CBOE Financial Network

Market Data Dissemination

For

OneChicago Security Futures Products

Vendor Interface Specification

Version 1.4
January 15, 2010

TABLE OF CONTENTS

Change Notice

Date	Version	Description of Change
Jan 15, 2010	V 1.4	2.0 removed TCP reference in multicast description. Added 7.4 Line Integrity Message documentation.
Dec 07, 2005	V1.3	No change.
Dec 20, 2004	V1.2.1	Updated the "m" message type details
Apr 20, 2004	V1.2.1	Added the message format for Settlement Price ("s")
Feb 24,2004	V1.2.1	Corrected category "r" in section 5.02 to include type "I" and removed type A
Jan 26, 2004	V1.2.1	Noted message types that are not currently in used.

1.0 INTRODUCTION

OneChicago has contracted with the Chicago Board Options Exchange (CBOE) to provide dissemination services for all OneChicago (ONE) products. As supplier of the ONE match engine, CBOE is uniquely positioned to provide market data in a most timely fashion available. The infrastructure to support the market data distribution will be known as the CBOE Financial Network (CFN).

This document describes the required formats for communications and output messages to effectively interface with the CFN facilities.

2.0 GENERAL DESIGN OF DATA DISTRIBUTION NETWORK

CFN will utilize an IP multicast protocol for the dissemination of ONE information. CFN transmits variable length blocks having maximum lengths of 1000 characters. The length includes a Block Length Header, text and control characters. The number of messages contained in a block is variable and the end of each message is delimited by a Unit Separator character (US), except for the last record in the block, which ends with an End of Text (ETX) character.

Data available via the CFN IP multicast distribution network includes:

Real-Time Production Data
A copy of each ONE real-time production message is available from each connection to the CFN facility delivered via two distinct multicast data streams.

Pre-Launch Test Data
Prior to the official launch of OneChicago markets test data will be disseminated over CFN production ports. After launch, OneChicago will approve new vendors for interim connections to the production feed from vendor test environments until they are prepared to move to their production environment.

Time Beacon and Retransmission facility
CFN does not anticipate implementing either of these facilities initially. The evolution of market data networks over the past several years has dramatically reduced the number of retransmission requests made by vendors. As the network and user community of CFN expands, a needs analysis will be performed to determine the importance of providing these features.

3.0 TRANSMISSION CHARACTERISTICS

3.01 TRANSMISSION BLOCK

Encapsulated within each IP packet is a transmission block. One type of transmission block is used for all types of messages:

```
 S                                          E
 O              BLOCK TEXT                  T
 H                                          X
```

|<------ TRANSMISSION BLOCK ------->|

A block can have a maximum of 1,000 characters inclusive of text.

3.02 SOH AND ETX

The Start of Header (SOH) control character (x01) indicates the beginning of the block, whereas an End of Text (ETX) control character (x03) signifies the end of the block.

3.03 US

The Unit Separator (US) control character (x1F) is needed in multiple message blocks to signify the end of the preceding message but not the end of the block.

3.04 BLOCK TEXT

The block text can consist of multiple messages. A message is a unit of data that can be processed by the receiving station independently of other data. A message may not span a block boundary.

A message consists of a Message Header, which is of fixed length and format, and a Message Text segment that is variable in length and format. A US character delimits each message, while an ETX character delimits the last message in the block.

3.05 BLOCK TEXT FORMAT

The block text consists of multiple messages with each message consisting of a Message Header and, with the exception of certain control messages, message text.

The block text is depicted below:

S	MESSAGE 1		MESSAGE 2		~	MESSAGE n	E
		U		U	~		
O	HEADER		HEADER		~	HEADER	T
		S		S	~		
H	& TEXT		& TEXT		~	& TEXT	X

|<--------------- BLOCK TEXT ----------------->|

3.06 DATA FORMAT

ASCII filler characters are inserted, as required, in accordance with the following rules:

1. Zeros (hex 30) are inserted in Numeric fields. All Numeric fields are right justified, as required.

2. Spaces (hex 20) are inserted in Alphabetic fields. All Alphabetic fields are left justified, as required.

3. Spaces (hex 20) are inserted in Alphanumeric fields, except Strike and Premium Price Denominator Code fields, which are Zero filled. All Alphanumeric fields are right or left justified, as required.

