LIBOR Fallback Specification
Eurodollar to SOFR Conversion for Futures and Options

The final cessation date for the publication of the Three-Month LIBOR rate is June 30, 2023, and accordingly CME is preparing for a one-time migration of any remaining open interest in Eurodollar futures and options as of that date to corresponding 3-month SOFR futures and options. Note that the ISDA Spread Adjustment which will play a key role in the migration of the positions has been fixed as 0.26161 (26.161 basis points) representing the difference between the LIBOR rate and the SOFR replacement.

Prior to the LIBOR cessation date, CME will perform the migration of all Eurodollar positions to SOFR/SR3 positions in such a way that positions are removed from the Eurodollar contracts and established in the SOFR contracts.

Eurodollar Futures Migration

Eurodollar futures migration will take place through offsetting each start of day position at an equal and opposite quantity using the prior day's settlement price for the contract of the position – which also happens to be the final settlement price. An onset will be used to re-establish the position in the corresponding SR3 futures contract.

The newly established SR3 futures positions will match the quantity and side of the Eurodollar futures positions. The onset price will be equal to the prior day's settlement price of the Eurodollar futures contract plus the ISDA spread adjustment of .26161 rounded to the minimum tick of the SR3 futures contract of .0001. This will ensure economic neutrality of the migration.

The remainder of the ISDA spread adjustment is equal to .00001 and is that portion which exceeds the minimum tick increment of the SR3 contract. This will be applied as a residual amount to each onset with the specific amount depending on the quantity of the onset.

For example, if a Eurodollar futures position of 50L x 0S is being migrated to an SR3 futures positions the following transactions and cash flows will be generated. Assume the prior day's settlement price is 99.45. Note that CME will automatically net the end of day Eurodollar positions after the migration has occurred.

Eurodollar Futures Offset Example

a. Start of Day position in the Eurodollar future is 50L x 0S
b. Eurodollar offset will be a sell for 50 at a price of 99.45
c. End of Day position in the Eurodollar future will be 50L x 50S gross, netted to 0L x 0S
d. End of Day position variation will be net zero

SR3 Futures Onset Example

a. SR3 onset will be a buy for 50 at a price of 99.45 + .26161 = 99.7116 rounded to .0001
b. A residual amount will be calculated as -.00001 x 50 x 2500 multiplier = -1.25 be included on the onset. Multiply by -1 for a sell
c. End of Day position in the SR3 futures will be 50L x 0S
d. End of position variation will reflect the onset trade variation plus the residual amount

Firms will have the ability to submit Transformation Instructions that specify account breakdown of the positions to facilitate integration with their bookkeeping systems. More information in the Transformation Instruction section below.

Eurodollar Options Migration

Eurodollar options migration will take place in a manner similar to that of the futures positions. Offset transactions will be generated based on start of day positions at an equal and opposite quantity with the offset price set to the prior day's settlement price of the option – which is also the final settlement price. An onset will be used to re-establish the position in a corresponding SR3 option contract. The net premium of the offset and onset will reflect the difference in option value between the originating Eurodollar and resulting SOFR option positions.

In order to determine the SR3 option strike to which the position will be moved the ISDA spread adjustment will be added to the originating Eurodollar strike price. The resulting non-standard strike will be adjusted to the nearest standard SR3 strike to which the position will be moved. In order to make this clear CME will provide an option strike mapping file indicating how the pairs of options will be matched up. There is more on strike mapping below.

Eurodollar Options Offset Example

a. Start of Day position in the Eurodollar 98.5 Call is 50L x 0S
b. Eurodollar offset will be a sell for 50 at a hypothetical price of 0.50 (prior day's settle price) given the underlying futures price
c. End of Day position in the Eurodollar option will be 50L x 50S gross, netted to 0L x 0S
d. End of Day position premium will be a credit based on the direction of the offset

SR3 Options Onset Example

a. The onset will be a buy in the SR3 98.75 Call option for 50 at a hypothetical price of 0.52 given the underlying futures price and volatility surface
b. The price of the onset will be determined so as to neutralize any gain or loss in option value
    a. Note that the selection of the 98.75 Call versus the fully precise 98.76161 Call results in an increase in option value which will be reflected in the option price
c. End of Day position in the SR3 option will be 50L x 0S
d. End of position premium will be a debit based on the direction of the trade
e. The net premium of the offset and onset will reflect the difference in option value between the originating ED and SR3 option positions

Firms will have the ability to submit Transformation Instructions that specify account breakdown of the positions to facilitate integration with their bookkeeping systems. More information in the Transformation Instruction section below.

