Cboe Clear US REST API v4.0

1 Change History

Date	Message(s) or Section	Description
20190731		Version 1
20190809	Filters	In python, filters should be specified in the **json** argument of requests.post function, not in the **data** argument. Some new filters have been added to the different endpoints. Each token will now be valid for 60 seconds, instead of the previous 30 seconds
20190819	Trades Response	The trades response will now include 3 new fields (tcr_id, client_order_id, fix_id)
20190925	Trades Response	The trades response will now include one new field: product_code
20200130		Version 1.5
	Messages updated; Account, Balances and Trades.	New fields introduced to expose Futures information to clients (highlighted in green).
	New message added; Positions	New positions endpoint to query the positions for a given account.
20200301		Version 2.0
	Movements & Trades Filter changes	Removed asset_type filter from Movements and fee_type filter from Trades.
	New endpoints: deposit_address, linked_accounts, build_withdrawal_request and submit_withdrawal_request	A set of new endpoints to allow users to process deposits and withdrawals.
	Authentication	Removed Python 2 authentication example
20200326		Version 3.0
	New Service: Block Trades API Service	Added new endpoints to interact with the Block Trade API
	New section: Balances Calculations	New section that details balances calculations
	Funding Password Signing	Modified the javascript example for easier use
20200505		Version 3.1
	New Service: Order Management API Service	Added new endpoints to interact with the Order Management system via REST API
	Movements Endpoint	Defined possible values for Type field in the movements endpoint response
20200716		Version 3.1.1
	Clearing API Permissions	Add Table explaining permissioning in Clearing API
20200709		Version 3.2
	New endpoint: Closeouts	Add new endpoint to get Closeouts information
	Execution Report	Add AvailableBalanceData component with AvailableBalance and AvailableBalanceCurrency
	Security List	Add productCode, securityGroup, cap and floor Add securityGroup field in SecurityList request
	Linked Account	Add new field is_sen_account
	Order Mass Status Order Status Single	Add AvailableBalanceData component with AvailableBalance and AvailableBalanceCurrency. VIEW DISCLAIMER

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	Balances	Add new fields closed_reserve_loss and closed_reserve_profit
20200924		Version 3.3
	Block Trades	Negotiated Time must be a unix timestamp in milliseconds
	Movements	Added key delivery to posting_summary object
	Security Status	Added marketDataID field
	Member User Permissions	Added new user permissions endpoint
	Closeouts	Updated output definitions
20201116		Version 3.4
	Security Status	Added haltReason field
20210812		Version 3.5
	Trades Endpoint	Fix typo in sample output. clearing_fees -> clearing_fee and exchange_fees -> exchange_fee
	Account Endpoint	Added new field in the response: emarket_account_number
20210826	Trades Endpoint	Fix typo in request example. Added] to close array in the filter parameter
20210812		Version 3.6
	New Order Single Supported Order Types	Added support for Market orders
20211018		Version 3.7
	Order Management	Added requestId field in request and response messages. Correlation field is deprecated and will be removed in future versions (Timeline to follow). To link requests and responses please use the requestId or the clOrdID fields.
20220516		Version 3.8
	Balances	Add available_balance field
20220707	Authentication	Remove iat from Javascript payload example
20230118	Movements Endpoint Requests Endpoint Submit Withdrawal Request	Add optional request_id field to requests and responses
20230721	SecurityList	Fixed error in the parameter name
20230725	RateLimit	Added rate limit section for Order Entry API
20231005	New Order Single	Added type field for Market orders
20240130	Public Endpoint URL	Added public endpoint URL for security-list and security-status endpoints
20240214	Balances Endpoint	Added new optional input time parameter to balances endpoint and settlement_detail information
20240227	Submit Block Trade	Change to Submit Block Trade request payload
20240227	Block Trade Requests	Added new error_reason field and replaced error_code with error_code_str field
20240322	Futures Clearing Member API Service	Added new API service support for Futures Clearing Members
20241107		Version 4.0
		Removal of certain spot endpoints

2 General Concepts

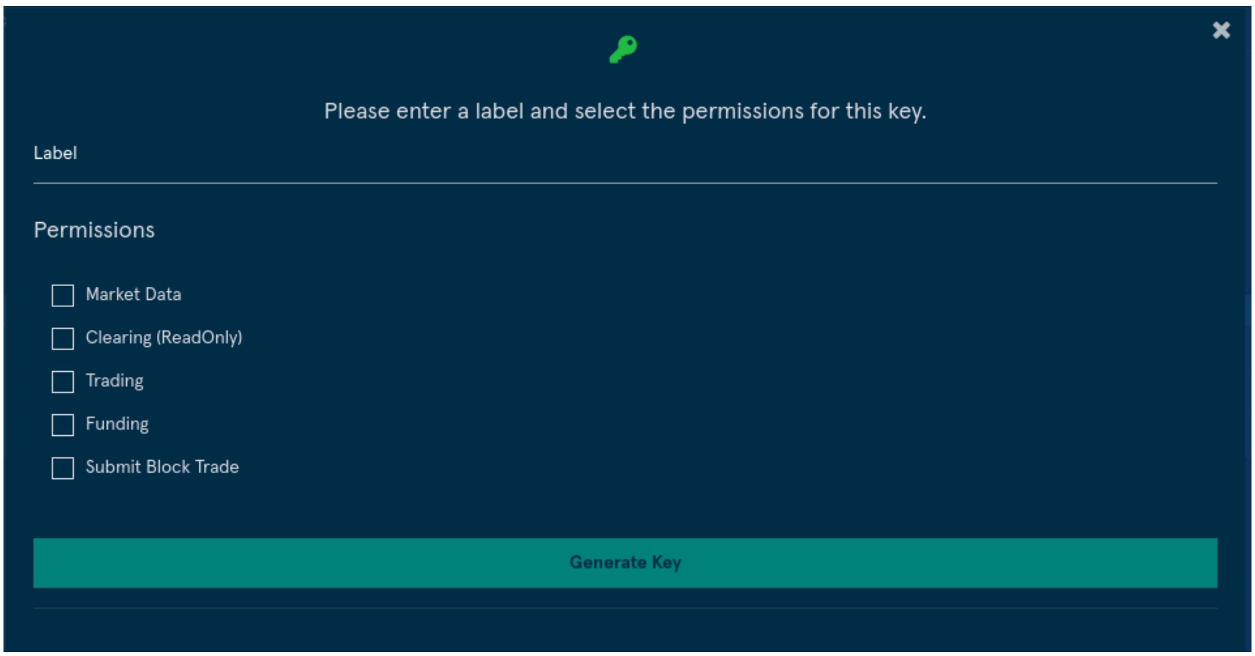
2.1 API Credentials

In order to sign your API requests, you will need to create a set of API Credentials.

From the Eris Member Portal, navigate to the dropdown next to your username in the top right of the page and select 

.

After clicking **Create New API Key** you will be asked to select the permissions you want to enable.



API Key permissions

- **Clearing (ReadOnly):** Allows an API key to query information about their clearing accounts.
- **Submit Block Trade:** Allows an API key to submit Block Trades.
- **Read Pre Trade Risk**: Allows an API key to view pre-trade risk settings for margin futures.
- **Write Pre Trade Risk**: Allows an API key to set pre-trade risk settings for margin futures.

When ready click **Generate Key** and you will be presented with two pieces of information that must be kept safe as they will be needed for authentication of calls to the end points and will not be shown again:

- **API key**
- **Secret**

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2.2 Authentication

A json web token should be generated using the HS256 algorithm on the API key, secret and timestamp as described in the examples below. This token should be included in the header of every request.

- **Timestamp:** The authentication token requires a Unix Epoch timestamp in seconds.
- **Token Age:** Each token will only be valid for 60 seconds after the timestamp.

Notes:

- In python use the **pyjwt** package to generate the token (https://pyjwt.readthedocs.io/en/latest/).
- Note that some jwt encoding functions may return a byte array rather than a string, and some languages require explicit conversion. For example, in Python, you must use the **decode()** function.
- Be aware that there must be a blank space between **Bearer** and the token.

Javascript Example:

```
const jwt = require('jsonwebtoken');
const axios = require('axios').default;
const apiKey = '9106676d85f1163f.d1ba2efac8bc1e0a';
const secret = '31b6b61606588580';
var payload = {
 sub: apiKey
};
var token = jwt.sign(payload, secret, { algorithm: 'HS256'});
```

Python 3 Example:

```
import jwt
import time
import requests

def gen_token(secret, api_key):
   unix_timestamp = int(round(time.time()))
   payload_dict = {'sub': api_key, 'iat': unix_timestamp}
   return jwt.encode(payload_dict, secret, algorithm='HS256').decode('utf-8')

my_secret = '31b6b61606588580'
my_api_key = '9106676d85f1163fgd1ba2efac8bc1e0a'
url = 'https://clearing.erisx.com/api/v1/'
token = gen_token(my_secret, my_api_key)
requests.post(url= url + endpoint_name, headers={'Authorization': 'Bearer ' +
token}, json={}) # Be aware that there is a blank space after Bearer
```

2.3 Filters

Some API calls allow the use of filters. These filters provide a greater level of flexibility to queries. Ultimately, providing more efficient requests and a better API experience.