4. Reserved fields will be space filled.

3.07 CHARACTER SET

All transmissions are in standard 8-bit ASCII code.

4.0 MESSAGE HEADER

The Message Header supplied on each message contains a total of **18 Bytes** and conforms in all cases to the following data fields:

EXCHANGE ID	Reserved	MESSAGE IDENTIFICATION	MESSAGE SEQUENCE NUMBER	TIME
1	**1**	**2**	**8**	**6**

|←-------------------- 18 BYTES -------------------→|

4.01 MESSAGE HEADER FIELD DESCRIPTIONS

4.02 EXCHANGE ID

The Exchange ID field is a **1 Byte**, Alphabetic character that identifies the ONE as the initiator of the message:

CODE	VALUE
E	OneChicago, LLC

4.03 RESERVED

The Reserved field is a **1 Byte**, Alphanumeric character, ASCII space filled field. Field is reserved for future use.

4.04 MESSAGE IDENTIFICATION

The Message Identification field is a **2 Byte**, Alphabetic upper or lower case character, Space filled field. The first character entered in the Message Identification field identifies the **Message Category**. The second character entered in the Message Identification field identifies the **Message Type**. The Message Type character is Space filled to either indicate a specific value, or that a Message Type is not applicable to a specified Message Category.

LOWER CASE CODE	VALUE
m	Last Sale
n	Open Interest
o	End of Day Summary
r	Quote With Size
s	Settlement Price
UPPER CASE CODE	**VALUE**
C	ADMINISTRATIVE
H	CONTROL
Y	UNDERLYING VALUE MESSAGE

MESSAGE IDENTIFICATION - Message Type (second alpha character):

The following **Message Types**, all mutually exclusive, apply to **Category "m" Last Sale** messages.

CODE		VALUE
Space Filled	REGULAR	Indicates that the transaction was a regular sale and was made without stated conditions
A	CANC	Transaction previously reported is now to be cancelled
B	OSEQ	Transaction is being reported late **and** is out of sequence; i.e., later transactions have been reported for the particular contract.
C	CNCL	Transaction is the last reported for the particular contract and is now cancelled. **(not currently used)**
D	LATE	Transaction is being reported late, but is in the correct sequence; i.e., no later transactions have been reported for the particular contract.
E	CNCO	Transaction was the first one (opening) reported this day for the particular contract. Although later transactions have been reported, this transaction is now to be cancelled.
F	OPEN	Transaction is a late report of the opening trade and is out of sequence; i.e., other transactions have been reported for the particular contract.
G	CNOL	Transaction was the only one reported this day for the particular contract and is now to be cancelled. **(not currently used)**
H	OPNL	Transaction is a late report of the opening trade, but is in the correct sequence; i.e., no other transactions have been reported for the particular contract.
J	REOP	Transaction is a reopening of a contract in which trading has been previously halted. Prefix appears solely for information; process as a regular transaction.
K	AJST	Transaction is a contract for which the terms have been adjusted to reflect a stock dividend, stock split, or similar event. Prefix appears solely for information; process as a regular transaction. **(not currently used)**
L	SPRD	Transaction represents a trade in two contract months in the same class (a buy and a sell in the same class). Prefix appears solely for information; process as a regular transaction.
M	STDL	Transaction represents a trade in two options in the same class (a buy and a sell in a put and a call). Prefix appears solely for information; process as a regular transaction. **(not currently used)**
N	STPD	Transaction is the execution of a sale at a price agreed upon by the floor personnel involved, where a condition of the trade is that it reported following a non-stopped trade of the same series at the same price. **(not currently used)**
O	CSTP	Cancel stopped transaction. **(not currently used)**
P	BWRT	Transaction represents the option portion of a buy/write (buy stock, sell call options). Prefix appears solely for information; process as a regular transaction. **(not currently used)**

CODE		VALUE
Q	CMBO	Transaction represents the buying of a call and the selling of a put for the same underlying stock or index. Prefix appears solely for information; process as a regular transaction. **(not currently used)**
R	BLKT	Block Trade
S	EXPH	Exchange Future for Physical

MESSAGE TYPE IMPACT ON OPEN/HIGH/LOW/CLOSE AND VOLUME

The following table defines the processing rules upon receipt of each **Message Type**.

