



GEXfocus Trading API

Real-time NDF, GEX, Vanna, Charm, Delta and Premium stream

Coverage	Transport	Timezone
Indices / ETFs: SPX, NDX, SPY, QQQ Mag7: AAPL, MSFT, AMZN, GOOGL, META, NVDA, TSLA	WebSocket + REST	Eastern Time (ET)

Designed for low-latency dashboards, quantitative workflows, alerting systems and custom integrations using GEXfocus market structure data.

Overview

The GEXfocus Trading API exposes real-time options-flow and dealer-positioning data through a WebSocket stream, plus REST endpoints for historical snapshots and strike-level exposure maps. It is built for workflows where latency, market structure and clean parsing matter more than visual overload.

Available ticker universe: SPX | NDX | SPY | QQQ | AAPL | MSFT | AMZN | GOOGL | META | NVDA | TSLA. Availability can vary by endpoint and by the data required to generate each metric.

Component	Purpose	Recommended refresh
WebSocket NDF	Live NDF, price, FEP, premium and aggregate exposure metrics.	Server push during market hours
Latest exposure maps	Current GEX, Delta, Vanna and Charm by strike.	30-60 seconds where available
Gamma multi-expiration map	Latest multi-expiration matrix for Gamma, Vanna and Charm.	Fast refresh for SPX/SPY/QQQ/NDX; 3 minutes for Mag7
Historical NDF	NDF, price, FEP, premium and thresholds for a session.	On demand
Historical Greeks	Historical strike-level GEX, Delta, Vanna and Charm snapshots.	On demand

WebSocket endpoint

Available tickers: SPX | NDX | SPY | QQQ | AAPL | MSFT | AMZN | GOOGL | META | NVDA | TSLA. If ticker is omitted, the default is QQQ.

```
wss://apitrading.gexfocus.app/trading/ws/ndf?key=API_KEY&ticker;=TICKER
```

The server pushes a JSON message during market hours when new data is available. Timestamps are returned in Eastern Time and automatically follow daylight saving changes.

Payload

```
{
  "ticker": "QQQ",
  "ts": "2026-05-19T10:32:15.123456-04:00",
  "ndf": 1234567.89,
  "price": 456.78,
  "fep": 455.12,
  "threshold_long": 10000000,
  "threshold_short": -10000000,
  "buy_premium": 1200000.0,
  "sell_premium": 800000.0,
  "net_premium": 400000.0,
  "net_call_premium": 250000.0,
  "net_put_premium": 150000.0,
  "net_premium_0dte": 100000.0,
  "net_call_premium_0dte": 70000.0,
  "net_put_premium_0dte": 30000.0,
  "call_buy_premium": 500000.0,
  "call_sell_premium": 250000.0,
  "put_buy_premium": 700000.0,
  "put_sell_premium": 550000.0,
  "call_buy_premium_0dte": 120000.0,
  "call_sell_premium_0dte": 50000.0,
  "put_buy_premium_0dte": 90000.0,
  "put_sell_premium_0dte": 60000.0,
  "gex_total": 12345.67,
  "gex_calls": 23456.78,
  "gex_puts": -11111.11,
  "vanna_exposure": 1234.56,
  "charm_exposure": -789.01,
  "delta_exposure": 987654.32,
  "gamma_flip": 450.0,
  "max_gamma_strike": 460.0,
  "call_wall_gamma": 470.0,
  "put_wall_gamma": 440.0
}
```

