

Options Symbology Plan

December 5, 2006

Introduction

A group of options industry professionals created a plan to overhaul the symbology used in representing listed option contracts in data transmissions between market constituents. The plan was released for comment in May 1, 2006 and responses were due by August 29, 2006. Seven comment letters were received and responses were generated. The comments and responses may be viewed at www.optionsclearing.com/symbology/. A summary of the changes resulting from the comments is followed by the updated plan. Interested parties should take special note of the milestones and the associated dates.

Summary of Changes

1. The data requirements for exchange generated OPRA messages are depicted in the table below. All other exchange and clearing interfaces will adhere to the original minimum data requirements depicted in the series key on page 5 of this document.

OPRA EQUITY/INDEX OPTION SYMBOL CHANGE

	CURRENT SYMBOL	NEW SYMBOL
<i>Security Symbol</i>	Use 3 In 5 Position Alpha Field	5 Position Alpha Numeric ¹
Expiration Month	A = Jan Call, etc.	No Change
<i>Expiration Date</i>	Does Not Exist	2 Numeric
<i>Year</i>	1 Numeric	2 Numeric
<i>Explicit Strike Price</i>	8 Positions ²	7 Positions ³
<i>Strike Price Code</i>	A = 5, etc.	Goes Away

TOTAL POSITIONS

16

17

¹ Corporate action code follows the underlying symbol. For example, the first corporate action on IBM, 5 character symbol is "IBM1 space". If 5th position not available to indicate a corporate then a bastardized symbol will be used.

² 1 Position strike price denominator code and 7 position explicit strike price value.

³ 1 position strike price denominator code and 6 position explicit strike price value.

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2. Additional information was added to the corporate action example on page 7 to provide clarification. The changes are in **bold** face type.
3. Recognition that the OPRA data formats will deviate from all other formats used in the exchange and clearinghouse interfaces was made in the conclusion found on page 11 of this document.
4. The milestone to provide a recommendation to the OCC Board of Directors for approval was changed from September 26, 2006 to December 5, 2006.
5. The name of the document was changed from Symbology Implementation Plan to Options Symbology Plan.

Purpose

Recommend an approach to eliminate the practice of representing listed options contracts with OPRA codes (tickers) and fractional strike prices by the end of November 2009. The document must provide sufficient background to inform the reader how committee members reached consensus for minimum data requirements. A recap of the mental exercise that committee members experienced is vital to framing the task at hand. Interested parties are urged to read the entire document prior to expressing their views on this topic.

Background

Today, many organizations that support trading in listed options are restricted in their ability to identify and process exchange listed option contracts. These organizations typically use a three to five alpha character representation. The first one to three characters identify the option root symbol and the remaining two alpha characters identify the expiration month, call/put indicator and strike price (IBMER = IBM May 2006 90 call). This method has been used for over 25 years and poses several limitations in today's marketplace. The limitation of three characters to represent the option root creates inconsistency with OTC securities and has resulted in the use of illogical identifiers in both the options and underlying securities markets. The month and call/put codes assume expiration occurs in the following sequential month and assumes a single expiration day. LEAP contracts have never been standardized under this methodology. Similarly, the introduction of exchange listed flexible contracts necessitated a different symbology to address these limitations. These limitations have fueled the proliferation of one to three character root symbol designations needed to support the industry and has impacted the securities markets as a whole. In the last 15 years, the flex symbology has not found its way into mainstream processes in most firms and could be viewed as limiting the products growth. An additional strain has been introduced with the recent exchange listing of short dated options that expire up to four times during a single month. In summary, most market professionals agree that the need for additional symbols to identify listed option products will continue grow and that existing limitations will be magnified.

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In July of 2005 the OCC Board of Directors⁴ asked OCC staff to work with industry representatives in defining a reasonable timeframe to eliminate the use of OPRA codes in the listed options markets. OCC staff was also instructed to ensure that all option strike prices be represented in decimal format at the same time. Once a plan has been adopted the options exchanges and OCC will jointly coordinate a timeframe when all market participants must comply.