MESSAGE TYPE	OPEN	HIGH	LOW	CLOSE	VOLUME
A	N/A	Yes	Yes	Yes	Decrement
B	Yes	Yes	Yes	No	Increment
C	Yes	Yes	Yes	Yes	Decrement
D	Yes	Yes	Yes	Yes	Increment
E	Yes	Yes	Yes	N/A	Decrement
F	Yes	Yes	Yes	N/A	Increment
G	Yes	Yes	Yes	Yes	Decrement
H	Yes	Yes	Yes	N/A	Increment
J	N/A	Yes	Yes	N/A	Increment
K	Yes	Yes	Yes	Yes	Increment
L	Yes	Yes	Yes	Yes	Increment
M	Yes	Yes	Yes	Yes	Increment
N	Yes	Yes	Yes	Yes	Increment
O	Yes	Yes	Yes	Yes	Decrement
P	Yes	Yes	Yes	Yes	Increment
Q	Yes	Yes	Yes	Yes	Increment
R	No	No	No	No	Increment
S	No	No	No	No	Increment

Yes indicates vendor should adjust value upon receipt of message type (assuming adjusted message impacts value).

No indicates that no adjustment is required.

MESSAGE IDENTIFICATION- Message Type (second alpha character):

The **Message Type** character for **Category "C" Administrative and Category "n"
Open Interest** messages are **Space filled**.

The following Message Type values apply to **Category "o" End of Day Summary**
message:

CODE	VALUE
Space filled	Security Futures

The following **Message Types** apply to **Category H Control** messages. Refer to Control
Message Descriptions section for definition of values:

CODE	VALUE
C	Start of Day
E	Start of Summary
F	End of Summary
J	End of Day
K	Reset Sequence Number

The following **Message Types** apply to **Category "r" Quote With Size** messages:

CODE	VALUE
Space filled	Regular Trading
F	Fast Market
R	Rotation
T	Trading Halted
I	Inactive
B	Bid from Specialist Book
O	Ask from Specialist Book
C	Both Bid and Ask from Specialist Book

Note: **For codes B, O and C only, in addition to special market conditions, type codes are
used to identify the quote as being from the Specialist Book.**

The following **Message Types** apply to **Category Y Underlying Value** message:

CODE	VALUE
Space filled	Index based on Last Sale
I	Index based on Bid and Ask
C	Closing Spot

Note: **Additional Message Category(s) and Message Type(s) will be implemented as required. If Vendors are not prepared to process new Message Category(s) and/or New Message Type(s) when implemented, they should be able to handle them to the extent that they do not impact their normal data processing.**

4.05 MESSAGE SEQUENCE NUMBER (MSN)

The Message Sequence Number (MSN) is an **8 Byte**, Numeric, Right Justified, Zero filled field. All messages are assigned a sequence number. On a per line basis, the MSN on the lines are set to Zero at the start of each day and are incremented by one each time a message (other than a Retransmission or Reset Message Sequence Number message) is transmitted. The following exceptions or special considerations should be noted:

1.   Retransmitted messages contain the MSN of the original message.

2.   The MSN field in the Message Header of a **Category H Type K Reset Sequence Number** message contains the number to which the MSN counter is to be reset. This number is either Zero or a number greater than the highest number previously transmitted.

3.   The **Category H Type C Start of Day** message contains a Zero message sequence number.

Should CFN experience a line failure and recovery, the message sequence number for the recovered line(s) is reset to a sequence number greater than the last number transmitted. A sequence reset message will be transmitted prior to resumption of data transmission and will indicate the new sequence number that the receiver should expect.

4.06 TIME

The Time (Central Time) field is a **6 Byte**, Numeric Character, Zero filled field. Format is (Military) HHMMSS where HH=Hour, MM=Minute and SS=Second. Indicates the Time that a transaction is disseminated. For Retransmissions, the Time will contain the original Time that the transaction was disseminated.

