



**PUBLIC FILE**

**SPAN<sup>®</sup>**

**Paris expanded format**

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## December 2009 V3.5

The following improvements are added to all derivatives SPAN® parameter public files used in SPAN® derivatives margin calculations:

- MATIF end of day public file,
- MONEP end of day and intra-day public files.

These improvements will harmonize the population of fields between current end of day and intra-day SPAN® parameter public files and do not imply any change to the existing file layout and definition of fields.

The processing of these changes should imply no change in your current information systems as there were implemented previously for the Intra-Day Margin project in March 2007.

The records listed below provide the details of the changes in populating values:

	Field Name	Population of values
<b>Record T</b>	one-byte code	For information only. Filled in with actual values for information only
<b>Record P</b>	Settlement one-byte Currency code	For information only. Filled in with actual values for information only
<b>Record 4</b>	Number of futures months in delivery	Always filled with blank instead of "00".
<b>Record 4B</b>	Physical Product family type code rule	Physical type products (set to "PHY") as identified and listed in 8 record type (risk array records) will also be listed in B sub-record type.
<b>Record 4B</b>	Base Volatility	If not applicable, always filled with '00000000' instead of blank.
<b>Record 4B</b>	Time to Expiration	If not applicable, always filled with '00000000' instead of blank.
<b>Record 4B</b>	Underlying Product Family Code	If not applicable, filled with the corresponding product family code value instead of blank.

Record type 3 and 4 are systematically populated for all combined commodity.

## **Introduction**

SPAN<sup>®</sup> risk parameter files are generated daily by Clearing Organizations which have implemented SPAN<sup>®</sup>.

SPAN<sup>®</sup> risk parameter files contain risk array records and other performance bond calculation parameter records. These records contain all data values required to calculate SPAN<sup>®</sup> risk and LIQUIDATION risk performance bond requirements, except individual firm or account portfolio data.

## **File format**

This document describes the Paris expanded unpacked fixed format, which is supported by PC-SPAN<sup>®</sup> and SPAN<sup>®</sup> Risk Manager. All data is composed of printable text and records are no more than 132 bytes long.

## **Definitions- exchange complexes and combined commodities**

Two concepts that were developed for use with SPAN<sup>®</sup> are exchange complexes, and combined commodities.

### Exchange complexes

A SPAN<sup>®</sup> risk parameter file contains SPAN<sup>®</sup> risk parameter data for (a) a single "exchange complex" at (b) a single point in time, typically the final end-of-day settlement.

A file for a single exchange complex, can contain data for any number of exchanges.

### Combined commodities

Combined commodities allow various products to be grouped together for the SPAN<sup>®</sup> risk performance bond calculation.

For any portfolio, SPAN<sup>®</sup> will determine a risk requirement for each combined commodity represented in the portfolio.

A combined commodity consists of all of the product families that are margined together in SPAN<sup>®</sup>.

## Record types and sort orders

### Record types

Each record in a SPAN<sup>®</sup> file begins with a record type code, also called the record ID.

Over the years since 1988 when SPAN<sup>®</sup> was first developed, records with a numeric record types have been considered to be primary record types and records with alphabetic record types have been considered to be less-important sub-records. This distinction is less important today than previously. As general principles, however:

- SPAN<sup>®</sup> files may contain data that is less important in the sense that it is not required for the primary purpose of the file, namely to allow SPAN<sup>®</sup> performance bond calculations to be done. These data elements will tend to be contained in sub-records, and may be ignored, if desired, by processes that need only to calculate SPAN<sup>®</sup> performance bond requirements.
- Programs that implement the SPAN<sup>®</sup> algorithm should be constructed so that if they encounter a new record type, or a known record type that is not needed, records of that type are simply skipped. This allows exchanges and clearing organizations using SPAN<sup>®</sup> to introduce new record types to meet changing business requirements, without thereby necessitating immediate changes to such programs.

### The various record types are:

Type	Description
0	Exchange complex header
T	Currency Exchange Rate Records
1	Exchange header
P	Price conversion parameters
2	First combined commodity definition record
S	Scanning Method Record
3	Second combined commodity definition record for SPAN <sup>®</sup> Risk Calculation
C	Required Intra-commodity Spreads
33	Second combined commodity definition record for Liquidation Risk Calculation
4	Third combined commodity definition record
B	Array Calculation Parameters
5	Combined commodity group record
6	Inter-commodity spread record for SPAN <sup>®</sup> Risk Calculation
66	Inter-commodity spread record for Liquidation Risk Calculation
8	Risk array (contract) record
9	Price record for liquidation risk

In case of the application of the Liquidation Risk algorithm, the following record types are used:  
0, T, 1, P, 2, 33, 5, 66, 9.

In the case of the application of the SPAN<sup>®</sup> algorithm, the following record types are used:  
0, T, 1, P, 2, S, 3, C, 4, B, 5, 6, 8.

## Record sort orders

As a general principle, programs that read SPAN<sup>®</sup> risk parameter files should be as tolerant as possible of variations in the ordering of records. There are certain sort order principles which must be followed, however:

- The expanded unpacked format file must begin with a type 0 (zero) exchange complex header record and be followed by the currency exchange rate (type T) records.
- The file is then composed of blocks of records for each exchange:
  - . Each such block must begin with a type 1 exchange header record.
  - . If any commodity (product) redefinition (type R; not used) records for products on any exchange are needed, they must immediately follow the exchange header record for the first exchange block.
  - . Records of type P, 2, S, 3, C, 33, 4, B, for that exchange should then follow.
  - . Records of type 5, defining the combined commodity groups and specifying the combined commodities for that exchange in each group, should then follow.
  - . Records of type 6 or 66, defining inter-commodity spreads, should follow the type 5 records in the last exchange block in the file.
  - . Records of type 8 or 9, containing contract risk arrays, prices and duration, should then complete the block of records for the exchange.

## Record Layouts

The following tables describe the contents of each record type in detail.