Option Strike Mapping

Here is an example of how strike mapping works; a Eurodollar call option at a strike price of 98.5 results in a non-standard SR3 call option at a strike of 98.76161 when the ISDA spread adjustment of .26161 is added. The non-standard strike is then adjusted to the nearest standard SR3 call option strike of 98.75

- Non-Standard SR3 strike: ED 98.5 + .26161 = SR3 98.76161
- 98.75 strike is nearest to the non-standard strike of 98.76161

The end result is that the ED 98.5 Call maps to the SR3 98.75 Call such that the positions migrate accordingly.

Offset and Onset Trade Confirmation Messages

Offset and Onset trade confirmation messages will be sent in standard FIXML format using the "Hybrid" Transfer. Below are some of the fields and values that will be set with this workflow:

OFFSET

Trade Type	TrdTyp="3"
ExecID	ExecID="180A4B9DBA00102D15565"
Offset/Onset Indicator	OfstInst="0"
Transfer Reason Code	TrnsfrRsn="V"
Trade ID	TrdID="90000001"
Order ID	ClOrdID="OFFSET"
Input Source	InptSrc="CLR"
Order Type	OrdTyp="V"
Aggressor Indicator	AgrsrInd="Y"
Customer Account	<Pty ID="010" R="24">
Reg Trade ID	<RegTrdID ID="FECF180A4B9DBA00102D15563" Src="1010000023" Typ="0" Evnt="2"/>
Match Timestamp	<TrdRegTS TS="2022-06-08T07:42:38-05:00" Typ="1"/>

ONSET

Trade Type	TrdTyp="3"
ExecID	ExecID="180A4B9DBA00102D14A09"
Offset/Onset Indicator	OfstInst="1"
Transfer Reason Code	TrnsfrRsn="P"
Trade ID	TrdID="90000002"
Order ID	ClOrdID="TRANSFORMATION"
Input Source	InptSrc="CLR"
Order Type	OrdTyp="P"
Aggressor Indicator	AgrsrInd="Y"
Customer Account	<Pty ID="010" R="24">
Reg Trade ID	<RegTrdID ID="FECF180A4B9DBA00102D14A0B" Src="1010000023" Typ="0" Evnt="2"/>
Match Timestamp	<TrdRegTS TS="2022-06-08T07:42:33-05:00" Typ="1"/>

The confirmation messages that result from the transformation process will resemble these sample messages.

ED Futures Offset Confirmation Message


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TrnsfrRsn="V" MtchID="180A4B9DBA00102D15565" ExecID="180A4B9DBA00102D15565" PxTyp="2"
TrdDt="2022-06-08" BizDt="2022-06-08" MLegRptTyp="1" MtchStat="0" MsgEvtSrc="CMESys"
TrdRptStat="0" TrdID="90006810" TrdID2="180A4B9DBA00102D15563" LastQty="11"
LastPx="97.06" TxnTm="2022-06-08T12:54:31-05:00" TrdHandlInst="5" OrigTrdDt="2022-06-
08" VenueTyp="C" VenuTyp="C" OfstInst="0" LastUpdateTm="2022-06-08T12:54:31.685-
05:00"><Hdr Snt="2022-06-08T12:54:31-05:00" SID="CME" TID="010" SSub="CME"
TSub="CME"/><Instrmt Sym="GEU4" ID="ED" CFI="FFDCSX" SecTyp="FUT" Src="H"
MMY="20240900" MatDt="2024-09-16" Mult="2500" Exch="CME" PxQteCcy="USD"/><RptSide
Side="1" ClOrdID="OFFSET" InptSrc="CLR" InptDev="SYSGEN" CustCpcty="4" OrdTyp="V"
SesID="ETH" SesSub="C" AgrsrInd="N" AllocChngStat="0"><Pty ID="CME" R="21"></Pty><Pty
ID="010" R="4"></Pty><Pty ID="CME" R="22"></Pty><Pty ID="010" R="1"></Pty><Pty
ID="TRANSFORM" R="24"><Sub ID="2" Typ="26"/></Pty><Pty ID="995" R="17"></Pty><Pty
ID="010" R="38"><Sub ID="2" Typ="26"/></Pty><Pty ID="SYSGEN" R="200"></Pty><RegTrdID
ID="FECF180A4B9DBA00102D15563" Src="1010000023" Typ="0" Evnt="2"/><TrdRegTS TS="2022-
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```