5.0 MESSAGE FORMATS

Each message transmitted by CFN consists of a Message Header and Message Text. The particular Message Category and Message Type entered in the Message Identification field of the Message Header determines the format of the text. Message formats are fixed field formats (with the exception of Administrative and some Control messages which have unformatted text). Detailed information on each field specified in every message format is contained in alphabetical order in the **Field Descriptions** section **(section 6.0)** of this document.

5.01 LAST SALE

<div align="center">

35 BYTES

</div>

The Last Sale message is used to report last sale information.

CATEGORY	TYPE
m	**Space filled, A, B, C, D, E, F, G, H, J, K, L, M, N, O, P, Q, R, S**

SECURITY FUTURES or NBI FUTURES SYMBOL	RESERVED	EXPIRATION DATE	YEAR
6	**1**	**1**	**1**

|←------------- 9 BYTES --------------→|

RESERVED	VOLUME
9	**6**

|←-------15 BYTES --------→|

PRICE DENOMINATOR CODE	PRICE	SESSION INDICATOR	RESERVED
1	**8**	**1**	**1**

|←------------- 11 BYTES --------------→|

5.02   QUOTE WITH SIZE

47 BYTES

The Quote With Size message is used to report quote with size information.

CATEGORY	TYPE
r	Space filled, F, R, T, I, B, O, C

SECURITY FUTURES or NBI FUTURES SYMBOL	RESERVED	EXPIRATION DATE	YEAR
6	1	1	1

|←--------------- 9 BYTES ----------------→|

RESERVED	PRICE DENOMINATOR CODE
9	1

|←----------- 10 BYTES -----------→|

BID QUOTE	BID SIZE	ASK QUOTE	ASK SIZE
8	5	8	5

|←--------------- 26 BYTES ----------------→|

SESSION INDICATOR	RESERVED
1	1

|←--- 2 BYTES ---→|

5.03   OPEN INTEREST

27 BYTES

The Open Interest message is used to report current contract Open Interest as reported by ONE's clearing agent. Open Interest will be disseminated for the previous day. This message is currently **not implemented**.

CATEGORY	TYPE
n	Space filled

SECURITY FUTURES or NBI FUTURES SYMBOL	RESERVED	EXPIRATION DATE	YEAR	RESERVED
6	1	1	1	9

|←-------------------- 18 BYTES -------------------→|

OPEN INTEREST VOLUME	RESERVED
7	2

|←------------ 9 BYTES -----------→|

5.04   UNDERLYING VALUE – LAST SALE

MAXIMUM 67 BYTES

The Underlying Value message is a variable length record and can accommodate a maximum number of 5 Index groups. Each group contains the Last Sale Index Value of a security futures narrow based index. One ticker symbol will be used for each Narrow Based Index.

CATEGORY	TYPE
Y	**Space filled**

NUMBER OF INDICES IN GROUP
2

|← 2BYTES →|

INDEX GROUP #1

NBI SYMBOL #1	INDEX VALUE
6	**7**

|←----- TOTAL OF 13 BYTES -------→|

(CAN INCLUDE UP TO 5 INDEX GROUPS)

INDEX GROUP #5

NBI SYMBOL #5	INDEX VALUE
6	**7**

|←----- TOTAL OF 13 BYTES -------→|

5.05   UNDERLYING VALUE – BID AND ASK

MAXIMUM 107 BYTES

The Underlying Value – Bid and Ask message is a variable length record and can accommodate a maximum number of 5 Index groups. Each group contains the Bid Index Value and Ask Index Value of a stock index. One ticker symbol will be used for each Narrow Based Index.