In August 2005, a committee was formed to develop a plan. Representatives from broker dealers, exchanges, vendors and OCC actively participated⁵. The Symbology Committee was instructed to develop an implementation plan to bring the options industry into compliance and to include a definitive timeframe. The OCC Operations and Technical Roundtable infrastructures were used to validate ideas and to resolve controversial issues⁶.

The following goals and objectives were identified:

- Provide documentation to trade, clear and settle listed options where all market participants utilize explicit data elements to identify option series.
- Represent all strike prices in decimal formats where the number of decimal places is equal to the trading increment of the underlying instrument. For example: Exchange listed equity options strike prices on NYSE stocks may be represented in pennies for certain corporate actions.
- Identify all listed products cleared by OCC that are affected by this change.
- Identify industry organizations that will be impacted and create a mechanism for communicating developments throughout the life of the project.
- Mandate a timeframe to force compliance upon all affected market participants.

The following benefits were identified:

- Decrease the number of errors in the front, middle and back office processes.
- Represent the vast majority of listed option contracts using the same symbol as the underlying security.
- Reduce corporate action symbol conversions.
- Eliminate wrap symbols.
- Eliminate the need for LEAP rollover process.
- Reduce the frequency of coordination among exchanges for symbol elections.

⁴ The OCC Board of Directors is comprised of representatives from nine broker dealers, five U.S. options exchanges, one public director and one OCC director.

⁵ Organizations include: Automatic Data Processing Inc., American Stock Exchange, Bank of America, Boston Options Exchange, Chicago Board Options Exchange, Goldman Sachs, Interactive Brokers, International Securities Exchange, Merrill Lynch, Morgan Stanley, NYSE Group, Options Clearing Corp., Options Price Reporting Authority, Philadelphia Stock Exchange, Securities Industry Automation Corp. and the Securities Industry Association.

⁶ The OCC Operations Roundtable is comprised of operations managers from OCC participant exchanges and Clearing Members. The OCC Technical Roundtable is comprised of IT professionals from OCC participant exchanges and Clearing Members.

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The following asset classes/option types will be impacted:

- Equity Options
- Index Options
- Yield Based Options
- Short Dated Options
- Flex Options
- Foreign Currency Options

The security futures product symbology remains “as is”.

The following industry organizations must be engaged and effective communication with these organizations is crucial.

- Options Price Reporting Authority (OPRA)
- Securities Industry Association (SIA)
- Consolidated Tape Authority (CTA)
- Options Linkage Authority (OLA)
- Depository Trust and Clearing Corporation (DTCC, NSCC, ACATS)
- Futures Industry Association (FIA)
- Bond Market Association (BMA, AMI)
- Risk Management Association (RMA)
- Financial Information Forum (FIF)
- International Securities Association for Institutional Trade Communication (ISITC)
- Options Operations Committee (OOC)
- Investment Company Institute (ICI)
- Customers

The Symbology Committee spent a significant amount of time discussing the appropriate scope for this initiative. They contemplated a range of ideas from narrow to expansive. The narrow scope limited the requirements to addressing only the changes necessary to eliminate OPRA codes and “decimalize” strike prices. The expansive scope considered providing flexibility for exchange product development into exotic and multi leg instruments. The committee is confident that the recommended standard provides some of the desired flexibility for product expansion in the listed option markets.

The first issue the Symbology Committee addressed was to define minimum data elements necessary to represent the options contract without OPRA codes and with decimal strike prices. The committee spent nearly four months debating the inclusion of certain data elements and their relative sizes. The concepts of minimum data elements and minimum data element sizes reflect the fact that organizations have the freedom to choose how proprietary data is represented within their organization. The data

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requirements recommended by the Symbology Committee represent a set of minimum standards to be used when transferring option contract information between two or more organizations. These data elements are described below in what has come to be called the series key. Each data element within the series key has been debated extensively within the Symbology Committee. The arguments surrounding each data element have been replicated in this document. These arguments are intended to bring all market participants to a common understanding of how and why the Symbology Committee came to the series key represented below. The committee also recognizes that once there is general agreement on the appropriate data elements needed to process listed options absent OPRA codes and with decimal strikes, the daunting task of approving an industry-wide implementation plan may begin.