The filter query has the following json type format. Multiple filters can be applied in a single request to best tailor the query. In python, filters should be given under the **json** argument of the requests.post function.

```
"filter": [{"attr": "attribute_name","op": "eq","value": "attribute_value" }]
```

Field	Value
filter	Name of the query parameter
attr	Name of the attribute that wants to be used in the query
op	Operations present in the query: 'eq' - equal 'ne' - not equal 'gt' - greater than 'gte' - greater than or equal 'lt' - less than 'lte' - less than or equal
value	Value or array of values of the attribute to which the query will compare.

2.4 Sorting

Queries also provide the ability to sort the results using the following format.

```
"sort": [{ "attr": "attribute_name", "value": "desc" }]
```

Field	Value
sort	Name of the query parameter
attr	Name of the attribute that wants to be used in the query
value	Direction of the sort: 'desc' - descending or 'asc' - ascending

2.5 Pagination

Some requests can be paginated. The offset and limit parameters on the request allows the user to choose how many results should be included in the return message and where the results should begin.

Maximum number of results per request is 100.

These two parameters are optional and available parameters in all endpoints except in the Balances endpoint.

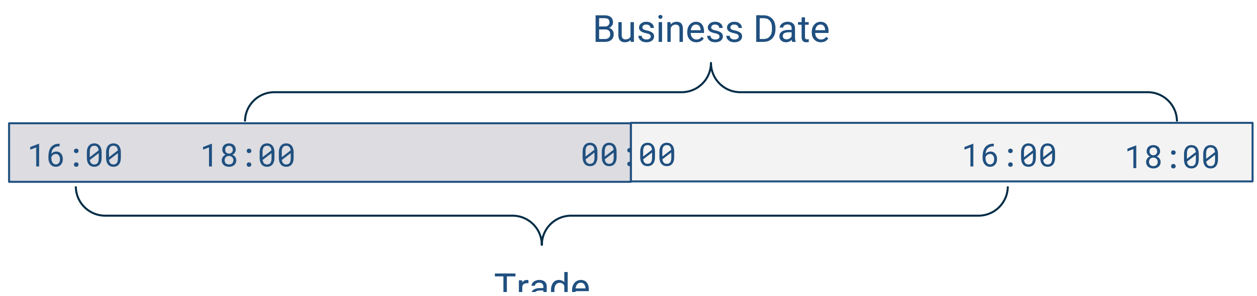
```
"offset":0, "limit":10
```

Field	Value
offset	Integer. The number of entries to skip (default: 0).
limit	Integer. Maximum number of results to be returned (default: 100).

2.6 Trade Date and Business Date

A new trade date starts at 4:00:00pm CST and finishes at 3:59:59pm CST the following day. All Exchange (trading) activity will be included in the appropriate trade date depending on the time of the activity. (I.e. trading activity at 2019-01-01 15:59:59 CST will be included in 2019-01-01 trade date but trading activity at 2019-01-01 16:00:00 CST will be included in 2019-01-02 trade date).

A new business date starts at 6:00pm CST and finishes at 5:59pm CST of the following day. All asset movement activity (Deposits, Withdrawals) will be included in the appropriate business date depending on the time of the asset movement. (I.e. a deposit made at 2019-01-01 17:59:59 CST will be included in 2019-01-01 business date but a deposit made at 2019-01-01 18:00:00 CST will be included in the 2019-01-02 business date).



The relevance of these two time frames is important for understanding the calculation of the [Opening Balance](#) in the Balances endpoint.

2.7 Rate Limiting

Requests are throttled per IP address. Limit: 4 requests in a 1 second period.

When the rate limit is exceeded, a response with status **429 -> Too Many Requests** is returned.

If the limit is exceeded the IP address will be restricted from making new requests for 60 seconds.

We highly recommend adding logic to your application to gracefully process the 429 To Many Requests message. We suggest that if the limit is breached, your application will pause for the required time in order to be within the rate limiting again. An application that repeatedly breaches the limit will keep extending the restricted period, thus, preventing your application to function correctly again.

3 Clearing API Service

This API service enables clients to interact with their Clearing accounts in order to extract data regarding their activity. All requests and responses are application/json content type.

All Clearing API endpoints are private and every request needs to be signed using the authentication method described in the Authentication section.

3.1 REST API Endpoint URL

- **Production: https://clearing.erisx.com/api/v1**
- **New Release (test): https://clearing.newrelease.erisx.com/api/v1**

3.2 Clearing API Permissions

As well as the chosen API Key permissions, selected when creating an API key, a user must have the accompanying User permissions in order to make requests to different Clearing API endpoints. The permissions for each endpoint are described in the table below.

Endpoint	API Credentials Permissions	User Permissions
Accounts Endpoint	Clearing (Read Only)	View Balances (to obtain a summary of account balances) Allow Trading (to obtain a list of FIX IDs)
Balances Endpoint	Clearing (Read Only)	View Balances
Trades Endpoint	Clearing (Read Only)	View Trades
Movements Endpoint	Clearing (Read Only)	View Movements

Please contact our Client Services team to inquire about the permissions you need.

3.3 Funds Designation

All customer funds for trading on designated contract markets (futures exchanges like Cboe Digital Exchange) must be kept apart ("segregated") from non customer funds.

Cboe Clear US currently supports two funds designations:

- P: Represents "member property" funds held on behalf of Cboe Clear US clearing members.
- S: Represents "segregated" funds held on behalf of the clients of Futures Commission Merchants (FCM's).

3.4 Balances Calculations

As defined in the Trade Date and Business Date section, Trade Date has a different start time and end time than Business Date. This difference has certain implications in how balances are calculated and provided in response to the different Clearing API endpoints.

3.4.1 Account Endpoint balance values

The response of the accounts endpoint, provides a summary of balances for the account along with other account information. The balances reflected include all Clearing House activities up to the moment when the API request is made. Therefore, this value will include the latest information known for the account.

3.4.2 Balances Endpoint, Opening Balance calculation

The balances endpoint provides a more detailed view of the balances for a particular account. The opening balance is generated using a reference to the current business date.
Therefore, the following rules need to be considered to understand the value provided;

- Include all asset movements (Deposits, Withdrawals, etc.) prior to the beginning of the current business date.
- Include all trading activity for the trade date prior to the current business date.

Examples

Request is within the same trade date and business date:
The Opening balance for a request on Tuesday **@ 15:50** CT will include:

- Trades prior to Monday @ 16:00 CT
- Asset movements prior to Monday @ 18:00 CT

Request is during a new trade date but still the same business date
The Opening balance for a request on Tuesday **@ 16:30** CT will include:

- Trades up to Monday @ 16:00 CT
- Asset movements prior to Monday @ 18:00 CT

Request is during a new trade date and new business date (same calendar date)
The Opening balance for a request on a Tuesday **@ 18:30** CT will include:

- Trades up to Tuesday @ 16:00 CT
- Asset movements prior to Tuesday @ 18:00 CT

3.5 Accounts Endpoint

This endpoint will return a list of all accounts a member has available to them, as well as basic balance information. More detailed balance information is returned in the getBalances endpoint.

- **HTTP Request Type:** POST
- **Endpoint:** /accounts
- **API security:** This API endpoint requires an authentication token with Clearing API read permission.

Inputs:

Field	Value	
filter (optional)	Default: `"filter": [{ "attr": "account_id", "op": "eq", "value": member_account_id }]`	
	account_id	Account ID
offset (optional)	Number of elements to be offset in the request for pagination purposes	
limit (optional)	Limit of elements returned in the request	

Example Requests:

```
requests.post(
    url="https://clearing.erisx.com/api/v1/accounts",
    headers={"Authorization": "Bearer " + token},
    json={})

requests.post(
    url="https://clearing.erisx.com/api/v1/accounts",
    headers={"Authorization": "Bearer " + token},
    json={
        "filter": [{
            "attr":
                "account_id",
            "op":
                "eq",
            "value": [
                "27ff6d34-523d-476d-9ad5-edeb373b83dc"
            ]
        }],
        "offset": 0,
        "limit": 10
    })
```

Outputs

Field	Value
count	Number of member accounts found
timestamp	Time of the request
accounts	List of all available accounts
account_id	Account ID
account_number	Account Number
fix_ids	List of all available FIX Trading IDs
member_users	Member users associated with the account

balances	Balances of the account at the time of the request
cti	Customer Type Indicator (For futures accounts)
origin	Origin (For futures accounts)
emarket_account_number	Cboe Digital Exchange Account Number

Example Response:


```
{
  "count": 1,
  "timestamp": "2018-01-01T06:00:00.000Z",
  "accounts": [
    {
      "account_id": "27ff6d34-523d-476d-9ad5-edeb373b83dc",
      "account_number": "DM-000001",
      "member_users": [
        "5c532a02f2530e906a9c065f"
      ],
      "balances": [
        {
          "asset_type": "USD",
          "amount": "100.5"
        },
        {
          "asset_type": "TBTC",
          "amount": "1.5"
        }
      ],
      "fix_ids": [
        "trading_id"
      ],
      "cti": 1,
      "origin": 2
    },
     "emarket_account_number": "abcdea"
  ]
}
```


3.6 Balances Endpoint

This endpoint will return a detailed set of balance information for a given account.

