of new order data	0: Reserved 1: TMP 2: FIX,	Y	Y	Y	Y	Y	Y	Y
34	Checksum	uint8	Check sum		Y	Y	Y	Y	Y	Y	Y

When the value of leg\_side[0] is 0, it means single order, and leg\_qty and leg\_px fields will not contain any value.

### Price field and status\_code field

When the simulated matched price above(below) the upper(lower) limit of Taifex's dynamic price banding, status\_code in the last R02/R22/R32 report will be filled in 47. Status 47 means the leaves quantity was rejected due to the simulated matched price reached the upper(lower) limit of the dynamic price banding. In order to disclose the upper or lower limit price of dynamic price banding, an additional status\_code 48 R02/R22/R32 report is provided after the status\_code 47 R02/ R22/R32 report. For multi-leg options order status 48 report, one of the leg\_px fields is not zero and discloses the upper or lower limit price of the corresponding leg. Otherwise the Price field in the status 48 report discloses the upper or lower limit price of the product. Other price or quantity fields will be 0. Status 47 and Status 48 may not be consecutive message.

Example:

(1) New order (not matched)

Order Input R01		TAIFEX execution report R02						
ExecType	TimeInForce	ExecType	status_code	Price	qty	LastQty	LeavesQty	before_qty
0 (New)	ROD IOC FOK	6	47	Order Price	10	0	0	10
		F	48	upper or lower limit price	0	0	0	0

(2) Modify price order (not matched)

Order Input R01		TAIFEX execution report R02						
ExecType	TimeInForce	ExecType	status_code	Price	qty	LastQty	LeavesQty	before_qty
M/m (Modify)	ROD IOC FOK	M/m	0	Order Price	10	0	10	10
		F	47	Order Price	10	0	0	10
		F	48	upper or lower limit price	0	0	0	0

(3) New order (partial matched)

Order Input R01		TAIFEX execution report R02						
ExecType	TimeInForce	ExecType	status_code	Price	Qty	LastQty	LeavesQty	before_qty
0 (New)	ROD IOC	6	0	Order Price	10	1	9	10
		F	0	Order Price	10	2	7	9
		F	47	Order Price	10	3	0	7
		F	48	upper or lower limit price	0	0	0	0

(4) Modify price order (partial matched)

Order Input R01		TAIFEX execution report R02						
ExecType	TimeInForce	ExecType	status_code	Price	qty	LastQty	LeavesQty	before_qty
M/m (Modify)	ROD IOC	M/m	0	Order Price	10	0	10	10
		F	0	Order Price	10	1	9	10
		F	0	Order Price	10	2	7	9
		F	47	Order Price	10	3	0	7

Order Input R01		TAIFEX execution report R02						
ExecType	TimeInForce	ExecType	status_code	Price	qty	LastQty	LeavesQty	before_qty
		F	48	upper or lower limit price	0	0	0	0

(5) Status 48 reports for orders other than multi-leg options

TAIFEX execution report			
status_code	Price	leg_px[0]	leg_px[1]
48	Upper or lower limit price of the product	0	0

(6) Status 48 reports for multi-leg options orders

TAIFEX execution report			
status_code	Price	leg_px[0]	leg_px[1]
48	0	Upper or lower limit price of the 1 <sup>st</sup> leg product	Upper or lower limit price of the 2 <sup>nd</sup> leg product

## Unique id(uniq\_id)field

The trading system will assign a unique sequence number in the uniq\_id field in order reply of each order. When the trading system succeeds in modifying the price of the order, the value of the uniq\_id field in the execution report will be automatically updated in the order status as shown below:

FCM inputs			TAIFEX replies(target_id=4)	
Time	Input	Order No.	Reply	uniq_id in reply
T	Order input 5 lot	abc45	Order status report	U1
T+1	Decrease 1 lot	abc45	Decrease succeeds report	U2
T+2	Query	abc45	Query reply	U3
T+3			Order execution report	U1 (the same status value as that when order input)
T+4	Modify price	abc45	Modify succeeds report	U4(the value is updated because modify price is successful)
T+5			Order execution report	U4 (the same status value as that when order modify)
T+6	Decrease 1 lot	abc45	Decrease succeeds report	U5

Executed 1 lot:

Executed 1 lot:

T+7			Executed 1 lot:	Order execution report	U4 (the same status value as that when order modify)
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The protocol\_type field is used to distinguish the source of data source. FCM **must ensure sequential order input and use the same protocol type for placing orders in the same session.**

Examples of scenarios where there are different sources of data:

Time	Condition	Connection type	order_no	protocol_type	LeavesQty	Remark
T	Order input -5 lots	tmp.session1	abc45	TMP	5	
T+1	Decrease 1 lot	FIX.session1	abc45	FIX	4	
T+2	Check order	FIX.session2	abc45	FIX	4	
T+3	1 lot executed	tmp.session1	abc45	TMP	3	
T+4	tmp.ssssion1 line is unstable, 1 lot is decreased via tmp.session2	tmp.session2	abc45	TMP	2	This approach is not recommended; original session 1 for connection is recommended
T+5	Restore tmp.session1 to check order status	tmp.session1	abc45	TMP	2	Restore session1 connection via different physical line

### 2.4.3 Error report (R03)

**Message ID:** 103

**Description:** Error report, TAIFEX ->FCM

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:103 When the trading system adds query order, it will enter 0 for message sequence No. (MsgSeqNum)
2	status_code	uint8	Status code	Refer to <u>Error Message Table</u>
3	ExecType	char	Execution type	0:New, 4:Cancel, 5:Decrease, M or m:Modify price, F: Execution report, I: Request
4	fcm_id	uint16	FCM ID	
5	order_no	char [5]	Order No.	(All 5 characters can be alphanumeric.)
6	ord_id	uint32	Order serial No.	
7	user_define	char [8]	FCM defined variable	
8	rpt_seq	uint32	Report sequence No.	Session serial No. (session_seq)

No.	Field	Data Type	Field Name	Remark
9	Side	uint8	Buy/sell code	1: Buy, 2: Sell
10	Checksum	uint8	Check sum	

#### 2.4.4 Price inquiry input (numeric or text product ID)(R07/R37)

**Message ID:** 107/137

**Description:** Price inquiry input, FCM ->TAIFEX

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	R07 Message ID:107 R37 Message ID:137 enter 0 for message sequence No. (MsgSeqNum)
2	order_no	char [5]	Order No.	(All 5 characters can be alphanumeric.)
3	ord_id	uint32	Order serial No.	Enter order serial No.
4	fcm_id	uint16	FCM ID	
5	symbol_type	uint8	Product ID format	R07(1: num, 2: text) R37(3: num, 4: text)
6	sym	R07:symbol_x R37:long_symbol_x	Part product ID	The x part may be replaced by num or text
7	order_source	char	Order Source	“D” means Leased Line or VPN or Closed private network, “A” means Application program interface (API), “M” means Mobile device, “W” means Web site, “P” means Personal computer, “V” means Voice, “G” means in writing or by telephone or telegram.
8	info_source	char [3]	Market data source	Vendor Code means From Vendor, “999” means From FCM.(The Vendor Code published on TAIFEX website (Home > Market Data > Information Vendors))
9	Checksum	uint8	Check sum	

#### 2.4.5 Price inquiry reply (R08/R38)

**Message ID:** 108

**Description:** Price inquiry reply

No.	Field	Data Type	Field Name	Remark
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No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	R08 Message ID:108 R38 Message ID:138 enter 0 for message sequence No. (MsgSeqNum)
2	status_code	uint8	Status code	Enter 0 for normal status
3	order_no	char [5]	Order No.	(All 5 characters can be alphanumeric.)
4	ord_id	uint32	Order serial No.	Enter order serial No.
5	fcm_id	uint16	FCM ID	
6	symbol_type	uint8	Product ID format	R08(1: num, 2: text) R38(3: num, 4: text)
7	sym	R08:symbol_x R38:long_symbol_x	Part product ID	The x part may be replaced by num or text
8	Checksum	uint8	Check sum	

## 2.4.6 Quote input (R09/R39)

**Message ID:** 109/139

**Description:** Quote input, FCM ->TAIFEX

No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data				
					New	Decrease	SSQM	Cancel	Request
1	hdr	hdr	Common message header	R09 Message ID:109 R39 Message ID:139  When the trading system adds query order, it will enter 0 for message sequence No. (MsgSeqNum)					
2	ExecType	char	Execution type	0: New, 4: Cancel, 5: Decrease, I: Query, M or m: Modify Price	Y	Y	Y	Y	Y
3	cm_id	uint16	Clearing member ID	Enter clearing member ID ref: P06	Y	Y	Y	Y	Y
4	fcm_id	uint16	FCM ID	ref: P06	Y	Y	Y	Y	Y
5	order_no	char [5]	Order No.	(All 5 characters can be alphanumeric.)	Y	Y	Y	Y	Y
6	ord_id	uint32	Order serial No.	Enter order serial No.	Y	Y	Y	Y	Y
7	user_define	char [8]	FCM defined variable	When the trading system adds new order, or cancels or changes	Y	Y	Y	Y	Y



No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data				
				order, it will automatically update this value in order status					
8	symbol_type	uint8	Product ID format	R09(1: num, 2: text) R39(3: num, 4: text)	Y	Y	Y	Y	Y
9	sym	R09:symbol_x R39: long_symbol_x	Part product ID	The x part may be replaced by num or text	Y	Y	Y	Y	Y
10	BidPx	int32	Buy order price	Refer to <u>Order Price</u>	Y	N	Y	N	N
11	OfferPx	int32	Sell order price	Refer to <u>Order Price</u>	Y	N	Y	N	N
12	BidSize	uint16	Buy quantity		Y	Y	N	N	N
13	OfferSize	uint16	Sell quantity		Y	Y	N	N	N
14	investor_acno	uint32	Investor account No.		Y	N	N	N	N
15	investor_flag	char	Investor ID code		Y	N	N	N	N
16	TimeInForce	uint8	Order condition	Order automatically deleted after a period of time: 8 Quote ROD:0	Y	N	N	N	N
17	PositionEffect	char	Open/offset	9: Market maker quote	Y	N	N	N	N
18	order_source	char	Order Source	“D” means Leased Line or VPN or Closed private network, “A” means Application program interface (API), “M” means Mobile device, “W” means Web site, “P” means Personal computer, “V” means Voice, “G” means in writing or by telephone or telegram.	Y	Y	Y	Y	Y
19	info_source	char [3]	Market data source	Vendor Code means From Vendor, “999” means From FCM.(The Vendor Code published on TAIFEX	Y	Y	Y	Y	Y

No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data				
				website ( <a href="#">Home &gt;</a> <a href="#">Market Data &gt;</a> <a href="#">Information Vendors</a> ))					
20	Checksum	uint8	Check sum		Y	Y	Y	Y	Y

## Single-side quote order modification (SSQM) function (ExecType=M or m)

When modifying the price for one side of the quote, the client must fill in the price for the side to be modified and fill in zero for the other side.

ExecType=M: The order reply message and following reply messages will be sent to the line where price-modification order is placed. The original line where new order is placed will never receive any execution reply message.

ExecType=m: The order reply message will be sent to the line where price-modification order is placed, but following reply messages will be sent to the original line where new order is placed.

ExecType=M, m only affects the reply messages on the modified side, the following reply messages of unmodified side still be sent to the original line.

Example of single-side quote order modification:

FCM				TAIFEX		
Time	Input	Input line		Reply line	ExecType=M	ExecType=m
T	New	line A	====→	New reply	line A	line A
T+1	Query	line C	====→	Query reply	line C	line C
T+2			Execution quity 1:	Execution reply before Modifying price	line A	line A
T+3	Modify Price	line D	====→	Modify Price reply	line D	line D
T+4			Execution quity 1:	<u>Execution reply after Modifying price</u>	<u>line D</u>	<u>line A</u>
T+5	Delete	line E	====→	Delete reply	line E	line E

In order to avoid confusion, FCM should use one type of ExecType field(ExecType = M or m) for single-side quote order modification.

## 2.4.7 Quote status report

The quote status report format is identical to that of the order status report (R02/R32) which can be distinguished by the PositionEffect field. When TAIFEX responds to a new quote, quote cancel,

decrease or request and must send a quote status report message, TAIFEX will respond successively with two messages for bid and offer respectively. That is, one quote input will receive two quote status report messages. TAIFEX will respond to a quote input using the same format as the order status report. When the quote has been executed, the report format will be the same as a regular order execution report, but the report will only be on any actually executed bid or offer.

## 2.4.8 Condensed version order status report (R22)

If L40 ap\_code=6, using R22 for order/transaction

**Message ID:** 122

**Description:** Order status report, TAIFEX ->FCM

No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data						
					New	Decrease	Cancel	Modify Price	Query	Execution-single	Execution-multi-leg
1	hdr	hdr	Common message header	Message ID:122 When the trading system adds query order, it will enter 0 for message sequence No. (MsgSeqNum)							
2	status_code	uint8	Status code	Enter 0 if normal	Y	Y	Y	Y	Y	Y	Y
3	ExecType	char	Execution type	0:New, 4:Cancel, 5:Decrease, M or m: Modify Price, F: Execution report, I: Request 6: New and Execution report	Y	Y	Y	Y	Y	Y	Y
4	fcm_id	uint16	FCM ID	ref: P06	Y	Y	Y	Y	Y	Y	Y
5	order_no	char [5]	Order No.	(All 5 characters can be alphanumeric.)	Y	Y	Y	Y	Y	Y	Y
6	ord_id	uint32	Order serial No.	Enter order serial No.	Y	Y	Y	Y	Y	Y	Y
7	user_define	char [8]	FCM defined variable	When the trading system adds new order, cancels or changes order, it will automatically update this value in	Y	Y	Y	Y	Y	Y	Y

No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data						
				the order status							
8	Side	uint8	Buy/sell code	1: Buy, 2: Sell	Y	Y	Y	Y	Y	Y	Y
9	PositionEffect	char	Open/ offset	open:O, close:C, daytrade:D,  Quote:9  open & specified position offsets:A(Options Only)  Offset by FCM:7	Y	Y	Y	Y	Y	Y	Y
10	LeavesQty	uint16	Remaining quantity		Y	Y	Y	Y	Y	Y	Y
11	before_qty	uint16	Remaining order quantity before match		Y	Y	Y	Y	Y	Y	Y
12	leg_px	int32 [2]	Execution price for both legs	Refer to <u>Order Price</u>  If Single order, leg_px[0] is execution price, leg_px[1]=0  If multi-leg order, price for both legs  (When status_code 48 for multi-leg options orders, it will be the upper or lower limit price of the corresponding leg product for dynamic price banding mechanism)	Y	Y	Y	Y	Y	Y	Y
13	leg_qty	uint16 [2]	Quantity executed	If Single order, leg_px[0] is execution qty, leg_px[1]=0  If multi-leg order, Quantity executed	Y	Y	Y	Y	Y	Y	Y

No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data						
				for both legs							
14	TransactTime	msg_time	Final time of change	Refer to: <u>Time Format</u>	Y	Y	Y	Y	Y	Y	Y
15	uniq_id	uint32	Unique ID	it is a system unique No. (OrderID);	Y	Y	Y	Y	Y	Y	Y
16	rpt_seq	uint32	Report sequence No.	it is session_seq;	Y	Y	Y	Y	Y	Y	Y
17	protocol_type	uint8	Source of new order data	0: Reserved 1: TMP 2: FIX,	Y	Y	Y	Y	Y	Y	Y
18	Price	int32	Order price	Refer to <u>Order Price</u> (For MWP, it is the price assigned by Matching Engine)  (When status_code 48 for orders other than multi-leg options, it will be the upper or lower limit price of the product for dynamic price banding mechanism)	Y	Y	Y	Y	Y	Y	Y
19	Checksum	uint8	Check sum		Y	Y	Y	Y	Y	Y	Y

### Price field and status\_code field

Refer to document “[R02/R32 Price field and status\\_code field](#)”

## 2.4.9 Execution report including head office and branch offices (R06)

R06 and R02 formats are similar, the only difference is in the rpt\_session\_id field.

