(ROI) (ARROWEYE)ROI Web Masters LLC

EsoTrade Handbook

EsoTrade is a market intelligence terminal for stocks, crypto, futures, forex and options. It pulls in market numbers from dozens of sources and scores each one in a **lattice** (a grid of scored market variables). Its **Memory AI** saves every number on your device and learns which ones actually led price. Its agents watch the market for you. AI can run fully offline on your own computer.

It is built for people who are comfortable with computers: you will create free accounts, copy API keys, run a setup script and install a local AI model. This handbook walks through every step.

> EsoTrade is information and education software. It is not investment advice, and it never places an order by itself. Every order needs you to type APPROVE. Projections are probability ranges, not promises. Futures, options and leveraged crypto can lose more than you deposit.

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1. What it takes to run EsoTrade

You need	Why	Notes
A Windows PC, Mac or Linux computer (phone works for viewing)	Runs the terminal and, optionally, the offline AI	16 GB RAM recommended for offline AI; 8 GB works for the terminal alone
Chrome, Edge or Brave (Safari on iPhone)	The terminal is one HTML file that runs in your browser	Install it like an app from the browser menu
An EsoTrade license key	Unlocks live broker orders and the automated agents	$99 per 30 days, per business. No auto-renew
A free Cloudflare account	Hosts your private **gateway**, which keeps API keys off your computer and out of the browser	Free plan is enough
Node.js (free)	Only to run the one-time gateway setup script	nodejs.org, LTS version
A free Alpaca account	US stock prices and paper/live trading	Paper account is free
Free FRED and Finnhub keys (optional)	Macro data (VIX, credit spreads, Fed balance sheet) and headlines	Both free

Ollama (free, optional but recommended)	Runs the AI analyst offline on your computer	See section 7

Skill level: you should be comfortable installing software, copying and pasting long keys exactly, opening PowerShell or Terminal and running one command, and keeping passwords in a password manager.

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2. Quick start (about 30 minutes)

1. Save `ROI-EsoTrade.html` in a folder of its own, for example `Documents\EsoTrade`.
2. Open it in Chrome or Edge. Pick your trading style on the welcome screen.
3. Crypto, options, on-chain and macro data start working immediately with no keys.
4. Paste your license key: **Settings → License → Activate key**.
5. Create your free Alpaca paper account and (optionally) FRED and Finnhub keys (section 5).
6. Run the gateway setup script once (section 6). It prints an **AMV1 connection code**.
7. Paste the code: **Settings → Connection code → Connect**. Stocks, FRED macro and headlines turn on.
8. Install Ollama and pull a model (section 7). EsoTrade detects it automatically.
9. Open **Memory AI** and press **Backfill** so the memory learns from history right away.
10. Turn on the agents you want in **Agents**.
11. Back up: **Settings → Back up everything**. Do this weekly.

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3. How EsoTrade works, step by step

1. **Collect.** Every refresh (20 seconds by default), EsoTrade pulls prices, order books, trades, derivatives, on-chain, macro and calendar data. Keyless sources are called straight from your browser. Keyed sources go through your private gateway, which adds the key on Cloudflare's side.
2. **Score.** Each of the 50 lattice variables turns its raw number into a score from −1 (bearish) to +1 (bullish), with a plain-English note. Missing data shows in red with the exact fix.
3. **Weight.** Your trading style decides which variables count double (★) and how much each of the six tiers counts. You can boost any tier or variable yourself ("run the numbers up").
4. **Combine.** The lattice composite is the weighted average of every variable that has data. Coverage shows how much of the lattice is live.
5. **Remember.** Every number is saved on your device (IndexedDB). When a saved snapshot's future is known, it becomes a training example.
6. **Learn.** The Memory AI fits a model of which variables actually led price. It grades itself on data it never trained on and turns learned weights on only when that held-out test beats a coin flip and the base rate.
7. **Project.** A probability cone (50/80/95%) is built from the market's own volatility. It is calibrated by how often past cones on your device actually held. GARCH volatility and a Memory AI tilt are optional.
8. **Map levels.** About 15 kinds of price levels are found (structure, volume, trend, round numbers, options, whale liquidations, projection edges). Each gets its odds of being touched, from 3,000 resampled futures.
9. **Blend.** Four sliders set how much the final score uses the lattice, the Memory AI, your AI analyst and the Quantum Lab.

10. **Watch.** Agents sweep your watchlist, guard your risk, refit the memory, track whales and draft trade ideas.
11. **Decide.** You review a pre-filled ticket. Risk checks run automatically, and nothing is sent until you type APPROVE.
12. **Record.** Every approval, fill and setting change goes into a tamper-evident audit log. Closed trades go to the journal with R-multiples, MFE and MAE.