Field reference

Field	Description
ndf	Net Delta Flow accumulated since session open.
price	Underlying spot price.
fep	Flow Equilibrium Price, a liquidity reference derived from delta-flow-weighted price.
threshold_long	Dynamic long-side NDF threshold.
threshold_short	Dynamic short-side NDF threshold.
buy_premium	Total premium of trades classified as BUY.
sell_premium	Total premium of trades classified as SELL.
net_premium	buy_premium - sell_premium.
net_call_premium	Net call premium across the current aggregation scope.
net_put_premium	Net put premium across the current aggregation scope.
net_premium_0dte	Net premium restricted to ODTE contracts.
net_call_premium_0dte	Net call premium restricted to ODTE contracts.
net_put_premium_0dte	Net put premium restricted to ODTE contracts.
call_buy_premium	Call premium classified as BUY.
call_sell_premium	Call premium classified as SELL.
put_buy_premium	Put premium classified as BUY.
put_sell_premium	Put premium classified as SELL.
call_buy_premium_0dte	ODTE call premium classified as BUY.
call_sell_premium_0dte	ODTE call premium classified as SELL.
put_buy_premium_0dte	ODTE put premium classified as BUY.
put_sell_premium_0dte	ODTE put premium classified as SELL.
gex_total	Total dealer gamma exposure.
gex_calls	Gamma exposure contributed by calls.
gex_puts	Gamma exposure contributed by puts, usually negative.
delta_exposure	Net dealer delta exposure aggregated across the option chain.
vanna_exposure	Net dealer vanna exposure.
charm_exposure	Net dealer charm exposure.
gamma_flip	Strike or price zone where dealer gamma flips sign.
max_gamma_strike	Strike with the largest absolute gamma exposure.
call_wall_gamma	Strike with the largest positive call gamma concentration.
put_wall_gamma	Strike with the largest negative put gamma concentration.

Field	Description
Null handling	Exposure and premium fields can be null while open interest, greeks, premium classification or chain-level data are loading. Client parsers should treat null as unavailable, not as zero.

REST authentication

All REST endpoints require the API key in the `x-api-key` request header. Do not expose API keys client-side in public applications. The WebSocket endpoint uses its connection URL for authentication.

```
x-api-key: API_KEY
```

History - NDF and Premium snapshots

Returns historical NDF snapshots for a session. If date is omitted, the latest available session is returned.

```
GET /trading/history/ndf?ticker=qqq&date;=YYYY-MM-DD&limit;=2000&every;=1
```

Parameter	Description
ticker	One of: SPX NDX SPY QQQ AAPL MSFT AMZN GOOGL META NVDA TSLA. Default: QQQ.
date	YYYY-MM-DD. Optional. Uses the latest available session when omitted.
limit	1..20000. Default: 2000.
every	1..100. Downsample selector. 1 returns all rows; 5 returns one every 5 rows.

Response

```
{
  "ticker": "QQQ",
  "session_date": "2026-05-19",
  "count": 1200,
  "every": 1,
  "data": [{
    "ts": "2026-05-19T10:32:15.123456-04:00",
    "ticker": "QQQ",
    "ndf": 1234567.89,
    "price": 456.78,
    "fep": 455.12,
    "threshold_long": 10000000,
    "threshold_short": -10000000,
    "net_premium": 400000.0,
    "delta_exposure": 987654.32,
    "net_call_premium": 250000.0,
    "net_put_premium": 150000.0,
    "net_call_premium_0dte": 70000.0,
    "net_put_premium_0dte": 30000.0
  }]
}
```

History - Available NDF sessions

Lists every stored NDF session for a ticker, with snapshot count and ET time range.

```
GET /trading/history/ndf/sessions?ticker=qqq
```

```
{
  "ticker": "QQQ",
  "sessions": [{
    "session_date": "2026-05-08",
    "snapshots": 1234,
    "from": "2026-05-08T09:30:02.123456-04:00",
    "to": "2026-05-08T16:00:01.987654-04:00"
  }]
}
```

Exposure maps - Unified envelope

GEX, Delta, Vanna and Charm maps share the same response envelope. Each endpoint returns the latest snapshot for the requested ticker, with strike-level data in bars and aggregate metrics at the top level.

```
{
  "ticker": "QQQ",
  "ts": 1746626400,
  "ts_iso": "2026-05-08T15:00:00-04:00",
  "session_date": "2026-05-08",
  "spot": 681.23,
  "net_exposure": 1245000000.0,
  "max_strike": 682.00,
  "bars": [{
    "strike": 678.0,
    "calls": 845000000.0,
    "puts": -312000000.0,
    "total": 533000000.0,
    "gross": 1157000000.0
  }]
}
```