**Message ID:** 106

**Description:** Execution report, TAIFEX ->FCM

No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data						
					New	Decrease	Cancel	Modify Price	Query	Execution-single	Execution-multi-leg
1	hdr	hdr	Common message header	R06 Message ID:106 When the trading system adds query order, it will enter 0 for message sequence No. (MsgSeqNum)							
2	status_code	uint8	Status code	Enter 0 if normal	Y	Y	Y	Y	Y	Y	Y
3	ExecType	char	Execution type	0:New, 4:Cancel, 5:Decrease, F: Execution report, M or m:Modify Price, I: Request 6: New and Execution report	Y	Y	Y	Y	Y	Y	Y
4	cm_id	uint16	Clearing member ID	Enter clearing member ID ref: P06	Y	Y	Y	Y	Y	Y	Y
5	fcm_id	uint16	FCM ID	ref: P06	Y	Y	Y	Y	Y	Y	Y
6	order_no	char [5]	Order No.	(All 5 characters can be alphanumeric.)	Y	Y	Y	Y	Y	Y	Y
7	ord_id	uint32	Order serial No.	Enter order serial No.	Y	Y	Y	Y	Y	Y	Y
8	user_define	char [8]	FCM defined variable	When the trading system adds new order, cancels or changes order, it will automatically update this value in	Y	Y	Y	Y	Y	Y	Y

No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data						
				the order status							
9	symbol_type	uint8	Product ID format	1: num, 2: text	Y	Y	Y	Y	Y	Y	Y
10	sym	symbol_x	Part product ID	The x part may be replaced by num or text	Y	Y	Y	Y	Y	Y	Y
11	Price	int32	Order price	Refer to <u>Order Price</u> (For MWP, it is the price assigned by Matching Engine)  (When status_code 48 for orders other than multi-leg options, it will be the upper or lower limit price of the product for dynamic price banding mechanism)	Y	Y	Y	Y	Y	Y	Y
12	qty	uint16	Order quantity		Y	Y	Y	Y	Y	Y	Y
13	investor_acno	uint32	Investor account No.		Y	Y	Y	Y	Y	Y	Y
14	investor_flag	char	Investor ID code		Y	Y	Y	Y	Y	Y	Y
15	Side	uint8	Buy/sell code	1: Buy, 2: Sell	Y	Y	Y	Y	Y	Y	Y
16	OrdType	uint8	Order type	1:Market, 2:Limit, 3:MWP	Y	Y	Y	Y	Y	Y	Y
17	TimeInForce	uint8	Order condition	FOK:4 IOC:3 ROD:0  Quote automatically cancelled after a period of time:8	Y	Y	Y	Y	Y	Y	Y

No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data						
18	PositionEffect	char	Open/ offset	open:O, close:C, daytrade:D,  Quote:9  open & specified position offsets:A(Options Only)  Offset by FCM:7	Y	Y	Y	Y	Y	Y	Y
19	LastPx	int32	Last execution price	Last execution price for execution report  0 for cancel/decrease order /modify price order	N	N	N	N	Y	Y	Y
20	LastQty	uint16	Last quantity executed	Last execution quantity for execution report  0 for cancel/decrease order /modify price order	N	N	N	N	Y	Y	Y
21	px_subtotal	int64	Cumulative weighted execution price	px_subtotal divided by CumQty is the average price per contract	Y	Y	Y	Y	Y	Y	Y
22	CumQty	uint16	Total quantity executed		Y	Y	Y	Y	Y	Y	Y
23	LeavesQty	uint16	Remaining quantity		Y	Y	Y	Y	Y	Y	Y
24	before_qty	uint16	Remaining order quantity before match		Y	Y	Y	Y	Y	Y	Y
25	leg_side	uint8 [2]	Buy/sell code	0: Single order,1:	N	N	N	N	N	N	Y



No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data						
			for both legs	Buy, 2: Sell							
26	leg_px	int32 [2]	Execution price for both legs	Refer to <u>Order Price</u>  (When status_code 48 for multi-leg options orders, it will be the upper or lower limit price of the corresponding leg product for dynamic price banding mechanism)	N	N	N	N	N	N	Y
27	leg_qty	uint16 [2]	Quantity executed for both legs		N	N	N	N	N	N	Y
28	org_trans_time	msg_time	Original time of order input		Y	Y	Y	Y	Y	Y	Y
29	TransactTime	msg_time	Final time of change	Refer to: <u>Time Format</u>	Y	Y	Y	Y	Y	Y	Y
30	target_id	uint8	Target ID	23: Execution report including head office and branch offices	Y	Y	Y	Y	Y	Y	Y
31	uniq_id	uint32	Unique ID	When target_id=23 and protocol_type = TMP ,it is session_seq  When target_id=23 and protocol_type = FIX ,it is the tenth end substring of ExecID report sequence.	Y	Y	Y	Y	Y	Y	Y
32	rpt_seq	uint32	Report sequence No.	target_id=23, it is report execution report including	Y	Y	Y	Y	Y	Y	Y

No.	Field	Data Type	Field Name	Remark	If N, the field does not carry data						
				head office and branch office seq							
33	protocol_type	uint8	Source of new order data	0: Reserved 1: TMP 2: FIX,	Y	Y	Y	Y	Y	Y	Y
34	rpt_session_id	uint16	Session ID		Y	Y	Y	Y	Y	Y	Y
35	Checksum	uint8	Check sum		Y	Y	Y	Y	Y	Y	Y

Price field and status\_code field

Refer to document “R02/R32 Price field and status\_code field”.

rpt\_session\_id field

For the description of rpt\_session\_id, please refer to 2.5.2.2.

## 2.5 Clearing Member Order Execution Report

A clearing member (CM) may apply for a TMP-based clearing member order and execution report line to receive the order and transaction data of its downline FCMs and settle the executed trades on their behalf.

### 2.5.1 Connection method

CM must download “Product Group and Connection Port Mapping File (P07)” from TAIFEX sftp server and find the domain name port for protocol tmpcm. An example of P07:

f001000.session3.tmpcm.fut.taifex,10009
f001000.session3.tmpcm.opt.taifex,10011

When a CM applies for an order and execution report line, the CM will receive a set consisting of domain name and port number with the following format from TAIFEX for business connection:

<The seven characters of CM ID>.session<session\_id>.tmpcm. <system\_name>.taifex: <port>

Connection example:

f001000.session3.tmpcm.opt.taifex:10011  
f001000.session3.tmpcm.fut.taifex:10009

Description:

If CM F001000 likes to receive the order and execution data of its downline FCM from the options system via the clearing member order and execution report line and session\_id=3, the CM will learn that the domain name for connection is f001000.session3.tmpcm.opt.taifex, port\_no=10009 from P07 file and connect to f001000.session3.tmpcm.opt.taifex:10009.

If the CM likes to receive the order and execution data of its downline FCM from the futures system and session\_id=3, the CM will learn that the domain name for connection is f001000.session3.tmpcm.fut.taifex, port\_no=10011 from P07 file and connect to f001000.session3.tmpcm.fut.taifex:10011.

## 2.5.2 Data transmission route

### 2.5.2.1 Downline FCM order and execution report(R15 target\_id=8 or 18)

**If R15 target\_id = 8 or 18, then this connection is used for Downline FCM order and execution report data transmission.**

Downline FCM: A FCM that appoints a clearing member to settle the trades on its behalf and the first four characters of the FCM ID are different from those of the CM ID.

EX:

1. If CM F002000 settles trades on behalf of FCM S102000, S102000 is the downline FCM of F002000, and CM F002000 must apply for TMP-based clearing member order and execution report line.
2. If CM F001000 settles trades on behalf of FCM F001001, CM F001000 is considered as settling trades for itself and need not apply for clearing member order and execution report line.

CM can apply for TMP-based clearing member order and execution report line, which will transmit multi-protocol order and execution data of its downline FCM, including:

1. Downline FCM's TMP-based order, cancel, decrease and execution data (successful order, cancel, decrease and execution data only; error data will not be transmitted).
2. Downline FCM's FIX-based order, cancel, decrease and execution data (successful order, cancel, decrease and execution data only; error data will not be transmitted).

### 2.5.2.2 Execution report including head office and branch offices(R15 target\_id=3 or 13 or 23)

**If R15 target\_id = 3 or 13 or 23, then this connection is used for transmitting execution report including every protocol (TMP and FIX). But these data haven't the order response neither deletion/decrease.**

**Because CM can use order report line to transmit execution report including head office and branch offices, we recommend that FCM should use one connection for Downline FCM order report data transmission, and another connection for Execution report including head office and branch offices. It is backup function, cannot replace original execution report line.**

The differences between target\_id=3, target\_id=13 and target\_id=23 are as follows.

	target_id=3	target_id=13	target_id=23
Execution Report	R02	R32	R06
Content of uniq_id	session_id*1000000+ session_seq	session_id*1000000+ session_seq	session_seq
Original session_id	data is placed in uniq_id	data is placed in uniq_id	data is placed in rpt_session_id
The possibility of uniq_id overflow	If session_seq is greater than or equal to 1000000, uniq_id may be duplicate.	If session_seq is greater than or equal to 1000000, uniq_id may be duplicate.	Overflow is only possible if the uniq_id exceeds the value range.

### 2.5.2.3 Downline FCM execution report(R15 target\_id=9 or 19)

If R15 target\_id = 9 or 19, then this connection is used for Downline FCM execution report data transmission.

## 2.5.3 Link Subsystem

CM communicates with the Link Subsystem in the same manner as via the order and execution report line (see 2.2 on Link Subsystem), only CM will enter “8” in the ap\_code field of FCM request logon (L40) message (Clearing member order/transaction report).

Given that data transmitted via the clearing member order report line are not trading activities, TAIFEX will not provide the functions of data resend by way of L41 and L42 via the line. But to align the operation of Link Subsystem with that of the order and execution report line, the CM should enter 0 for request\_start\_seq in the L40 it sends.

In the clearing member order and execution report line, the confirm connection message (R04) can only be initiated by TAIFEX. After receiving the R04, the CM should send connection confirmed message (R05). For example, when TAIFEX finds that the lapse between messages has exceeded the number of seconds set in the HeartBtInt field in L50, TAIFEX would send a “confirm connection (R04) to the CM and the CM needs to respond with a “connection confirm” message (R05).

## 2.5.4 Application Subsystem

After a CM sends L60, it means it has established a connection with TAIFEX and the CM must send an “initiate operation” message to request report start No. (R15), to which TAIFEX will respond with a “initiate operation confirmed” message (R16) and then proceed to send the order and execution information of its downline FCMs (in R02/R32/R06 format).

The clearing member order report line is primarily for transmitting the order and execution information. It is not a trading line, hence does not provide trading related functions, including R11, R12, R13, and R14.

**Through TMP R15 message to specify which data this connection wants to receive:**

- Downline FCM order and execution report
- Execution report including head office and branch offices (Execution report of orders from TMP, FIX)
- Downline FCM execution report

**For example: If F001000 is a clearing member, it can use one session to receive** downline FCM order and execution report, and use another session to receive execution report including head office and branch offices. **If F001000 is not a clearing member, it can use** session to receive execution report including head office and branch offices.

**For all messages of TMP CM order and execution report line, the MsgSeqNum will be 0 and will use rpt\_seq of R02/R32/R06 message as the report sequence number.**

add TMPCM Session flow control in regular trading session and after-hours trading session , user can use cancel\_order\_sec field in L40 (unit:100) (current value 0 means that user don't have flow control).

#### 2.5.4.1 Clearing member initiate operation message (R15)

**Message ID:** 115

**Description:** Clearing member sends this message to request report start sequence,  
CM ->TAIFEX

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:115
2	member_id	uint16	Member id	<b>cm_id</b> If Target id = 8 or 9 or 18 or 19 <b>fcm_id</b> If Target id = 3 or 13 or 23
3	target_id	uint8	Target ID	8: Clearing member order <b>and execution, reply format:R02</b> <b>3: Execution report including head office and branch offices, reply format:R02</b> 9: Clearing member <b>execution, reply format:R02</b> 18: Clearing member order <b>and execution, reply format:R32</b> <b>13: Execution report including head office and branch offices, reply format:R32</b> 19: Clearing member <b>execution, reply format:R32</b> <b>23: Execution report including head office and branch offices, reply format:R06</b>
4	req_cm_seq	uint32	Request report start No.	Correspond to the field of rpt_seq (cm_seq) in R02/R32/R06

No.	Field	Data Type	Field Name	Remark
				<b>target_id=8 or 18, request downline FCM order and execution report seq number</b> <b>target_id=3 or 13 or 23, request execution report including head office and branch offices seq num</b> <b>target_id=9 or 19, request downline FCM execution report seq number</b>
5	Checksum	uint8	Check sum	

#### 2.5.4.2 Clearing member initiate operation confirmed message (R16)

**Message ID:** 116

**Description:** TAIFEX responds with a report start notice, TAIFEX -> CM

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:116
2	status_code	uint8	Status code	Refer to <u>Error Message Table</u>
3	member_id	uint16	Member id	<b>cm_id If Target id = 8 or 9 or 18 or 19</b> <b>fcm_id If Target id = 3 or 13 or 23</b>
4	target_id	uint8	Target ID	<b>8: Clearing member order and execution, reply format:R02</b> <b>3: Execution report including head office and branch offices, reply format:R02</b> <b>9: Clearing member execution, reply format:R02</b> <b>18: Clearing member order and execution, reply format:R32</b> <b>13: Execution report including head office and branch offices, reply format:R32</b> <b>19: Clearing member execution, reply format:R32</b> <b>23: Execution report including head office and branch offices, reply format:R06</b>
5	req_cm_seq	uint32	Report start No.	Correspond to the field of rpt_seq (cm_seq) in R02/R32

No.	Field	Data Type	Field Name	Remark
				<b>target_id=8 or 18, request downline FCM order and execution report seq number</b> <b>target_id=3 or 13 or 23, request execution report including head office and branch offices seq num</b> <b>target_id=9 or 19, request downline FCM execution report seq number</b>
6	Checksum	uint8	Check sum	

### 2.5.4.3 Clearing member order status report (orders)

The clearing member order status report uses the order status report format (R02/R32), only the field target\_id=8 or 18 and its data content differs from that of the FCM order status report. The clearing member order status report does not contain error messages nor order status requests, thereby having less sets of data.

### 2.5.4.4 Clearing member order status report (quotes)

The clearing member quote status report also uses the orders status report format (R02/R32), but with the field target\_id=8 or 18. When the downline FCM places a quote, it includes a bid and an offer that can be executed separately. Thus for a quote, TAIFEX will respond with two order status reports (one for the bid and one for the offer) and the CM will receive two order status reports for a FCM quote (one for bid quote and one for offer quote) that have the same format as a regular order status report.