- **HTTP Request Type:** POST
- **Endpoint:** /balances
- **API security:** This API endpoint requires an authentication token with Clearing API read permission.

Inputs

Field	Value
account_id	Account ID
time	(Optional) Timestamp for which to retrieve balances. Format: YYYY-MM-DDTHH:MM:SS

Example Request:

```
requests.post(
    url="https://clearing.erisx.com/api/v1/balances",
    headers={"Authorization": "Bearer " + token},
    json={"account_id": "27ff6d34-523d-476d-9ad5-edeb373b83dc"})
```

Outputs

Field	Value
account_id	Account ID
timestamp	Time of the request
report_date	Business date associated with the request
asset_type	Asset Type
opening_balance	Balance at the beginning of the corresponding business date
asset_movement	Amount of asset movements for the business date up to the time of the request.
spot_movement	Amount of Spot trade movements for the business date up to the time of the request.
closing_balance	Balance as of the time of the request.
available_balance	Balance available to withdraw
change_in_balance	Change in balance between the beginning of the request's business date and the time of the request.
exchange_fees	Exchange fees paid during the request's trade date
clearing_fees	Clearing fees paid during the request's trade date
other_fees	Other fees paid during the request's business date
realized_p_and_l	Realized Profit and Loss in Futures trades
futures_delivery	Quantity of Futures contract delivered
total_equity	Total Equity
reserved_margin	Reserved Margin for Futures positions
total_excess_deficit	Total Excess Deficit
net_liquidating_value	Net Liquidating Value
available_to_trade	Balance available to trade (does not include working orders)
reserved_ote	Reserved OTE
fd	Funds designation
closing_price	Closing price of each asset at the end of the previous trade date
closing_price_date	Trade date to which the closing price belongs

usd_value	The USD equivalent balance for each asset based on the closing price of the previous trade date from the time of the request.
closed_reserve_loss	Assets or funds reserved from closed positions which may be needed to meet obligation in Push type futures, when closed position results in a realized loss.
closed_reserve_profit	Assets or funds reserved from closed positions which may be needed to meet obligation in Push type futures, when closed position results in a realized profit.
settlement_detail	Component that will hold information about the last available settlement window for each asset.
settlement_time	The date and time when the last settlement window took place, in UTC time zone.
settlement_balance	The balance for the corresonding asset at the settlement window.

Example Response:


```
{
    "account_id": "11134b34-9e7b-404a-80c8-c514d86e149f",
    "timestamp": "2024-02-14T17:58:21.434Z",
    "report_date": "2024-02-14",
    "balances":
    [
        {
            "asset_type": "TETH",
            "opening_balance": "1000.1",
            "spot_movement": "0.0",
            "exchange_fees": "0.0",
            "clearing_fees": "0.0",
            "other_fees": "0.0",
            "asset_movement": "0.0",
            "realized_p_and_l": "0.0",
            "futures_delivery": "0.0",
            "closing_balance": "1000.1",
            "total_equity": "1000.1",
            "reserved_margin": "0.0",
            "closed_reserve_profit": "0.0",
            "closed_reserve_loss": "0.0",
            "total_excess_deficit": "1000.1",
            "net_liquidating_value": "1000.1",
            "available_to_trade": "1000.1",
            "variation_margin": "0.0",
            "variation_margin_total": "0.0",
            "fd": "N",
            "initial_margin": "0.0",
            "maintenance_margin": "0.0",
            "closing_price": "1320.0",
            "closing_price_date": "2022-10-06",
            "usd_value": "1320132.0",
            "pending_balance": "0.0",
            "change_in_balance": "0.0",
```

```
            "available_balance": "1000.1",
            "ote": "0.0",
            "reserved_ote": "0.0",
            "settlement_detail":
            {
                "settlement_time": "2024-02-13T16:00:00Z",
                "settlement_balance": "1000.1"
            }
        },
        {
            "asset_type": "TBCH",
            "opening_balance": "1000.0",
            "spot_movement": "0.0",
            "exchange_fees": "0.0",
            "clearing_fees": "0.0",
            "other_fees": "0.0",
            "asset_movement": "0.0",
            "realized_p_and_l": "0.0",
            "futures_delivery": "0.0",
            "closing_balance": "1000.0",
            "total_equity": "1000.0",
            "reserved_margin": "0.0",
            "closed_reserve_profit": "0.0",
            "closed_reserve_loss": "0.0",
            "total_excess_deficit": "1000.0",
            "net_liquidating_value": "1000.0",
            "available_to_trade": "1000.0",
            "variation_margin": "0.0",
            "variation_margin_total": "0.0",
            "fd": "N",
            "initial_margin": "0.0",
            "maintenance_margin": "0.0",
            "closing_price": "500.0",
            "closing_price_date": "2021-08-06",
            "usd_value": "500000.0",
            "pending_balance": "0.0",
            "change_in_balance": "0.0",
            "available_balance": "1000.0",
            "ote": "0.0",
            "reserved_ote": "0.0",
            "settlement_detail":
            {
                "settlement_time": "2024-02-13T16:00:00Z",
                "settlement_balance": "1000.0"
            }
        },
        {
            "asset_type": "TBTC",
            "opening_balance": "1003.36451951",
            "spot_movement": "0.0",
            "exchange_fees": "0.0",
            "clearing_fees": "0.0",
```

```
            "other_fees": "0.0",
            "asset_movement": "0.0",
            "realized_p_and_l": "0.0",
            "futures_delivery": "0.0",
            "closing_balance": "1003.36451951",
            "total_equity": "1003.36451951",
            "reserved_margin": "0.0",
            "closed_reserve_profit": "0.0",
            "closed_reserve_loss": "0.0",
            "total_excess_deficit": "1003.36451951",
            "net_liquidating_value": "1003.36451951",
            "available_to_trade": "1003.36451951",
            "variation_margin": "0.0",
            "variation_margin_total": "0.0",
            "fd": "N",
            "initial_margin": "0.0",
            "maintenance_margin": "0.0",
            "closing_price": "56.0",
            "closing_price_date": "2023-06-01",
            "usd_value": "56188.41309256",
            "pending_balance": "0.0",
            "change_in_balance": "0.0",
            "available_balance": "1003.36451951",
            "ote": "0.0",
            "reserved_ote": "0.0",
            "settlement_detail":
            {
                "settlement_time": "2024-02-13T16:00:00Z",
                "settlement_balance": "1003.36451951"
            }
        },
        {
            "asset_type": "USD",
            "opening_balance": "9863432.32797",
            "spot_movement": "0.0",
            "exchange_fees": "0.0",
            "clearing_fees": "0.0",
            "other_fees": "0.0",
            "asset_movement": "0.0",
            "realized_p_and_l": "0.0",
            "futures_delivery": "0.0",
            "closing_balance": "9863432.32797",
            "total_equity": "9863432.32797",
            "reserved_margin": "0.0",
            "closed_reserve_profit": "0.0",
            "closed_reserve_loss": "0.0",
            "total_excess_deficit": "9863432.32797",
            "net_liquidating_value": "9863432.32797",
            "available_to_trade": "9863432.32797",
            "variation_margin": "0.0",
            "variation_margin_total": "0.0",
            "fd": "N",
```

```
            "initial_margin": "0.0",
            "maintenance_margin": "0.0",
            "closing_price": "1.0",
            "closing_price_date": "2023-10-17",
            "usd_value": "9863432.32797",
            "pending_balance": "0.0",
            "change_in_balance": "0.0",
            "available_balance": "9863432.32797",
            "ote": "0.0",
            "reserved_ote": "0.0",
            "settlement_detail":
            {
                "settlement_time": "2024-02-13T16:00:00Z",
                "settlement_balance": "9863432.32797"
            }
        },
        {
            "asset_type": "TLTC",
            "opening_balance": "1000.0",
            "spot_movement": "0.0",
            "exchange_fees": "0.0",
            "clearing_fees": "0.0",
            "other_fees": "0.0",
            "asset_movement": "0.0",
            "realized_p_and_l": "0.0",
            "futures_delivery": "0.0",
            "closing_balance": "1000.0",
            "total_equity": "1000.0",
            "reserved_margin": "0.0",
            "closed_reserve_profit": "0.0",
            "closed_reserve_loss": "0.0",
            "total_excess_deficit": "1000.0",
            "net_liquidating_value": "1000.0",
            "available_to_trade": "1000.0",
            "variation_margin": "0.0",
            "variation_margin_total": "0.0",
            "fd": "N",
            "initial_margin": "0.0",
            "maintenance_margin": "0.0",
            "closing_price": "0.01",
            "closing_price_date": "2020-12-10",
            "usd_value": "10.0",
            "pending_balance": "0.0",
            "change_in_balance": "0.0",
            "available_balance": "1000.0",
            "ote": "0.0",
            "reserved_ote": "0.0",
            "settlement_detail":
            {
                "settlement_time": "2024-02-13T16:00:00Z",
                "settlement_balance": "1000.0"
            }
```

```
        }
    ]
}
```

3.7 Movements Endpoint

This endpoint will return a detailed set of asset movements information for a given account.