### Legend for Record Layout Tables

For each field, the following information is given:

- Length, in bytes;
- Beginning ("from") and Ending ("to") positions on the record, in bytes;
- COBOL PICTURE clause;
- Format:
  - AN Alphanumeric
  - N Numeric
- Field name and description

Following each table, notes provide information regarding the purpose of each record type, and additional descriptive data regarding particular fields.

Layout for the new "Expanded Unpacked" format file for Paris processing.

- The expanded unpacked file for Paris is a format which is utilized since early 1999 by Clearing Organizations which need product ("commodity") codes larger than ten bytes.
- The format is highly analogous to the expanded unpacked format.
- Liquidation risk versus SPAN<sup>®</sup> risk calculation is implemented.

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## Record Type 0 (Zero) Exchange Complex Header Record

- Record ID - always "0" (i.e., zero)	2 positions	(alphanumeric)
- Clearing Organization (Exchange Complex) Acronym	6 positions	(alphanumeric)
- Business Date (YYYYMMDD)	8 positions	(alphanumeric)
- Settlement or Intraday Flag	1 position	(alphanumeric)
- File Identifier - Early, Final, run number, etc.	2 positions	(extended numeric)
- Business Time	4 positions	(extended numeric)
- File Creation Date (YYYYMMDD)	8 positions	(alphanumeric)
- File Creation Time (HHMM 24 hr.)	4 positions	(extended numeric)
- Format Indicator	2 positions	(alphanumeric)
- Gross/Net Indicator for clearing-level margining	1 position	(alphanumeric)
- Overall Limit Option Value Flag (Y/N)	1 position	(alphanumeric)
- Business Function	5 positions	(alphanumeric)
- Filler	88 positions	(alphanumeric)

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**132** characters

### Notes:

The file begins with this record type.

- The file identifier information is contained on this record, which describes the exchange complex - either the clearing organization, or the cross-margin agreement - to which this file pertains.
- Values are MATIF, MONEP, SBF.
- Values in the file identifier field are assigned by the exchange or clearing organization creating the file. The following values can be used:
  - FC Final Regular Trading Hours Settlement.
  - EC Early Regular Trading Hours Settlement.
  - FG Final NSC Intraday file.
- The creation date and time indicate the exact time when the file was created.
- The Gross/Net indicator specifies whether clearing-level margining is done for this exchange complex on a gross or net basis.
- The Overall Limit Option Value flag specifies whether excess long option value in one combined commodity within this exchange complex, may be used to offset risk in other parts of the portfolio.
- Format indicator values are:
  - "UP" for Paris expanded unpacked.
  - "U2" for expanded unpacked.
- Business Function values are:
  - "CLR " for Normal Clearing.
  - "XMRGN " for Cross Margining.

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## Sub record type T: Currency Conversion Rates

- Record ID - "T"	2	positions	(alphanumeric)
- Convert-From Currency ISO Code	3	positions	(alphanumeric)
- Convert-From Currency One-Byte Code	1	position	(alphanumeric)
- Conversion Currency ISO Code	3	positions	(alphanumeric)
- Conversion Currency One-Byte Code	1	position	(alphanumeric)
- Conversion Divisor for Convert Currency to Conversion Currency	10	positions	(extended numeric)
- Conversion Divisor Decimal Locator	1	position	(extended numeric)
- Filler	111	positions	(alphanumeric)
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	<b>132</b>	characters	

### Notes:

- The type T records, if any, will typically follow immediately the exchange complex header record. In the expanded unpacked file format, currency exchange rates have been pulled out of the type 2 combined commodity record and put into their own record type, since it is only necessary to specify a particular exchange rate once for a given exchange complex.
- The 3-byte international standard (ISO) codes will be used to identify the currencies.
- The non-standard one-byte code will be filled in with actual values for information only. It is recommended discarding them and using the 3-byte international standard (ISO) codification for currencies.

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**Record type 1****Exchange Header Record**

- Record ID - always "1"	2 positions	(alphanumeric)
- Exchange Acronym	3 positions	(alphanumeric)
- Filler	2 positions	(alphanumeric)
- Exchange Code	2 positions	(alphanumeric)
- Filler	123 positions	(alphanumeric)
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	<b>132</b>	characters

**Notes:**

The type 1 records will define Clearing Organization information.

- Exchange Acronym values can be:  
MTF MATIF  
MNP MONEP  
SBF SBF
- Exchange Code values can be:  
17 MATIF  
MP MONEP  
SB SBF

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**Record Type P: Price Conversion Parameters**

- Record ID: always "P"	2 positions	(alphanumeric)
- Exchange Acronym	3 positions	(alphanumeric)
- Product Family Code	12 positions	(alphanumeric)
- Product Type Code	5 positions	(alphanumeric)
- Product Name	15 positions	(alphanumeric)
- Decimal Locator for Settlements	3 positions	(extended numeric)
- Decimal Locator for Strikes, if applicable	3 positions	(extended numeric)
- Alignment code for Settlements	1 position	(alphanumeric)
- Alignment code for Strikes, if applicable	1 position	(alphanumeric)
- Contract Value Factor (Multiplier)	14 positions	(extended numeric with 7 decimals)
- Cabinet Option Value	8 positions	(extended numeric with 2 decimals)
- Quoted position quantity per Contract	2 positions	(extended numeric)
- Settlement (Price Quotation) Currency ISO Code	3 positions	(alphanumeric)
- Settlement (Price Quotation) One-Byte Currency Code	1 position	(alphanumeric)
- Price Quotation Method	3 positions	(alphanumeric)
- Option Exercise Style	4 positions	(alphanumeric)
- Volatility Scan Range Quotation Method	1 positions	(alphanumeric)
- Price Scan Range Quotation Method	1 positions	(alphanumeric)
- Price Scan Range Valuation Type	1 positions	(alphanumeric)
- Valuation Method	5 positions	(alphanumeric)
- Filler	44 positions	(alphanumeric)
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	<b>132</b>	characters

**Notes:**

- Values of Exchange Acronym values can be:  
MTF MATIF  
MNP MONEP  
SBF SBF
- Values of Product Type Code  
FUT, PHY, OOP, OOF, OOS, STOCK, DEBT (for bonds).
- Cabinet option value is:  
00000000
- Quoted position quantity per contract value is:  
01
- Decimal locator for settlement value is:  
007
- Decimal locator for strike value is:  
For option product type, the value is 007  
Else, the field value is 000

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- Alignment code for settlement and Alignment code for strike values are:  
Space
- Settlement (Price Quotation) One-Byte Currency Code will be filled in with actual values for information only. It is recommended discarding these values and using the 3-byte international standard (ISO) codification for currencies.
- Price Quotation Method:  
STD default method  
INT for interest-rate indices, such as Euribor.
- Option Exercise Style:  
For Derivatives:
  - AMER for American options,
  - EURO for European options.For Cash:  
The value is set to blank.
- Volatility Scan Range Quotation Method:  
For Derivatives:
  - A for amount in absolute value
  - P for percentage.