SR3 Futures Onset Confirmation Message


```xml
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TrdDt="2022-06-08" BizDt="2022-06-08" MLegRptTyp="1" MtchStat="0" MsgEvtSrc="CMESys"
TrdRptStat="0" TrdID="90004776" TrdID2="180A4B9DBA00102D14A0B" LastQty="8"
LastPx="97.3216" TxnTm="2022-06-08T12:54:31-05:00" TrdHandlInst="5" OrigTrdDt="2022-
06-08" VenueTyp="C" VenuTyp="C" OfstInst="1" LastUpdateTm="2022-06-08T12:54:31.689-
05:00"><Hdr Snt="2022-06-08T12:54:31-05:00" SID="CME" TID="010" SSub="CME"
TSub="CME"/><Instrmt Sym="SR3U4" ID="SR3" CFI="FFDCSO" SecTyp="FUT" Src="H"
MMY="20240900" MatDt="2024-12-18" Mult="2500" Exch="CME" PxQteCcy="USD"/><Amt
Typ="CRES" Amt="-0.2"/><RptSide Side="1" ClOrdID="TRANSFORMATION" InptSrc="CLR"
InptDev="SYSGEN" CustCpcty="4" OrdTyp="P" SesID="ETH" SesSub="C" AgrsrInd="Y"
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R="22"/><Pty ID="010" R="1"/><Pty ID="10399" R="24"><Sub ID="1" Typ="26"/></Pty><Pty
ID="995" R="17"/><Pty ID="010" R="38"><Sub ID="1" Typ="26"/></Pty><Pty ID="SYSGEN"
R="200"/><RegTrdID ID="FECF180A4B9DBA00102D14A0B" Src="1010000023" Typ="0"
Evnt="2"/><TrdRegTS TS="2022-06-08T07:42:33-05:00"
Typ="1"/></RptSide></TrdCaptRpt></FIXML>
```


Transformation Instruction

Firms may submit Transformation Instructions, in the FECPlus Positions UI via .CSV file upload, to drive the creation of the OFFSET and ONSET Transformation transactions in the desired Account(s).

Transformation Instructions are submitted the day prior to the scheduled Transformation. Each Instruction indicates the Account, the Position Quantity, the “Source” Contract, and the Cycle Date of the Transformation. Transformation Instructions are submitted from the perspective of the positions that the Firm currently holds. For example, if their current Position in a contract is 50x0, the instructions should total up to 50 Buys.

CME will use the Transformation Instructions to generate Account-specific OFFSET and ONSET transactions at the Quantity specified by the Firm. If Transformation Instructions are not submitted, CME will use the Final Position Qty in the Customer or House Position Account to generate the OFFSETS and ONSETS, using the Position Account as the Customer Account.

The .CSV-formatted Transformation Instruction file can be uploaded via the FECPlus Positions UI, on the Positions landing page, in the File Upload section. The template file can also be downloaded from the File Upload section. After the file is successfully submitted, the resulting Instructions can be viewed on the new Transformation Instructions screen in the FECPlus Positions UI. Transformation Instructions can be thought of as a Position Breakdown, detailing the Qty that belongs to each Customer Account. Multiple Instructions may be submitted for the same Contract, but only one record can be submitted per Customer Account, per Contract, per B/S. Subsequent Instructions for the same Customer Account/Contract will overwrite the previous submission. The submitted Transformation Instructions can be viewed in the FECPlus Positions UI and updated (Quantity or Customer Account) or deleted.

<u>Under Allocation</u>

*If the Final Position Qty in the Contract is <u>greater</u> than the Transformation Instruction Qty, OFFSETS/ONSETS will be created using the balance Qty, after the Qty of the Transformation Instructions are processed, using the Position Account as the Customer Account.

For example:
Final Qty in Contract: 100x0 for Firm 010
Instructions submitted:
1. Qty 60, BUYS, Account ABC
2. Qty 30, BUYS, Account DEF

Results:
ONSET/OFFSET Qty 60 for Account ABC
ONSET/OFFSET Qty 30 for Account DEF
ONSET/OFFSET Qty 10 for Account 010

<u>Over Allocation</u>
*If the Final Position Qty in the Contract is <u>less</u> than the Transformation Instruction Qty, the Instructions will be IGNORED, unless the NET Buys/Sells matches exactly with the Final Position Qty.

*Gross Position Submission is also supported, provided that the total Buys/Sells net down to the exact Final Position in the contract.