- **HTTP Request Type:** POST
- **Endpoint:** /movements
- **API security:** This API endpoint requires an authentication token with Clearing API read permission.

Inputs

<table>
<tr><th>Field</th><th colspan="2">Value</th></tr>
<tr><td rowspan="3">filters (optional)</td><td colspan="2">Default: <code>"filter": [{ "attr": "account_id", "op": "eq", "value": member_account_id }]</code></td></tr>
<tr><td>account_id</td><td>Account ID</td></tr>
<tr><td>time</td><td>Start time using “op”:gte or gt and End time using “op”:lte or lt. If no time query is made it will return all the available data (subject to the specified limit)</td></tr>
<tr><td>offset (optional)</td><td colspan="2">Number of elements to be offset in the request for pagination purposes</td></tr>
<tr><td>limit (optional)</td><td colspan="2">Limit of elements returned in the request</td></tr>
<tr><td>Sort (optional)</td><td colspan="2">Default: <code>"sort": [{ "attr": "time", "value": "desc"}]</code></td></tr>
</table>

Example Request:

```
requests.post(
    url="https://clearing.erisx.com/api/v1/movements",
    headers={"Authorization": "Bearer " + token},
    json={
        "filter": [{
            "attr": "account_id",
            "op": "eq",
            "value": "27ff6d34-523d-476d-9ad5-edeb373b83dc"
        }, {
            "attr": "time",
            "op": "lte",
            "value": "2018-01-01T05:59:30.000Z"
        }, {
            "attr": "time",
            "op": "gte",
            "value": "2017-12-01T05:59:30.000Z"
        }],
        "sort": [{
            "attr": "time",
            "value": "asc"
        }],
        "offset": 0,
        "limit": 10
    })
```

Outputs

Field	Value
count	Number of results returned
description	Description of the asset movement
time	Timestamp of the asset movement
date	Business date of the asset movement
type	Type of the asset movement: **deposit**, **withdrawal**, **reversal**, **general**, **fee_rebate**, **delivery**
request_id	Only present if a request_id was sent in the request that originated the movement. It echoes the request_id value sent by the customer on the original request.
posting_summary	Details of the asset movement (account ID, Asset type, Key (specifies what the amount refers to), Amount and Report Date). List of available keys: ● "amount": General movement amount ● "bank_fee": Bank Fees Charged ● "clearing_fee": Clearing House Fees Charged ● "exchange_fee": Trading Fees Charged ● "other_fees": Other Fees Charged ● “delivery”: Futures delivery amount

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Example Response:


```
{
   "count": 1,
   "movements": [
     {
       "description": "DEPOSIT 0.13057719 TBTC",
       "time": "2018-01-01T06:00:00.000Z",
       "type": "deposit",
       "posting_summary": [
               {
                 "account_id": "27ff6d34-523d-476d-9ad5-edeb373b83dc",
                 "asset_type" : "TBTC",
                 "key": "notional",
                 "amount": "0.25486",
                 "report_date": "2018-01-01"
               },
               {
                 "account_id": "27ff6d34-523d-476d-9ad5-edeb373b83dc",
                 "asset_type": "TBTC",
                 "key": "clearing_fee",
                 "amount": "0.00002549",
                 "report_date": "2018-01-01"
               },
               {
                 "account_id": "27ff6d34-523d-476d-9ad5-edeb373b83dc",
                 "asset_type": "TBTC",
                 "key": "exchange_fee",
                 "amount": "0.00022937",
                 "report_date": "2018-01-01"
               }
             ],
           }
         ]
}
```


3.8 Trades Endpoint

This endpoint will return a set of trade information for a given account.

- **HTTP Request Type:** POST
- **Endpoint:** /trades
- **API security:** This API endpoint requires an authentication token with Clearing API read permission.

Inputs

Field	Value	
filters (optional)	Default: `"filter": [{ "attr": "account_id", "op": "eq", "value": member_account_id }]`	
	account_id	Account ID
	time	Start time using “op”:gte or gt and End time using “op”:lte or lt. If no time query is made it will return all the available data (subject to the specified limit)
	trade_id	Trade ID
	side	Side of the trade (BUY, SELL)
	aggressor	Aggressor in the trade (Y, N)
	qty	Quantity of the trade
	px	Price of the trade
	qty_type	Base currency
	px_type	Quoted currency
	type	Types: futures, spot, delivery or reversal
offset (optional)	Number of elements to be offset in the request for pagination purposes	
limit (optional)	Limit of elements returned in the request	
Sort (optional)	Default: `"sort": [{ "attr": "time", "value": "desc"}]`	

Example Request:

```
requests.post(
    url="https://clearing.erisx.com/api/v1/trades",
    headers={"Authorization": "Bearer " + token},
    json={
        "filter": [{
            "attr": "account_id",
            "op": "eq",
            "value": "27ff6d34-523d-476d-9ad5-edeb373b83dc"
        }]
    }
)
```

Outputs

Field	Value
count	Number of results returned
trade_id	Trade ID of the trade
tcr_id	Trade Capture Report ID
client_order_id	Client Order ID
fix_id	FIX ID

time	Timestamp of the trade
description	Description of the trade
side	Side of the trade (BUY, SELL)
account_id	Account ID
aggressor	Aggressor of the trade (Y, N)
qty	Quantity
px	Price
clearing_fee	Clearing fee of the trade
exchange_fee	Exchange fee of the trade
product_code	Product code
qty_type	Base currency
px_type	Quote currency
fee_type	Fee currency
report_date	Business date of the trade
contract_symbol	Contract Symbol
asset_type	Asset Type
trader_type	Trade Type
record_type	Record Type
notional	Notional Amount
total_amount	Total Amount charged to the Account
trade_report_id	Trade Report ID
customer_account_ref	Customer Account Reference
product_suffix	Product Type: SP, FUT
state	State of the Trade
expiration_time	Expiration date and Time of the futures contract involved in the trade
cti	CTI
origin	Origin

Example Response:


```
{
  "count": 1,
  "trades": [
    {
      "account_id": "27ff6d34-523d-476d-9ad5-edeb373b83dc",
      "contract_symbol": "TBTCZ9",
      "asset_type": "TBTC",
      "px_type": "USD",
      "side": "BUY",
      "trade_type": "REGULAR",
```

```
      "record_type": "T",
      "qty": "1.0",
      "px": "6994.0",
      "notional": "699.4",
      "aggressor": "Y",
      "fee_type": "USD",
      "exchange_fee": "0.001",
      "clearing_fee": "0.001",
      "total_amount": "699.402",
      "tcr_id": "477188150",
      "trade_report_id": "1125899907429878",
      "trade_id": "B2019196081HP00",
      "customer_account_ref": "buy_side",
      "fix_id": "1",
      "product_suffix": "FUT",
      "state": "posted",
      "time": "2018-01-01T06:00:00.000000Z",
      "expiration_time": "2030-01-01T06:00:00Z",
      "cti": 1,
      "origin": 1,
      "product_code": "TBTC/USD",
      "client_order_id": "1",
      "description": "BUY 1.0 TBTCZ9 @ 6994.0 USD"
    }
  ]
}
```

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3.9 Member User Permissions

This endpoint will return the list of all enabled permissions for the member user.

- **HTTP Request Type:** GET
- **Endpoint:** /user
- **API security:** This API endpoint requires an authentication token with any permission.

Inputs

No inputs required

Example Request:

```
requests.get(url="https://clearing.erisx.com/api/v1/user",
             headers={"Authorization": "Bearer " + token})
```

Outputs

Field	Value
email	User email address
user_id	User ID
permissions	User action permissions
api_key_permissions	Available API Credentials creation permissions
trading_permissions	Spot and/or Futures. Each section contains the accounts permissioned to trade that asset class.

Example Response:

```
{
  "user": {
    "user_id": "1234",
    "permissions": [
      "request_withdrawals",
      "read_movements",
      "read_daily_statements",
      "close_positions",
      "read_transactions",
      "destroy_linked_asset_account",
      "read_linked_asset_account",
      "read_trading_application_data",
      "create_linked_asset_account",
      "send_deposits",
      "read_collateral_positions",
      "read_futures_positions",
      "read_balances",
      "read_trades"
    ],
    "api_key_permissions": [
      "view_market_data",
```

```
      "read_clearing_api",
      "submit_order",
      "write_clearing_api",
      "submit_block_trade"
    ],
    "trading_permissions": {
      "spot": [
        "DM-ACC1"
      ],
      "futures": [
        "DM-ACC2"
      ]
    },
    "email": "user.test@gmail.com"
  }
}
```

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4 Block Trade API Service

This API service enables members to submit for processing negotiated Spot and Futures Block Trades in a programmatic way. All requests and responses are application/json content type.

