

# Packet Capture Dataset

Market Data Packet Captures (PCAP) are the complete historical raw data feeds on all channels for both futures and options from the channels' MBO release. The Settlements and Valuations channel is a new channel available in PCAP format.

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## Dates Available

Packet Capture data is available on four exchanges from January 2017 to present and all files are in FIX format. For the availability of each Channel please reference the FAQs below.

### By Exchange

Exchange	Open Date	Close Date
CME (Electronic)	5/13/2017	Present
CBOT (Electronic)	4/1/2017	Present
NYMEX (Electronic)	1/7/2017	Present
COMEX (Electronic)	1/7/2017	Present

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## Security Definition Files

Tag Usage by Security Type

Tag	FIX Name	Future Outright	NYMEX Decay /Variable Future	Future Spread	Option Outright	Option Spread	UDS Combo	UDS Covered
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Application Sequence Control								
5799	MatchEventIndicator	X	X	X	X	X	X	X
911	TotNumReports	c	c	c	c	c	c	c
980	SecurityUpdateAction	X	X	X	X	X	X	X
779	LastUpdateTime	X	X	X	X	X	X	X
1180	ApplID	X	X	X	X	X	X	X
Instrument Data								
1300	MarketSegmentID	X	X	X	X	X	X	X
55	Symbol	X	X	X	X	X	X	X
48	SecurityID	X	X	X	X	X	X	X
22	SecurityIDSource	X	X	X	X	X	X	X
200	MaturityMonthYear	X	X	X	X	X	X	X
1151	SecurityGroup	X	X	X	X	X	X	X
6937	Asset	X	X	X	X	X	X	X
167	SecurityType	FUT	FUT	FUT	OOF	OOF	OOF	MLEG
762	SecuritySubType	-	-	X	-	X	X	X
461	CFI Code	X	X	X	X	X	X	X
201	PutOrCall	-	-	-	X	-	-	-
462	UnderlyingProduct	X	X	X	X	-	-	-
207	SecurityExchange	X	X	X	X	X	X	X
1682	MDSecurityTradingStatus	c	c	c	c	c	c	c
202	StrikePrice	-	-	-	X	-	-	-
947	StrikeCurrency	-	-	-	X	-	-	-
15	Currency	X	X	X	X	X	X	X
120	SettlCurrency	-	-	-	c	-	-	-
9850	MinCabPrice	-	-	-	c	-	-	-
9779	UserDefinedInstrument	-	-	-	-	-	Y	Y
Underlying (options only)								
711	NoUnderlyings	-	-	-	X	-	-	-
311	UnderlyingSymbol	-	-	-	X	-	-	-
309	UnderlyingSecurityID	-	-	-	X	-	-	-
305	UnderlyingSecurityIDSource	-	-	-	X	-	-	-
Leg Group (spreads only)								
555	NoLegs	-	-	X	-	X	X	X
602	LegSecurityID	-	-	X	-	X	X	X
624	LegSide	-	-	X	-	X	X	X
623	LegRatioQty	-	-	X	-	X	X	X
566	LegPrice	-	-	-	-	-	-	X
1017	LegOptionDelta	-	-	-	-	-	-	X
Trading Rules								
1141	NoMdFeedTypes	X	X	X	X	X	X	X
1022	MDFeedType	X	X	X	X	X	X	X
264	MarketDepth	X	X	X	X	X	X	X
864	NoEvents	2	2	2	2	2	2	2
865	EventType	X	X	X	X	X	X	X
1145	EventTime	X	X	X	X	X	X	X
1142	MatchAlgorithm	X	X	X	X	X	X	X
1234	NoLotTypeRules	X	X	X	X	X	X	X
1093	LotType	X	X	X	X	X	X	X
1231	MinLotSize	X	X	X	X	X	X	X
562	MinTradeVol	X	X	X	X	X	X	X