Series Key

Symbol	Mo	Day	Yr	C/P	Explicit Strike	Decimal
MSFT	02	18	06	C	00047	500

The series key may vary for each organization but must support the following minimum data requirements in the transmission of listed option contracts between two or more organizations.

Minimum field sizes

Symbol⁷ – 6 bytes

Year – 2 bytes

Month⁸ – 2 bytes

Day – 2 bytes

Call/Put indicator⁹ – 1 byte

Strike Dollar¹⁰ – 5 bytes

Strike Decimal – 3 bytes

Total – 21 bytes when minimum values are adopted

The Symbology Committee recommends that each of the series key data elements be placed in the logical order as described above. This was recommended by technical representatives to aide in problem resolution and analysis exercises.

⁷ OPRA will support a five character symbol in a message formats.

⁸ OPRA will continue to use one character alpha code to represent both the month and call/put indicator in all data transmissions.

⁹ The call/put indicator is combined with the month code in all OPRA message formats.

¹⁰ OPRA will support a total of six positions and a decimal indicator.

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Discussion on data requirements for each data element used to define a listed option contract

General

The notion of creating a unique identifier similar to the cusip methodology used in the cash markets was discussed at length. The cost and processing overhead associated with a central repository responsible for the maintenance and distribution of the unique identifier was considered prohibitive. The Symbology Committee acknowledges the fact that the string of data used to define each unique option contract in the series key requires larger messages for data transmissions but smaller data storage requirements (all of the data elements must be stored somewhere). The committee further acknowledges the fact that organizations will design internal systems to suit their specific needs and desires.

Option Symbol

The goal of the committee regarding the option symbol was simple: Use the underlying security symbol to the greatest extent possible. The following asset classes and product types were considered:

- Equity Options
- Index Options
- Yield Based Options
- Short Dated Options
- Flex Options
- Foreign Currency Options

The decision to support a six character minimum option symbol was based upon the desire to support OTC stocks and subsequent corporate events that result in a change to the option contract deliverable component(s). This will enable the elimination of both LEAP and wrap symbols used today because of limitations in the OPRA code methodology. A single option symbol will be used for all standard contracts delivering 100 shares or a consistent multiple of the cash settled index value with the same settlement calculation. For example: All MSFT contracts with identical terms (i.e. delivering 100 shares that are American style and settle on the closing MSFT stock price at expiration) will use the MSFT symbol. Likewise, all S&P 500 index options with a 500 multiplier that are European style and settle on the opening (SET) price will use the SPX (or exchange designated) symbol. The committee recognizes that listed option contracts with different settlement terms (settle on open versus closing underlying values) will be traded, cleared and settled using different option symbols. There were two primary reasons for this decision: 1. Differences in exercise rights and settlement value calculations are material and indeed different contracts. 2. The scope of the effort becomes unmanageable when considerations for all of the various components of option

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contracts are introduced¹¹. The committee agreed that the number of non-standard symbols generated by this specific proposal was negligible.

The recommended symbology will ensure that the characters used to identify over 95% of listed option contracts will be common within the underlying security and familiar to the average investor.

The committee acknowledged the fact that certain corporate actions will result in non-standard deliverable share quantities comprised of a single security, multiple securities and/or cash. The industry practice of assigning a unique symbol for options carrying non-standard deliverable components will remain. If the resulting option contract continues to deliver standard underlying share quantities then the option symbol will not change. Corporate actions that result in non-standard deliverable components will be identified by adding a numeric value to the end of the pre-event symbol (MSFT becomes MSFT1). This naming convention highlights non standard deliverable option contracts to all interested parties. This convention also supports contracts that undergo multiple corporate actions. Once a corporate action symbol has been assigned, it will remain unchanged throughout the life of the contract. This holds for contracts that undergo any and all subsequent corporate actions.