This field is not relevant for Future instruments, however value "A" is used for FUT product type.

For Cash:  
The value is set to blank.
- Price Scan Range Quotation Method:  
For Derivatives:
  - A for amount in absolute value
  - P for percentage.For Cash:  
The value is set to blank.
- Price Scan Range valuation type:  
For Derivatives:
  - U for "in terms of underlying price"For Cash:  
The value is set to blank.
- Valuation method:  
For Derivatives:
  - The value depends on the type of product family :
    - FUT for future (product type code FUT)
    - EQTY for options and physical (product type codes OOF, OOS, OOP and PHY)
    - CLLT for underlying stocks (product type code STOCK)For Cash:  
The value is set to blank.

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- The type P record is intended to specify the settlement currency in which prices for contracts in a particular product family are denominated, and to provide all additional values needed in order to convert the quoted price, as a string of digits, to the actual contract value.
- This information will allow systems which implement SPAN<sup>®</sup>, such as PC-SPAN<sup>®</sup>, to handle the introduction of new products without the need for manually entering price conversion data.
- The type P record may be included in any of the three file formats described herein - the packed, unpacked, and expanded unpacked.

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## - Record type 2 First Combined Commodity Record

- Record ID - "2"	2 positions	(alphanumeric)
- Exchange Acronym	3 positions	(alphanumeric)
- Filler	1 position	(alphanumeric)
- Combined Commodity Code	6 positions	(alphanumeric)
- Risk Exponent	1 position	(extended numeric)
- Performance Bond Currency BIC Code	3 positions	(alphanumeric)
- Performance Bond Currency One-Byte Code	1 position	(alphanumeric)
- Option Margin Style*	1 position	(alphanumeric)
- Limit Option Value Flag*	1 position	(alphanumeric)
- Combination Margining Method Flag*	1 position	(alphanumeric)
- Filler	2 positions	(alphanumeric)
- Calculation Algorithm Code*	1 position	(alphanumeric)
- Product Family Code 1	12 positions	(alphanumeric)
- Product Type Code 1*	5 positions	(alphanumeric)
- Contract Value Factor 1(Multiplier)	14 positions	(extended numeric)
- Contract Value Factor Decimal Locator 1	1 position	(extended numeric)
- Filler	1 position	(alphanumeric)
- Product Family Code 2	12 positions	(alphanumeric)
- Product Type Code 2	5 positions	(alphanumeric)
- Contract Value Factor 2 (Multiplier)	14 positions	(extended numeric)
- Contract Value Factor Decimal Locator 2	1 position	(extended numeric)
- Filler	1 position	(alphanumeric)
- Product Family Code 3	12 positions	(alphanumeric)
- Product Type Code 3	5 positions	(alphanumeric)
- Contract Value Factor 3 (Multiplier)	14 positions	(extended numeric)
- Contract Value Factor Decimal Locator 3	1 position	(extended numeric)
- Filler	11 positions	(alphanumeric)

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**132** characters

- Option Margin Style:  
P for Premium-style or F for Futures Style.
- Limit Option Value Flag:  
(Y or N).
- Combination Margining Method Flag:  
S for split-allocation, D for delta-split-allocation, or blank (Not currently used).
- Calculation Algorithm Code:  
L is for Liquidation processing and S for Standard SPAN<sup>®</sup>.
- Product Type Code 1 TO 3  
FUT, PHY, OOP, OOF, OOC, OOS, STOCK, DEBT (for bonds).

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## Notes:

- Up to six such individual Product Family Code and Product type Code can be defined per record.
- If more than 6 Product Family Code and Product type Code are required for a given combined commodity code, additional type "2" records will follow immediately.
- Combined commodity codes have been increased in size in the Paris expanded unpacked file format to a maximum of six bytes.
- Product Family Codes have similarly been increased in size to a maximum of twelve bytes.
- The "Risk Exponent" field indicates the power of ten to which the risk array values and other charge rates for this combined commodity must be multiplied:
  - . Most of the time, this field value is zero, indicating that the risk array values must be multiplied by 10 to the zero, or 1. In other words, a risk exponent of zero indicates that the risk array values are correct as reported.
  - . A risk exponent of 1 indicates the reported risk array values must be multiplied by 10 to the 1; a risk exponent of 2 indicates that values must be multiplied by 10 to the 2 (or 100); etc.
  - . Thus, the risk exponent field can assume integer values ranging from 0 to 9.
  - . Besides the risk array values, the risk exponent applies to:
    - . intracommodity spreading (intermonth) charge rates;
    - . delivery month (spot) charge rates;
    - . short option minimum charge rates;
    - . futures price scan ranges.
- The "2" record in the expanded unpacked format can be viewed as specifying the product families that are linked into this combined commodity.
- Only one currency code - the Performance Bond currency in which the SPAN<sup>®</sup> risk performance bond requirement for this combined commodity is denominated - is specified here on this record.
- The Limit Option Value flag specified here is not used.
- If the combination margining method flag is S for split-allocation, not used for Paris, then all products in this combined commodity are options on combinations which are to be margined using the split-allocation method.
  - . If the flag is D for delta-split-allocation, then some products in this combined commodity are options on combinations which are to be margined using the delta-split-allocation method. (Not used for Paris).
  - . If the flag is blank or not present, then no products in this combined commodity are options on combinations which are margined using either of these methods. (Paris Case)