### 2.5.4.5 Clearing member order execution report (single, multi-leg)

The clearing member order execution report uses the order status report format (R02/R32), only the field target\_id=9 or 19 and its data content differs from that of a FCM order execution report. The clearing member order execution report does not contain error messages nor order status request, thereby having less sets of data. The single and multi-leg orders can be distinguished by leg\_side[0].

**if target\_id=3 or 13, report execution report including head office and branch office**

R02/R32 example:

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:102 or 132 enter 0 for message sequence No. (MsgSeqNum)
Omitted...				

No.	Field	Data Type	Field Name	Remark
30	target_id	uint8	Target ID	FCM: 4 Clearing member Order status report:8 or 18 Clearing member order execution report:9 or 19 Execution report including head office and branch office:3 or 13
31	uniq_id	uint32	Unique ID	When target_id=4, it is a system unique No. (OrderID); When target_id=8 or 18, it is the order reply information. (cm_sub_seq) When target_id=9 or 19, it is the order match information. (cm_sub_seq) When target_id=3 or 13 and protocol_type = TMP ,it is session_id*1000000+session_seq When target_id=3 or 13 and protocol_type = FIX ,it is session_id*1000000+ it is the tenth end substring of ExecID report sequence.
32	rpt_seq	uint32	Report sequence No.	When target_id=4, it is session_seq; when target_id=8 or 9 or 18 or 19, it is cm_seq Target_id=3 or 13,it is report execution report including head office and branch office seq
Omitted...				

For the reason to mapping relationship from “execution report of head and branch offices”to “execution report of downline fcm”, we redefined the uniq\_id definition when target\_id = 3 or 13.

1. When target\_id=3 or 13 ,it is session\_id\*1000000+session\_seq

Ex: FCM\_ID=F001888, protocol\_type = TMP, session\_id=101, session\_seq=9

Then uniq\_id = 101 \* 1000000 + 9

R06 example:

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:106 enter 0 for message sequence No. (MsgSeqNum)
Omitted...				



No.	Field	Data Type	Field Name	Remark
30	target_id	uint8	Target ID	Execution report including head office and branch office:23
31	uniq_id	uint32	Unique ID	When target_id=23 and protocol_type = TMP ,it is session_seq  When target_id=23 and protocol_type = FIX ,it is the tenth end substring of ExecID report sequence.
32	rpt_seq	uint32	Report sequence No.	target_id=23, it is report execution report including head office and branch office seq
Omitted...				
34	rpt_session_id	uint16	Session ID	
Omitted...				

### 2.5.5 Data content conversion

FCM ID and CM ID conversion principle:

A CM must go to TAIFEX sftp server to download “FCM ID Mapping File (P06)” for reading the fcm\_id and cm\_id in the data.

Product ID conversion principle:

A CM must go to TAIFEX sftp server to download ”Product and Time Flow Group Definition File(P08/PA8)” for reading numeric product ID.

### 2.5.6 Handling of incomplete data received

When a CM finds that the field rpt\_seq (cm\_seq) in the messages received are not in sequence, the CM can request resend by the following means:

1. Request the generation of an order, quote and execution resend file (B40/BD0) by sending a R13 message via the TMP order and execution report line. After receiving a file ready notice (R14) from TAIFEX, the CM can go to the TAIFEX sftp server to retrieve the file;

## 2.6 File Transfer and Bulletin

Single messages and file transfers between TAIFEX and a FCM can be initiated through bulletin messages.

## 2.6.1 Transmission agreement

### 1. TAIFEX sends bulletin message

When TAIFEX has bulletin news for a FCM, TAIFEX will initiate a R14 message to the FCM.

FCM's actions:

- If a FCM receives a R14 message in which the bulletin\_seq is other than 0, the FCM can read the bulletin news from the data field.

### 2. TAIFEX sends file ready notice

After TAIFEX has prepared a file and wants to notify a FCM, TAIFEX will initiate a R14 message to the FCM.

FCM's actions:

- If a FCM receives a R14 message in which the bulletin\_seq is 0, meaning it is a file ready notice, the FCM can learn the file name from the data field and download the file from the TAIFEX sftp server.

### 3. FCM requests file

- If a FCM likes to request a certain file, the FCM can initiate a R13 message to TAIFEX and enter 0 for bulletin\_req\_id.
- After the file is ready and normal, TAIFEX will respond with a R14 message.
- If exceptional circumstances occur, TAIFEX will respond with a R14 message and enter error status\_code. The FCM then should take action according to the status\_code.

### 4. FCM initiates a message to TAIFEX (pending)

- If a FCM likes to send TAIFEX a message, the FCM can initiate a R14 message to TAIFEX.

To prevent transfer too much data which caused by too much request, the R13 can only successful once per 10 seconds, and reply status\_code 121 when request failed.

Message transfer direction diagram:

FCM requests file - normal circumstances

FCM	Direction	TAIFEX	Remark
R13	->	...	
...	<-	R14	

FCM requests file - exceptional circumstances

FCM	Direction	TAIFEX	Remark
R13	->	...	
...	<-	R14	Error status_code

TAIFEX sends a bulletin message or a file ready notice

FCM	Direction	TAIFEX	Remark
...	<-	R14	

FCM initiates a message to TAIFEX (pending)

FCM	Direction	TAIFEX	Remark
R14	->	...	

## 2.6.2 Bulletin request (R13)

**Message ID:** 113

FCM uses this message to request file from TAIFEX,  
FCM ->TAIFEX

**Description:** One session only can request one R13 request in 10 seconds.

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	113	
2	fcm_req_id	uint32	FCM request No.	FCM-defined No. Please do not use 0.
3	bulletin_req_id	uint32	Bulletin request No.	Currently only file request is allowed, which has a value of 0
4	system_type	uint8	System type	10: Options (the second digit is 0 during regular market hours) 20: Futures (the second digit is 0 during regular market hours) 11: Options (the second digit is 1 during after-market hours) 21: Futures (the second digit is 1 during after-market hours)
5	data	char [hdr.msg_length-15-9]	Bulletin data	This field has variable length; refer to the definition of data field in R13 for each file when FCM requests a file.

No.	Field	Data Type	Field Name	Remark
6	Checksum	uint8	Checksum	

### 2.6.3 Bulletin report (R14)

**Message ID:** 114

**Description:** Bulletin news and file ready notice, FCM <-> TAIFEX

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	114	
2	status_code	uint8	Status code	Refer to Error Message Table
3	fcm_req_id	uint32	FCM request No.	FCM-defined No., which corresponds to fcm_req_id in R13. When TAIFEX initiates a file ready notice, its value is 0.
4	bulletin_seq	uint32	Bulletin No.(key value)	1. For file ready notice, its value is 0. 2. In case of a bulletin message, its value is other than 0.
5	bulletin_time	msg_time	Bulletin or file generation time	Refer to: <u>Time Format</u>
6	system_type	uint8	System type	10: Options (the second digit is 0 during regular market hours) 20: Futures (the second digit is 0 during regular market hours) 11: Options (the second digit is 1 during after-market hours) 21: Futures (the second digit is 1 during after-market hours)
7	data	char [hdr.msg_length-15-16]	Bulletin information	This field has variable length. Refer to the definition of data field in R14 for each file.
8	Checksum	uint8	Checksum	

See 3.7 File Transfer Method for file transfer.

### 2.6.4 File transfer overview

Refer to document "Taifex\_FileTransfer\_Format".

## 2.7 Block trade

TAIFEX provide two kinds of block trade: continuous matching block trade and negotiated block trade. TAIFEX block trading system use independent match engine. The register/order/report process is conducted through R13 single message and file transfer mechanism. FCM use current trading network and TMP file transfer protocol to complete a block trade. The process is described below.

- Single product block trade

1. Get contract and product information through P09/PA9(contract definition file) and P08/PA8(Product and Time Flow Group Definition File) files.
2. Use TMP R13 to send Single product block trade order input message (B01/BA1) to TAIFEX system.
3. After order processing by TAIFEX system, according to processing result, TAIFEX system will generate Single product block trade order/execution report file (B02/BA2), and use R14 message to notify FCM.
4. After order processing by TAIFEX system, according to processing result, TAIFEX system will generate Single product block trade clearing member order/execution report file (B05/BA5), and use R14 message to notify CM.
5. If there is any error occurs while order processing, TAIFEX system will generate Single product block trade error report file (B03), and use R14 message to notify FCM.

- Combine product block trade

Because the combine product block trade match engine is only on the Futures system, connection for placing order and receiving report must use Futures session. The message and file will only with Futures system\_type.

1. Get contract and product information through P09/PA9(contract definition file) and P08/PA8(Product and Time Flow Group Definition File) files.
2. Use TMP R13 to send Combine product block trade order input message (B11/BB1) to TAIFEX system.
3. After order processing by TAIFEX system, according to processing result, TAIFEX system will generate Combine product block trade order/execution report file (B12/BB2), and use R14 message to notify FCM.
4. After order processing by TAIFEX system, according to processing result, TAIFEX system will generate Combine product block trade clearing member order/execution report file (B15/BB5), and use R14 message to notify CM.
5. If there is some error occurs while order processing, TAIFEX system will generate Combine product block trade error report file (B13), and use R14 message to notify FCM.

- Negotiated block trade (NBT)

Negotiated block trading system is built on Futures trading system, so client should use Futures system connection to send and receive negotiated block trade data. Each message and file generated will with Futures system\_type.

➤ Trading process:

1. Get contract and product information through P09/PA9(contract definition file) and P08/PA8(Product and Time Flow Group Definition File) files.
2. Designated FCM use TMP R13 to send Negotiated block trade register file message (B21) to TAIFEX system. (When the buying and selling traders belong to different futures commission merchants, they shall designate one futures commission merchant to represent them to register this trade.)

3. After processing by TAIFEX system, according to processing result, TAIFEX system will generate Negotiated block trade register report file (B22), and use R14 message to notify all participant FCM.
4. When FCM receive B22 message, FCM should use TMP R13 to send Negotiated block trade confirm input message (B31) to TAIFEX system in 10 minutes.
5. After processing by TAIFEX system, according to processing result, TAIFEX system will generate Negotiated block trade confirm report file (B32), and use R14 message to notify FCM.
6. At the same time, TAIFEX will generate Negotiated block trade confirm report file - clearing member (B35) for clearing member, and use R14 message to notify CM.
7. When all of the participants have already confirmed trading data by B31. TAIFEX will do some check:
  - (1) If check OK. This negotiated block trade is success. TAIFEX system will generate Negotiated block trade execution report file (B52), and use R14 message to notify all participant FCM. At the same time, generate Negotiated block trade execution report file - clearing member (B55), and use R14 message to notify all CM.
  - (2) If check fail. This negotiated block trade is failed. TAIFEX system will generate Negotiated block trade error execution report file (B53), and use R14 message to notify all participant FCM. At the same time, generate Negotiated block trade error execution report file - clearing member (B55), and use R14 message to notify all CM.
8. If TAIFEX system wait 10 minutes and not all FCMs have sent confirm message B31 success. This negotiated block trade is also failed. TAIFEX system will generate Negotiated block trade error execution report file (B53), and use R14 message to notify all participant FCM. At the same time, generate Negotiated block trade error execution report file - clearing member (B55), and use R14 message to notify all CM.

➤ **Cancel process:**

Negotiated block trade can be canceled during the register and confirm process. Only Designated FCM can make a cancel command.

1. Designated FCM use TMP R13 to send Negotiated block trade register file message (B21) with ExecType='4' to TAIFEX system.
2. After processing by TAIFEX system and this trade is canceled, TAIFEX system will generate Negotiated block trade register report file (B22), and use R14 message to notify Designated FCM. At the same time, will generate Negotiated block trade error execution report file (B53), and use R14 message to notify all participant FCM.
3. If this negotiated block trade has any confirm report message already send to clearing member, TAIFEX will generate Negotiated block trade error execution report file - clearing member (B55), and use R14 message to notify the CM.

➤ **Query process:**

FCM can query the status of a negotiated block trade.

1. FCM use TMP R13 to send Negotiated block trade register file message (B21) with ExecType='I' to TAIFEX system.
2. TAIFEX system will generate Negotiated block trade register report file (B22), to FCM with status code. Possible status\_code include: block\_trade\_id does not exist (162), Negotiated block trade success (163), Negotiated block trade fail (164), Negotiated block trade cancelled (165), Negotiated block trade wait FCM to confirm order (166).

➤ **Confirm data cancel process:**

When Negotiated block trade in the status of waiting FCM to confirm order, FCM can cancel its confirmed input B31.

1. FCM use TMP R13 to send Negotiated block trade confirm input message (B31) with ExecType='4' to TAIFEX system.

2. After processing by TAIFEX system and confirm order is canceled, TAIFEX system will generate Negotiated block trade confirm report file (B32), and use R14 message to notify FCM. At the same time, will generate Negotiated block trade confirm report file - clearing member (B35), and use R14 message to notify its CM.

The related message and file format please refer to section 2.6.

## ● Block Trade Session Report Rule Description

TAIFEX block trade use TMP R14 or FIX Email(MsgType:C) message to report executions, and use TMP R13 or FIX Email(MsgType:C) message to input the block trade order. If the session wants to get block trade executions, it should be applied R14 proactive notification.

The NBT input session is not necessary to apply R14 proactive notification, but the participants FCM session need to apply it.

The participants FCM also can get execution report from NBT WEB.

### ➤ Single product block trade and Combine product block trade

Order Input Source	Order Input Type	Report Type	FCM	R14Report Session
TMP/FIX	B01/BA1	B01/BA1		B01/BA1 input Session.
TMP/FIX	B01/BA1	B02/BA2		Broadcasting to B01/BA1 input Session.
TMP/FIX	B01/BA1	B03		Broadcasting to B01/BA1 input Session.
TMP/FIX	B01/BA1	B05/BA5		Broadcasting to the CM Session.
TMP/FIX	B11/BB1	B11/BB1		B11/BB1 input Session.
TMP/FIX	B11/BB1	B12/BB2		Broadcasting to B11/BB1 input Session.
TMP/FIX	B11/BB1	B13		Broadcasting to B11/BB1 input Session.
TMP/FIX	B11/BB1	B05/BB5		Broadcasting to CM Session.

### ➤ Negotiated Block Trade

Order Input Source	Order Input Type	Report Type	FCM	R14 Report Session
TMP/FIX	B21	B21		Designated FCM B21 input session
NBT_WEB	B21	B21		Broadcasting to Designated FCM B21 input session. If the Designated FCM B21 input session is not existed, then it will be broadcasted to Designated FCM head office session.

Order Input Source	Order Input Type	Report Type	FCM	R14 Report Session
TMP/FIX	B21	B22	The first four characters of participant FCM NO is the same as the first four characters of Designated FCM NO.	Designated FCM B21 input session
TMP/FIX	B21	B22	The first four characters of participant FCM NO is <b>not</b> the same as the first four characters of Designated FCM NO.	Broadcasting to all participants FCM session. If the participants FCM session is not existed, then it will be broadcasted to the participants FCM head office session.
NBT_WEB	B21	B22		Broadcasting to all participants FCM session. If the participants FCM session is not existed, then it will be broadcasted to the participants FCM head office session.
TMP/FIX	B21	B23		Designated FCM B21 input session
NBT_WEB	B21	B23		Broadcasting to Designated FCM B21 input session. If the Designated FCM B21 input session is not existed, then it will be broadcasted to Designated FCM head office session.
TMP/FIX	B31	B31 B32 B33 B52 B53		B31 input session
NBT_WEB	B31	B31 B32 B33 B52 B53		Broadcasting to the B31 input session. If the B31 input session is not existed, then it will be broadcasted to that FCM head office session.