Example:

Stock ABCD undergoes a 2 for 1 stock split on June 1, 2006. All strike prices are halved, the deliverable remains 100 and the symbol is unchanged. On September 1, 2006 stock ABCD spins off company EFGH, 10 shares per 100 ABCD owned. On the market opening at ex-date all open interest in ABCD corp. is moved to symbol ABCD1 delivering 100 shares of ABCD and 10 shares of EFGH. **Option symbol ABCD1 = 100 ABCD + 10 EFGH.** Subsequently, ABCD and EFGH shares are each listed in the underlying cash market and their prices are used in the valuation of options ABCD1 respectively. The options exchanges list new option contracts for each underlying that deliver 100 shares using symbols ABCD and EFGH (assuming listing criteria is met). **Options symbols ABCD and EFGH begin trading (independently) and each delivers 100 shares of the corresponding stock upon exercise.** On December 1, 2006 ABCD undergoes a 3 for 2 stock split. Option contracts in ABCD and ABCD1 are affected. Contracts in ABCD become ABCD2 delivering 150 shares of underlying stock ABCD. **Option symbol ABCD2 = 150 ABCD.** Contracts in ABCD1 remain ABCD1 and deliver 150 shares ABCD and 10 shares EFGH. **Option symbol ABCD1 = 150 ABCD + 10 EFGH. The exchange will again list a new ABCD delivering 100 shares of ABCD stock upon exercise.** Historically, the open interest grows in the new 100 standard deliverable contract and wanes in the non-standard contracts. This method ensures the

¹¹ There are many components that differentiate option contracts from one another but the committee felt that the amount of non-standard symbols required to support these other instances is inconsequential at this time.

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common underlying symbol will remain the primary trading symbol for the liquid option contracts.

The committee also agreed to support a non-standard symbology for listed Flex Options. The existing Flex symbology provides for the delineation of American versus European style exercise, settle on open versus closing index values and expiration day. The new symbology eliminates the need to identify the expiration day because it is now part of the options series key. The committee agreed to continue the industry practice of using numeric codes that preface the symbol on listed contracts for the same underlying that have different exercise terms (American/European) or settlement values (opening/closing).

Current Flex Symbology:

A.M. = settle on open, P.M. = settle on closing underlying values on expiration date.

- 1 = American/A.M.
- 2 = European/A.M.
- 3 = American/P.M.
- 4 = European/P.M.

The symbols are comprised of three components:

1. The first character is numeric and represents the exercise style and settlement value method.
2. The next one to three characters represents the alpha option class symbol.
3. The day of expiration¹².

3MSQ13 = American exercise, settle on the close on the 13th day of the expiration month.

2BA16 = European exercise, settle on open on the 16th day of the expiration month.

New Flex Symbology:

The new flex symbols will have two components:

1. The first character is numeric and represents the exercise style and settlement value method in the same manner as today.
2. The next one to five characters represents the alpha option class symbol.

The new symbol will not include the expiration day. The expiration month, day and year must be transmitted in all data communications for all listed option contracts.

¹² The industry already uses a separate two character month code to identify the expiring month for listed flex contracts.

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Example:

1IBM = IBM listed Flex contract with *American* exercise and settles on the underlying index *opening* value on the day of expiration.

2IBM = IBM listed Flex contract with *European* exercise and settles on the underlying index *opening* value on the day of expiration.

3IBM = IBM listed Flex contract with *American* exercise and settles on the underlying index *closing* value on the day of expiration.

4IBM = IBM listed Flex contract with *European* exercise and settles on the underlying index *closing* value on the day of expiration.

Information regarding the expiring month, day and year will be transmitted in all data communications.

Corporate actions for flex contracts that contain six character symbols prior to the event will replace the sixth character with the next available numeric value to ensure a unique symbol is achieved.

Example:

Pre-event flex symbol = 1ABCDE

Post-event flex symbol = 1ABCD1

Expiring Year

The committee recommended a 2 byte minimum data requirement to represent the option contracts expiring year in recognition of some committee members desire to minimize the amount of data transferred in high volume transaction environments. The committee discussed the fact that the majority of the market participants store the expiring year in a 4 byte format and would continue to do so. Furthermore, all OCC data transmissions for proprietary (positions) and non-proprietary (option series) data will continue to contain a 4 byte year.