Field	Description
spot	Underlying spot price at snapshot time.
net_exposure	Aggregated exposure across the chain. Sum of bars[].total when not stored.
max_strike	Strike with the largest absolute exposure.
bars[].strike	Strike price.
bars[].calls	Exposure contributed by calls at this strike.
bars[].puts	Exposure contributed by puts at this strike.
bars[].total	calls + puts. Net exposure at this strike.
bars[].gross	calls + puts . Populated for GEX when available.

Latest exposure endpoints

REST requests to these endpoints must include the x-api-key header. These endpoints are available for the supported ticker universe when the corresponding data exists for the requested ticker.

Endpoint	Purpose
GET /trading/gex/last/{ticker}	Latest GEX strike map.
GET /trading/delta/last/{ticker}	Latest Delta strike map.
GET /trading/vanna/last/{ticker}	Latest Vanna strike map.
GET /trading/charm/last/{ticker}	Latest Charm strike map.

Gamma multi-expiration map

Returns the latest gamma map matrix for the nearest expirations. It is useful for multi-view heatmaps and comparing concentration by strike and expiration. The response can include Gamma, Vanna and Charm matrices.

```
GET /trading/mapa_gamma/last/{ticker}
```

Available tickers for this endpoint: SPX | NDX | SPY | QQQ | AAPL | MSFT | AMZN | GOOGL | META | NVDA | TSLA.

SPX, SPY, QQQ and NDX maintain fast refresh behavior. Mag7 tickers are refreshed at a reduced 3-minute frequency to avoid unnecessary load. Responses may be served from cache when the map was calculated recently. If data does not exist or cannot be generated at that moment, the endpoint may return a temporary availability error.

```
{
  "ticker": "SPX",
  "ts": 1779016521,
  "ts_iso": "2026-05-17T07:15:21.148537-04:00",
  "spot": 7408.5,
  "expirations": ["2026-05-18", "2026-05-19", "2026-05-20"],
  "strikes": [7400.0, 7405.0, 7410.0],
  "matrix": [[-358481586.01, 47245758.83, 328826749.24]],
  "vanna_matrix": [[-19021894.20, -4815322.00, -17254031.26]],
  "charm_matrix": [[949771.52, 154511.70, 370514.50]]
}
```

Field	Description
expirations	Expiration columns represented in the matrices.
strikes	Strike rows represented in the matrices.
matrix	Gamma values indexed as matrix[strike_index][expiration_index].
vanna_matrix	Vanna values with the same strike/expiration indexing.
charm_matrix	Charm values with the same strike/expiration indexing.

History - Greeks snapshots

Returns historical strike-level snapshots for GEX, Delta, Vanna or Charm. Dates are interpreted as Eastern Time sessions. REST requests must include the x-api-key header.

```
GET /trading/history/greeks/{greek}?ticker=spx&date;=YYYY-MM-DD&limit;=2000&every;=1&summary;=false
GET /trading/history/greeks/{greek}?ticker=spx&start;=YYYY-MM-DD&end;=YYYY-MM-DD&every;=100&limit;=20&summary;=true
```

Parameter	Description
greek	gex delta vanna charm.
ticker	One of: SPX NDX SPY QQQ AAPL MSFT AMZN GOOGL META NVDA TSLA. Default: QQQ.
date	Single ET session date. Cannot be combined with start/end.
start / end	ET date range. Both are required. Maximum range: 5 days.
limit	1..3000. Default: 2000.
every	1..100. Downsample selector.
summary	false returns full bars. true returns only top-level metrics.