Order Input Source	Order Input Type	Report Type	FCM	R14 Report Session
TMP/FIX WEB	B31	B35		Broadcasting to the CM Session. If the CM session is not existed, then it will be broadcasted to CM head office session.
TMP/FIX	B21	B53	<u>The participant FCM is not inputted B31</u> , and the first four characters of participant FCM NO is the same as the first four characters of Designated FCM NO.	Designated FCM B21 input session
TMP/FIX	B21	B53	<u>The participant FCM is not inputted B31</u> , and the first four characters of participant FCM NO is <b>not</b> the same as the first four characters of Designated FCM NO.	Broadcasting to the participant FCM Session. If the participant FCM session is not existed, then it will be broadcasted to participant FCM head office session.
NBT_WEB	B21	B53	<u>The participant FCM is not inputted B31</u>	Broadcasting to the participant FCM Session. If the participant FCM session is not existed, then it will be broadcasted to participant FCM head office session.
TMP/FIX NBT_WEB	B31	B55		Broadcasting to the CM Session. If the CM session is not existed, then it will be broadcasted to CM head office session.

## 2.8 Eurex/TAIFEX Link(Obsolete)

## 2.9 Upload Omnibus Report Files via SFTP

Refer to document “Taifex FileTransfer Format”.



## 2.10 Drop Copy Service(TMPDC Session)

Taifex launches TMPDC Session to transfer order reply data(drop copies) of TMP, FIX4.4 and FIX4.2 Session. Brokers can get drop copies from TMPDC Session during Taifex Services time. Each TMPDC Session can map to a dedicated order Session.

add TMPDC Session flow control in regular trading session and after-hours trading session , user can use cancel\_order\_sec field in L40 (unit:100) (current value 0 means that user don't have flow control)

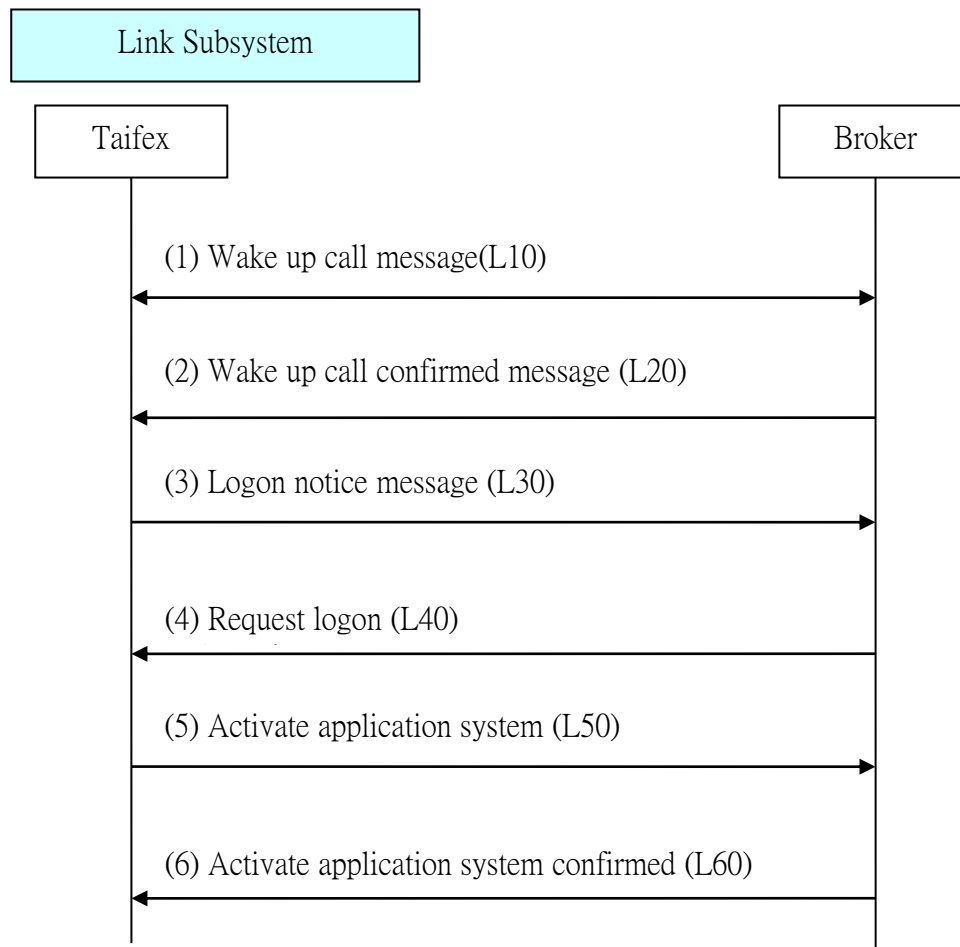
### 2.10.1 Connection

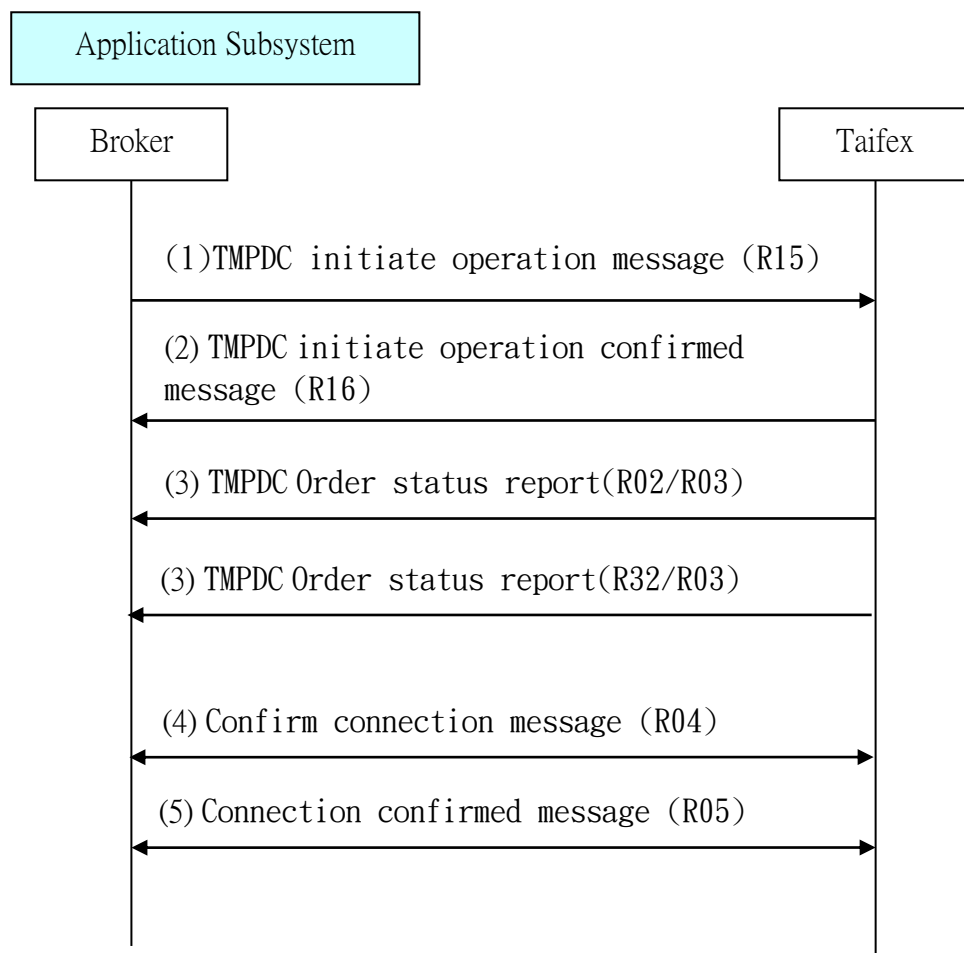
Get connection IP and port by query Taifex DNS server by the domain name of TMPDC session in P07 file.

#### 1. Product Group and Connection Port Mapping File (P07)

Production: f000000.session1. <b>tmpdc</b> .opt.taifex,10001 Testing: f000000.test.session1. <b>tmpdc</b> .opt.taifex,10001
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### 2.10.2 TMPDC Message Flow





### 2.10.3 File Usage

1. get P07 File to query TAIFEX connection information.
2. get P12 File to query FCM connection information.
3. get P17 File to query mapping relationship between order session and TMPDC session. P17 file creation time is the same as P07 File.

### 2.10.4 Message Format

TMPDC's Message Format is the same as Clearing Member Order Execution Report:

1. Link Subsystem: L40 ap\_code's value is 7.
2. Application Subsystem: R15, R16 target\_id= 7(non stock id) or 17(long product format:stock id).
3. Application Subsystem: use R02/R32/R03, but redefine rpt\_seq field.
  - (1) If R15 target\_id=7(non stock id), TMPDC applies R02/R03 format.
  - (2) If R15 target\_id=17(long product format: stock id), TMPDC applies R32/R03 format.TMPDC don't send copies whose rpt\_seq=0.

- TMPDC initiate operation message(R15)

**Message ID:** 115

**Description:** Broker sends this message to request starting sequence of drop copies, FCM ->TAIFEX,

No.	Field	Data Type	Field Name	Remark
1	Hdr	hdr	Common message header	Message ID:115
2	fcm_id	uint16	fcm id	
3	target_id	uint8	Target ID	<b>target_id =7:R02</b> <b>target_id 17:R32</b> <b>(target_id 7,17 only can be used in TMPDC Session)</b>
4	req_cm_seq	uint32	Request report start No.	Correspond to the field of rpt_seq (cm_seq) in R02/R32/R03 <b>target_id=7/17, request seq number of drop copies</b>
5	Checksum	uint8	Check sum	

- TMPDC initiate operation confirmed message(R16)

**Message ID:** 116

**Description:** TAIFEX responds with a report start notice, TAIFEX -> FCM

No.	Field	Data Type	Field Name	Remark
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No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Common message header	Message ID:116 MsgSeqNum=0
2	status_code	uint8	Status code	Refer to <u>Error Message Table</u>
3	fcm_id	uint16	fcm id	
4	target_id	uint8	Target ID	<b>target_id =7:R02</b> <b>target_id 17:R32</b> <b>(target_id 7, 17 is valid only in TMPDC Session)</b>
5	req_cm_seq	uint32	Report start No.	Correspond to the field of rpt_seq (cm_seq) in R02/R32/R03 <b>target_id=7/17, request FCM reply data seq number</b>
6	Checksum	uint8	Check sum	

● TMPDC order status report (R02/R32)

R02/R32 example:

N o.	Field	Data Type	Field Name	Remark
1	hdr	hdr	Comm on message header	Message ID:102 or 132 enter 0 for message sequence No. (MsgSeqNum)
2	status_code	uint8	Status code	
3	ExecType	char	Execut ion type	0:New, 4:Cancel, 5:Decrease, F: Execution report, M or m:Modify Price, 6: New and Execution report
Omitted...				

<b>N o.</b>	<b>Field</b>	<b>Data Type</b>	<b>Field Name</b>	<b>Remark</b>
<b>30</b>	<b>target_id</b>	<b>uint8</b>	Target ID	<b><u>TMPDC: 7, 17</u></b>
31	uniq_id	uint32	Unique ID	
<b>32</b>	<b>rpt_seq</b>	<b>uint32</b>	Report sequence No.	<b><u>Order session rpt_seq</u></b>
Omitted...				

● **TMPDC Error report (R03)**

**Message ID:** 103

**Description:** Error report, TAIFEX ->FCM

<b>No.</b>	<b>Field</b>	<b>Data Type</b>	<b>Field Name</b>	<b>Remark</b>
1	hdr	hdr	Common message header	Message ID:103  When the trading system adds query order, it will enter 0 for message sequence No. (MsgSeqNum)
2	status_code	uint8	Status code	Refer to <u>Error Message Table</u>
3	ExecType	char	Execution type	0:New, 4:Cancel, 5:Decrease, M or m:Modify price,  F: Execution report, I: Request
4	fcm_id	uint16	FCM ID	
5	order_no	char [5]	Order No.	(All 5 characters can be alphanumeric.)
6	ord_id	uint32	Order serial No.	
7	user_define	char [8]	FCM defined variable	
8	rpt_seq	uint32	Report sequence No.	Order Session rpt_seq
9	Side	uint8	Buy/sell code	1: Buy, 2: Sell

No.	Field	Data Type	Field Name	Remark
10	Checksum	uint8	Check sum	

## 2.11 SYSTEM SETTING and SYSTEM NOTIFICATION

To provide system setting and system notification function, TAIFEX define new messages for system setting (R17) and system notification (R18). R18 is proactive notification and client does not need to apply to TAIFEX for using it.

In TAIFEX FIX Message protocol (FIX 4.4 or FIX 4.2), we use FIX Email (MsgType: C) to implement this function. If your TEXT field of Email message prefixed by "Z00", it will be the same as using R17/R18.

For example (FIX Only):  
 If the R17 content is "K1012100010000100001004".  
 In FIX, FCM should use Email (MsgType: C) and TEXT field is  
 "Z00K1012100010000100001004", TAIFEX will process this message.  
 If you send the same content via TMP R13, TAIFEX will not process this message.

### 2.11.1 SYSTEM SETTING (R17)

**Message ID:** 117

**Description:** System setting(ex. Kill Switch), FCM->TAIFEX

No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	117	Message ID:117 Enter 0 for message sequence No.(MsgSeqNum)
2	data	char [hdr.msg_length-15]		This field has variable length; refer to the definition of data field in R17 for each FUNCTION-TYPE and FUNCTION-CODE.
3	Checksum	uint8	Check Sum	

### 2.11.2 SYSTEM NOTIFICATION (R18)

**Message ID:** 118

**Description:** TAIFEX proactive system notification. FCM<-TAIFEX

No.	Field	Data Type	Field Name	Remark
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No.	Field	Data Type	Field Name	Remark
1	hdr	hdr	118	
2	status_code	uint8	Status code	Refer to Error Message Table
3	data	char [hdr.msg_length-15-1]		This field has variable length. Refer to the definition of data field in R14 for each FUNCTION-TYPE and FUNCTION_CODE.
4	Checksum	uint8	Check Sum	

### 2.11.3 Set and Confirm Kill Switch

- FCM use R17 to request Kill Switch. If TAIFEX accept this command, TAIFEX will reply via R18, and the content of R18 data will be the same as R17 data.
- FCM can request Kill Switch command more than once in one day.
- For Kill Switch command, first 4 characters of the FCM\_NO (ex. F000999) which is identified by FCM\_ID and SOURCE\_FCM\_NO (ex. F000000) which is identified by SOURCE\_FCM\_ID should be the same.
- If TYPE=1(Killed by FCM\_ID), TAIFEX will cancel all existing orders and quotes in FUTURES system and OPTIONS system (not include Negotiated Block Trade). Kill Switch function is on the best effort. TAIFEX doesn't guarantee all existing orders (quotes) must be cancelled and prevent new orders.
- If TYPE=2(Killed by session), TAIFEX will only cancel all existing orders and quotes in designated FCM session (Not include Negotiated Block Trade).