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4. Licensing and buying a key

- **Price:** $99 per 30 days or $990 per year, licensed per business (not per seat). Longer keys cost less per month: 5% off from 3 months, 10% off from 6 months, and the 1-year key is about two months off.
- **No auto-renew.** Each 30-day or 1-year key is bought separately.
- **Where to buy:** web.arroweyesystems.com/p/esotrade/ (secure Stripe checkout). Lost your key? Ask again at web.arroweyesystems.com/key and it is re-sent to the email on file.
- **How the key arrives:** after your payment clears, your license key is emailed to you automatically, with a link that always shows your current key. It is one long code with a dot in the middle — paste all of it.
- **How to use it:** Settings → License → paste the whole key → Activate key. The header and sidebar show your business name and days left.
- **Renewing:** buy a new key before or after the old one ends and paste it. You get a reminder 5 days before expiry.
- **Free 7-day demo:** the first time you open EsoTrade you accept the license terms, then the full app runs for 7 days. After 7 days with no key it shows an unlock screen until a key is entered. Your data is never deleted, and the key opens it again straight away.
- **What works without a key (during the demo):** every tab, charts, the lattice, Memory AI, the sandbox, alerts, risk tools, the Strategy Lab, Quantum Lab, the manual agents (Risk Guard, Calibrator) and the research agent.
- **What a key unlocks:** live broker orders and the automated agents (Scout, Analyst, Whale Watch, Proposer).
- **If a key lapses:** nothing is deleted. Your memory, journal, settings and data stay on your device. Only the licensed features pause.
- **How keys are protected:** each key is digitally signed by Web Masters LLC (ECDSA P-256) and checked offline inside the app. It names your business and its expiry date, and it cannot be edited without breaking the signature.

- **Ownership and fingerprints:** every copy is made by Harrison Holt, licensed to Web Masters LLC and signed at build time. Settings → Ownership & build fingerprint shows the build ID, a "Verified" signature check and a short tag tied to your license key. If the ownership notice inside the file is altered, the app will not open (nothing on your device is touched).

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5. The key system, explained

EsoTrade uses four different kinds of keys. Knowing which is which keeps you safe.

Key	Looks like	What it does	Where it lives	Who should see it
License key	one long code with a dot in the middle	Proves your business paid; unlocks licensed features	EsoTrade Settings (on your device)	You only
Provider API keys	Provider-specific (Alpaca, FRED, Finnhub...)	Let your gateway fetch data and place orders	**Cloudflare secrets** inside your gateway (best), or encrypted in EsoTrade	Nobody. Never email, text or paste them into chats
Dashboard token	`am_…`	The password between EsoTrade and your gateway	Cloudflare secret + EsoTrade (encrypted)	You only
Connection code	`AMV1.…`	Gateway address + dashboard token in one paste	Paste once, then delete the copy	You only. Treat it like a password

How the gateway protects your keys

1. Your provider keys are stored as **Cloudflare Worker secrets**. Secrets are write-only: not even you can read them back after saving.
2. EsoTrade never holds those keys. It sends requests to your gateway with only the dashboard token.
3. The gateway checks the token, adds the right provider key on Cloudflare's side and returns the data.
4. The gateway only answers pages on its allow-list (`ALLOWED_ORIGINS`) and refuses everyone else.
5. Live-trading writes are blocked on the gateway unless you deliberately turn them on.

Keeping keys private (your "API folder")

- Keep every key in a **password manager** (1Password, Bitwarden). Make one vault or folder named **EsoTrade API** with an entry per provider: account email, key, secret, plan and renewal date.
- If you keep files, keep only an **encrypted** copy (password-manager attachment or an encrypted archive). Never a plain `.txt` in Downloads or Desktop.
- Never put keys inside the EsoTrade HTML file, in email, in screenshots or in shared folders.
- In EsoTrade, set a passphrase under **Settings → Security** so any keys stored on the device are encrypted (AES-256).
- If a key leaks, regenerate it at the provider, then run `wrangler secret put` again for that one secret (or re-run the setup script).
- Backups made by EsoTrade never include keys.

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6. Getting your API keys

Works with no key (already on)

Five-exchange fallback and gateway relay. Crypto candles try Binance, then OKX, Coinbase, Kraken and Hyperliquid, and use the first that answers. If your network blocks an exchange and your gateway is connected, EsoTrade sends that request through your own Cloudflare gateway (`/api/pub`), which only forwards to a fixed list of public market-data sites and caches answers for a few seconds so you stay inside each exchange's rate limits. The source line under each chart says which feed was used and whether it came through your gateway.