1140	MaxTradeVol	X	X	X	X	X	X	X
969	MinPriceIncrement	X	X	X	c	X	X	X
1146	MinPriceIncrementAmount	X	X	-	X	-	-	-
9787	DisplayFactor	X	X	X	X	X	X	X
5770	PriceRatio <i>(Implied Intercommodity Ratio Spreads only)</i>	-	-	c	-	-	-	-
6350	TickRule	-	-	-	c	c	-	-
37702	MainFraction	c	-	-	c	-	-	-
37703	SubFraction	c	-	-	c	-	-	-
9800	PriceDisplayFormat	c	-	-	c	-	-	-
<b>Instrument Attribute Group</b>								
870	NoInstAttrib	X	X	X	X	X	X	X
871=24	InstAttribType	X	X	X	X	X	X	X
872	InstAttribValue	X	X	X	X	X	X	X
<b>Contract Lot Size/Measure/Unit</b>								
1435	ContractMultiplierUnit	-	X	-	-	-	-	-
1439	FlowScheduleType	-	X	-	-	-	-	-
231	ContractMultiplier	-	X	-	-	-	-	-
996	UnitOfMeasure	X	X	X	X	X	X	X
1147	UnitOfMeasureQty	X	X	-	X	-	-	-
5818	DecayQty	-	c	-	-	-	-	-
5819	DecayStartDate	-	c	-	-	-	-	-
5849	OriginalContractSize	-	c	-	-	-	-	-
<b>Statistics and Limits</b>								
1150	TradingReferencePrice	c	c	c	c	c	c	c
731	SettlPriceType	c	c	c	c	c	c	c
5796	TradingReferenceDate	c	c	c	c	c	c	c
5792	OpenInterestQty	c	c	c	c	c	c	c
5791	ClearedVolume	c	c	c	c	c	c	c
1149	HighLimitPrice	c	c	c	c	c	c	c
1148	LowLimitPrice	c	c	c	c	c	c	c
1143	MaxPriceVariation	c	c	c	-	-	-	-

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## Sample Files

In order to obtain a sample PCAP file you must set up an s3 account and then contact CME Group's Data Sales team @[CMEDDataSales@cmegroup.com](mailto:CMEDDataSales@cmegroup.com). You can find instruction on how to entitle your s3 account to DataMine data [here](#).

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## Layout Guides

View layout guides and message specifications for the following market data formats.

### CME MDP 3.0 (Current Production Format)

The CME Group Market Data Platform (MDP) disseminates event-based bid, ask, trade, and statistical data for CME Group markets and also provides recovery and support services for market data processing. Click below to access layout guide.

- [Complete documentation for CME MDP 3.0](#)

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## FAQ

### What format is the file delivered in?

PCAP files are SBE raw data grouped by channel. The file contains channel number, length of message and actual payload. For example: 312 (channel), 96 (length of message), <actual payload>.

### How do I best understand the timestamp(s)?

All messages will have FIX tag 60 (within payload), this represents the Globex started processing time at nanosecond granularity with microsecond accuracy.

### What is the precision level for timestamping in PCAP?

PCAP is delivered in nanosecond granularity with microsecond accuracy.

### Does PCAP come from the same source as Top-of-Book and Time & Sales data?

No, our PCAP files are produced from CME Globex Market Data Platform FIX/FAST feeds, while our Top-of-Book and Time & Sales data come from an internal post-trade processing system. The granularity of the timestamps for the data offerings is different due to the sources.

### What is the Settlements and Valuations Channel?

With the launch of Settlements and Valuations, CME Group introduced theoretical valuations. Theoretical valuations is new type of data produced by CME Group for futures and options products without volume, open interest, or underlying pricing required for Clearing products. For more information, see [here](#).