Expiring Month and Day

Both the month and day fields carry 2 bytes.

Call/Put indicator

The committee recommended a 1 byte field that will carry the values “c” or “p”. There was discussion that new values may be used if an exchange new product such as exotic options or multi-leg instruments required special processing. However, only the “c” or “p” values are considered for purposes of this document.

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Strike Price

There was extensive discussion regarding representation of strike price amounts in decimal values. Several methods were considered. The method adopted by OPRA in 1999 depicts an eight character field with a floating decimal and an alpha indicator code. The OPRA method provides for a total of seven digits in a strike price with any combination of digits to the left or right of the decimal place. While the flexibility offered in this method is appealing, the committee felt that each organization should be free to design this data element as desired. The establishment of minimum standard field sizes (5 to the left and 3 to the right) was recommended. The majority of the discussion concerned the appropriate minimum requirement for decimal places to the right. The committee chose to support three places to aid in the conversion of open contracts with strikes represented in eighths at the time of implementation. The flexibility afforded by this minimum standard does provide flexibility in the determination of and industry supported implementation plan.

The discussions continued and focused on the long term issue of how strike prices should be represented once all contracts carried in eighths have expired. The committee reached agreement that listed option strike prices should be represented in the same level of granularity (decimal places to the left and right of the decimal point) as the underlying instrument. As of February 2006, all listed options are cleared and settled within the range of four characters to the left of the decimal and three to right (three places to the right is only required for strike prices in eighths due to corporate events). The committee also discussed the fact that 99.9% of listed option underlying instruments trade in pennies. The conversion of listed contracts trading in eighth increments (from fractional to decimal representation) will be addressed in the implementation plan. The committee also recognized the fact that certain listed foreign currency options listed on the Philadelphia Stock Exchange trade in increments that would require more decimal places to the right if they were represented in their true economic terms. Historically, the industry has used multipliers to represent the listed foreign currency contracts in whole dollar strike prices. Philadelphia Stock Exchange staff members informed the committee that the listed foreign currency contracts would conform to the standard minimum requirements recommended in this proposal by the time implementation is achieved. In addition, the committee agreed to recommend that the practice of using multipliers to represent listed index options in whole dollar strike intervals be eliminated. Options exchanges that wish to list index contracts in decimal increments may do so in accordance with their rules.

Other data elements considered and not included in the series key

The committee discussed inclusion of a field that would identify whether a contract was an option on a security or an option on a commodity. There was limited support for this concept and the idea that it might be expanded to identify other types of listed

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derivatives. The committee reached the consensus that certain data must be housed and accessed in the security master file. The designation of the appropriate regulatory governance or some other unique characteristic was viewed as one such data element. Futures contracts are not considered in scope for this initiative.

The committee also discussed the need for an American/European indicator as part of the series key. The committee determined that since 100% of listed stock options carry American style exercise rights and the vast majority of listed index options carry European exercise rights that the use of this indicator on every transaction was inefficient. The committee agreed to support the use of different option symbols for contracts with different exercise rights for the same underlying security or index.

The committee also discussed the Decimal/Fraction Indicator implemented as part of the industry wide decimalization project in 2000. This field was originally intended to delineate the securities that had been converted to trade in decimal increments throughout the phased implementation plan. The reader is reminded that there was a conscious decision to exclude listed option strike prices at that time. The fact that the underlying security trades in pennies while option strike prices are represented in eighths is the one of the primary reasons this project is necessary. Any gain or loss to position holders resulting from a corporate action where the strike price is rounded to the nearest eighth will be eliminated upon implementation of the initiative. The committee determined that there was no need to utilize this field in the recommended implementation strategy.

Conclusion

The committee recommends that the data elements identified in the series key be used in all data transmissions associated with the trading, clearance and settlement of exchange listed options. The committee also emphasizes the importance of representing option strike prices in the same format as the underlying instrument (decimal places to the left and right of the decimal point). Once these objectives have been accomplished, the trading of options will become more intuitive and less complicated for all market participants. Committee members recommend industry participants create a budget item for this initiative in the fiscal year 2007.