CATEGORY	TYPE
Y	I

NUMBER OF INDICES IN GROUP
2

|← 2 BYTES →|

INDEX GROUP #1

NBI SYMBOL #1	RESERVED	BID INDEX VALUE	ASK INDEX VALUE
6	1	7	7

|←------------- TOTAL OF 21 BYTES -------------→|

(CAN INCLUDE UP TO 5 INDEX GROUPS)

INDEX GROUP #5

NBI SYMBOL #5	RESERVED	BID INDEX VALUE	ASK INDEX VALUE
6	1	7	7

|←------------- TOTAL OF 21 BYTES -------------→|

5.06   END OF DAY SUMMARY

103 BYTES

The End of Day Summary messages are transmitted shortly before the Good Night messages. It provides, by symbol, the open, high, low, last, net change and underlying information. **If no activity occurred for a security, no End of Day Summary is generated for that security.**

CATEGORY	TYPE
o	**Space filled**

SECURITY FUTURES or NBI FUTURES SYMBOL	RESERVED	EXPIRATION DATE	YEAR	RESERVED
6	**1**	**1**	**1**	**9**

|←-------------------- 18 BYTES --------------------→|

VOLUME	OPEN INTEREST VOLUME	DENOMINATOR CODE
6	**7**	**1**

|←------------------ 14 BYTES ------------------→|

OPEN PRICE	HIGH PRICE	LOW PRICE	LAST PRICE	NET CHANGE INDICATOR
8	**8**	**8**	**8**	**1**

|←-------------------- 33 BYTES --------------------→|

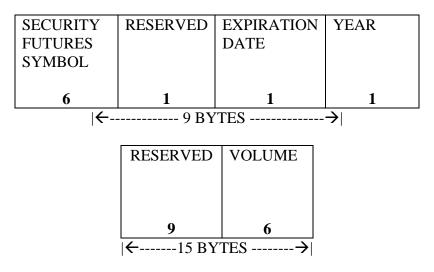| NET CHANGE	UNDERLYING PRICE DENOMINATOR CODE	UNDERLYING STOCK PRICE	BID QUOTE	ASK QUOTE	RESERVED
8	**1**	**11**	**8**	**8**	**2**

|←---------------------- 38 BYTES --------------------→|

5.07   SETTLEMENT PRICE

35 BYTES

The Settlement Price message is used to report daily settlement values information.

CATEGORY	TYPE
s	Space filled

SECURITY FUTURES SYMBOL	RESERVED	EXPIRATION DATE	YEAR
6	1	1	1

|←------------- 9 BYTES --------------→|

RESERVED	VOLUME
9	6

|←-------15 BYTES --------→|

PRICE DENOMINATOR CODE	PRICE	SESSION INDICATOR	RESERVED
			1
1	8	1	

|←------------- 11 BYTES --------------→|

6.0   FIELD DESCRIPTIONS

ASCII code characters are defined as follows:

TERMINOLOGY	DESCRIPTION
Alphabetic	ASCII characters "A" – "Z" or "a" – "z"
Numeric	ASCII characters "0" – "9"
Alphanumeric	Any combination of Alphabetic and Numeric as defined above
Special and Punctuation	Any printable ASCII character **except** Alphanumeric as defined above, i.e.; White Space

- A -

6.01   ASK INDEX VALUE

7 Bytes, Numeric. Right Justified, Zero filled. When there is no Ask Index Value, this field is Zero filled. The digits to the right of the decimal point represent the numerator of a fraction. The denominator is always represented in 100ths (e.g., 99.99). It may represent a value of Zero or greater.

The Ask Index Value represents the value of the index's calculation formula using the current ask(ed) values of the component securities.

6.02   ASK QUOTE

8 Bytes, Numeric. Right Justified, Zero filled. When there is no Ask Quote, this field is Zero filled.

The 8 **Byte** Ask Quote is the whole and decimal portion of the Ask Quote price information with the Price Denominator Code determining the location of the decimal point.

Represents the price at which a seller is offering to sell a contract.

When the Ask Quote field is Zero filled, it represents a "No Ask Quote" condition.

6.03   ASK SIZE

5 Bytes, Numeric. Right Justified, Zero filled. When there is no Ask Size, this field is Zero filled.

The Ask Size identifies the number of contracts for sale for a contract.

When the Ask Quote and the Ask Size fields are Zero filled, it represents a "No Ask Quote" condition.

- B -

6.04   BID INDEX VALUE

7 Bytes, Numeric. Right Justified, Zero filled. When there is no Bid Index Value, this field is Zero filled. The digits to the right of the decimal point represent the numerator of a fraction. The denominator is always represented in 100ths (e.g., 99.99). It may represent a value of Zero or greater.