	FIELD-NAME	FORMAT	LENGTH	COMMENT
data	FUNCTION-TYPE	X(1)	1	K
	FUNCTION-CODE	9(3)	3	101
	TYPE	X(1)	1	1: Killed by FCM which consists of FCM_ID. 2: Killed by session which consists of FCM_ID, SOURCE_FCM_ID and SESSION_ID.
	CMD	X(1)	1	1:Enable kill switch 2:Disable kill switch operation
	Kill Switch Serial No (KSW_NUM)	9(4)	4	<ul style="list-style-type: none"> <li>● Please assign a sequence number for each session.</li> </ul> For example, if FCM have two session (session_id=1 and session_id=2), they can send the same KSW_NUM to TAIFEX. <ul style="list-style-type: none"> <li>● KSW_NUM should be increasing; TAIFEX will not process command with KSW_NUM less than or equal to previous KSW_NUM.</li> </ul> For example, if session_id=1 sent 0005 before, TAIFEX will not process again 0005 and 0004. R18 will return status code 155.
	FCM_ID	9(5)	5	It is the key of TYPE=1 and TYPE=2

	SOURCE_FCM_ID	9(5)	5	It is the key of TYPE=2 FCM_ID of designated FCM session.
	SESSION_ID	9(3)	3	The key of TYPE=2 SESSION_ID of designated FCM session.

Ex. if SOURCE\_FCM\_ID and FCM\_ID are "00001", and SESSION\_ID is "004", the sample content is like below table.

FUNCTION-TYPE	FUNCTION-CODE	TYPE	CM D	KSW_NUM	FCM_ID	SOURCE_FCM_ID	SESSION_ID
K	101	2	1	0001	00001	00001	004

#### 2.11.4 Subscription Request for Expired FCM Session Order Report File

- TAIFEX generates B50 files for expired orders in the order book when session status changes to closed for each flow group.
- FCM can use R17 to request subscription for expired orders in the order book by FCM session. If TAIFEX accept this command, TAIFEX will reply via R18, and the content of R18 data will be the same as R17 data.
- If TAIFEX accept subscription request, TAIFEX will generates expired fcm session order report file by R17 fcm\_id + session\_id when session status changes to closed for each flow group.

	FIELD-NAME	FORMAT	LENGTH	COMMENT
data	FUNCTION-TYPE	X(1)	1	K
	FUNCTION-CODE	9(3)	3	102

## 2.12 Upload Equity Report Files via SFTP

Refer to document "[Taifex\\_FileTransfer\\_Format](#)".

## 2.13 Order Session Connection Backup Mechanism

To avoid session connection is broken, TAIFEX provide session connection backup mechanism. When TAIFEX session gateway is failed, FCM can use session connection backup mechanism to connect backup session gateway in a short time.

When primary session connection is broken, FCM can use the same session setting (FCM ID, Session ID, Client IP, Client Port and Server Port) to connect to TAIFEX backup session gateway.

### 2.13.1 FCM Backup mechanism (optional)

If you want implement session backup mechanism, you can follow suggestion.

#### A: Preload backup session information

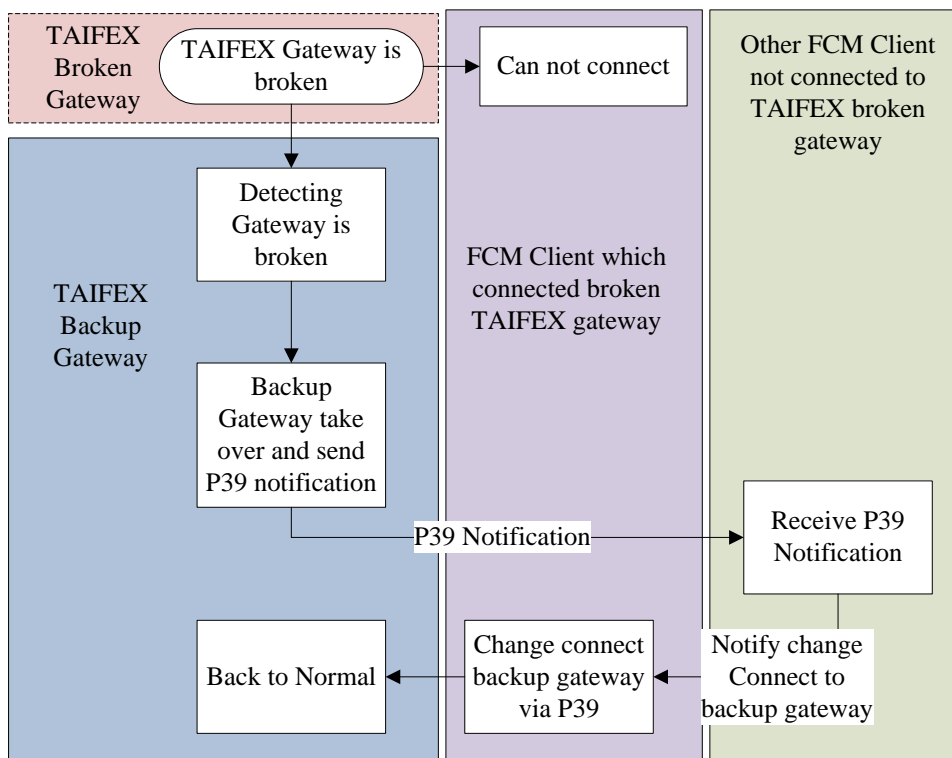
All backup session information will be included in PA7 file. When primary session connection is broken, you can use it to connect backup session.

#### B: Use P39 notification to find backup session

When primary session connection is broken, TAIFEX will startup backup connection, in the meantime TAIFEX will create a notification file P39 in SFTP, also will send R14 through other normal session inform that backup connection is up.

If vendor don't have broken session in the P39 file, vendor can just ignore it.

P39 file name is easy to mapping backup session via server port. If the file name is not enough to mapping backup session, P39 content will give more detail mapping.



When TAIFEX primary session gateway is failed, TAIFEX backup session gateway will take over as follow description.

1. When primary session gateway is failed, backup session gateway will detect primary is failed, and try to take over service.
2. Backup session gateway set its status to be active.
3. Backup session gateway create P39 file and send notification via R14.

4. FCM can use the P39 notification, change connect to backup session gateway.

## 2.14 TMPCM/TMPDC Session Connection Backup Mechanism

To avoid session connection is broken, TAIFEX provide session connection backup mechanism. When TAIFEX session gateway is failed, FCM can use session connection backup mechanism to connect backup session gateway in a short time.

When primary session connection is broken, FCM can use the same session setting (FCM ID, Session ID, Client IP, Client Port) to connect to TAIFEX backup session gateway(PA7 have backup session's Server IP, Server Port). The Mechanism will be online together with "Order Session Connection Backup Mechanism.

PA7 include primary sessions(P07) and backup sessions, TMPCM example:

f000999.session10.tmpcm.opt.taifex,20401	← primary session
f000999.session10.tmpcm <b><u>bak1</u></b> .opt.taifex, <b><u>20441</u></b>	← backup session

TMPDC example:

f000999.session5.tmpdc.opt.taifex,20441	← primary session
f000999.session5.tmpdc <b><u>bak1</u></b> .opt.taifex, <b><u>20491</u></b>	← backup session

The primary sessions and backup sessions are active simultaneously, FCM get backup sessions from PA7 to connect to TAIFEX backup gateway while primary session connection is broken, We don't provide P39 while primary session connection is broken .

## 3. Appendices

### 3.1 Time Format

Time in the field epoch\_s represents the number of seconds from 1970/01/01 0:0 up to now (GMT+0). The field ms is 1/1000 sec.

Ex.: epoch\_s=1205549144, ms=123 means “Sat Mar 15 10:45:44.123 2008 (GMT+8)”.

Ref: <http://www.epochconverter.com>

### 3.2 Order No.

When assigning ord\_no, FCMs should heed that fcm\_id + ord\_no is a unique number in the system and the numbers of orders, quotes and requests may not be duplicated.

When assigning ord\_id, FCMs should heed that ord\_id is used for asynchronous order and report messages.

### 3.3 Error Message Table

#### 3.3.1 Error Codes

No.	Content	FCM's Action
0	Succeed	Input the next message
1	Trading time over	End the trading subsystem
2	Order acceptance not yet started or trading halt or order not yet accepted during receiving order stage	Input later(e.g. MWP is not accepted during receiving order stage)
3	Price quote not yet accepted	Input later
4	In processing, no order accepted for the time being	Input later
5	No such order no.	Check and correct the term or order No.
6	Order or quote filled	Check transaction reply
7	Order or quote cancelled	Check the day's order data of client
8	Stop order	Order is restricted for the commodity
9	Order limit	Only offset order may be placed for the commodity
10	Order not in the book; cancel or decrease or modify not allowed	Check transaction reply
11	ExecType error	Check and correct ExecType

No.	Content	FCM's Action
12	Broker ID error	Check and correct FCM ID
13	Branch No. error	Check and correct branch No.
14	1. Investor Acct No. error 2.The investor account is not opened in NBT.	Check and correct investor's account number
15	Investor ID code error	Check and correct investor's ID code
16	Reject delete or modify order during non-cancel period	Re-enter the order later
17	Duplicate order No. or quote No.	Check and correct order No.
18	Order No. or quote No. error	Check and correct order No.
19	The same side order not exist	Reject the MWP order, re-enter the order when the same side order exist
20	Product ID error	Check and correct Product ID
21	Exceeding rise/fall limit	Check and correct order price
22	Order quantity error	Check and correct order quantity
23	Price inquiry not accepted yet, or price is at rise/fall limit, price inquiry not accepted	Input later
24	Buy-sell error	Check and correct buy-sell code
25	OrdType error	Check and correct OrdType (e.g. "NBT" and "option combination order" is not allowed with MWP)
26	Order type and price not matched	Check and correct order type or order price
27	TimeInForce error	Check and correct TimeInForce
28	PositionEffect error	Check and correct PositionEffect code
29	Price and tick size not matched	Check and correct the order price
30	Product expired	Check and correct ordered commodity
31	Broker ID, product group, and market maker's account No. inconsistent	Check and correct the product group or market maker's account number
32	Decrease successful, but the change requested is greater than the unfilled part that can be decreased of the original order. This is a warning.	Change order quantity to the limited minimum quantity if there is minimum quantity limit, or change order quantity to 0 (treated as cancel)
33	Quoted bid/ask price may not exceed the spread limit of the product	Check and correct the quote price
34	Bid price exceeding ask price	Check and correct order price
35	The remaining quantity of the unmodified side is zero (single-side quote order modification)	Requote.
36	The unfilled part of the one-way quote is less than the minimum quantity limit	Check and correct order quantity
37	Price inquiry already present; new inquiry not	Send price inquiry later

No.	Content	FCM's Action
	accepted	
38	Market order(and MWP) does not accept ROD	Check and correct the order type or order condition
39	Decrease quantity error	Check and correct Decrease quantity (for FIX)
40	Price error (single-side quote order modification)	Check and correct quote price
41	Settlement month error	Check and correct settlement year and month
42	Strike price error	Check and correct strike price
43	Clearing member ID error	Check and correct clearing member's ID
44	order_source error	Check and correct order_source
45	info_source error	Check and correct info_source
46	Disable kill switch operation error	Specified kill switch operation does not exist, check and update the kill switch disable command
47	Reject the leaves quantity due to the simulated matched price reached the upper (lower) limit of the dynamic price banding.	The status presented in the last reply message of a transaction.
48	Status 48 means this report will disclose the upper or lower limit price of dynamic price banding when leaves quantity rejected due to the simulated matched price reached the upper (lower) limit of the dynamic price banding.	It will be send after reject leaves quantity by Taifex's dynamic price banding. Price or leg_px field will be filled by upper or lower limit price and other fields will be 0.
51	FOK not filled and deleted by system	
52	IOC is partially filled	
53	IOC not filled and deleted by system	
61	Buy/sell code of cancel/decrease order not matching original order	Check and change buy/sell code
62	Product ID of cancel/decrease order not matching original order	Check and correct Product ID
63	Modify price of IOC order not allowed	Check the day's order data of client
64	Order partially traded, modify to market FOK order or MWP FOK order is not allowed	Check transaction reply
65	Kill switch in operation, the order execution type is not allowed	Input later
77	No such contract	Check if the contract is valid
78	Order of this contract is restricted for this account-code	Order of this contract is restricted for this account-code
79	Order deleted due to trading suspension or order acceptance before collective bidding	Investor can decide whether to replace the order
80	FCM is not yet approved to trade this product or execute the function	Check and correct the product ordered or change the message
89	Too many errors	Call TAIFEX

No.	Content	FCM's Action
91	MESSAGE TIME OUT	Return to Link Subsystem to reconnect or enter the off-line state.
92	MESSAGE LENGTH ERROR	Check the input message.
93	MESSAGE FORMAT ERROR	Check the input message.
99	Major error	Order cannot be input, call TAIFEX
110	Illegal file code	Wrong file code requested, go back to the beginning of transmission subsystem
113	Wrong file request range	Wrong file request range, continue on to the next operation
114	File is not ready	File requested is not ready, continue on to the next operation
117	File is ready but empty	File requested is empty, continue on to the next operation
120	File not found for broker	The FCM file is not found, continue on to the next operation
121	Illegal time to get file	Wrong time for requesting file, continue on to the next operation
150	fcm_unique_id or serial no duplicate	Check fcm_unique_id field value of R13 message, or serial no in the data field in messages.
151	Product can not block trade	Check and correct Product ID
152	Block trade order quantity error	Check and correct order quantity
153	Invalid prod_count	Check and correct prod_count in combine product block trade order
154	prod_count is not match with the number of legs in a block trade order	Check and correct prod_count and the number of rows in a block trade order
155	invalid fcm_unique_id or serial no	Check and correct fcm_unique_id in TMP R13 message, or serial no in the data field in messages.
156	block_trade_id duplicate	Check and correct block_trade_id of B21
157	Invalid block_trade_id	Check and correct block_trade_id of B21
158	Invalid participant_fcm_count	Check and correct participant_fcm_count of B21
159	participant_fcm_count is not consistent with participant_fcm_id list	Check and correct participant_fcm_count and participant_fcm_id list
160	participant_fcm_id error	Check and correct participant_fcm_id of B21
161	Invalid prod_count	Check and correct prod_count of B21
162	block_trade_id does not exist	Check block_trade_id of B21
163	Negotiated block trade success	
164	Negotiated block trade fail	
165	Negotiated block trade cancelled	



No.	Content	FCM's Action
166	Negotiated block trade wait FCM to confirm order	
167	fcm_id not matching represent FCM	Check and correct fcm_id
168	symbol_type error	Check and correct symbol_type
169	Invalid order_count of negotiated block trade confirm input	Check and correct order_count of B31
170	number of orders in B31 is not consistent with order_count field	Check and correct order_count and orders of B31
171	Negotiated block trade is not in the status of waiting for confirm input	
172	investor_acno duplicate in negotiated block trade confirm input	Check and correct investor_acno of B31
175	Negotiated block trade timed out	Negotiated block trade fail, please make a trade again.
176	The confirm input data is not consistent with B21 registered data	Negotiated block trade fail, please make a trade again.
177	Negotiated block trade beyond the position limit	Negotiated block trade fail, please check position
186	Illegal source id	Logon FCM ID is inconsistent with the FCM ID for file request, continue on to the next operation
200	Significant system time error. This is a warning.	Could be due to network delay or inaccurate system time. Adjust the system time or use more precise time calibration system
201	"append_no" ERROR	Pay attention to the "append_no"
202	"fcm_id" ERROR	Pay attention to the "fcm_id"
203	"ap_code" ERROR	Pay attention to the "ap_code"
204	"key_value" ERROR	Pay attention to the "key_value"
205	"session_id" ERROR	Pay attention to the "session_id"
206	"system_type" ERROR	Pay attention to the "system_type"
207	"MsgSeqNum" ERROR	Pay attention to the "MsgSeqNum"
208	"target_id" ERROR	Pay attention to the "target_id"
209	flow_group_no ERROR	Pay attention to the "flow_group_no"
210	SubscriptionRequestType ERROR	Pay attention to the "SubscriptionRequestType"
240	session exceeds the flow limit	Return to Link Subsystem
241	a session exceeds flow limit continuously, system will lock this session for a period of time.	Use another session to place order
242	The difference between msg_time of R01/R31 and TAIFEX trading system's R01/R31 receiving time is larger than "cancel_order_sec" value. This order will be rejected. TAIFEX will not check status_code=242 when	Could be due to network delay or inaccurate system time. Please check the condition.