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## Sub record type "S" Scanning Method

- Record ID - always "S"	2 positions	(alphanumeric)
- Combined Commodity Code	6 positions	(alphanumeric)
- Scanning Method Code	2 positions	(extended numeric)
- Total number of tiers for scanning	2 positions	(extended numeric)
- Tier Number	2 positions	(extended numeric)
- Starting Futures Month as YYYYMM	6 positions	(extended numeric)
- Ending Futures Month as YYYYMM	6 positions	(extended numeric)
- Tier Number	2 positions	(extended numeric)
- Starting Futures Month as YYYYMM	6 positions	(extended numeric)
- Ending Futures Month as YYYYMM	6 positions	(extended numeric)
- Tier Number	2 positions	(extended numeric)
- Starting Futures Month as YYYYMM	6 positions	(extended numeric)
- Ending Futures Month as YYYYMM	6 positions	(extended numeric)
- Tier Number	2 positions	(extended numeric)
- Starting Futures Month as YYYYMM	6 positions	(extended numeric)
- Ending Futures Month as YYYYMM	6 positions	(extended numeric)
- Tier Number	2 positions	(extended numeric)
- Starting Futures Month as YYYYMM	6 positions	(extended numeric)
- Ending Futures Month as YYYYMM	6 positions	(extended numeric)
- Filler	50 positions	(alphanumeric)

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**132** characters

## Notes:

- "S" record(s) may be included in the SPAN<sup>®</sup> risk parameter file for each combined commodity, but are not required. If one single Break/Tier is used for the scanning, the record is not present.
- The scanning method specified on the "S" record may be either '01' or '10'; if the "S" record is not present, scanning method '01' is defaulted.
- For scanning methods 01 and 10, if individual tiers are specified, they should be read. (For scanning method 01, tiers may be specified for later use in tiered intercommodity spreading.)

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## Record type 3 Second Combined Commodity Record for Standard SPAN® Calculation

- Record ID - always "3"	2 positions	(alphanumeric)
- Combined Commodity Code	6 positions	(alphanumeric)
- Intra-commodity Spread Charge Method Code	2 positions	(alphanumeric)
- Tier Number	2 positions	(extended numeric)
- Starting Futures Month as YYYYMM	6 positions	(extended numeric)
- Ending Futures Month as YYYYMM	6 positions	(extended numeric)
- Tier Number	2 positions	(extended numeric)
- Starting Futures Month as YYYYMM	6 positions	(extended numeric)
- Ending Futures Month as YYYYMM	6 positions	(extended numeric)
- Tier Number	2 positions	(extended numeric)
- Starting Futures Month as YYYYMM	6 positions	(extended numeric)
- Ending Futures Month as YYYYMM	6 positions	(extended numeric)
- Tier Number	2 positions	(extended numeric)
- Starting Futures Month as YYYYMM	6 positions	(extended numeric)
- Ending Futures Month as YYYYMM	6 positions	(extended numeric)
- Filler	2 positions	(alphanumeric)
- Initial to Maintenance Ratio - Member Accounts	4 positions	(extended numeric)
- Member Accounts Decimal Locator	1 position	(extended numeric)
- Initial to Maintenance Ratio - Hedge Accounts	4 positions	(extended numeric)
- Hedge Accounts Decimal Locator	1 position	(extended numeric)
- Initial to Maintenance Ratio - Spec Accounts	4 positions	(extended numeric)
- Spec Accounts Decimal Locator	1 position	(extended numeric)
- Filler	49 positions	(alphanumeric)

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**132** characters

### Notes:

- The purpose of this record type is to provide required data for intra-commodity spreading.  
This record type is filled for each Combined Commodity.
- Intra-commodity Spread Charge Method Code values are:
  - '10' for active Spread charge rule(s) for a given combined commodity.
  - '01' in any other case.

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**- Sub record type "C" of the type "3" record: Required Spreads**

- Record ID - always "C"	2 positions	(alphanumeric)
- Combined Commodity Code	6 positions	(alphanumeric)
- Intra-commodity Spread Charge Method Code	2 positions	(alphanumeric)
- Required Spread Number	2 positions	(extended numeric)
- Number of Legs	2 positions	(extended numeric)
- Charge Rate Per Spread	7 positions	(extended numeric)
- Leg number 1	2 positions	(extended numeric)
- Tier number 1	2 positions	(extended numeric)
- Delta/spread ratio 1	2 positions	(extended numeric)
- Market side 1 ("A" or "B")	1 position	(alphanumeric)
- Leg number 2	2 positions	(extended numeric)
- Tier number 2	2 positions	(extended numeric)
- Delta/spread ratio 2	2 positions	(extended numeric)
- Market side 2 ("A" or "B")	1 position	(alphanumeric)
- Leg number 3	2 positions	(extended numeric)
- Tier number 3	2 positions	(extended numeric)
- Delta/spread ratio 3	2 positions	(extended numeric)
- Market side 3 ("A" or "B")	1 position	(alphanumeric)
- Leg number 4	2 positions	(extended numeric)
- Tier number 4	2 positions	(extended numeric)
- Delta/spread ratio 4	2 positions	(extended numeric)
- Market side 4 ("A" or "B")	1 position	(alphanumeric)
- Leg number 5	2 positions	(extended numeric)
- Tier number 5	2 positions	(extended numeric)
- Delta/spread ratio 5	2 positions	(extended numeric)
- Market side 5 ("A" or "B")	1 position	(alphanumeric)
- Leg number 6	2 positions	(extended numeric)
- Tier number 6	2 positions	(extended numeric)
- Delta/spread ratio 6	2 positions	(extended numeric)
- Market side 6 ("A" or "B")	1 position	(alphanumeric)
- Leg number 7	2 positions	(extended numeric)
- Tier number 7	2 positions	(extended numeric)
- Delta/spread ratio 7	2 positions	(extended numeric)
- Market side 7 ("A" or "B")	1 position	(alphanumeric)
- Leg number 8	2 positions	(extended numeric)
- Tier number 8	2 positions	(extended numeric)
- Delta/spread ratio 8	2 positions	(extended numeric)
- Market side 8 ("A" or "B")	1 position	(alphanumeric)
- Filler	55 positions	(alphanumeric)

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**132** characters**Notes:**

- "C" sub records of a particular "3" record typically follow the "3" record immediately. Their purpose is to specify the required spreads for a particular combined commodity to which intra-commodity spread charge method "10" applies.