All Block Trade API endpoints are private and every request needs to be signed using the authentication endpoint described in the Authentication

4.1 REST API Endpoint URL

- **Production: https://clearing.erisx.com/api/v1**
- **New Release (test): https://clearing.newrelease.erisx.com/api/v1**

4.2 Block Trade States

A Block Trade submission can have different states during its processing life:

- **Accepted:** Block Trade has been accepted and processed in The Match Engine.
- **Cleared:** Block Trade has been cleared by The Clearing House.
- **Rejected:** Block Trade has been rejected.

4.3 Error Codes

Upon submission of a Block Trade through the Submit Block Trade Endpoint, the Block Trade can be rejected for different reasons. In that case, the system will respond with a HTTP error, the response will contain **"state"** equal to **"rejected"** and it will reflect an **"error_code"** specifying the cause of the rejection. The table below explains what each error code represents for easier interpretation:

Error Code	Rejection Type
1	Unknown Symbol
2	Invalid Quantity
3	Invalid Price
4	Invalid Negotiated Block Trade Time
5	Instrument Closed
6	Trading is Halted
7	Invalid Buyer Account ID
8	Invalid Seller Account ID
9	Buyer Account Not Enabled for Futures
10	Seller Account Not Enabled for Futures
11	Buyer Account Not Enabled for Spot
12	Seller Account Not Enabled for Spot
13	Duplicate Request

14	Buyer Missing Regulatory Field
15	Seller Missing Regulatory Field
16	Buyer Insufficient Purchasing Power
17	Seller Insufficient Purchasing Power
18	Rejected
INVALID_REQUEST	Request rejected by a different reason from the ones specified above

4.4 Duplicate Requests

The Match Engine will identify a request as a duplicate if all values specified in the request are identical to a previously sent request. If any of the values specified in the request change, it will not be considered as a duplicate anymore.

Note: If a user sends a request, which gets rejected with any error code and then the user attempts to send the exact same request again, the second request will always be rejected due to a duplicate request.

To avoid generating duplicate requests, it is recommended that the users generate new Client Order Ids on every new request, even if the request is a resubmission due to the original request being rejected.

4.5 Submit Block Trade Endpoint

This endpoint enables users to submit a Block Trade.

- **HTTP Request Type:** POST
- **Endpoint:** /submit_block_trade
- **API security:** This API endpoint requires an authentication token with Block Trade API permissions.

Inputs

Field	Rqd	Value
contract_symbol	Y	Contract Symbol
price	Y	Price
quantity	Y	Quantity
negotiated_time	Y	Time at which the Block Trade was executed between the Buyer and Seller. Format: unix timestamp in milliseconds
sell_side	Y	Details regarding the Seller Account
buy_side	Y	Details regarding the Buyer Account
account_label	Y	Account Label

cl_ord_id	Y	Client Order ID. Max characters: 40
Customer_account_ref	C	Customer Account Reference. Required for Futures block trades
sender_sub_id	Y	Sender Sub ID or Order Entry Operator ID (OEO ID) of submitting Authorized Reporter
cust_order_capacity	C	Required for Futures block trades: 1 - Transactions initiated and executed by an individual TPH for the TPH's own account, for an account the TPH controls, or for the account in which the TPH has an ownership or financial interest. 2 - Transactions executed for the proprietary account of a clearing member or non-clearing member TPH. 3 - Transactions where an individual TPH or authorized trader executes for the personal account of another individual TPH, for an account the other individual TPH controls or for an account in which the other individual TPH has an ownership or financial interest. 4 - Any transaction not meeting the definition of CTI 1, 2 or 3. (These should be non-TPH customer transactions)
account_type	C	Required for Futures block trades. It identifies the origin of the order: 1 – Customer 2 – House
clearing_member_id	C	Required for Futures block trades. ID of the Clearing Member through which the block trade will be cleared for the appropriate side.
exchange_member_id	C	Required for Futures block trades. ID of the Exchange Member through which the block trade is submited for the appropriate side

Example Request:

```
requests.post(
   url="https://clearing.erisx.com/api/v1/submit_block_trade",
   headers={"Authorization": "Bearer " + token},
   json={
       "contract_symbol": "BTC/USD",
       "price": "1000.0",
       "quantity": "3.0",
       "negotiated_time": 1600717386961,
       "sell_side": {
           "account_label": "DM-122221",
           "cl_ord_id": "sell_side_order",
           "customer_account_ref": "sell_side",
```

```
            "sender_sub_id": "sell_fix""
        },
        "buy_side": {
            "account_label": "DM-77661",
            "cl_ord_id": "buy_side_order",
            "customer_account_ref": "buy_side",
            "sender_sub_id": "buy_fix"
        }
    })
```

Output

Field	Value
request_id	Request ID of the Block Trade
state	State of the Block Trade submission
error_code	Rejection Error Reason. Only on rejected requests
email	Submitter’s member user email address. Only on rejected requests

Example Responses:

```
{
  "request_id": "AmZuyvUdJvoa3HshZuhyCosBSvnrxVbZfJr5RtA92EQT",
  "state": "accepted"
}

{
  "error": {
    "request_id": "AmZuyvUdJvoa3HshZuhyCosBSvnrxVbZfJr5RtA92EQT",
    "state": "rejected",
    "error_code": 1,
    "email": "user@email.com"
  }
}
```

4.6 Request Block Trade Information Endpoint

This endpoint enables users to request information regarding a previously submitted Block Trade.

- **HTTP Request Type:** POST
- **Endpoint:** /block_trade_requests
- **API security:** This API endpoint requires an authentication token with Submit Block Trade API permissions.

Inputs

Field	Value

filters (optional)	Default: `"filter": [{ "attr": "account_id", "op": "eq", "value": member_account_id }]`	
	request_id	Block Trade submission request ID. Value provided in the response of the Submit Block Trade Endpoint.
	contract_symbol	Contract Symbol
	trade_date	Trade Date
	state	State of the Block Trade. Values: accepted, cleared, rejected.
	account_labels	Account Label(s)
offset (optional)	Number of elements to be offset in the request for pagination purposes	
limit (optional)	Limit of elements returned in the request	
sort (optional)	Default: `"sort": [{ "attr": "time", "value": "desc"}]`	

Example Request:

```
requests.post(
   url="https://clearing.erisx.com/api/v1/block_trade_requests",
   headers={"Authorization": "Bearer " + token},
   json={
       "filter": [{
           "attr": "request_id",
           "op": "eq",
           "value": "5c267f0ee4b0974b5367fd35"
       }, {
           "attr": "contract_symbol",
           "op": "eq",
           "value": "BTC/USD"
       }, {
           "attr": "trade_date",
           "op": "eq",
           "value": "2020-01-01"
       }, {
           "attr": "state",
           "op": "eq",
           "value": "pending"
       }, {
           "attr": "account_labels",
           "op": "eq",
           "value": "27ff6d34-523d-476d-9ad5-edeb373b83dc"
       }]
   })
```

Output

Field	Value

count	Count of Block Trades that meet the query filter
block_trade_requests	List of Block Trades Requests
request_id	Block Trade submission request ID
contract_symbol	Contract Symbol
qty	Quantity
px	Price
trade_date	Trade Date
negotiated_time	Time at which the Block Trade was negotiated between the Buyer and Seller
submitted_time	Time at which the Block Trade has submitted
created_by	User who submitted the Block Trade
state	State of the Block Trade
buy_side	Details regarding the Seller Account
sell_side	Details regarding the Buyer Account
account_id	Account ID
account_label	Account Label
side	Side
customer_account_ref	Customer Account Reference
cl_ord_id	Client Order ID. Max characters: 40
sender_sub_id	Sender Sub ID that identifies the Trader that negotiated the Block Trade
sender_location	Sender Location that identifies the location of the Trader that negotiated the Block Trade
error_code_str	Rejection code. Error codes are deprecated, new block trades will contain error reason as a string message not an integer code. Use error_reason field instead
error_reason	Rejection error message

Example Response:

```
{
  "count": 1,
  "block_trade_requests": [
    {
      "request_id": "AmZuyvUdJvoa3HshZuhyCosBSvnrxVbZfJr5RtA92EQT",
      "contract_symbol": "BTC/USD",
      "qty": "5.0",
      "px": "8900.0",
      "trade_date": "2020-01-01",
      "negotiated_time": "2020-01-01T06:00:00.000Z",
      "submitted_time": "2020-01-01T06:00:00.000Z",
      "created_by": "carl.doe@email.com",
```

```
      "state": "pending",
      "buy_side": {
        "account_id": "27ff6d34-523d-476d-9ad5-edeb373b83dc",
        "side": "BUY",
        "customer_account_ref": "buy_side",
        "cl_ord_id": "buy_side",
        "sender_sub_id": "buy_side_fix",
        "sender_location": "IL,US"
      },
      "sell_side": {
        "account_id": "73e36d47-0fe6-4bba-84d7-d981d9f9459d",
        "side": "SELL",
        "customer_account_ref": "sell_side",
        "cl_ord_id": "sell_side",
        "sender_sub_id": "buy_side_fix",
        "sender_location": "IL,US"
      }
    }
  ]
}
```


4.7 Block Trade Volume Endpoint

This endpoint enables users to obtain information regarding the total volume that the different products have traded via Block Trades in the Cboe Digital market for the current trade date.