Full response

```
{
  "ticker": "SPX",
  "greek": "gex",
  "start": "2026-05-15",
  "end": "2026-05-15",
  "count": 3,
  "every": 1,
  "summary": false,
  "data": [{
    "ticker": "SPX",
    "ts": 1778851740,
    "ts_iso": "2026-05-15T09:29:00-04:00",
    "session_date": "2026-05-15",
    "spot": 7501.24,
    "net_exposure": 218292.85,
    "max_strike": 7500.0,
    "bars": [{"strike": 7500.0, "calls": 133241.68, "puts": -2633.68, "total": 130608.0, "gross": 135875.36}]}
  ]
}
```

Summary mode

The `summary=true` parameter returns only the top-level metrics for each historical Greek snapshot. It removes the `bars` array, which can significantly reduce payload size when the client only needs time-series data such as spot, net exposure and max strike.

```
{
  "ticker": "SPX",
  "greek": "gex",
  "start": "2026-05-11",
  "end": "2026-05-15",
  "count": 19,
  "every": 100,
  "summary": true,
  "data": [{
    "ticker": "SPX",
    "ts": 1778506140,
    "ts_iso": "2026-05-11T09:29:00-04:00",
    "session_date": "2026-05-11",
    "spot": 7398.93,
    "net_exposure": 87512.66,
    "max_strike": 7400.0
  }]
}
```

Use case	Recommended setting
Replay heatmap or strike-level chart	<code>summary=false</code>
Net exposure time series	<code>summary=true</code>
Max gamma / max exposure migration	<code>summary=true</code>
Storage-efficient backtest preprocessing	<code>summary=true</code> plus <code>every > 1</code>

History - Available Greek sessions

Lists stored sessions for a selected Greek and ticker. The time range is returned in Eastern Time.

```
GET /trading/history/greeks/{greek}/sessions?ticker=spx

{
  "ticker": "SPX",
  "greek": "gex",
  "sessions": [{
    "session_date": "2026-05-15",
    "snapshots": 362,
    "from": "2026-05-15T09:29:00-04:00",
    "to": "2026-05-15T15:59:00-04:00"
  }]
}
```

Example - Single ticker WebSocket

Install the dependency:

```
pip install websockets
```

```
import asyncio
import json
import websockets

API_KEY = "YOUR_API_KEY"
TICKER = "spy"
URL = f"wss://apitrading.gexfocus.app/trading/ws/ndf?key={API_KEY}&ticker;={TICKER}"

async def main():
    async with websockets.connect(URL) as ws:
        async for msg in ws:
            data = json.loads(msg)
            print(
                f"{data['ticker']} price={data['price']:.2f} "
                f"ndf={data['ndf']:+.0f} net_premium={data.get('net_premium', 0):+.0f} "
                f"gex={data.get('gex_total', 0):+.0f} flip={data.get('gamma_flip')}"
            )

asyncio.run(main())
```

Example - Multiple tickers

```
import asyncio
import json
import websockets

API_KEY = "YOUR_API_KEY"
TICKERS = ["qqq", "spy", "spx", "ndx", "aapl", "msft", "amzn", "googl", "meta", "nvda", "tsla"]

async def listen(ticker):
    url = f"wss://apitrading.gexfocus.app/trading/ws/ndf?key={API_KEY}&ticker={ticker}"
    async with websockets.connect(url) as ws:
        async for msg in ws:
            data = json.loads(msg)
            print(
                f"[{data['ticker']}] ndf={data['ndf']:+, .0f} "
                f"gex={data.get('gex_total', 0):+, .0f} "
                f"vanna={data.get('vanna_exposure', 0):+, .0f}"
            )

async def main():
    await asyncio.gather(*(listen(t) for t in TICKERS))

asyncio.run(main())
```