No.	Content	FCM's Action
	ExecType=4.	
248	session reach 80% of the flow limit. This is a warning.	Pay attention to the order input speed
249	session reach 90% of the flow limit. This is a warning.	Pay attention to the order input speed
250	The difference between msg_time of R01/R31 and TAIFEX trading system's R01/R31 receiving time is larger than 2 seconds. This is a warning.	Could be due to network delay or inaccurate system time. Please check the condition.

When following error condition of block trade occur, system will reply R14 message with status code directly without generating B01/BA1/B11/BB1/B21/B31, B03/B13/B23/B33 file. (The content of R14 data field will be the same as R13 data field which FCM entered)

No.	Content	FCM's Action
4	In processing, no order accepted for the time being	Input later
92	MESSAGE LENGTH ERROR	Check B01/BA1, B11/BB1, B21, B31 message length.
93	MESSAGE FORMAT ERROR	Check B01/BA1, B11/BB1, B21, B31 message length.
99	Major error	Order cannot be input, call TAIFEX
121	illegal time to get file	Wrong time for requesting file, continue
150	fcm_unique_id duplicate	Check fcm_unique_id field value R13 message.
155	invalid fcm_unique_id	Check and correct fcm_unique_id in TMP R13 message
156	block_trade_id duplicate	Check and correct block_trade_id of B21
157	Invalid block_trade_id	Check and correct block_trade_id of B21

### 3.4 Order price

To address the problem of floating point number addition/subtraction, the price fields in all messages must be an integer. For actual price, refer to the number of decimal digits as defined in the Decimal\_Locator in P08/PA8. The TAIEX trading system can accept actual price in the range of -214,748 ~ +214,748.

Ex.: price=12345, if decimal\_locator=2, the actual price is 123.45

## 3.5 Multi-leg Product ID

### 3.5.1 Numbering of multi-leg options product ID

#### Un-link contract IDs with underlying stock IDs in messaging protocol

The single product ID of Options's length is 10 bytes, which combined by 4 parts (PP + T +AAAAA+ CC) , we describe as following:

1. PP:indicates Product ID.
2. T:indicates type, such as futures, options or others.(O: Standard, A-Z: Adjusted).  
A Product ID with the first two units combined is expressed as follows:
3. AAAAA: Settlement Price which represented by integer.
4. CC:consists of month and year; the first C indicates month; the second C indicates year.

PP+T	TXO	TEO	MSO	XIO	GTO	TGO	ABO	ABA
------	-----	-----	-----	-----	-----	-----	-----	-----

Month	1	2	3	4	5	6	7	8	9	10	11	12
Call Option	A	B	C	D	E	F	G	H	I	J	K	L
Put Option	M	N	O	P	Q	R	S	T	U	V	W	X

Ex:The call option TXO of Sep. 2009 can be expressed as TXO06900I9.

The put option of Sep. 2009 can be expressed as TXO06900U9.

The old version X.25 message allots 20 bytes (char[20]) to store the ID string of a multi-leg order (Ex.: PPP + AAAAA+ S +BBBBB + CC), where the combinations differ with product types. The message in the TCP/IP system uses the positive and negative value of two product ID to represent a multi-leg order.

1. PPP:The existing single product ID (last character: O: standard, A-Z: adjusted)

--> AAO Nanya; ABO China Steel; ACO UMC; ADO TSMC; AEO Fubon Financial;  
--> TXO TAIEX option.

2. AAAAA: The price of first leg
3. S: Symbol of multi-leg order
4. BBBBB: The price of second leg;
5. CC: Settlement month of first leg;
6. DD: Settlement month of second leg.

The first character of CC or DD indicates month and call/put. The settlement month from January to December of a call is expressed by letter A to L, while the settlement month from January to December of a put is expressed by letter M to X; the second character indicates year; “9” means 2009. Ex.: 2009/08 is expressed as “H9.”

### Link contract IDs with underlying stock IDs in messaging protocol

The PROD-ID for stock futures has 15 bytes. Byte 1 - 6 contain TWSE stock code with space padded. Byte 7 'S' indicates stock. Byte 8 indicates type of stock options. Bytes 9 - 13 indicates strike price. Byte 14 indicates call/put type and month. Byte 15 indicates year. For example:

Stock Code							Type	Strike price					Month	Year
1	3	0	3			S	O	0	0	5	0	0	L	3
Nan Ya Plastics Corp.						Stock	Options	Strike price \$50.0					December	2013

Beginning 6 bytes "1303 " indicates Nan Ya Plastics Corp..

7<sup>th</sup> byte 'S' indicates it is a stock derived product.

8<sup>th</sup> byte 'O' indicates options type, 'O' is standard type, and 'A' for first time adjusted, 'B' for second time adjusted, etc.

9<sup>th</sup> - 13<sup>th</sup> bytes indicates strike price.

14<sup>th</sup> byte indicates month code for call and December.

15<sup>th</sup> byte indicates year code for 2013.

### 3.5.2 Examples of options multi-leg orders

#### Un-link contract IDs with underlying stock IDs in messaging protocol

For example,

1. Price spread ( / ) (PPPA AAAA/BBBBBCC, 16 characters long, the ninth character is “/”) - buy and sell at the same time calls (or puts) with the same expiration month, but different price.

Case 1: In case of call, put the higher price at the front.

Ex.: TXO05200/05100C3, BS\_Code=B, BS1=S, BS2=B

TXO05200/05100C3, BS\_Code=S, BS1=B, BS2=S

Case 2: In case of put, put the lower price at the front

Ex.: TXO05200/05300N3, BS\_Code=B, BS1=S, BS2=B TXO05200/05300N3, BS\_Code=S, BS1=B, BS2=S

2. Time spread ( / ) (PPPA AAAAACC/DD, 13 characters long, the 11<sup>th</sup> character is “/”) - buy and sell at the same time calls (or puts) with the same price but different settlement month.

Case 1: In case of call,

Ex.: TXO05200F3/I3, BS\_Code=B, BS1=S, BS2=B

TXO05200F3/I3, BS\_Code=S, BS1=B, BS2=S

Case 2: In case of put

Ex.: TXO05200R3/S3, BS\_Code=B, BS1=S, BS2=B

TXO05200R3/S3, BS\_Code=S, BS1=B, BS2=S

3. Straddle ( : ) (PPPAAAAACC:DD, 13 characters long, the 11<sup>th</sup> character is “:”)- buy (or sell) at the same time call and put with the same price and same settlement month; put the call contract at the front.

Case 1: If buy at the same time,

Ex.: TXO05200D3:P3, BS\_Code=B, BS1=B, BS2=B

Case 2: If sell at the same time,

Ex.: TXO05200D3:P3, BS\_Code=S, BS1=S, BS2=S

4. Strangle ( : ) (PPPAAAAACC:BBBBBDD, 18 characters long, the 11<sup>th</sup> character is “:”) - buy (or sell) at the same time call and put with different price but same settlement month; put the call contract at the front.

Case 1: If buy at the same time,

Ex.: TXO05200D3:05100P3, BS\_Code=B, BS1=B, BS2=B

Case 2: If sell at the same time,

Ex.: TXO05200D3:05100P3, BS\_Code=S, BS1=S, BS2=S

5. Conversion ( - ) & Reversals ( - ) (PPPAAAAACC-DD, 13 characters long, the 11<sup>th</sup> character is “-”)

Case 1: Conversion, buy a put and at the same time sell a call with the same price and same settlement month,

Ex.: TXO05200G3-S3, BS\_Code=B, BS1=S, BS2=B

Case 2: Reversals, buy a call and at the same time sell a put with the same price and same settlement month,

Ex.: TXO05200G3-S3, BS\_Code=S, BS1=B, BS2=S

6. Weekly time spread ( / ) (PPPAAAAACC/PPWDD or PPWAAAAACC/PPPDD, 16 characters long, the 11<sup>th</sup> character is “/”) - buy and sell at the same time calls (or puts) with the same price but different settlement month.

Case 1: In case of call, PPPAAAAACC/PPWDD

Ex.:TXO06500C6/TX4C6, BS\_Code=B, BS1=S, BS2=B

TXO06500C6/TX4C6, BS\_Code=S, BS1=B, BS2=S

Case 2: In case of put

Ex.: TX106300O6/TXOP6, BS\_Code=B, BS1=S, BS2=B

TX106300O6/TXOP6, BS\_Code=S, BS1=B, BS2=S

## **Link contract IDs with underlying stock IDs in messaging protocol**

For example,

If we use PPPPPST for contract, AAAAA for the first contract's settlement price, BBBB for the second contract's settlement price, CC for month and year of first product leg, DD for month and year of second product leg.

1. Price spread ( / ) (PPPPPPSTAAAAA/BBBBBCC, 21 characters long, the 14th character is “/”) - buy and sell at the same time calls (or puts) with the same expiration month, but different price.

Case 1: In case of call, put the higher price at the front.

Ex.: 1303 SO05200/05100C3, BS\_Code=B, BS1=S, BS2=B 如 1303 SO05200/05100C3, BS\_Code=S, BS1=B, BS2=S

Case 2: In case of put, put the lower price at the front

Ex.: 1303 SO05200/05300N3, BS\_Code=B, BS1=S, BS2=B 如 1303 SO05200/05300N3, BS\_Code=S, BS1=B, BS2=S

2. Time spread ( / ) (PPPPPPSTAAAAACC/DD, 18 characters long, the 16th character is “/”) - buy and sell at the same time calls (or puts) with the same price but different settlement month.

Case 1: In case of call,

Ex.: 1303 SO05200F3/I3, BS\_Code=B, BS1=S, BS2=B 如 1303 SO05200F3/I3, BS\_Code=S, BS1=B, BS2=S

Case 2: In case of put

Ex.: 1303 SO05200R3/S3, BS\_Code=B, BS1=S, BS2=B 如 1303 SO05200R3/S3, BS\_Code=S, BS1=B, BS2=S

3. Straddle ( : ) (PPPPPPSTAAAAACC:DD, 18 characters long, the 16th character is “:”)- buy (or sell) at the same time call and put with the same price and same settlement month; put the call contract at the front.

Case 1: If buy at the same time,

Ex.: 1303 SO05200D3:P3, BS\_Code=B, BS1=B, BS2=B

Case 2: If sell at the same time,

Ex.: 1303 SO05200D3:P3, BS\_Code=S, BS1=S, BS2=

4. Strangle ( : ) (PPPPPPSTAAAAACC:BBBBBDD, 23 characters long, the 16th character is “:”) - buy (or sell) at the same time call and put with different price but same settlement month; put the call contract at the front.

Case 1: If buy at the same time,

Ex.: 1303 SO05200D3:05100P3, BS\_Code=B, BS1=B, BS2=B

Case 2: If sell at the same time,

Ex.: 1303 SO05200D3:05100P3, BS\_Code=S, BS1=S, BS2=S

5. Conversion ( - ) & Reversals ( - ) (PPPPPPSTAAAAACC-DD, 18 characters long, the 16th character is “-“)

Case 1: Conversion, buy a put and at the same time sell a call with the same price and same settlement month,

Ex.: 1303 SO05200G3-S3, BS\_Code=B, BS1=S, BS2=B

Case 2: Reversals, buy a call and at the same time sell a put with the same price and same settlement month,

Ex.: 1303 SO05200G3-S3, BS\_Code=S, BS1=B, BS2=S

### 3.5.3 Numbering of multi-leg futures product ID

#### Un-link contract IDs with underlying stock IDs in messaging protocol

The single product ID of futures 's length is 5 bytes, which combined by 3 parts (PP + T + CC ) , we describe as following:

1. PP:indicates Product ID.
2. T:indicates type, such as futures, options or others.(O: Standard, A-Z: Adjusted).  
A Product ID with the first two units combined is expressed as follows:

PP+T	CPF	EXF	FXF	GBF	GDF	MSF	MXF	T5F	TXF
------	-----	-----	-----	-----	-----	-----	-----	-----	-----

3. CC:consists of month and year; the first C indicates month; the second C indicates year.

Month	1	2	3	4	5	6	7	8	9	10	11	12
Settlement month	A	B	C	D	E	F	G	H	I	J	K	L

Ex. The futures of TXF Oct. 2009 can be expressed as TXFH9.

#### Un-link contract IDs with underlying stock IDs in messaging protocol

Combination of futures time spread orders:

1. Combination method: Time spread orders are accepted for all futures products.
2. Buy/sell: Time spread orders have the same buy/sell code as the far-month contract. A “buy spread order” means buying a far-month contract while selling a near-month contract at the same time; a “sell spread order” means selling a far-month contract while buying a near-month contract at the same time.
3. Order price: The far-month contract is the body of the order. The price of a time spread order is the price of far-month contract deducted by the price of near-month contract.
4. Price range: The highest price of a spread order is the upper price limit of the far-month contract deducted by the lower price limit of the near-month contract; the lowest price of a spread order is the lower price limit of the far-month contract deducted by the upper price limit of the near-month contract. Orders exceeding such price range will not be accepted.
5. Check rules for time spread product ID:
  - (1) 8 bytes in length.
  - (2) The 6<sup>th</sup> character is ‘/’.
  - (3) The month code of the first and the second contract (the 4<sup>th</sup> and the 7<sup>th</sup> byte) lies between A~L.
  - (4) The first and the second contracts must be contracts of different months.
  - (5) The first contract is the near-month contract, and the second contract is the far-month contract.

Thus if the field of PROD-ID-S shows 【MXFA9】 , it means 200901 (January 2009) MXF (mini-TAIEX);

If the field of PROD-ID shows 【MXFA9/C9】 , it means MXF (mini-TAIFEX) spread for January and March 2009.

#### Link contract IDs with underlying stock IDs in messaging protocol

The PROD-ID for stock futures has 10 bytes. Byte 1 - 6 contain TWSE stock code with space padded. Byte 7 both 'S' and 'M' indicates stock. Byte 8 indicates type of stock futures. Byte 9 indicates month. Byte 10 indicates year.