For example:
Final Qty in Contract: 100x0 for Firm 010
Instructions submitted:
1. Qty 60, BUYS, Account ABC
2. Qty 80, BUYS, Account DEF
3. Qty 40, SELLS, Account GHI

Results:
ONSET/OFFSET Qty 40 for Account GHI
ONSET/OFFSET Qty 80 for Account DEF
ONSET/OFFSET Qty 60 for Account ABC

<u>Instruction Record - Unique Business Key and Duplicate Records</u>
Note that only one record per Clearing Firm, TMF, Contract, Account and Buy/Sell can be submitted. If more than one record meeting this criteria is submitted, only the first one will be retained for processing. These are the specific fields that make up the unique key of the instruction record.

- Type
- Cycle Date
- Exch
- Clearing Firm
- Prod, Contract, P/C, Strike Price
- Src TMF or Src PA
- Src Orig
- Src Cust Acct
- B/S

The layout of the .CSV file is detailed below and includes usage and descriptions of each field. In general, Firms will want to provide the Src TMF for linking their Src Cust Acct to the Position at CME.

Instruction File CSV Format

Field Name	Format/Max Length	Usage	Sample	Description
Type	Char 10	Required	TRANSFORM	Type of Instruction.
Cycle Date	MM/DD/YYYY	Required	07/03/2023	Business Date of the instruction, which can be up to 5 business days into the future. Date on which the product will Transform (for Daily contracts, Transformation Date = Period Code)
Clearing Org	Char 5	Required	CME	Clearing Organization
Exch	Char 5	Required	CME	Product Exchange
Clearing Firm	Num 3	Required	010	Clearing Member Firm ID
Prod	Char 3	Required	ED	Product Code of the source position
Contract	YYYYMMDD	Required	202309	Contract Period of the source position
P/C	Char 1	If Strike Price or Undly are provided, then Required.	P	Put/Call Indicator of the source position
Strike Price	Num 10	If P/C or Undly are provided, then Required.	99.50	Strike Price of the source position
Undly	YYYYMMDD	Optional	202309	Underlying Contract Period of the source position
Src TMF	Char 3	Required if Src PA is not provided	010	Trading Member Firm (TMF) ID associated with the source position. This is specified: • As the primary way of identifying the source position held at CME • When the source position can be accurately determined by the Source TMF and the Source Cust Acct • If the source position resides in a Customer-Specific Position Account for the specified Source Cust Acct
Src PA	Char 15	Required if Src TMF is not provided	010	CME Position Account for the source position. This is specified when: • The firm doesn't know the TMF for a position • The firm wants to specify a Position Account that is different from the one associated with the TMF • A Customer-Specific Position Account exists for the Source Cust Acct but the source position resides in the omnibus account at CME
Src Orig	Char **1**	Required	C	Origin of the source position C = CUST H = HOUS
Src Cust Acct	Char **20**	Required	ABC123Z84	Customer Account in which the source position resides on the firm books. May also correspond to a Customer-Specific Position Account held at CME. See "Src TMF" above.

Field Name	Format/Max Length	Usage	Sample	Description
B/S	Char 1	Required	B	Indicates whether source position quantity is Long or Short B = Buy/Long S = Short/Sell
Submitted Quantity	9999999	Required	87	The source position Quantity to be pertaining to the Src Cust Acct.
Dest TMF	Char 3	If Dest Orig and/or Dest Cust Acct and/or Dest PA is/are provided, then Required.	011	Trading Member Firm (TMF) ID associated with the destination position. Only used when the Dest TMF is intended to be different from the Src TMF. See Src TMF usage rules above
Dest PA	Char 15	Optional	011	CME Position Account for the destination position. Only used when the Dest PA is intended to be different from the Src PA. See Src PA usage rules above
Dest Orig	Char **1**	Optional	C	Origin of the destination position C = CUST H = HOUS Only used when Dest TMF has been specified
Dest Cust Acct	Char **20**	If Dest TMF, and/or Desti Orig is/are provided, then Required.	DEF456Y95	Customer Account in which the destination position will reside on the firm books. Only used when the Dest Cust Acct is different from the Src Cust Acct
Error Messages		Ignored		

Instruction Sample Record

Type = TRANSFORM
Cycle Date = 07/03/2023
Clearing Org = CME
Exch = CME
Clearing Firm = 010
Prod = ED
Contract = 202309
P/C – not required for futures contract
Strike Price – not required for futures contract
Undly – not required for futures contract
Src TMF = 010
Src PA – not required if Src TMF provided
Src Orig = C
Src Cust Acct = CUST123
B/S = B
Submitted Quantity = 19
Dest TMF – not required
Dest PA – not required
Dest Orig – not required
Dest Cust Acct – not required

For more information, please contact CME Clearing at ccs@cmegroup.com or via phone at

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