Example - Fetch exposure maps

All REST exposure maps share the same envelope, so one parser can handle GEX, Delta, Vanna and Charm. REST authentication is sent through the x-api-key header.

```
import requests

API_KEY = "YOUR_API_KEY"
BASE = "https://apitrading.gexfocus.app/trading"

for greek in ("gex", "delta", "vanna", "charm"):
    resp = requests.get(
        f"{BASE}/{greek}/last/qqq",
        headers={"x-api-key": API_KEY},
        timeout=5,
    )
    snapshot = resp.json()
    print(f"
=== {greek.upper()} ===")
    print(f"Spot: {snapshot['spot']}")
    print(f"Net exposure: {snapshot['net_exposure']:+, .0f}")
    print(f"Max strike: {snapshot['max_strike']}")
```

Example - Historical Greeks summary

```
import requests

API_KEY = "YOUR_API_KEY"
BASE = "https://apitrading.gexfocus.app/trading"

resp = requests.get(
    f"{BASE}/history/greeks/gex",
    params={
        "ticker": "spx",
        "start": "2026-05-11",
        "end": "2026-05-15",
        "every": 100,
        "limit": 20,
        "summary": "true",
    },
    headers={"x-api-key": API_KEY},
    timeout=10,
)

for row in resp.json()["data"]:
    print(row["ts_iso"], row["spot"], row["net_exposure"], row["max_strike"])
```

Recommended integration pattern

Need	Endpoint	Notes
Live trading dashboard	WebSocket NDF	Use for price, NDF, FEP, premium and live aggregate state.
Gamma/Vanna/Charm heatmap	mapa_gamma/last	Use matrix fields for multi-expiration views. Mag7 refreshes every 3 minutes and may be served from cache.
Strike-by-strike chart	gex/delta/vanna/charm latest	Refresh periodically; do not request every WebSocket tick.
Combined latest Greeks	greeks/last	Use this endpoint when several Greeks are needed for the same ticker. It counts as one last request.
Replay or backtest	history/greeks	Use date or start/end. Use summary=true if bars are not required.
Session selector	history/*/sessions	Use before requesting historical data.

Performance

For dashboards, keep the WebSocket open and refresh REST maps separately. Avoid repeatedly downloading full strike-level history when summary mode is enough.

For Mag7 workflows, prefer existing aggregate responses where available. Use `/trading/greeks/last/{ticker}` when several Greeks are needed for the same ticker, instead of calling `/gex/last`, `/delta/last`, `/vanna/last` and `/charm/last` separately. For live intraday state, prefer the WebSocket stream over aggressive REST polling.

Authentication and errors

All REST endpoints require a valid `x-api-key` header. A single API key grants access to enabled tickers and endpoints. WebSocket authentication is performed during connection.

Status	Meaning
401	Missing or invalid API key.
400	Unsupported ticker, unsupported greek or invalid date format.
429	Rate limit exceeded, too many IPs used within 5 minutes, or API key cooldown active.
503	Database or upstream data service temporarily unavailable.
1008 (WS)	WebSocket closed because of invalid auth or unsupported ticker.

During market closure, the WebSocket can remain open but may not emit new messages. HTTP endpoints return the latest available stored data.

Timezone policy

Field	Timezone
<code>ts_iso</code>	Eastern Time with UTC offset.
<code>session_date</code>	Eastern Time session date.
<code>date/start/end</code> request parameters	Interpreted as Eastern Time dates.

Usage limits and data handling

The API is intended for personal or approved commercial integrations depending on the agreement attached to the key. Do not redistribute raw data, expose keys client-side in public applications, or use endpoints in a way that creates unnecessary load.

Default limits apply per API key and per rolling 60-second window.

Bucket	Default limit
last endpoints	120 requests per minute
history endpoints	60 requests per minute

Some special endpoints, when documented separately, can have their own availability rules and should not be treated as normal cached Mag7 behavior.