- **HTTP Request Type:** POST
- **Endpoint:** /block_trade_volume
- **API security:** This API endpoint requires an authentication token with Market Data API permissions.

Inputs

No inputs are required.

Example Request:

```
requests.post(
   url="https://clearing.erisx.com/api/v1/block_trade_volume",
   headers={"Authorization": "Bearer " + token},
   json={})
```

Output

Field	Value
result	List of Products
contract	Contract Symbol
volume	Total Volume

trade_date	Trade Date

Example Response:


```
[
    {
      "contract": "BTC/USD",
      "volume": "20.0",
      "trade_date": "2020-01-01"
    }
]
```

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5 Futures Clearing Member API Service

This API service allows Futures Clearing Members to retrieve information on account activity as well as manage customer accounts and set pre-trade risk limits.

5.1 REST API Base Endpoint URL

These endpoints require API key authentication.

- **Production:** **https://clearing.erisx.com/api**
- **New Release (test):** **https://clearing.newrelease.erisx.com/api**

5.2 Create Customer Account Reference

This endpoint will create a new Customer Account Reference (CAR).

- **HTTP Request Type:** POST
- **Endpoint:** /v2/{account_label}/customer_account_reference
- **API security:** This API endpoint requires an authentication token with Write Pre Trade Risk permission.

Inputs

Field	Req'd	Value
account_label	Y	FCM Account Label
active	Y	Indicates whether the CAR is active: **true** or **false**
car_type	Y	Indicates the type of position netting for the CAR: **NET** or **GROSS**
cgm_number	N	Customer Gross Margin (CGM) Account linked to the corresponding CAR
customer_account_reference	Y	Customer Account Reference
default_futures_max_order_size	N	Default Max Order Size in number of contracts
self_match_prevention	Y	Flag to indicate whether Self Match Prevention should be enabled at the CAR level: **true** or **false**
enabled_products	N	List of products the CAR is allowed to trade
product_limits	N	List of product limits
max_long_exposure	N	Max Long Exposure in number of contracts aggregated at the product level
max_short_exposure	N	Max Short Exposure in number of contracts aggregated at the product level
max_order_size	N	Max order size in number of contracts
product_code	N	Futures product code

expiry_limits	N	List of specific limits for individual expiries
expiration_month	N	Indicates the expiry based on when the contract expires. • Index = -1, indicate default expiry. I.e. applies to each individual expiration if the specific expiration is not set • Index = 0 indicates the contract is closer than X days to expiration, where the number of days is defined by the exchange. • Index = 1 indicates the front-month contract • Index = 2 indicates the contract that expires 1 month after the front month ...
max_long_exposure	N	Max Long Exposure in number of contracts per expiry
max_short_exposure	N	Max Short Exposure in number of contracts per expiry

Example Request:

```
import requests
import json

url = "/v2/ABC/customer_account_reference"

payload = {
        "customer_account_reference": "CAR1",
        "cgm_number": "CGM1",
        "car_type": "NET",
        "active": true,
        "self_match_prevention": true,
        "default_futures_max_order_size": 10000,
        "product_limits": [
            {
                "product_code": "FBT",
                "max_order_size": 100,
                "max_long_exposure": 100,
                "max_short_exposure": 100,
                "expiry_limits": [
                    {
                        "expiration_month": -1,
                        "max_long_exposure": 1000,
                        "max_short_exposure": 1000
                    },
                    {
                        "expiration_month": 1,
                        "max_long_exposure": 500,
                        "max_short_exposure": 1000
                    },
```

```
                    {
                        "expiration_month": 3,
                        "max_long_exposure": 250,
                        "max_short_exposure": 250
                    }
                ]
            },
            {
                "product_code": "FET",
                "max_order_size": 100,
                "max_long_exposure": 100,
                "max_short_exposure": 100,
                "expiry_limits": []
            }
        ],
        "enabled_products": [
            "FBT",
            "FET"
        ],
        "account_label": "ABC-C"
    }

headers = {
    'Content-Type': "application/json",
    'Authorization': "Bearer undefined"
    }

response = requests.request("POST", url, data=json.dumps(payload), headers=headers)

print(response.text)
```

Outputs

Field	Value
account_label	FCM Account Label
active	Indicates whether the CAR is active: **true** or **false**
car_type	Indicates the type of position netting for the CAR: **NET** or **GROSS**
cgm_number	Customer Gross Margin (CGM) Account linked to the corresponding CAR
customer_account_reference	Customer Account Reference
default_futures_max_order_size	Default Max Order Size in number of contracts
self_match_prevention	Flag to indicate whether Self Match Prevention should be enabled at the CAR level: **true** or **false**
enabled_products	List of products the CAR is allowed to trade

updated_at	Timestamp at which the CAR was last updated
last_updated_by	Email of user that last updated the CAR
product_limits	List of product limits
max_long_exposure	Max Long Exposure in number of contracts aggregated at the product level
max_short_exposure	Max Short Exposure in number of contracts aggregated at the product level
max_order_size	Max order size in number of contracts
product_code	Futures product code
expiry_limits	List of specific limits for individual expiries
expiration_month	Indicates the expiry based on when the contract expires. • Index = -1, indicate default expiry. I.e. applies to each individual expiration if the specific expiration is not set • Index = 0 indicates the contract is closer than X days to expiration, where the number of days is defined by the exchange. • Index = 1 indicates the front-month contract • Index = 2 indicates the contract that expires 1 month after the front month • ...
max_long_exposure	Max Long Exposure in number of contracts per expiry
max_short_exposure	Max Short Exposure in number of contracts per expiry

Example Response:

```
[
    {
        "customer_account_reference": "CAR1",
        "cgm_number": "CGM1",
        "car_type": "NET",
        "active": true,
        "self_match_prevention": true,
        "default_futures_max_order_size": 10000,
        "product_limits": [
            {
                "product_code": "BTC",
                "max_order_size": 100,
                "max_long_exposure": 100,
                "max_short_exposure": 100,
                "expiry_limits": [
                    {
                        "expiration_month": -1,
                        "max_long_exposure": 1000,
                        "max_short_exposure": 1000
                    },
                    {
```

```
                        "expiration_month": 1,
                        "max_long_exposure": 500,
                        "max_short_exposure": 1000
                    },
                    {
                        "expiration_month": 3,
                        "max_long_exposure": 250,
                        "max_short_exposure": 250
                    }
                ]
            },
            {
                "product_code": "ETH",
                "max_order_size": 100,
                "max_long_exposure": 100,
                "max_short_exposure": 100,
                "expiry_limits": []
            }
        ],
        "enabled_products": [
            "BTC",
            "ETH",
            "FBT",
            "FET"
        ],
        "last_updated_by": "abc@gmail.com",
        "updated_at": "2023-11-14T14:32:06.305Z",
        "account_label": "ABC-C"
    }
]
```


5.3 Update Customer Account Reference

This endpoint will update an existing CAR.

- **HTTP Request Type:** PUT
- **Endpoint:** /v2/{account_label}/customer_account_reference/{car}
- **API security:** This API endpoint requires an authentication token with Write Pre-Trade Risk permission.

Inputs

Field	Req'd	Value
account_label	Y	FCM Account Label
active	Y	Indicates whether the CAR is active: **true** or **false**
car_type	Y	Indicates the type of position netting for the CAR: **NET** or **GROSS**
cgm_number	N	Customer Gross Margin (CGM) Account linked to the corresponding CAR

customer_account_reference	Y	Customer Account Reference
default_futures_max_order_size	N	Default Max Order Size in number of contracts
self_match_prevention	Y	Flag to indicate whether Self Match Prevention should be enabled at the CAR level: **true** or **false**
enabled_products	N	List of products the CAR is allowed to trade
product_limits	N	List of product limits
max_long_exposure	N	Max Long Exposure in number of contracts aggregated at the product level
max_short_exposure	N	Max Short Exposure in number of contracts aggregated at the product level
max_order_size	N	Max order size in number of contracts
product_code	N	Futures product code
expiry_limits	N	List of specific limits for individual expiries
expiration_month	N	Indicates the expiry based on when the contract expires. • Index = -1, indicate default expiry. I.e. applies to each individual expiration if the specific expiration is not set • Index = 0 indicates the contract is closer than X days to expiration, where the number of days is defined by the exchange. • Index = 1 indicates the front-month contract • Index = 2 indicates the contract that expires 1 month after the front month ...
max_long_exposure	N	Max Long Exposure in number of contracts per expiry
max_short_exposure	N	Max Short Exposure in number of contracts per expiry