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- Up to 8 legs of a particular required spread may be specified per "C" record. In the unlikely event a particular required spread has more than 8 legs, subsequent "C" records for that required spread follow the first "C" record immediately.
- The exhaustive spread table is always fully defined on all maturity/expiration dates for end of day cycle should there be even no open or listed derivative instruments on the corresponding maturity/expiration dates.

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## **Record Type 33: Second Combined Commodity Record for Liquidation Risk Calculation**

- Record ID - always "33"	2 positions	(alphanumeric)
- Combined Commodity Code	6 positions	(alphanumeric)
- Specific Risk Cover Percentage	7 positions	(extended numeric)
- Specific Risk Decimal Locator	1 position	(extended numeric)
- Generic Risk Cover Percentage	7 positions	(extended numeric)
- Generic Risk Decimal Locator	1 position	(extended numeric)
- Intra Spread Charge Percentage	7 positions	(extended numeric)
- Intra Spread Charge Decimal Locator	1 position	(extended numeric)
- Filler	100 positions	(alphanumeric)
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## Record Type 4: Third Combined Commodity Record for Standard SPAN<sup>®</sup> Calculation

- Record ID - always "4"	2	positions	(alphanumeric)
- Combined Commodity Code	6	positions	(alphanumeric)
- Delivery Month Charge Method Code	2	positions	(alphanumeric)
- Number of futures months in delivery	2	positions	(extended numeric)
- Delivery month number	2	positions	(extended numeric)
- Delivery (spot) month as YYYYMM	6	positions	(extended numeric)
- Charge Rate per Delta Consumed by Spreads	7	positions	(extended numeric)
- Charge Rate per Delta Remaining in Outrights	7	positions	(extended numeric)
- Delivery month number	2	positions	(extended numeric)
- Delivery (spot) month as YYYYMM	6	positions	(extended numeric)
- Charge Rate per Delta Consumed by Spreads	7	positions	(extended numeric)
- Charge Rate per Delta Remaining in Outrights	7	positions	(extended numeric)
- Filler	6	positions	(alphanumeric)
- Short Option Minimum Charge Rate	6	positions	(extended numeric)
- Short Option Minimum Charge Rate Decimal Locator	1	positions	(extended numeric)
- Risk Maintenance Performance Bond Adjustment Factor: Member	3	positions	(extended numeric)
- Member Adjustment Factor Decimal Locator	1	position	(extended numeric)
- Risk Maintenance Performance Bond Adjustment Factor: Hedge	3	positions	(extended numeric)
- Hedge Adjustment Factor Decimal Locator	1	position	(extended numeric)
- Risk Maintenance Performance Bond Adjustment Factor: Spec	3	positions	(extended numeric)
- Speculators Adjustment Factor Decimal Locator	1	position	(extended numeric)
- Short Option Minimum Calculation Method	1	position	(alphanumeric)
- Filler	50	positions	(alphanumeric)
	-----	-----	
	<b>132</b>	characters	

### Notes:

- The purpose of this record type is to provide delivery month spreading parameters for a specific combined commodity code, as well as the short option minimum charge rate for that combined commodity. **This record type is filled for each Combined Commodity.**
- Delivery Month Charge Method Code:  
Always "10", except when there is no spot month. In this case, the value is "01".  
For Delivery Month Charge method "10" - the table-driven calculation - any number of delivery months may be defined. Two such months may be specified per "4" record; if there are more than two delivery months for a combined commodity to which delivery month charge method "10" applies, then the additional delivery months are specified on additional "4" records which immediately follow the first.
- **Number of futures months in delivery:**  
**Always filled with blank instead of "00".**
- Short Option Minimum Calculation Method:  
Always filled with "2".  
"2" means the original method, based on the sum of the number of short calls and short puts.  
Other possible method value "1" is not used in Paris.

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## Sub record Type B of the type "4" record: Array Calculation Parameters for Standard SPAN<sup>®</sup>

- Record ID: always "B"	2	positions	(alphanumeric)
- Exchange Acronym	3	positions	(alphanumeric)
- Product Family Code	12	positions	(alphanumeric)
- Product Type Code	5	positions	(alphanumeric)
- Futures Contract Month as CCYYMM	6	positions	(extended numeric)
- Futures Contract Day if applicable, or blank	2	positions	(alphanumeric)
- Option Contract Month as CCYYMM	6	positions	(extended numeric)
- Option Contract Day if applicable, or blank	2	positions	(alphanumeric)
- Base Volatility as a decimal fraction	8	positions	(extended numeric)
- Base Volatility Decimal Locator	1	position	(extended numeric)
- Volatility Scan Range as a decimal fraction	8	positions	(extended numeric)
- Volatility Scan Range Decimal Locator	1	position	(extended numeric)
- Futures Price Scan Range	7	positions	(extended numeric)
- Futures Price Scan Range decimal locator	1	position	(extended numeric)
- Extreme Move Multiplier	5	positions	(extended numeric)
- Extreme Move Multiplier Decimal Locator	1	position	(extended numeric)
- Extreme Move Covered Fraction as a decimal fraction	5	positions	(extended numeric)
- Extreme Move Covered Fraction Decimal Locator	1	position	(extended numeric)
- Interest Rate as a decimal fraction	5	positions	(extended numeric)
- Interest Rate Decimal Locator	1	position	(extended numeric)
- Time to Expiration in years	7	positions	(extended numeric)
- Time to Expiration Decimal Locator	1	position	(extended numeric)
- Lookahead Time in years	6	positions	(extended numeric)
- Lookahead Time Decimal Locator	1	position	(extended numeric)
- Delta Scaling Factor	6	positions	(extended numeric)
- Delta Scaling Factor Decimal Locator	1	position	(extended numeric)
- Expiration date as CCYYMMDD	8	positions	(extended numeric)
- Underlying Product Family code	12	positions	(alphanumeric)
- Pricing Model	2	positions	(alphanumeric)
- Dividend or Foreign Interest Rate	5	positions	(extended numeric)
- Dividend or Foreign Interest Rate Decimal Locator	1	positions	(extended numeric)