The Bid Index Value represents the value of the index's calculation formula using the current bid values of the component securities.

6.05   BID QUOTE

8 Bytes, Numeric. Right Justified, Zero filled. When there is no Bid Quote , this field is Zero filled.

The **8 Byte** Bid Quote is the whole and decimal portion of the Bid Quote price information with the Price Denominator Code determining the location of the decimal point.

Represents the price at which a buyer is willing to buy a contract.

When the Bid Quote field is Zero filled, it represents a "No Bid Quote" condition.

6.06   BID SIZE

5 Bytes, Numeric. Right Justified, Zero filled. When there is no Bid Size, this field is Zero filled.

The Bid Size identifies the number of contracts being bought for a contract.

When the Bid Quote and the Bid Size fields are Zero filled, it represents a "No Bid Quote" condition.

- E -

6.07   EXPIRATION DATE

1 Byte, Alphabetic. It indicates the expiration month for the security future.

CODE	VALUE
F	JAN
G	FEB
H	MAR
J	APR
K	MAY
M	JUN
N	JUL
Q	AUG
U	SEP
V	OCT
X	NOV
Z	DEC

- H -

6.08   HIGH PRICE

8 Bytes, Numeric. Right Justified, Zero filled.

The High Price is the whole and decimal portion of the High Price information with the Price Denominator Code determining the location of the decimal point.

Represents the highest price paid for a contract during the trading day.

- I -

6.09   INDEX SYMBOL

6 Bytes, Alphabetic. Left Justified, Space filled.

Identifies the unique symbol assigned to an index.

6.10   INDEX VALUE

7 Bytes, Numeric. Right Justified, Zero filled. When there is no Index Value, this field is Zero filled. The digits to the right of the decimal point represent the numerator of a fraction. The denominator is always represented in 100ths (e.g., 99.99). It may represent a value of Zero or greater.

Contains the index value using last sale values of index components.

- L -

6.11   LAST PRICE

8 Bytes, Numeric. Right Justified, Zero filled.

The Last Price is the whole and decimal portion of the Last Price information with the Price Denominator Code determining the location of the decimal point.

Represents the last price paid for a contract during the trading day.

6.12   LOW PRICE

8 Bytes, Numeric. Right Justified, Zero filled.

The Low Price is the whole and decimal portion of the Low Price information with the Price Denominator Code determining the location of the decimal point.

Represents the lowest price paid for a contract during the trading day.

- N -

6.13   NET CHANGE

8 Bytes, Numeric. Right Justified, Zero filled.

The Net Change is the whole and decimal portion of the Low Price information with the Price Denominator Code determining the location of the decimal point.

Represents the change in the price of a contract from the closing price of one day to the closing price on the next day.

6.14   NET CHANGE INDICATOR

1 Byte, Special or Numeric. Will contain a plus (+) sign, a minus (–) sign or a Zero (**0**).

Represents the upward, downward or unchanged price movement in a contract's trades.

6.15   NUMBER OF INDICES IN GROUP

2 Bytes, Numeric. Right Justified, Zero filled.

Represents the total number of indices contained in a particular message.

- O -

6.16   OPEN INTEREST VOLUME

7 Bytes, Numeric. Right Justified, Zero filled.

Represents the total number of outstanding contracts that have not yet reached expiration.

6.17   OPEN PRICE

8 Bytes, Numeric. Right Justified, Zero filled.

The Open Price is the whole and decimal portion of the Open Price information with the Price Denominator Code determining the location of the decimal point.

Represents the first price paid for a contract during the trading day.

- P -

6.18   PRICE

8 Bytes, Numeric. Right Justified, Zero filled. When there is no Price, this field is Zero filled.

The whole and decimal portion of Price information. The Price Denominator Code determines the location of the decimal point.

Represents the price of a contract, determined in the competitive marketplace, which the buyer pays to the seller for the rights conveyed by the contract.