Binance public market data, Coinbase, Kraken, OKX, Hyperliquid, Deribit, alternative.me Fear & Greed, DefiLlama, mempool.space, Blockchain.com, US Treasury yields, Treasury FiscalData, NY Fed, CFTC Commitments of Traders, FINRA short volume and ECB exchange rates.

Two keyless sources are **off by default** for license reasons. Turn them on in Settings → Data sources only for your own use:

- **Hyperliquid leaderboard** (Whale Connector): not a documented public API.
- **Coin Metrics Community** (MVRV, exchange inflows): licensed for non-commercial use.

Free keys (entered right in the app — no one else's keys needed)

Open **Connections** in the sidebar. Each provider has a **Get a free key** button, a box to paste the key and a **Test** button. Keys are saved only on your device (encrypted once you set a passphrase in Settings → Security). For stocks, any one key is enough: EsoTrade tries Alpaca, then Twelve Data, Polygon, Financial Modeling Prep, Finnhub and Alpha Vantage, and uses the first that answers. The Cloud key vault and connection codes still work exactly as before if you prefer to keep keys on your own Cloudflare gateway.

Provider	What EsoTrade uses it for	How to get it
Twelve Data	Stock, ETF, forex and world-index candles and quotes (800 calls/day free)	twelvedata.com/register → Dashboard → API keys
Polygon.io (Massive)	Stock candles (end-of-day on the free plan), previous close, ticker news	polygon.io/dashboard/signup → Keys
Financial Modeling Prep	Daily stock candles and quotes (250 calls/day free)	site.financialmodelingprep.com/register → Dashboard
Any OpenAI-compatible AI (Groq, OpenRouter, Together, LM Studio)	AI analyst through any OpenAI-style address	The provider's console → API keys; paste the base URL, key and model

Provider	What EsoTrade uses it for	How to get it
Alpaca (paper)	US stock and ETF prices, futures proxies, paper orders	app.alpaca.markets/signup → switch to **Paper Trading** → API Keys → Generate. Copy both the Key ID and the Secret (the secret shows once)

FRED	VIX, VIX3M, high-yield spread, Fed balance sheet, Treasury cash fallback	fredaccount.stlouisfed.org → create account → API Keys → Request API key
Finnhub	Headlines and company news	finnhub.io/register → dashboard shows your API key
Alpha Vantage (optional)	Daily/weekly fallback bars (25 calls/day free)	alphavantage.co/support/#api-key
Cloudflare	Hosts your gateway	dash.cloudflare.com/sign-up (free plan)
OpenAI / Anthropic (optional)	Cloud AI instead of, or alongside, Ollama	platform.openai.com / console.anthropic.com → API keys (paid per use)

Setting up your gateway (one time, about 10 minutes)

1. Install Node.js LTS from nodejs.org.
2. Open the `gateway` folder that came with EsoTrade.
3. **Windows:** right-click in the folder → Open in Terminal, then run `powershell -ExecutionPolicy Bypass -File .\setup-gateway.ps1`. **Mac/Linux:** run `bash setup-gateway.sh`.
4. Enter a short business name (letters and numbers).
5. Paste your Alpaca paper Key ID and Secret, then FRED and Finnhub (press Enter to skip any).
6. A browser window opens to log in to Cloudflare. Approve it.
7. The script deploys `alphamind-gateway-<business>`, saves every key as a Cloudflare secret, checks it and prints your **AMV1 connection code**.
8. In EsoTrade: Settings → Connection code → paste → Connect.
9. Delete the `CONNECTION-CODE-<business>.txt` file the script saved once you have connected.

If you open EsoTrade from a web address other than a local file or `localhost`, add that address to `ALLOWED_ORIGINS` in `wrangler.toml` and run `npx wrangler deploy` again.

Premium upgrades (where to buy)

Prices change; check each provider's page before buying. Prices below were checked in October 2026.