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132 characters

### Notes:

- The purpose of this record type is to provide required data at series level (product family code/Expiration date) on risk array calculations.  
Physical type products (set to "PHY") as identified and listed in 8 record type (risk array records) will also be listed in B sub-record type.
- Base Volatility:  
If not applicable, always filled with '000000000' instead of blank.
- Decimal locator for Based Volatility:  
For option product type, the field value is 7  
Else, the field value is 0

- Future Price Scan Range:

The purpose of this field is to provide price movement parameter in amount or percent used to calculate Risk Array.

The value of this field will reflect the value according to the Price Scan Range quotation method (amount or percent) defined for the Underlying Price Scan Range parameter in the clearing system and provided in the LCH.Clearnet SA Margins Parameters documents via Riskinfo.

When the parameter used is a percent, this field reflects exactly the value defined for the Underlying Price Scan Range parameter.

When the parameter used is an amount, the corresponding field is the result of the parameter defined for the Underlying Price Scan Range parameter multiplied by a contract value factor. For non-option product, the contract value factor used is the one of the contract itself. For option product, the contract value factor used is the one of the corresponding underlying product.

- Time to Expiration:

If not applicable, always filled with '00000000' instead of blank.

- Lookahead Time in years:

1(one) divided by number of days in the year (i.e. 000274 for 1/365).

- Expiration date:

Corresponds to Futures and Options settlement date.

- Lookahead Time Decimal Locator

Value: 5.

- Underlying Product Family Code:

If not applicable, filled with the corresponding product family code value instead of blank.

- Values for the Pricing Model are:

- . B Black
- . BS Black-Scholes
- . WB Whaley (Americanized) Black
- . WS Whaley (Americanized Black-Scholes)
- . W or WI Generic Whaley ("Whaley for indices")
- . 76 Black 76
- . M Merton European model
- . CA Cox Ross Rubinstein (American style)
- . CE Cox Ross Rubinstein (European style)
- . I Intrinsic
- . KI Kirk
- . GK Garman-Kholhagen

- Coupon (Dividend) Yield or the Foreign Interest Rate:

- . for options on stock (Product type code = "OOS"): Dividend yield,
- . for options on physical (Product type code = "OOP")  
having a Pricing Model equal to Garman-Kholhagen ("GK"): Foreign interest rate
- . in other cases: the value is set to 0.

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- Decimal locator of the Dividend Yield or the Foreign Interest Rate:
    - . for the Foreign interest rate: the value is 4,
    - . for the Dividend yield: the value range is from 0 to 4
- Else, the field value is 0.

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## Record Type 5: Commodity Group Record

- Record ID: always "5"	2 positions	(alphanumeric)
- Commodity Group Code	5 positions	(alphanumeric)
- Filler	7 positions	(alphanumeric)
- Combined Commodity Code 1	6 positions	(alphanumeric)
- Combined Commodity Code 2	6 positions	(alphanumeric)
- Combined Commodity Code 3	6 positions	(alphanumeric)
- Combined Commodity Code 4	6 positions	(alphanumeric)
- Combined Commodity Code 5	6 positions	(alphanumeric)
- Combined Commodity Code 6	6 positions	(alphanumeric)
- Combined Commodity Code 7	6 positions	(alphanumeric)
- Combined Commodity Code 8	6 positions	(alphanumeric)
- Combined Commodity Code 9	6 positions	(alphanumeric)
- Combined Commodity Code 10	6 positions	(alphanumeric)
- Filler	58 positions	(alphanumeric)

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**132** characters

### Notes:

- The purposes of this record type are to define the various commodity groups.

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## Record Type 6: Inter-Commodity Spread Record for Standard SPAN<sup>®</sup> Calculation

- Record ID - always "6"	2 positions	(alphanumeric)
- Commodity Group Code	5 positions	(alphanumeric)
- Spread Priority (positive integer - 1 and up)	4 positions	(extended numeric)
- Spread Credit Rate (in percent)	7 positions	(extended numeric)
- Spread Credit Rate Decimal Locator*	1 position	(extended numeric)
- Exchange Acronym 1	3 positions	(alphanumeric)
- Filler	1 position	(alphanumeric)
- Combined Commodity Code 1	6 positions	(alphanumeric)
- Delta/Spread Ratio 1	7 positions	(extended numeric)
- Delta/Spread Ratio Decimal Locator	1 position	(extended numeric)
- Spread Side 1 ("A", "B")	1 position	(alphanumeric)
- Exchange Acronym 2	3 positions	(alphanumeric)
- Filler	1 position	(alphanumeric)
- Combined Commodity Code 2	6 positions	(alphanumeric)
- Delta/Spread Ratio 2	7 positions	(extended numeric)
- Delta/Spread Ratio Decimal Locator	1 position	(extended numeric)
- Spread Side 2 ("A", "B")	1 position	(alphanumeric)
- Exchange Acronym 3	3 positions	(alphanumeric)
- Filler	1 position	(alphanumeric)
- Combined Commodity Code 3	6 positions	(alphanumeric)
- Delta/Spread Ratio 3	7 positions	(extended numeric)
- Delta/Spread Ratio Decimal Locator	1 position	(extended numeric)
- Spread Side 3 ("A", "B")	1 position	(alphanumeric)
- Exchange Acronym 4	3 positions	(alphanumeric)
- Filler	1 position	(alphanumeric)
- Combined Commodity Code 4	6 positions	(alphanumeric)
- Delta/Spread Ratio 4	7 positions	(extended numeric)
- Delta/Spread Ratio Decimal Locator	1 position	(extended numeric)
- Spread Side 4 ("A", "B")	1 position	(alphanumeric)
- Filler	37 positions	(alphanumeric)

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**132** characters

### Notes:

- Commodity Group Code:  
Filled with the corresponding commodity group code value defined in 5 record type for end of day cycle.
- Spread Credit Rate Decimal Locator:  
If decimal locator equal to 4 and field Spread Credit Rate equal to 936275 that means we have a Spread Credit Rate equal to 93.6275 %.
- The purpose of this record type is to list the allowable inter-commodity spreads for each commodity group, and to provide parameters for each spread.
- A separate record is provided for each allowable spread. For a given commodity spread group, the allowable spread records are sorted in order by spread priority.