Implementation strategy

The Symbology Committee recommends an implementation strategy with three primary phases. First, the exchanges and clearinghouse will develop record layouts that support both the new and old methodology. Second, industry testing in an environment where both methods are supported with live data is conducted. Finally, a conversion process will be defined that mitigates operational risk and minimizes the number of conversion events.

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The conversion strategy parallels the one used in the decimalization effort whereby old and new data formats are available on every data transmission. This strategy implies that the conversion event is defined by eliminating old data elements. Record layouts and data definitions will not change on conversion date. The actual conversion plan should be recommended well in advance of scripted industry testing.

The following milestones and associated dates have been developed by the Symbology Committee:

May 1, 2006 - Data definition and Implementation Strategy document distribution to industry participants.

- This document will recommend a set of data standards and include a testing and conversion strategy for all market participants.
- It will be distributed through the various organizations identified in the document.
- Comments will be received for a 120 day period.

May 1, 2006 to August 29, 2006 – Industry comment period.

- Comments will be submitted through the OCC web site.
www.optionsclearing.com/symbology/
- The Symbology Committee is the authority by which comments are accepted or rejected.

December 5, 2006 – A recommendation is submitted to the OCC Board of Directors for approval.

January 2007 – OCC and Exchange record layout changes to support new and old symbology methods are documented and distributed to industry participants. These documents will constitute the tools used by market participants to conduct impact analysis. Each entity will be responsible in communicating with its own constituents. All market participants should budget capital toward this initiative during the 2007, 2008 and 2009 calendar years.

The following data interfaces must be considered:

- Exchange interfaces
- Clearinghouse interfaces
- Market Data interfaces
- Clearing Member/Client interfaces
- Regulatory interfaces
- Historical data

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January 2008 – March 2008 – Detailed conversion strategy is communicated for industry comment and approval.

June 2008 – OCC and Exchanges supply data values in new record layouts for industry internal testing efforts. The data will be available on production data feeds only. Firms may use the remainder of the 2008 calendar year to conduct system readiness testing.

January 2009 – July 2009 – Scripted industry testing of the conversion and complete trade cycle is conducted.

August 2009 to November 2009 – Phase in of the new methodology in the least number of increments as defined by industry participants.

The following assumptions are considered valid:

1. The initiative will utilize the structure and documentation templates from the decimalization project.
2. All options exchanges (cleared by OCC), OCC and OPRA representatives are committed to meeting the target dates.
3. The Committee will only identify target dates; each firm will be responsible to manage their own project.
4. All series within a given class will be converted. All affected symbols including corporate action symbols will be designated and communicated prior the conversion dates.
5. New record layouts should be backward compatible and implemented at least six months prior to conversion. One record must carry all new data attributes and there is only one symbol designation.
6. All aspects of the trade cycle must be converted together.
7. The conversion event(s) must take place after end of day processing and before start of day processing.
8. There are currently processing limitations to support a single conversion event. Coordination with the markets that trade the underlying instrument will be required.
9. Historical data requirements must be addressed by each market participant in a manner suitable to their own needs.
10. All market participants will operate in an environment where some exchange listed options are traded, cleared and settled absent OPRA codes and with decimal strikes while others are not.
11. The conversion will begin with a small set of option classes followed by a quiet period that covers a standard expiration.
12. The number of conversion events should be optimized with regard to operational capabilities.
13. The press will be used to keep clients informed.

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The following test scenarios are currently envisioned:

Point to point

At least 2 end to end tests.

- Simulated month end date
 - It is up to each entity to determine how far to take the month end process.
- Simulated expiration

Scope

- Order entry, trade match, post trade exchange, post trade OCC, pricing, clearance and settlement.
- Products to test
 - Equity Options
 - Index Options
 - Yield Based Options
 - Short Dated Options
 - Flex Options
 - Foreign Currency Options
- Test the consolidation process.

Comments and the associated responses to this plan may be viewed via www.optionsclearing.com/symbology/