Upgrade	What you get	EsoTrade support
Alpaca Algo Trader Plus — about $99/month (alpaca.markets)	Real-time data from all US exchanges (SIP) instead of the IEX subset, unlimited websocket symbols, 10,000 calls/min, OPRA options feed	**Supported now.** After subscribing: Settings → Data → Alpaca feed → SIP

Alpaca live account	Real-money orders	Supported. Add live keys to the gateway and set `ALLOW_LIVE_ORDERS="true"` only when ready
Alpha Vantage premium	Higher call limits	Supported automatically (same key)
Finnhub paid plans (finnhub.io/pricing)	Higher limits, more news	Supported automatically (same key)
Massive (formerly Polygon.io) — Starter $29, Developer $79, Advanced $199/month	Stock and options data	Not built into v1
Unusual Whales API — about $99–$375/month	Options flow, dealer gamma for stocks	Not built into v1
CoinGlass API — about $29–$699/month	Liquidation heatmaps, aggregated derivatives	Not built into v1
Glassnode / CryptoQuant	SOPR and advanced on-chain	Not built into v1
Whale Alert — from $29.95/month	Large-transfer alerts across chains	Not built into v1

"Not built into v1" means EsoTrade cannot use that subscription yet. Do not buy it for EsoTrade until a version supports it.

To add a premium key to your gateway later, open the gateway folder in a terminal and run `npx wrangler secret put FINNHUB_KEY --name alphamind-gateway-<business>` (swap in the secret's name). Then press **Test & link** in Settings to refresh.

Every address EsoTrade can call

Connections → *Every outside address EsoTrade can call* lists all of them. In short:

What	Address	Needs
Crypto candles	data-api.binance.vision, www.okx.com, api.exchange.coinbase.com, api.kraken.com, api.hyperliquid.xyz	No key
Live crypto stream	data-stream.binance.vision, ws.kraken.com, ws-feed.exchange.coinbase.com (then a 3-second pulse)	No key
Options, perps, on-chain, sentiment	www.deribit.com, OKX, Hyperliquid, mempool.space, blockchain.info, stablecoins.llama.fi, api.alternative.me	No key
US macro, COT, short volume, FX	Treasury, FiscalData, NY Fed, CFTC, FINRA, api.frankfurter.dev	No key

World headlines	api.gdeltproject.org	No key
Wallet balances	*.publicnode.com (7 EVM chains and Solana), mempool.space	No key
Stocks and ETFs	Alpaca → Twelve Data → Polygon → FMP → Finnhub → Alpha Vantage	Any one free key of yours
Macro series	api.stlouisfed.org	Your free FRED key
Orders	Alpaca (paper/live), Interactive Brokers (your gateway on localhost:5000), NinjaTrader file	Your own account
AI	localhost:11434 (Ollama, offline), OpenAI, Anthropic, any OpenAI-compatible URL	None for Ollama

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7. Running AI offline with Ollama

What "running AI offline" means

Most AI tools send your questions to a company's servers and charge per word (per token). **Ollama** runs an AI model directly on your own computer instead:

- **No per-token bill.** You can ask as much as you like. The only limit is your computer's speed. That is what "unlimited tokens" means here.
- **Private.** Your numbers, positions and questions never leave your machine.
- **Always on.** The AI part keeps working without an internet connection. Live market data still needs internet.
- **Watches with you.** EsoTrade's Analyst, Research agent and watch notes can run every few minutes all day at no extra cost.

The AI reads only the numbers EsoTrade gives it and is instructed never to invent data. It explains and summarizes; it does not see the future.

Step by step

1. Download Ollama from **ollama.com/download** (Windows, Mac or Linux) and install it.
2. Open PowerShell (Windows) or Terminal (Mac/Linux) and pull a model:
   - 8 GB RAM: `ollama pull llama3.2:3b`
   - 16 GB RAM: `ollama pull llama3.1:8b` or `ollama pull qwen2.5:7b`
   - 32 GB+ RAM or a strong GPU: `ollama pull qwen2.5:14b`
3. Allow EsoTrade to talk to Ollama. Use the address shown in your browser bar (a file opened from disk counts as `null`):
   - **Windows:** `setx OLLAMA_ORIGINS "http://localhost:5050,null"`, then quit Ollama from the system tray and start it again.

- **Mac:** `launchctl setenv OLLAMA_ORIGINS "http://localhost:5050,null"`, then quit and reopen the Ollama app.
- **Linux:** `sudo systemctl edit ollama.service`, add `[Service]` and `Environment="OLLAMA_ORIGINS=http://localhost:5050,null"`, then `sudo systemctl daemon-reload && sudo systemctl restart ollama`.

4. In EsoTrade: Settings → AI → **Detect Ollama**. The header pill changes to "AI: ollama".
5. Test it: open the AI drawer (click the AI pill) and ask "Explain the lattice for BTC right now."
6. Turn on the **Analyst** agent and use **Memory AI → Write note** for offline watch notes.