Practice	Recommendation
API keys	Store server-side or in local protected storage. Do not commit keys to public repositories.
Active IPs	A single API key can be used from up to 3 active IPs within a 5-minute window. This supports normal usage from a desktop, mobile device and local server while discouraging unauthorized key sharing.
IP cooldown	If the same key exceeds the active IP limit, the key can enter a 120-second cooldown. Requests during cooldown may return HTTP 429.
WebSocket reconnects	Use exponential backoff after disconnects.
REST polling	Use 30-60 second intervals for latest maps unless a custom agreement allows more.
Historical calls	Use <code>summary=true</code> and <code>every > 1</code> when full bars are not required.
Null values	Treat as unavailable data, not zero exposure.

Quick endpoint index

Endpoint	Purpose
/trading/ws/ndf	Live NDF, premium, price and aggregate exposure stream.
/trading/history/ndf	Historical NDF and premium snapshots.
/trading/history/ndf/sessions	Available NDF sessions.
/trading/gex/last/{ticker}	Latest GEX strike map.
/trading/delta/last/{ticker}	Latest Delta strike map.
/trading/vanna/last/{ticker}	Latest Vanna strike map.
/trading/charm/last/{ticker}	Latest Charm strike map.
/trading/mapa_gamma/last/{ticker}	Latest multi-expiration Gamma/Vanna/Charm matrix.
/trading/history/greeks/{greek}	Historical GEX, Delta, Vanna or Charm snapshots.
/trading/history/greeks/{greek}/sessions	Available Greek sessions.
/trading/greeks/last/{ticker}	Latest GEX, Delta, Vanna and Charm maps in a single response.

Latest Greeks endpoint

Unified REST endpoint for requesting the latest GEX, Delta, Vanna and Charm maps for a ticker in a single response.

Endpoint

```
GET /trading/greeks/last/{ticker}
```

Authentication

X-API-Key header required. Counts as one hit against the last rate limit bucket regardless of how many Greeks are requested.

Path Parameters

Parameter	Type	Required	Description
ticker	string	yes	One of: SPX NDX SPY QQQ AAPL MSFT AMZN GOOGL META NVDA TSLA

Query Parameters

Parameter	Type	Required	Default	Description
greeks	string (repeatable)	no	all four	Greeks to include. Valid values: gex, delta, vanna, charm. Repeat the parameter to request multiple, e.g. ?greeks=gex&greeks;=delta.

Response

```

{
  "ticker": "QQQ",
  "gex": {
    "ticker": "QQQ",
    "ts": 1749651000,
    "ts_iso": "2026-06-11T10:30:00-04:00",
    "session_date": "2026-06-11",
    "spot": 480.50,
    "net_exposure": 1234567890.0,
    "max_strike": 480.0,
    "bars": [{
      "strike": 480.0,
      "calls": 123456.0,
      "puts": -98765.0,
      "total": 24691.0,
      "gross": 222221.0
    }]
  },
  "delta": { ... },
  "vanna": null,
  "charm": { ... }
}

```

Each Greek follows the same structure. If no data is available for a Greek, that field returns null instead of an error.

Greek object fields

Field	Type	Description
ticker	string	Uppercase ticker.
ts	integer	Unix timestamp of the snapshot.
ts_iso	string	ISO 8601 timestamp in ET.
session_date	string	Trading session date (YYYY-MM-DD).
spot	float	Spot price at snapshot time.
net_exposure	float	Net Greek exposure across all strikes.
max_strike	float	Strike with highest absolute exposure.
bars	array	Per-strike breakdown.

Bar object fields

Field	Type	Description
strike	float	Strike price.
calls	float	Call exposure at this strike.
puts	float	Put exposure at this strike.
total	float	Net exposure (calls + puts).
gross	float	Absolute total exposure.

Error responses

CodeBlock	Description
400	Invalid ticker or unsupported greek value.
401	Missing or invalid X-API-Key.
429	Rate limit exceeded; too many IPs used within 5 minutes; or api_key cooldown active.
503	Temporary data availability error.

HTTP 429 responses can include details similar to: rate limit exceeded, too many IPs used within 5 minutes, or api_key cooldown active.