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- In the expanded unpacked format for the type 6 record, the spread priority field is four digits wide, and hence there is no need to keep track of the number of times "00" has been encountered.
- If there are more than four legs to a spread, additional type 6 records for the spread immediately follow the first.

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**Record Type 66: Inter-Commodity Spread Record for Liquidation Risk Calculation**

- Record ID - always "66"	2 positions	(alphanumeric)
- Commodity Group Code	5 positions	(alphanumeric)
- Spread Priority	4 positions	(extended numeric)
- Inter Spread Credit Rate	7 positions	(extended numeric)
- Inter Spread Credit Rate Decimal Locator	1 position	(extended numeric)
- Exchange Acronym (1)	3 positions	(alphanumeric)
- Filler (1)	1 position	(alphanumeric)
- Combined Commodity Code (1)	6 positions	(alphanumeric)
- Delta Spread Ratio (1)	7 positions	(extended numeric)
- Delta Spread Ratio Decimal Locator (1)	1 position	(extended numeric)
- Spread Side (1)	1 position	(alphanumeric)
- Exchange Acronym (2)	3 positions	(alphanumeric)
- Filler (2)	1 position	(alphanumeric)
- Combined Commodity Code (2)	6 positions	(alphanumeric)
- Delta Spread Ratio (2)	7 positions	(extended numeric)
- Delta Spread Ratio Decimal Locator (2)	1 position	(extended numeric)
- Spread Side (2)	1 position	(alphanumeric)
- Exchange Acronym (3)	3 positions	(alphanumeric)
- Filler (3)	1 position	(alphanumeric)
- Combined Commodity Code (3)	6 positions	(alphanumeric)
- Delta Spread Ratio (3)	7 positions	(extended numeric)
- Delta Spread Ratio Decimal Locator (3)	1 position	(extended numeric)
- Spread Side (3)	1 position	(alphanumeric)
- Exchange Acronym (4)	3 positions	(alphanumeric)
- Filler (4)	1 position	(alphanumeric)
- Combined Commodity Code (4)	6 positions	(alphanumeric)
- Delta Spread Ratio (4)	7 positions	(extended numeric)
- Delta Spread Ratio Decimal Locator (4)	1 position	(extended numeric)
- Spread Side (4)	1 position	(alphanumeric)
- Filler	37 positions	(alphanumeric)

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**132** characters

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**Record Type 8: Risk Array Record**

- Record ID - always "81"
- Exchange Acronym
- Product Family Code
- Underlying Product Family code
- Product Type Code
- Option Right Code - for an option only - P or C
- Futures Contract Month as CCYYMM
- Futures Contract Day if applicable, or blank
- Filler
- Option Contract Month as CCYYMM
- Option Contract Day if applicable, or blank
- Filler
- Strike Price
- Strike decimal locator
- Loss value decimal locator
- Loss Value 1: Futures No Change - Volatility Up
- Sign for Loss Value 1 ("+" or "-")
- Loss Value 2: Futures No Change - Volatility Down
- Sign for Loss Value 2 ("+" or "-")
- Loss Value 3: Futures Up 1/3 - Volatility Up
- Sign for Loss Value 3 ("+" or "-")
- Loss Value 4: Futures Up 1/3 - Volatility Down
- Sign for Loss Value 4 ("+" or "-")
- Loss Value 5: Futures Down 1/3 - Volatility Up
- Sign for Loss Value 5 ("+" or "-")
- Loss Value 6: Futures Down 1/3 - Volatility Down
- Sign for Loss Value 6 ("+" or "-")
- Loss Value 7: Futures Up 2/3 - Volatility Up
- Sign for Loss Value 7 ("+" or "-")

**First Physical Record**

- 2 positions (alphanumeric)
- 3 positions (alphanumeric)
- 12 positions (alphanumeric)
- 12 positions (alphanumeric)
- 5 positions (alphanumeric)
- 1 position (alphanumeric)
- 6 positions (extended numeric)
- 2 positions (extended numeric)
- 1 position (alphanumeric)
- 6 positions (extended numeric)
- 2 positions (extended numeric)
- 1 position (alphanumeric)
- 14 positions (extended numeric)
- 1 position (extended numeric)
- 1 position (extended numeric)
- 8 positions (extended numeric)
- 1 position (alphanumeric)
- 8 positions (extended numeric)
- 1 position (alphanumeric)
- 8 positions (extended numeric)
- 1 position (alphanumeric)
- 8 positions (extended numeric)
- 1 position (alphanumeric)
- 8 positions (extended numeric)
- 1 position (alphanumeric)
- 8 positions (extended numeric)
- 1 position (alphanumeric)
- 8 positions (extended numeric)
- 1 position (alphanumeric)

-----  
**132** characters**Notes:**

- Decimal locator for strike value:  
For option product type, the field value is 7  
**Else, the field value is 0**
- Loss value 1 to 7:  
Set to 0 for contracts at expiration date and for contracts having a product type code set to PHY
- Sign for Loss Value 1 to 7:  
Set to + for contracts at expiration date and for contracts having a product type code set to PHY

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**Record Type 8: Risk Array Record**