### How far back do you maintain MBO records?

Channel	Channel Description	Start Date	End Date
310	CME Globex Equity Futures	5/20/2017	Present
311	CME Globex Equity Options	5/20/2017	Present
312	CME Globex Interest Rate Futures	5/20/2017	Present
313	CME Globex Interest Rate Options	5/20/2017	Present
314	CME Globex FX Futures	5/13/2017	Present
315	CME Globex FX Options	5/13/2017	Present
316	CME Globex Commodity Futures	5/13/2017	Present
317	CME Globex Commodity Options	5/13/2017	Present
318	CME Globex Equity Futures- excludes E-mini S&P 500	5/13/2017	Present
319	CME Globex Equity Options- excludes E-mini S&P 500	5/20/2017	Present
320	CME Globex FX Futures II	5/13/2017	Present
321	CME Globex FX Options II	5/13/2017	Present
340	CBOT Globex Commodity Futures	4/1/2017	Present
341	CBOT Globex Commodity Options	4/1/2017	Present
342	CBOT Globex Equity Index Futures	4/22/2017	Present
343	CBOT Globex Equity Index Options	4/22/2017	Present
344	CBOT Globex Interest Rate Futures	4/22/2017	Present
345	CBOT Globex Interest Rate Options	4/22/2017	Present
346	CBOT Globex Commodity Futures II	4/1/2017	Present
360	COMEX Globex Futures	1/7/2017	Present
361	COMEX Globex Options	1/7/2017	Present
380	NYMEX Globex Emissions Futures	1/7/2017	Present
381	NYMEX Globex Emissions Options	1/7/2017	Present
382	NYMEX Globex Crude & Crude Refined Futures	1/21/2017	Present
383	NYMEX Globex Crude & Crude Refined Options	1/7/2017	Present
384	NYMEX Globex Metals, Softs, & Alternative Market Futures	1/7/2017	Present
385	NYMEX Globex Metals, Softs, & Alternative Market Options	1/7/2017	Present
386	NYMEX Globex Nat Gas & other Non-Crude Energy Futures	1/7/2017	Present

387	NYMEX Globex Nat Gas & other Non-Crude Energy Options	1/7/2017	Present
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**What product is a channel on?**

Please reference the [CME Globex Product Reference Sheet](#) to see the MDP channel for each product. Please note the channel is listed in column AC.

**How many levels of depth are available? Has this depth changed over time?**

PCAP has the Full depth of book. This has not changed over time.

**Are spreads included in the PCAP files?**

Exchange-listed spread products are included for both futures and options spreads.

**Do you have sample files available?**

In order to obtain a sample PCAP file you must set up an s3 account and then contact CME Group's Data Sales team [CMEDataSales@CMEGroup.com](mailto:CMEDataSales@CMEGroup.com). You can find instruction on how to entitle your s3 account to DataMine data [here](#).

**Are there any anomalies with this data?**

For Channel 381, NYMEX Globex Emissions Options, there is a data gap from 6/27/2021 - 7/12/2021

**When are these files delivered?**

CME Group's process to distribute PCAP files begins at 5:00 p.m. Central Time (CT) and is typically complete by midnight.

**How many files do I receive per day for a PCAP subscription?**

You will receive 2 files per day for each channel you are subscribed to. The first will have the previous date in the file name. This is data that occurred from 4:30 PM CT to Midnight CT. The second file will have the current date in the file name and will be from Midnight CT to 4:00 PM CT. On Sundays, you will receive all data from the start of the feed. The earliest heartbeat messages that are captured have a timestamp of 5:30 AM CT.

**If I purchase daily updates of PCAP data, will I get historical data as well?**

No. When an order is placed for daily updates of PCAP data, the first file included will be generated for the start date of the subscription. However, files remain accessible for 30 days after purchase, enabling the customer to reference previous day's data.

**Where can I obtain Security Definitions for the data in the PCAP data?**

A security definition file is published daily and sent to you with the PCAP file.

**How do I interpret PCAP data?**

PCAP files include all bids and offers, full depth of the book.

**How large are the PCAP files?**

The size of the file varies upon the channel and date. On our busiest days in 2018, channel 311 (Equity options) were averaging between 7.5 GB and 10 GB a day.

**Will a channel be missing packet level sequence numbers?**

No you should receive all packet level sequence numbers.

**Should I be missing instrument level sequence numbers (Tag 83)?**

No, all instrument level sequence numbers should be in each file.

**Will I see heartbeat messages?**

Yes, you will see these messages.

**Can trade summaries be split into different files?**

Yes, if a strategy is traded and the instruments are on two different channels, the summary will be split between the two different channels.

**Should an Order ID (Tag 37) change during the life of an order?**

No, tag 37 should stay the same for each order until it has been cancelled or filled. If there is any modification other than a cancel or fill the Order ID stays the same.

**Should orders be tied to implied prices?**

No, orders are not tied to implied prices.

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