6.19   PRICE DENOMINATOR CODE

1 Byte, Alphanumeric. The Price Denominator Code field indicates the position of the floating decimal point.

Price Denominator Code	Denominator Value
A	10
B	100
C	1,000
D	10,000
E	100,000
F	1,000,000
G	10,000,000
I	(N/A)
H (not defined)	

- R -

6.20   RESERVED

Variable (V) Bytes, Alphanumeric. Reserved fields are Space filled unless otherwise defined.

Fields reserved for future use.

Note: **Reserved fields will be redefined and implemented as required. If data recipients are not prepared to process new field(s) when implemented, they should**

be able to handle them to the extent that they do not impact their normal data processing.

- S -

6.21   SECURITY SYMBOL

6 Bytes, Alphabetic. Left Justified, Space filled.

Identifies the unique symbol assigned to the security.

6.22   SESSION INDICATOR

1 Byte, Alphabetic, Space filled.

The Session Indicator identifies the session in which the trade or quote originated.

CODE	VALUE
a (lower case)	Morning (A.M.) session
Space filled	Normal session

- U -

6.23   UNDERLYING PRICE DENOMINATOR CODE

1 Byte, Alphanumeric.

The Underlying Price Denominator field indicates the position of the floating decimal point.

Underlying Price Denominator Code	Denominator Value
A	10
B	100
C	1,000
D	10,000
E	100,000
F	1,000,000
G	10,000,000
H	100,000,000

Note: **The above Price Denominator Codes are based on Equity underlying code**

---

information. However, CFN only supports a maximum of 11 BYTES in the Underlying Price Denominator field.

6.24   UNDERLYING STOCK PRICE

11 Bytes, Numeric. Right Justified, Zero filled. When there is no Underlying Stock Price, this field is Zero filled.

The Underlying Stock Price is the whole and decimal portion of the Underlying Stock Price information with the Underlying Stock Price Denominator Code determining the location of the decimal point.

Represents the price of the underlying security.

- V -

6.25   VOLUME

4 or 6 Bytes, Numeric. Right Justified, Zero filled.

Represents the total number of contracts traded for a contract in one trade, or the total number of contracts traded for a contract for the entire trading day.

- Y -

6.26   YEAR

1 Byte, Alphanumeric, Space filled.

Contains the last digit of the expiration year.

7.0   ADMINISTRATIVE MESSAGES

7.01   Administrative Message

The length of an administrative message is variable. The total length of the entire message cannot exceed 1000 characters, including the SOH character, the Message Header, the ETX character and all characters between those characters.

7.02   Administrative Message Text

For most administrative messages, the text section of the Administrative message is transmitted in free format.

7.03   Administrative Message Standards

ONEs use **Category C Type (Space filled)** Administrative messages to transmit market data on nonstandard options that do not fit normal formats.

ADMINISTRATIVE MESSAGE (ADM)			
Field Descriptions			
	Bytes	Character	Details
Product Type	4	Alphabetic	SF – Security Future
Filler	1	Space	
Filler	4	Space	
Security Symbol	4	Alphabetic Left Justified Space filled	MSFT
Filler	1	Space	
Message Type	3	Alphabetic	ADM – Admin Message
Filler	1	Space	
Text	V	Alphanumeric	Market News
This message is an Administrative Message that news regarding MSFT has been disseminated.			

REQUEST FOR QUOTE (RFQ)			
Field Descriptions			
	Bytes	Character	Details
Product Type	4	Alphabetic	SF – Security Future
Security Symbol	6	Alphabetic Left Justified Space filled	MSFT1C
Filler	2	Space	
Message Type	3	Alphabetic	RFQ - Request for Quote
Filler	1	Space	

Request Identifier	5	Alphanumeric Left Justified Space filled	RFQ1(Space)
Filler	1	Space	
Text	V	Alphanumeric	JUL 2003 500 Contracts

7.04   Line Integrity Message

During the production day a type of Administrative message, the Line Integrity message, is sent out once each minute. The text of the message is "LINE INTEGRITY TEST ". The purpose of the message is to validate that the data path remains operational in the event that no other traffic is occurring.

8.0   CONTROL MESSAGES

8.01   CONTROL MESSAGE SUMMARY

Control messages perform specified system advisory and control functions.