- Record ID - always "82"
- Exchange Acronym
- Product Family Code
- Underlying Product Family code
- Product Type Code
- Option Right Code - for an option only - P or C
- Futures Contract Month as CCYYMM
- Futures Contract Day if applicable, or blank
- Filler
- Option Contract Month as CCYYMM
- Option Contract Day if applicable, or blank
- Filler
- Strike Price
- Strike decimal locator
- Loss value decimal locator
- Loss Value 8: Futures Up 2/3 - Volatility Down
- Sign for Loss Value 8 ("+" or "-")
- Loss Value 9: Futures Down 2/3 - Volatility Up
- Sign for Loss Value 9 ("+" or "-")
- Loss Value 10: Futures Down 2/3 - Volatility Down
- Sign for Loss Value 10 ("+" or "-")
- Loss Value 11: Futures Up 3/3 - Volatility Up
- Sign for Loss Value 11 ("+" or "-")
- Loss Value 12: Futures Up 3/3 - Volatility D
- Sign for Loss Value 12 ("+" or "-")
- Loss Value 13: Futures Down 3/3 - Volatility
- Sign for Loss Value 13 ("+" or "-")
- Loss Value 14: Futures Down 3/3 - Volatility
- Sign for Loss Value 14 ("+" or "-")

**Second Physical Record**

- 2 positions (alphanumeric)
- 3 positions (alphanumeric)
- 12 positions (alphanumeric)
- 12 positions (alphanumeric)
- 5 positions (alphanumeric)
- 1 position (alphanumeric)
- 6 positions (extended numeric)
- 2 positions (extended numeric)
- 1 position (alphanumeric)
- 6 positions (extended numeric)
- 2 positions (extended numeric)
- 1 position (alphanumeric)
- 14 positions (extended numeric)
- 1 position (extended numeric)
- 1 position (extended numeric)
- 8 positions (extended numeric)
- 1 position (alphanumeric)
- 8 positions (extended numeric)
- 1 position (alphanumeric)
- 8 positions (extended numeric)
- 1 position (alphanumeric)
- 8 positions (extended numeric)
- 1 position (alphanumeric)
- 8 positions (extended numeric)
- 1 position (alphanumeric)
- 8 positions (extended numeric)
- 1 position (alphanumeric)

-----  
**132** characters**Notes:**

- Decimal locator for strike value:  
For option product type, the field value is 7  
**Else, the field value is 0**
- Loss value 8 to 14:  
Set to 0 for contracts at expiration date and for contracts having a product type code set to PHY
- Sign for Loss Value 8 to 14:  
Set to + for contracts at expiration date and for contracts having a product type code set to PHY

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**Record Type 8:****Risk Array Record****Third Physical Record**

- Record ID - always "83"	2 positions	(alphanumeric)
- Exchange Acronym	3 positions	(alphanumeric)
- Product Family Code	12 positions	(alphanumeric)
- Underlying Product Family code	12 positions	(alphanumeric)
- Product Type Code	5 positions	(alphanumeric)
- Option Right Code - for an option only - P or C	1 position	(alphanumeric)
- Futures Contract Month as CCYYMM	6 positions	(extended numeric)
- Futures Contract Day if applicable, or blank	2 positions	(extended numeric)
- Filler	1 position	(alphanumeric)
- Option Contract Month as CCYYMM	6 positions	(extended numeric)
- Option Contract Day if applicable, or blank	2 positions	(extended numeric)
- Filler	1 position	(alphanumeric)
- Strike Price	14 positions	(extended numeric)
- Strike decimal locator	1 position	(extended numeric)
- Loss value decimal locator	1 position	(extended numeric)
- Loss Value 15: Futures Up Extreme - Covered % of Loss	8 positions	(extended numeric)
- Sign for Loss Value 15 ("+" or "-")	1 position	(alphanumeric)
- Loss Value 16: Futures Down Extreme - Covered % of Loss	8 positions	(extended numeric)
- Sign for Loss Value 16 ("+" or "-")	1 position	(alphanumeric)
- Composite Delta	5 positions	(extended numeric)
- Sign for Composite Delta ("+" or "-")	1 position	(alphanumeric)
- Composite Delta Decimal Locator	1 position	(extended numeric)
- Implied Volatility as decimal fraction	8 positions	(extended numeric)
- Implied Volatility Decimal Locator	1 position	(extended numeric)
- Settlement Price or Premium	14 positions	(extended numeric)
- Settlement Price Sign*	1 position	(alphanumeric)
- Settlement Price Decimal Locator	1 position	(extended numeric)
- Contract Value Factor 1(Multiplier)	11 positions	(extended numeric)
- Contract Value Factor Decimal Locator 1	1 position	(extended numeric)
- Filler	1 positions	(alphanumeric)

-----  
**132** characters**Notes:**

- Decimal locator for strike value:  
For option product type, the field value is 7  
**Else, the field value is 0**
- Settlement Price Sign:  
Blank, + or -.  
Blank, or if the byte is not defined because trailing blanks have been truncated, or any other value besides a hyphen, implies negative.  
A negative settlement price would normally be seen only for a spread (combination) instrument, and never for an option.
- Loss value 15 and 16:  
Set to 0 for contracts at expiration date and for contracts having a product type code set to PHY

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- Sign for Loss Value 15 and 16:  
Set to + for contracts at expiration date and for contracts having a product type code set to PHY
  
- Decimal locator for implied volatility:  
For option product type, the field value is 7  
**Else, the field value is 0**
  
- Settlement price or premium:  
For options at expiration date, set to the underlying settlement price  
Otherwise, set to the contract settlement price

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## **Record Type 9:**

## **Price record for liquidation risk**

## **First Physical Record**

- Record ID - always "9"
- Exchange Acronym
- Product Family Code
- Product Type Code
- Settlement Price
- Settlement Price Decimal Locator
- Duration
- Duration Decimal Locator
- Filler

2 positions (alphanumeric)  
3 positions (alphanumeric)  
12 positions (alphanumeric)  
5 positions (alphanumeric)  
14 positions (extended numeric)  
1 position (extended numeric)  
14 positions (extended numeric)  
1 position (extended numeric)  
80 positions (alphanumeric)

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**132** characters