For example:

Stock Code							Type	Month	Year
3	0	0	8			S	F	C	6
LARGAN Precision Corp						Stock	Futures	March	2016

Stock Code							Type	Month	Year
3	0	0	8			M	F	C	6
LARGAN Precision Corp.						Stock	Futures	March	2016

Beginning 6 bytes "3008 " indicates LARGAN Precision Corp.

7<sup>th</sup> byte both 'S' and 'M' indicates it is a stock derived product.

8<sup>th</sup> byte 'F' indicates futures type, 'F' is standard type, and '1' for first time adjusted, '2' for second time adjusted, etc.

9<sup>th</sup> byte indicates month code for December.

10<sup>th</sup> byte indicates year code for 2013.

### Link contract IDs with underlying stock IDs in messaging protocol

If we use PPPPPST for contract, CC for month and year of first product leg, DD for month and year of second product leg.

Time spread ( / ) (PPPPPPSTCC/DD, 13 characters long, the 11<sup>th</sup> character is '/') - buy and sell at the same time with the same contract but different settlement month. First leg is near expired contract.

Example:

Time spread of 1303 SFF3 and 1303 SFI3, 1303 SFF3 is near expired contract.

1303 SFF3/I3, BS\_Code=B, BS1=S, BS2=B

1303 SFF3/I3, BS\_Code=S, BS1=B, BS2=S

Weekly time spread ( / ) : (PPPPPPSTCC/ PPPPPSWDD or PPPPPSWCC/ PPPPPSTDD, 21 characters long, the 11<sup>th</sup> character is '/') - buy and sell same product at the same time with different expire date, and one of the leg is weekly expired. The near expired contract put in front.

Case 1: PPPPPSTCC/ PPPPPSWDD

1303 SFF3/1303 S4F3 is weekly time spread of 1303 SFF3 and 1303 S4F3, 1303 SFF3 is near expired contract so put it in front.



Case 2: PPPPPPSWCC/ PPPPPSTDD

1303 S1F3/1303 SFF3 is weekly time spread of 1303 S1F3 and 1303 SFF3, 1303 S1F3 is near expired contract so put it in front.

### 3.5.4 Product ID and multi-leg order

The pseq1 in the morning session and the pseq1 in the afternoon session of the same text product ID (eg. 'TXO088888L8') might have different number. Similarly, the numeric product ID pseq1=1 might represent 'TXFL8' for futures products and 'TFO008888L8' for options products.

The pseq1 and pseq2 of the same text product ID represent two product IDs respectively in a message, and leg\_side[0] is the buy/sell code of the first leg and leg\_side[1] represents the buy/sell code of the second leg. In the case of a single order, pseq value is 0.

1. Price spread (/) : (leg\_side[0]: positive, leg\_side[1]: negative) or (leg\_side[0]: negative, leg\_side[1]: positive)
2. Time spread (/) : (leg\_side[0]: positive, leg\_side[1]: negative) or (leg\_side[0]: negative, leg\_side[1]: positive)
3. Straddle (:) : (leg\_side[0]: positive, leg\_side[1]: positive) or (leg\_side[0]: negative, leg\_side[1]: negative)
4. Strangle (:) : (leg\_side[0]: positive, leg\_side[1]: positive) or (leg\_side[0]: negative, leg\_side[1]: negative)
5. Conversion (-) : leg\_side[0]: positive, leg\_side[1]: negative
6. Reversals (-) : leg\_side[0]: negative, leg\_side[1]: positive

## 3.6 Trade Session Status

Trade session status can be requested via R11 message and reported via R12 message. Each flow group has its own discrete trade session status, which includes: 0: unknown (including before market), 1: halted, 2: pre-open, 3: open, 4: closed, 5: Non-Cancel Period.

Status	
General	unknown -> pre-open -> Non-Cancel Period -> open -> closed
Halted during pre-open (for order acceptance)	unknown -> pre-open -> halted -> pre-open -> Non-Cancel Period -> open -> closed
Halted during market	unknown -> pre-open -> open -> halted -> pre-open Non-Cancel Period -> open -> closed

## 3.7 File Transfer

TAIFEX adopts the standard TCP/IP file transfer protocol (sftp). FCM can use sftp client to connect to TAIFEX sftp server according to the server address announced by TAIFEX to download files needed. The TAIFEX sftp server supports active and passive mode for file transfer (passive mode is suggested).

The sftp server stores two kinds of files, one of which is a data file and the other is a ready file representing that the data file is ready. Before downloading any file, a FCM should check first whether the ready file is present; if yes, the FCM can proceed to download the file; if not, it means the data file is not yet ready, that TAIFEX does not guarantee the integrity of the data file and the FCM should not download it.

If a FCM stresses the quality and speed of order placement, it is suggested that the FCM use different physical lines for order execution reports and file transfers.

- File naming principles

1. Common data files that are generated only once a day are named according to the following principles:

file code.<system\_type>  
file code.<system\_type>.ready

2. Common data files that are generated more than once and have different contents in a day are named according to the following principles:

file code.<system\_type>.<timestamp>  
file code.<system\_type>.<timestamp>.ready

3. For the naming of files specific to a FCM or CM, refer to file remarks in Section 2.

<system\_type> is used to distinguish different trade session and system type:

10: Options (the second digit is 0 during regular market hours)  
20: Futures (the second digit is 0 during regular market hours)  
11: Options (the second digit is 1 during after-market hours)  
21: Futures (the second digit is 1 during after-market hours)

<timestamp> is the timestamp or serial number with respect to file generation; bigger numeric value represents a newer file to distinguish individual files generated. Timestamp is transmitted through the definition in the data field in the R14 message. For details, refer to data field remarks in Section 2.

Ex.:

1. Each session's Product and Time Flow Group Definition File (P08) is generated only once a day. Thus during regular trading hours, the names of options P08 file and ready file as stored in sftp server are respectively:

P08.10  
P08.10.ready

2. The Exchange Rate File (C01) might be generated multiple times a day. Thus the names of an exchange rate file and ready file generated at 2008/09/01 14:30:50 during normal trading hours as stored on the sftp server are respectively:

C01.11.20080901143050000  
C01.11.20080901143050000.ready

- directory storing principles

The files in each directory presents as followed:

<The same name of sftp account>: Storing the private files belonging to FCM or CM. These files can be identified by file name contained FCM or FM ID in it.

fut: Storing the public files of futures system.

opt: Storing the public files of options system.

The old directory under <The same name of sftp account> or fut or opt:after system shut down, move files to old directory and keep for one week, the backup directories are named like YYYYMMDDhhmm format of the backup time.

File transfer process is described below.

### **3.7.1 TAIFEX initiates a file to a FCM**

1. TAIFEX sends a R14 message and the fields of R14 have the following values:
  - status\_code: 0.
  - fcm\_req\_id: 0.
  - bulletin\_seq: 0 means file transfer.
  - bulletin\_time: the time the bulletin or file was generated.
  - system\_type: system type of the file
  - data: the R14 data field as defined by the file.
2. When the FCM receives the R14 and finds bulletin\_seq = 0, status\_code = 0, and fcm\_req\_id = 0, which means a TAIFEX initiated file notice, the FCM should obtain information on the filename and timestamp as provided in the data field, activate the sftp client and connect to the TAIFEX sftp server to download the file.

### **3.7.2 FCM requests a file**

1. FCM sends a R13 message the fields of R13 have the following values:
  - fcm\_req\_id: FCM-defined number; TAIFEX will include this number in R14 message. In order to distinguish from the value of fcm\_req\_id = 0 when TAIFEX initiates a file notice, FCM please do not use 0 as the fcm\_req\_id value.
  - bulletin\_req\_id: 0 means file transfer.
  - system\_type: system type of the requested file.
  - data: enter in the R13 data field of content as defined by the file requested.

2. Upon receiving a R13, TAIFEX will send a R14 to the FCM.

- status\_code: 0 means normal, other than 0 means exceptional circumstance.
- fcm\_req\_id: fcm\_req\_id as entered by FCM in R13.
- bulletin\_seq: 0 means file transfer.
- bulletin\_time: the time the bulletin or file was generated.
- system\_type: system type of the requested file.
- data: the R14 data field as defined by the file.

### 3.7.3 FCM logs on TAIFEX sftp server directly to download file

1. For files initiated by TAIFEX, a FCM can activate the sftp client at any time to download the file from the sftp server. Files of different types are downloaded according to the following rules:
  - Common file without timestamp: Check only whether ready file is present and then download the corresponding data file.
  - Common file with timestamp: Check the ready file with the largest timestamp value, then download the data file corresponding to said timestamp.
2. For files generated only under FCM request, the FCM should request files according to the instructions in 3.7.2.

## 3.8 Flow Control

TAIFEX will adopt a flow control mechanism for every session (the flow is depend on the number of input orders received from FCM per second), the control process has 3 stages:

1. **Warning:** When the flow of a session reaches the warning threshold defined by TAIFEX, input orders will still be accepted by trading system, but the FCM will receive a warning message. All R01/R31, R04, R05, R07/R37, R09/R39, R11, R13, L10, L20, L40, L42 messages are included in flow control calculation. The warning message is sent by using status\_code in each reply message which means when this message is sent, the flow has reached the warning threshold but the message can still be accepted by the system (ex: order can enter system for matching.) The value of status\_code 248 means the flow has reached 80% of flow limit. The value of status\_code 249 means the flow has reached 90% of flow limit.  
When the client exceeds the limit 10 times, TAIFEX will lock the session to prevent the abuse of system resources. Please contact TAIFEX to unlock the session.
2. **Reject:** When the flow of a session exceeds the flow limit, TAIFEX will close this session and FCM must re-connect to the system. After re-connecting to the system FCM must enter subsequent MsgSeqNum based on the start\_in\_bound\_num in L10 message for this session. The error message for exceeding flow limit is returned by each reply message with status\_code 240. After sending reply message TAIFEX will send L10. (The flow limit is the max\_flow\_ctrl\_cnt value in L50 message)  
TAIFEX currently have two order entry limits, one is that the total amount of order entry in three seconds must not exceed three times of the order entry limit per second (for example, if the order entry limit is 16 orders/sec, and the number of input order exceeds 48 in three seconds, the connection will be disconnected). Another is that the total amount of order entry in one second must not exceed three times of the order entry limit per second (for example, if the order entry limit

is 16 orders/sec, and the number of input order exceeds 48 in one second, the connection will be disconnected).

3. Abnormal disconnection automatic protection: When the trading system finds the session disconnected 100 times, the system will lock the socket port connection to prevent the abuse of system resources. Please contact TAIFEX to unlock the session.

## 3.9 Message Versions

### 2008.04.22 Ver. 1

### 2008.04.24 Ver. 2

1. Revise the naming rules for Test DNS Server in “Introduction.”
2. Add description of Data Type int64.
3. Adjust end\_out\_bound\_num examples.
4. Adjust the field sequence in R01,R02, and R09 where identical fields are all placed in the front.
5. Add example of user\_define, protocol\_type.
6. Change ord\_id, org\_ord\_id in R01,R02,R03 to order\_no, ord\_id where Order No. is changed to order\_no (compatible with x.25 message) + ord\_id (for asynchronous message).
7. Add status\_code in R02.
8. Add user\_define, ord\_id in R03.
9. Change ord\_id in R07 and R08 to order\_no.
10. Explain the field attribute in sftp file format.
11. Revise the naming of B30/B40,S08, and S21files.

### 2008.06.16 Ver. 2.1.1

1. For the naming of P07 in system initiation step, refer to the naming of file P07 in the section of [File Transfer and Bulletin].
2. Change the checking of fields investor account No. and ID code (investor flag) for cancel/decrease in R09 as not required.
3. Add the field ord\_id in R07 and R08.
4. When TAIFEX responds to an input of new quote, or quote cancel, decrease or request and must send a message with quote price, TAIFEX will break down the bid and offer quotes by sending two consecutive quote messages. That is, one quote input will receive two quote report messages.

### 2008.07.08 Ver. 2.1.2

1. In the Domain Name naming rules, change the wording “first four characters of FCM ID” to “first seven characters of FCM ID”, and revise the naming of file P07 simultaneously.
2. Add the field system\_type in R13 and R14 for distinguishing transactions in different markets.
3. Revise the connection method in Clearing Member Order Execution Report by changing the wording “first four characters of FCM ID” to “first seven characters of FCM ID.”
4. Add a section 3.8 Flow Control.
5. Add the warning threshold for order quantity and the status code for flow reaching certain limit.

### 2008.08.04 Ver. 2.1.3

P09 file is obsoleted, and update Domain Name naming rules and P07 file.

### 2008.08.11 Ver. 2.1.4

Delete PROD\_GROUP field.

### 2008.09.11 Ver. 2.1.5

1. Correct typo in Appendices “Time Format” example: 10:45:59.123 => 10:45:44.123
2. Modify the naming rule of B40 and Data Type in the R13 and R13 of B30 and B40.
3. Modify timestamp format in R14 data field to char[17], to store the year, month, date, hour, minute,

second information (yyyymmddhhmmssxxx).

4. Add a rule: In order to distinguish from the value of fcm\_req\_id = 0 when TAIFEX initiates a file notice, FCM please do not use 0 as the fcm\_req\_id value.
5. P11 file name will not contain timestamp.
6. add I15,I16,I17 file for collateral
7. add P12 file(FCM connection information file)
8. Adjust to each and every new order, cancels or changes order of R01 or R02 or R03 or R09 message need to be assigned an effective message sequence No in the field of MsgSeqNum, but otherwise enter 0.
- 9 add SIN,SP1,SP2 file for SPAN
10. Add the field fcm\_id and session\_id in Common message header(hdr).

#### **2008.10.03 Ver. 2.1.6**

1. Change the naming of P07,P12.
2. Add target\_id filed of R15,R16 and request format of B40.
3. Modify filed name of P12.
4. Add the field ExecType in R03.
5. Add status\_code from 201 to 208.
6. Revise the statement for Confirm connection message (R04).
- 7.Modify for sftp support only passive mode, and directory storing principles.
- 8.Modify flow control using FCM input R-serious message.
- 9.Adjust the “status\_code” field position in R02, R08 to let all “status\_code”field is following the end of common header.

#### **2008.10.31 Ver. 2.1.7**

- 1.Revise the statement for msg\_length.
- 2.Change naming rule of P07, P12
- 3.Modify R14 data field of F03.
4. Add status\_code 209, 210, 242.
- 5.Add L50, L60 round trip time to determine the maximum peak flow per second.
- 6.Let CM line on TMP protocol can transmit execution report including head office and branch offices.

#### **2008.11.04 Ver. 2.1.8**

1. Add ExecType = 6 in R02
2. Add R22 formats for Condensed version order status report
3. Change order\_no's format as: The leading three characters should be 0-9,A-Z,a-z. The last two characters should only be numerals.

#### **2008.12.09 Ver. 2.1.9**

1. Change L10 start\_in\_bound\_num = 0
2. Add status\_code = 39 for FIX.
- 3.Modify the description of LastPx, LastQty in R02.
- 4.Modify the description of status\_code 32, 35, 36.
- 5.Modify the transmission mode of sftp server and usage of old directory.
- 6.Modify format of I15 or I16 or I17
- 7.Modify uniq\_id of Execution report including head office and branch offices
- 8.Added the sequence number ordering sample, ref: TMP “Common message header”.
9. Limit the transmission amount of R13, ref:“Transmission agreement”.