Example Request:

```
import requests
import json

url = "/v2/ABC/customer_account_reference/CAR1"

payload = {
        "customer_account_reference": "CAR1",
        "cgm_number": "CGM1",
        "car_type": "NET",
        "active": true,
        "self_match_prevention": false,
        "default_futures_max_order_size": 10000,
        "product_limits": [
```

```
            {
                "product_code": "FBT",
                "max_order_size": 100,
                "max_long_exposure": 100,
                "max_short_exposure": 100,
                "expiry_limits": [
                    {
                        "expiration_month": -1,
                        "max_long_exposure": 1000,
                        "max_short_exposure": 1000
                    },
                    {
                        "expiration_month": 1,
                        "max_long_exposure": 500,
                        "max_short_exposure": 1000
                    },
                    {
                        "expiration_month": 3,
                        "max_long_exposure": 250,
                        "max_short_exposure": 250
                    }
                ]
            },
            {
                "product_code": "FET",
                "max_order_size": 100,
                "max_long_exposure": 100,
                "max_short_exposure": 100,
                "expiry_limits": []
            }
        ],
        "enabled_products": [
            "FBT",
            "FET"
        ],
        "account_label": "ABC-C"
    }

headers = {
    'Content-Type': "application/json",
    'Authorization': "Bearer undefined"
    }

response = requests.request("PUT", url, data=json.dumps(payload), headers=headers)

print(response.text)
```

Outputs

Field	Value
account_label	FCM Account Label
active	Indicates whether the CAR is active: **true** or **false**
car_type	Indicates the type of position netting for the CAR: **NET** or **GROSS**
cgm_number	Customer Gross Margin (CGM) Account linked to the corresponding CAR
customer_account_reference	Customer Account Reference
default_futures_max_order_size	Default Max Order Size in number of contracts
self_match_prevention	Flag to indicate whether Self Match Prevention should be enabled at the CAR level: **true** or **false**
enabled_products	List of products the CAR is allowed to trade
updated_at	Timestamp at which the CAR was last updated
last_updated_by	Email of user that last updated the CAR
product_limits	List of product limits
max_long_exposure	Max Long Exposure in number of contracts aggregated at the product level
max_short_exposure	Max Short Exposure in number of contracts aggregated at the product level
max_order_size	Max order size in number of contracts
product_code	Futures product code
expiry_limits	List of specific limits for individual expiries
expiration_month	Indicates the expiry based on when the contract expires. • Index = -1, indicate default expiry. I.e. applies to each individual expiration if the specific expiration is not set • Index = 0 indicates the contract is closer than X days to expiration, where the number of days is defined by the exchange. • Index = 1 indicates the front-month contract • Index = 2 indicates the contract that expires 1 month after the front month • ...
max_long_exposure	Max Long Exposure in number of contracts per expiry
max_short_exposure	Max Short Exposure in number of contracts per expiry

Example Response:

```
[
    {
        "customer_account_reference": "CAR1",
        "cgm_number": "CGM1",
```

```
        "car_type": "NET",
        "active": true,
        "self_match_prevention": false,
        "default_futures_max_order_size": 10000,
        "product_limits": [
            {
                "product_code": "BTC",
                "max_order_size": 100,
                "max_long_exposure": 100,
                "max_short_exposure": 100,
                "expiry_limits": [
                    {
                        "expiration_month": -1,
                        "max_long_exposure": 1000,
                        "max_short_exposure": 1000
                    },
                    {
                        "expiration_month": 1,
                        "max_long_exposure": 500,
                        "max_short_exposure": 1000
                    },
                    {
                        "expiration_month": 3,
                        "max_long_exposure": 250,
                        "max_short_exposure": 250
                    }
                ]
            },
            {
                "product_code": "ETH",
                "max_order_size": 100,
                "max_long_exposure": 100,
                "max_short_exposure": 100,
                "expiry_limits": []
            }
        ],
        "enabled_products": [
            "BTC",
            "ETH",
            "FBT",
            "FET"
        ],
        "last_updated_by": "abc@gmail.com",
        "updated_at": "2023-11-14T14:32:06.305Z",
        "account_label": "ABC-C"
    }
]
```


5.4 Delete Customer Account Reference

This endpoint will delete an existing CAR.

- **HTTP Request Type:** DELETE
- **Endpoint:** /v2/{account_label}/customer_account_reference/{car}
- **API security:** This API endpoint requires an authentication token with Write Pre-Trade Risk permission.

Example Request:

```
import requests
import json

url = "/v2/ABC/customer_account_reference/CAR1"

headers = {
    'Content-Type': "application/json",
    'Authorization': "Bearer undefined"
    }

response = requests.request("DELETE", url, headers=headers)

print(response.text)
```

Outputs

Field	Value
account_label	FCM Account Label
active	Indicates whether the CAR is active: **true** or **false**
car_type	Indicates the type of position netting for the CAR: **NET** or **GROSS**
cgm_number	Customer Gross Margin (CGM) Account linked to the corresponding CAR
customer_account_reference	Customer Account Reference
default_futures_max_order_size	Default Max Order Size in number of contracts
self_match_prevention	Flag to indicate whether Self Match Prevention should be enabled at the CAR level: **true** or **false**
enabled_products	List of products the CAR is allowed to trade
updated_at	Timestamp at which the CAR was last updated
last_updated_by	Email of user that last updated the CAR
product_limits	List of product limits
max_long_exposure	Max Long Exposure in number of contracts aggregated at the product level
max_short_exposure	Max Short Exposure in number of contracts aggregated at the product level
max_order_size	Max order size in number of contracts

product_code	Futures product code
expiry_limits	List of specific limits for individual expiries
expiration_month	Indicates the expiry based on when the contract expires. • Index = -1, indicate default expiry. I.e. applies to each individual expiration if the specific expiration is not set • Index = 0 indicates the contract is closer than X days to expiration, where the number of days is defined by the exchange. • Index = 1 indicates the front-month contract • Index = 2 indicates the contract that expires 1 month after the front month • ...
max_long_exposure	Max Long Exposure in number of contracts per expiry
max_short_exposure	Max Short Exposure in number of contracts per expiry

Example Response:


```
[
    {
        "customer_account_reference": "CAR1",
        "cgm_number": "CGM1",
        "car_type": "NET",
        "active": true,
        "self_match_prevention": false,
        "default_futures_max_order_size": 10000,
        "product_limits": [
            {
                "product_code": "BTC",
                "max_order_size": 100,
                "max_long_exposure": 100,
                "max_short_exposure": 100,
                "expiry_limits": [
                    {
                        "expiration_month": -1,
                        "max_long_exposure": 1000,
                        "max_short_exposure": 1000
                    },
                    {
                        "expiration_month": 1,
                        "max_long_exposure": 500,
                        "max_short_exposure": 1000
                    },
                    {
                        "expiration_month": 3,
                        "max_long_exposure": 250,
                        "max_short_exposure": 250
                    }
                ]
            },
```

```
            {
                "product_code": "ETH",
                "max_order_size": 100,
                "max_long_exposure": 100,
                "max_short_exposure": 100,
                "expiry_limits": []
            }
        ],
        "enabled_products": [
            "BTC",
            "ETH",
            "FBT",
            "FET"
        ],
        "last_updated_by": "abc@gmail.com",
        "updated_at": "2023-11-14T14:32:06.305Z",
        "account_label": "ABC-C"
    }
]
```


5.5 List of Customer Account References

This endpoint will be used by FCMs to retrieve the existing list of Customer Account References (CARs).

- **HTTP Request Type:** GET
- **Endpoint:** /v2/{account_label}/customer_account_reference
- **API security:** This API endpoint requires an authentication token with Read Pre Trade Risk permission.

Legend

Value	Value
Y	Field is mandatory
O	Field is optional
C	Field is conditionally mandatory

Inputs

Field	Req'd	Value

Example Request:

```
import requests
import json

url = "https://clearing.erisx.com/api/v2/ABC-C/customer_account_reference"

headers = {
```

```
    'Content-Type': "application/json",
    'Authorization': "Bearer token"
    }

response = requests.request("GET", url, headers=headers)

print(response.text)
```

Outputs

Field	Value
account_label	FCM Account Label
active	Indicates whether the CAR is active: **true** or **false**
car_type	Indicates the type of position netting for the CAR: **NET** or **GROSS**
cgm_number	Customer Gross Margin (CGM) Account linked to the corresponding CAR
customer_account_reference	Customer Account Reference
default_futures_max_order_size	Default Max Order Size in number of contracts
self_match_prevention	Flag to indicate whether Self Match Prevention should be enabled at the CAR level: **true** or **false**
enabled_products	List of products the CAR is allowed to trade
updated_at	Timestamp at which the CAR was last updated
last_updated_by	Email of user that last updated the CAR
product_limits	List of product limits
max_long_exposure	Max Long Exposure in number of contracts aggregated at the product level
max_short_exposure	Max Short Exposure in number of contracts aggregated at the product level
max_order_size	Max order size in number of contracts
product_code	Futures product code
expiry_limits	List of specific limits for individual expiries
expiration_month	Indicates the expiry based on when the contract expires. • Index = -1, indicate default expiry. I.e. applies to each individual expiration if the specific expiration is not set • Index = 0 indicates the contract is closer than X days to expiration, where the number of days is defined by the exchange. • Index = 1 indicates the front-month contract • Index = 2 indicates the contract that expires 1 month after the front month