A Control message may be originated by ONE and transmitted to CFN or to the data recipients, or may be originated by CFN on behalf of ONE for transmission to data recipients or both. The following represents all Control messages that may be originated by CFN or ONE that are sent to all lines:

MESSAGE IDENTIFICATION CATEGORY	TYPE	CONTROL MESSAGE
H	C	Start of Day
H	E	Start of Summary
H	F	End of Summary
H	J	End of Day
H	K	Reset Sequence Number

Control messages can consist of the standard Message Header only, or the standard Message Header immediately followed by text. The textual portion of the message is in variable field (free form).

Control messages are **not** blocked with any other messages.

For all Control messages, the **Exchange ID** field in the **Message Header** will contain a character identifying ONE as the exchange originating the message as follows:

CODE	VALUE
E	OneChicago, LLC

ONE or CFN on behalf of ONE can originate Control messages as follows:

EXCHANGE ID CODE	CONTROL MESSAGE
E	Start of Day
E	Start of Summary
E	End of Summary
E	End of Day
E	Reset Sequence Number

The **Reserved** field in the **Message Header** is ASCII space filled.

The first alphabetic upper case character of the **Message Identification** field in the **Message Header** contains the Message Category character **"H" meaning Control Message.** The second alphabetic upper case character of the **Message Identification** field in the **Message Header** contains one of the following characters **"C,E,F,J or K"** designating the particular **Message Type**.

In textual portions of Control messages, the Exchange Identification identifies the abbreviated name of the referenced exchange or Processor as follows:

Exchange Identification Abbreviation	EXCHANGE
AMEX	American Stock Exchange
BOX	Boston Options Exchange
CBOE	Chicago Board Options Exchange
CFE	CBOE Futures Exchange
ISE	International Securities Exchange
NYSE	New York Stock Exchange
ONE	OneChicago LLC Securities Futures Exchange
OPRA	Options Price Reporting Authority
PCX	Pacific Exchange
PHLX	Philadelphia Stock Exchange

In the free form textual portions of Control messages, where specified, **MM=Month, DD=Day, HH=Hour and MM=Minute** (The time is Central Time and format is Military).

8.02   CONTROL MESSAGE DESCRIPTIONS

8.03   Start of Day – Category H Type C

The Start of Day message is transmitted to data recipients at the beginning of the day to signal the start of message processing by CFN and transmission of messages to data recipients.

Test cycle messages can be repeated until shortly before transmission of the Start of Day message.

The Start of Day message will consist of the standard Message Header immediately followed by the textual message:

"START OF DAY"

The Message Sequence Number (MSN) field always contains a sequence number of Zero.

8.04   Start of Summary - Category H Type E

The Start of Summary message is transmitted by CFN to signal the beginning of transmission of one or more End of Day Summary messages for ONE.

The Start of Summary message will consist of the standard Message Header immediately followed by the textual message:

"(EXCHANGE IDENTIFICATION) START OF SUMMARY – MMDD HHMM"

example: "ONE START OF SUMMARY – 0102 1000"

The MSN field contains a number one greater than the number of the last message transmitted.

8.05   End of Summary - Category H Type F

The End of Summary message is transmitted by CFN to signal the end of transmission of one or more End of Day Summary messages for ONE.

The End of Summary message will consist of the standard Message Header immediately followed by the textual message:

"(EXCHANGE IDENTIFICATION) END OF SUMMARY – MMDD HHMM"

example: "ONE END OF SUMMARY – 0102 1530"

The MSN field contains a number one greater than the number of the last message transmitted.

8.06   End of Day - Category H Type J

The End of Day message signals the end of transmission of original data over the lines.

The End of Day message will consist of the standard Message Header immediately followed by the textual message:

"ONE END OF DAY"

The MSN field contains a number one greater than the highest MSN previously transmitted.

8.07   Reset Sequence Number - Category H Type K

CFN transmits a Reset Sequence Number message to the data recipients when the sequence numbers on a line require resetting to a number specified in the Message Sequence Number field in the Message Header.

The Reset Sequence Number message will consist of the standard Message Header immediately followed by the textual message:

"SET MESSAGE SEQUENCE NUMBER"

The MSN field contains the number to which the MSN counter is to be reset.