#### **2008.12.23 Ver. 2.1.10**

- 1.R03 message would be enter 0 in the field of MsgSeqNum when status\_code is 1 or 99.
- 2.Modify the description of status\_code 23.

### **2009.06.01 Ver. 2.1.11**

1. Add definition of data field in SP2
2. File transfer of futures add I12, I13, T92, T95 for equity futures
3. define uniq\_id of head office and branch offices
4. Add specification for domain name of sftp server
5. Add the field Side in R03
6. Modify the description of L040 and L041
7. Add E01 and B41 for trading close and they will be put in sftp path. (Enable this until after market trading is beginning.)
8. Add DNS naming rule for after hour trading.
9. Add definition of futures combination order in chapter 3.5 Multi-leg Product ID.

### **2009.07.03 Ver. 2.1.12**

Correct 2.6.4 2.6.4 File transfer overview

#### 2009.10.20 Version 2.1.13

1. Remove X.25 related description.
2. For the flexibility of after hour trading, E01 and B41 will not open in this version.

#### 2010.02.04 Version 2.1.14

1. TCP/IP TMP protocol error code 242 policy
2. Add Downline FCM execution report from Clearing Member Order Execution Report (see 2.5.2.3)
3. Provide function of order price modify

#### 2010.02.25 Version 2.1.15

1. Add ExecType=m for order price modify

#### 2010.03.02 Version 2.1.16

1. Improve description of status code.
2. Add description of B40 not including target\_id=9.

#### 2010.08.13 Version 2.1.17

1. Add ETF description for I15 and I16.
2. Correct flow control description.

#### 2010.12.02 Version 2.1.18

1. Remove L70 and L80.
2. Improve description of B30.
3. Improve description of R13.

#### 2010.12.15 Version 2.1.19

1. Add suggest for fcm in developing program.
2. Add function of B40 including target\_id=9.

#### 2011.02.23 Version 2.1.20

1. Add F13 file , all last transaction and clearing member order and execution report sequence collection file for a FCM.
2. Add P13 file , investor position limit definition file
3. Add P14 file , contract margin definition file
4. Add X01 file
5. Modify T94

6. Add P09 file, Contract Definition File
7. Add I14 file, Equity option/futures contract preliminary adjustment file

#### 2011.09.19 Version 2.1.21

1. Modify Contract Definition file (P09), add < block\_trade\_flag > field.
2. Add single product block trade message/file format: B01,B02,B03,B05.
3. Add combine product block trade message/file format:B11,B12,B13,B15.
4. C11 open interest contain block trade.
5. When announce open interest, The statistical values in following fields: "Total number of buy order", " Total number of buy contracts ordered ", "Total number of sell order", " Total number of sell contracts ordered ", " Number of matched trades ", " Number of contracts matched ", " Combined total of buy orders ", " Combined total of buy contracts ordered ", "Combined total of sell orders", " Combined total of sell contracts ordered ", and " Combined total of matched contracts ", "Open interest" will include the volume of block trade.
6. Add Daily block trade volume file (B10), send when open interest announce.
7. Add Equity option/futures contract adjustment reference file (I20).
8. Add Underlying Stock Violation File (I19), Futures Violation File (U20)
9. Modify I13,I14 contract adjustment file format, add fields.
10. Add section 2.7 Block trade.

#### 2011.11.03 Version 2.1.22

1. Add remark of fcm\_unique\_id and B11 combine strategy.
2. Add status\_code 155.
3. Adjust error condition of block trade system which will reply R14 message with status code directly without generating B03/B13 file.
4. For query report, <rpt\_seq> will be 0000000000

#### 2011.11.16 Version 2.1.23

1. Correct B01, B02, B03, B11, B12, B13 file name <Order FCM number> should be <session FCM number>.
2. Adjust <order\_no> field, all 5 characters can be alphanumeric.

#### 2011.12.12 Version 2.1.24

1. Add P15 file, Investor Position Limit of Equity option/futures contract File
2. The upper bound of block trade order quantity is 65535.

#### 2011.12.14 Version 2.1.25

1. The upper bound of block trade order quantity is 32767.
2. Adjust error condition of block trade system which will reply R14 message with status code directly without generating B01/B11, B03/B13 files.

#### 2012.08.14 Version 2.1.26

1. P09 add <expiry\_type> field to identify standard and weekly contract expiry type.
2. Add description of “Weekly time spread” in section 3.5.2.

#### 2012.11.16 Version 2.1.27

1. C01 add currency RMD exchange rate.

#### 2013.09.30 Version 2.1.29

1. Add field value for R15 or R16 for long product format(STOCK ID)



#### 2014.01.17 Version 2.2

1. Change the descriptions of error code and append example error cases of TMP R14.
2. Change the description of PositionEffect in R01 and R31. It will validate PositionEffect field when querying.
3. Append block trade session report rule description.
4. Add new order type '3' in R01/R31, R02, and R32 for "Market with protection order". This will also effect "CLEARING MEMBER ORDER STATUS REPORT (R02/R32)", "EXECUTION REPORT INCLUDING HEAD OFFICE AND BRANCH OFFICES (R02/R32)" and "ORDER, QUOTE AND ORDER EXECUTION REPORT RESEND FILE (B30, B40/BD0)".
5. Return "Price" field (R02/R32, R22) assigned by matching engine for "Market with protection order".
6. Append two fields "Order Source" and "Market data source" in R01, R07, and R09. They are similar to the fields in R31, R37, and R39.
7. Add "Market with protection (MWP) order's protection points definition file" for "Market with protection".
8. Append error code 6 and adjust description of code 2 and 38 for "Disclose the market information during the Pre-Open state".
9. Add "R12 with Non-Cancel Period " for "Disclose the market information during the Pre-Open state".

#### 2014.02.10 Version 2.2.1

1. Add error code 44 and 45 for "order\_source error" and "info\_source error".

#### 2014.03.24 Version 2.2.2

1. Add "new line feed" in EU1~EU6.
2. Improve error code 64 descriptions.

#### 2014.04.11 Version 2.2.3

1. Add "DayTradeQty " in EU2~EU4.
2. Add more description of C10, C11 file.

#### 2014.04.18 Version 2.2.4

1. Add H14 file, Investor OI Data File (Eurex) (0515)
2. Add H15 file, FCM OI Data File (Eurex) (0516)

#### 2014.04.30 Version 2.2.5

1. Add EU7.
2. Add 9514 warning code.

#### 2014.07.14 Version 2.2.6

1. Add Drop Copy Service (TMPDC Session) in chapter 2.10
2. Add TMPDC Order Session Mapping File (P17) in chapter 2.6.89
3. Modify description for Drop Copy Service:
  - (1) Introduction
  - (2) 2.2 Link Subsystem L30, L40, L50
  - (3) Add TMPDC Session connection Type in P07, P12 File
4. Add INDEX-UNIT for I15
5. TAIEX will not check status\_code=242 if ExecType of incoming order (R01) is equal to 4 (ExecType=4).

#### 2014.9.16 Version 2.2.7

1. C01 add currency ZAR exchange rate.
2. Add more description about B21 reply R14 message directly.

2015.01.06 Version 2.2.8

1. Correct R09 symbol description about ExecType=I.

2015.3.16 Version 2.2.9

1. Add remind code:9614 in EU5

2015.02.04 Version 2.3.0

1. Add File F06/FA6: Announcement of Postpone of Last Trading (Settlement) Day When Underlying information is Abnormal.
2. P08/PA8, P09/PA9 Type of contract field add new value E: Currency.
3. Add 3.10
4. Add 2.6.91 Expired Order Report File for Time Flow Group(B50)
5. Add more description about 3.4 Order price.

2015.05.22 Version 2.3.1

1. P09/PA9 contract\_size field change format to char[11] 9(7)V9(4)
2. P09/PA9 add field: underlying\_type
3. P09/PA9 add field: market\_close\_group
4. Change B50 file naming rule. Use fcm\_id instead of fcm\_no.

2015.10.02 Version 2.4.0

1. modify description about order status code.
2. I15 add length of stock name and blank.
3. P04/PA4 add field: limit\_stable.
4. P08/PA8 add field: delivery\_date.Add flow\_group 6 definition.
5. F06/FA6 type field add value:2 for last trading date (delivery date) postpone.
6. For trading suspend, remove F01, F04/FA4 file, add F02 file.
7. Add R17/R18, and kill switch function.

2015.10.19 Version 2.4.1

1. Remove volatility interrupt related changes. (P04/PA4, F02)

2016.03.31 Version 2.5

1. P04/PA4 add field: settle\_month, filler.
2. Add T96/TJ6: Physical Delivery Payment File.
3. Add some filed description for P08/PA8.
4. For Circuit Breaker: Expansion of Price Limit Range, F02 file add FUNCTION-CODE 100, 101 definition. Delete P11 file.
5. Adjust 3.5.3 Link contract IDs with underlying stock IDs rule.
6. Add 2.12: Upload Equity Report Files via SFTP

2016.04.27 Version 2.5.1

1. Change the foramt of underlying\_price field of Options C10, C11 file to 9(9) and refer to decimal locator of the price field.
2. Change the foramt of 2.12.1 The summary information of Book-Entry Central Government Securities on margin account equity(daily)
3. P13 or P15 don't include Mini Contract of Single Stock Futures

2016.08.15 Version 2.6

1. P08/PA8 add flow\_group 7,8,9 definition.
2. P09/PA9 add market\_close\_group 7 definition.
3. EQFD/EQAD add DATA\_ENDTIME column.
4. add session connection backup mechanism, and PA7, P39 description.
5. add TMPCM/TMPDC Session Connection Backup Mechanism (online together with “Order Session Connection Backup Mechanism”)

#### 2017.02.02 Version 2.7

1. The after-hour session (night session) data is also available in regular trading dns.
  - A. The night session file (P07/PA7/P12, etc.) of after-hours trading will update and reload the night session data of regular trading dns when the previous after-hours trading system stops.
    - i. e.g. if after-hours trading system closes at 06:30, the next night session file will be updated at 06:30. In general case, the night session file will be updated before 06:30.
  - B. When regular trading dns start, the night session data is also available fcm to query, but night session is opened in after-hours trading system start.
  - C. Regular trading dns domain is taifex.
    - i. e.g. <fcm\_id(7\_characters)>.session<session\_id>.<protocol>.<system\_name>.taifex.
  - D. After-hour trading dns domain is taifex1.
    - i. e.g. <fcm\_id(7\_characters)>.session<session\_id>.<protocol>.<system\_name>.taifex1.
2. For after-hour trading, because market will open at different time, P03, P04, P08 will be generated multiple times, , please update data when receive file notification.
3. P03/PA3 add fields: delivery\_date ,filler. Different delivery date have different value.
4. P08/PA8 add flow\_group 10,11 definition.
5. P09/PA9 add market\_close\_group 10 definition.
6. After-hour trading period will generate P14, P16 file.
7. After-hour trading period will generate block trade files.
8. X01 will be only generate in regular trading period, and data will include after-hour trading data.
9. B10 will be only generate in regular trading period, and data will include after-hour trading data.
10. Add Clearing Member excess margin alert file (N04), and N04 is only available in after-hours trading system.
11. Modify B41,E01 file name and path.
12. C10/CB0 when open\_interest is provided, the following 12 fields: "day\_buy\_count ", "day\_buy\_qnty ", "day\_sell\_count ", "day\_sell\_qnty ", "match\_cnt ", "match\_qnty ", "combine\_day\_buy\_count ", "combine\_day\_buy\_qnty ", "combine\_day\_sell\_count ", "combine\_day\_sell\_qnty ", "combine\_match\_qnty " and "open\_interest" will contain information of normal and block trade from both regular and after-hour trading period.
13. add TMPCM/TMPDC Session flow control in regular trading session and after-hours trading session , user can use cancel\_order\_sec field in L40 (unit:100) (current value 0 means that user dont have flow control).
14. The underlying\_price of options C10/CB0, C11/CB1 file is for settlement purpose only, and shall refer to the value when open\_interest is provided.
15. Add position limit notification (N06), and N06 is available both in regular trading session and in after-hour trading session.
16. F02 add trading suspend REASON 4: After-hours product definition data is not ready.
17. delete M21, M22, M23.
18. add F02 example, Some contract's price limit range is expanded during after-hour trading period, and the price limit range state will continue at the same level when start of following regular trading period.

#### 2017.03.03 Version 2.7.1

1. Add H17 file, Investor OI Data File(After Hour) (0518).

2. Add H18 file, FCM OI Data File (After Hour) (0519).
3. PositionEffect new value define: A (open & specified position offsets).
4. Add U21 File.
5. Modify N04 and N06 file format.

#### 2017.03.09 Version 2.7.2

1. Add U21 description in File transfer overview.
2. PositionEffect A define (open & specified position offsets) is allowed in R01 and R31, block trade is not support A define. After the order is matched, except omnibus accounts, the clearing system will carry out specified position offsets according to the order execution report and in respect of open positions.
3. F02 modify trading suspend REASON 2 definition to "Taiwan security market trading halt, or the product closed early due to TAIFEX trading system failure."

#### 2017.07.03 Version 2.7.3

Modify Equity Mortgage — Bond Information(I17) Denomination unit from ten thousand to thousand.

#### 2017.09.20 Version 2.8.0

1. Split Taifex\_TCPIP\_TMP\_v2.7.3.docx into two separate word documents.  
(Taifex\_TCPIP\_TMP\_v2.8.0.docx, Taifex\_FileTransfer\_Format\_v1.0.0.docx)
2. R22 PositionEffect field add value:A (open & specified position offsets)
3. Unlist Eurex/TAIFEX Link Product. Delete chapter “2.8 Eurex/TAIFEX Link”.
4. Add another method to get B50 file through Subscription Request by fcm\_id + session\_id.

#### 2017.11.24 Version 2.9.0

1. Adjust R02/R32, R22, there are the newly status 47, 48 in status\_code.

#### 2018.04.19 Version 2.10.0

1. TMP R01 or R02 or R31 or R32 or R22 PositionEffect add Offset by FCM:7
2. Move Currency Table from Taifex\_TCPIP\_TMP to Taifex\_FileTransfer\_Format

2019.02.15 Version 2.11.0

1. Adjust the field definitions of TMP R02/R22/R32 when status\_code is 48.

2020.04.10 Version 2.12.0

1. If the client requests target\_id = 3 or target\_id = 13 in R15 and session\_seq exceeds 1 million, then uniq\_id may be duplicate, so target\_id = 23 and R06 messages are added to R15 and R16. Please check 2.4.9 and 2.5.2.2. The function is optional.

2020.08.03 Version 2.13.0

1. Add SFTP Server and modify the description of FTP.
2. Add Single-side quote order modification function in quote input(R09).
3. Error codes: modify 35, add 40, delete 55, 81~87, 94~97.

2021.03.09 Version 2.14.0

1. Add L40 and L50 information security description. (2.2.4 Request logon (L40), 2.2.7 Activate application system (L50))
2. Add investor\_acno check method description. (2.4.1 Order input (R01/R31))
3. Add 3.8 Flow Control description.
4. Remove FTP service description.

2021.09.17 Version 2.15.0

1. Introduction – TCP/IP TMP NETWORK's SFTP SERVER add SFTP server description for information security.