	• ...
max_long_exposure	Max Long Exposure in number of contracts per expiry
max_short_exposure	Max Short Exposure in number of contracts per expiry

Example Response:


```
[
    {
        "customer_account_reference": "CAR1",
        "cgm_number": "CGM1",
        "car_type": "NET",
        "active": true,
        "self_match_prevention": true,
        "default_futures_max_order_size": 10000,
        "product_limits": [
            {
                "product_code": "BTC",
                "max_order_size": 100,
                "max_long_exposure": 100,
                "max_short_exposure": 100,
                "expiry_limits": [
                    {
                        "expiration_month": -1,
                        "max_long_exposure": 1000,
                        "max_short_exposure": 1000
                    },
                    {
                        "expiration_month": 1,
                        "max_long_exposure": 500,
                        "max_short_exposure": 1000
                    },
                    {
                        "expiration_month": 3,
                        "max_long_exposure": 250,
                        "max_short_exposure": 250
                    }
                ]
            },
            {
                "product_code": "ETH",
                "max_order_size": 100,
                "max_long_exposure": 100,
                "max_short_exposure": 100,
                "expiry_limits": []
            }
        ],
        "enabled_products": [
            "BTC",
            "ETH",
            "FBT",
            "FET"
```

```
        ],
        "last_updated_by": "abc@gmail.com",
        "updated_at": "2023-11-14T14:32:06.305Z",
        "account_label": "ABC-C"
    }
]
```


5.6 Get single Customer Account Reference

This endpoint will be used by FCMs to retrieve an existing CAR.

- **HTTP Request Type:** GET
- **Endpoint:** /v2/{account_label}/customer_account_reference/{account_label}
- **API security:** This API endpoint requires an authentication token with Read Pre Trade Risk permission.

Legend

Value	Value
Y	Field is mandatory
O	Field is optional
C	Field is conditionally mandatory

Inputs

Field	Req'd	Value

Example Request:

```
import requests
import json

url = " https://clearing.erisx.com/api/v2/ABC-C/customer_account_reference/CAR1"

headers = {
    'Content-Type': "application/json",
    'Authorization': "Bearer token"
    }

response = requests.request("GET", url, headers=headers)

print(response.text)
```

Outputs

Field	Value
account_label	FCM Account Label
active	Indicates whether the CAR is active: **true** or **false**

car_type	Indicates the type of position netting for the CAR: **NET** or **GROSS**
cgm_number	Customer Gross Margin (CGM) Account linked to the corresponding CAR
customer_account_reference	Customer Account Reference
default_futures_max_order_size	Default Max Order Size in number of contracts
self_match_prevention	Flag to indicate whether Self Match Prevention should be enabled at the CAR level: **true** or **false**
enabled_products	List of products the CAR is allowed to trade
updated_at	Timestamp at which the CAR was last updated
last_updated_by	Email of user that last updated the CAR
product_limits	List of product limits
max_long_exposure	Max Long Exposure in number of contracts aggregated at the product level
max_short_exposure	Max Short Exposure in number of contracts aggregated at the product level
max_order_size	Max order size in number of contracts
product_code	Futures product code
expiry_limits	List of specific limits for individual expiries
expiration_month	Indicates the expiry based on when the contract expires. • Index = -1, indicate default expiry. I.e. applies to each individual expiration if the specific expiration is not set • Index = 0 indicates the contract is closer than X days to expiration, where the number of days is defined by the exchange. • Index = 1 indicates the front-month contract • Index = 2 indicates the contract that expires 1 month after the front month • ...
max_long_exposure	Max Long Exposure in number of contracts per expiry
max_short_exposure	Max Short Exposure in number of contracts per expiry

Example Response:

```
[
    {
        "customer_account_reference": "CAR1",
        "cgm_number": "CGM1",
        "car_type": "NET",
        "active": true,
        "self_match_prevention": true,
        "default_futures_max_order_size": 10000,
```

Cboe Clear


```
        "product_limits": [
            {
                "product_code": "BTC",
                "max_order_size": 100,
                "max_long_exposure": 100,
                "max_short_exposure": 100,
                "expiry_limits": [
                    {
                        "expiration_month": -1,
                        "max_long_exposure": 1000,
                        "max_short_exposure": 1000
                    },
                    {
                        "expiration_month": 1,
                        "max_long_exposure": 500,
                        "max_short_exposure": 1000
                    },
                    {
                        "expiration_month": 3,
                        "max_long_exposure": 250,
                        "max_short_exposure": 250
                    }
                ]
            },
            {
                "product_code": "ETH",
                "max_order_size": 100,
                "max_long_exposure": 100,
                "max_short_exposure": 100,
                "expiry_limits": []
            }
        ],
        "enabled_products": [
            "BTC",
            "ETH",
            "FBT",
            "FET"
        ],
        "last_updated_by": "abc@gmail.com",
        "updated_at": "2023-11-14T14:32:06.305Z",
        "account_label": "ABC-C"
    }
]
```


5.7 Create Customer Gross Margin (CGM) Account

This endpoint will create a new Customer Gross Margin (CGM) account.

- **HTTP Request Type:** POST
- **Endpoint:** /v2 /{account_label}/cgm

- **API security:** This API endpoint requires an authentication token with Write Pre-Trade Risk permission.

Inputs

Field	Req'd	Value
account_label	Y	FCM Account Label
cgm_number	Y	CGM account
cgm_type	Y	Indicates whether positions should be netted down at the CGM level: **NET** or **GROSS**
description	Y	CGM description as enter on CGM creation

Example Request:

```
import requests

url = "https://clearing.erisx.com/api/v2/ABC-C/cgm"

payload = {
    "cgm_number": "CGM3",
    "description": "testing",
    "account_label": "ABC-C",
    "type": "GROSS"
}



headers = {
    'Content-Type': "application/json",
    'Authorization': "Bearer undefined"
    }

response = requests.request("POST", url, data=json.dumps(payload), headers=headers)

print(response.text)
```

Outputs

Field	Value
description	Error message, if any
id	Request ID
status	HTTP status code
success	Whether the request was successful. True or false

Example Response:

```
{
    "id": "65fdb3a4c7f7000d389c842f",
    "status": 200,
```

```
    "description": "",
    "success": true
}
```


5.8 Delete CGM

This endpoint will delete an existing Customer Gross Margin (CGM) account. A CGM account cannot be deleted if one or more CARs are linked to it.

- **HTTP Request Type:** PUT
- **Endpoint:** /v2 /{account_label}/cgm/{cgm_number}
- **API security:** This API endpoint requires an authentication token with Write Pre-Trade Risk permission.

Inputs

Field	Req'd	Value
account_label	Y	FCM Account Label
cgm_number	Y	CGM account

Example Request:

```
import requests

url = "https://clearing.erisx.com/api/v2/ABC-C/cgm"

headers = {
    'Content-Type': "application/json",
    'Authorization': "Bearer undefined"
    }

response = requests.request("DELETE", url, headers=headers)

print(response.text)
```

Outputs

Field	Value
description	Error message, if any
id	Request ID
status	HTTP status code
success	Whether the request was successful. True or false

Example Response:


```
{
    "id": "65fdb3a4c7f7000d389c842f",
    "status": 200,
```

```
    "description": "",
    "success": true
}
```

5.9 GET list of CGMs

This endpoint will retrieve the list of existing Customer Gross Margin (CGM) accounts for a given FCM.

- **HTTP Request Type:** GET
- **Endpoint:** /v2/{account_label}/cgm
- **API security:** This API endpoint requires an authentication token with View Pre Trade Risk permission.

Inputs:

Field	Value

Example Requests:

```
import requests

url = "https://clearing.erisx.com/api/v2/{account_label}/cgm"

headers = {
    'Content-Type': "application/json",
    'Authorization': "Bearer undefined"
    }

response = requests.request("GET", url, headers=headers)

print(response.text)
```

Outputs

Field	Value
omnibus_account_id	FCM Customer account ID
omnibus_account_label	FCM Customer account label
cgm_list	Array of CGM accounts
cgm_number	CGM account
cgm_type	Indicates whether positions should be netted down at the CGM level: **NET** or **GROSS**
description	CGM description as enter on CGM creation
cars	List of CARs linked to the CGM

Example Response:


```
{
    "omnibus_account_id": "3afce930-d808-49b4-866b-be92246e8e61",
    "omnibus_account_label": "HNF-C",
    "cgm_list": [
        {
            "cgm_number": "HNFCGM1",
            "cgm_type": "NET",
            "description": "test",
            "cars": [
                "HNFC1",
                "HNFC3",
                "HNF4",
                "HNFC6",
                "HNFC8"
            ]
        },
        {
            "cgm_number": "HNFCGM2",
            "cgm_type": "GROSS",
            "description": "gross cgm",
            "cars": [
                "HNFC5"
            ]
        }
    ]
}
```