Avoid `OLLAMA_ORIGINS=*`: it lets any website use your local model.

Troubleshooting: "Ollama not reachable" means Ollama isn't running or the origin isn't allowed; re-check step 3 and restart Ollama. Slow answers mean the model is too big for your RAM; pull a smaller one. A home AI server (for example a Jetson or a desktop on your network) works too: put its address in Settings → AI → Ollama URL and set `OLLAMA_HOST=0.0.0.0` on that machine.

7b. Brokers and wallets

Interactive Brokers

EsoTrade talks to IBKR's own **Client Portal Gateway**, a small program from IBKR that runs on your computer. Your IBKR password goes only into IBKR's page; EsoTrade never sees it.

1. Install Java, then download the Client Portal Gateway from interactivebrokers.com (Trading → API → Client Portal API) and unzip it.
2. In `root/conf.yaml`, set `cors: origin.allowed: "*"` and `allowCredentials: false`.
3. Start it: Windows `bin\run.bat root\conf.yaml`, Mac/Linux `bin/run.sh root/conf.yaml`.
4. Open `https://localhost:5000`, accept the certificate warning, and log in (paper or live).
5. In EsoTrade: Connections → Interactive Brokers → **Connect / test**, pick the account, then **Use for orders**.

Orders go through the same checks and approval screen as every other order, and IBKR's own warnings are shown to you before anything is sent. Live trading needs an active license. IBKR logs the gateway out once a day; just log in again. Quotes inside IBKR need your own IBKR market-data subscriptions.

Crypto wallets

Wallets → EsoTrade finds every browser wallet you have installed (MetaMask, Coinbase Wallet, Rabby, Brave, Trust, OKX and others) and Solana wallets (Phantom, Solflare, Backpack). It reads balances on Ethereum, Base, Arbitrum, Optimism, Polygon, BNB Chain, Avalanche and Solana, and can add any Bitcoin, EVM or Solana address as **watch-only**. EsoTrade never moves funds. **Prove ownership** asks your wallet for a free signature that costs nothing. Wallet extensions only work when EsoTrade is opened from a web address (the hosted demo or localhost), not as a file.

8. Choose your trading style

The style button loads the charts, numbers, data, scanners, alerts, risk defaults and journal tags that style actually uses.

Style	Holds for	Chart	What it focuses on
Scalper	Seconds–minutes	1m	Order book, tape, volume delta, VWAP, whale prints
Day trader (stocks)	Minutes–hours	5m	VWAP, volume spikes, breakouts, prior-day levels, events
Swing trader	Days–weeks	4h	Trend, MACD, pattern analogues, Kalman trend
Position trader	Weeks–months	1d	Net liquidity, real yields, COT, dollar, Hurst
Long-term / dividend	Years	1w	Trend, credit, curve, VIX, allocation
Options seller	0–45 days	1d	Implied vs realized vol, skew, max pain, dealer gamma
Options buyer	Intraday–weeks	1h	Low IV, breakouts, gamma, analogues
Futures	Minutes–weeks	15m	COT, VWAP, liquidity, dollar, real yields
Forex	Minutes–weeks	1d	Dollar index, curve, real yields, COT
Crypto spot	Minutes–months	4h	Fear & Greed, stablecoins, MVRV, exchange flows, whales
Crypto perpetuals	Minutes–days	15m	Funding, open interest, basis, liquidations, whales
On-chain / DeFi	Minutes–months	1h	Stablecoins, exchange flows, mempool, whales

9. Every tab, and the edge it gives you

Tab	What it does	How it helps
Command	Hero price strip, blended score gauge and verdict, four blend sliders, tier bars, top drivers, projection, Memory AI guess, key levels with odds, next events	One screen that answers "what is the whole market saying right now, for my style?"
Chart	Canvas candles, Heikin-Ashi or line; volume; volume profile; indicators; RSI, MACD or CVD pane; probability cone; labeled levels with touch odds; hindcast; live depth chart	See price, where volume traded, where the odds sit and where the levels are, on one chart
Lattice	All 50 variables in six tiers with ± bars, values, weights and notes; boost sliders; variable history	See exactly why the score is what it is and stress-test it by boosting any piece
Memory AI	Saved snapshots, backfill, the learned model, held-out hit rate, information coefficient (IC) per variable, watcher, offline	Learn which numbers actually worked for this market and

	AI watch notes, export/import	timeframe, on your own data
Agents	Scout, Analyst, Risk Guard, Calibrator, Whale Watch, Proposer, research agent, trade drafts	Coverage while you are busy; ideas arrive pre-checked, never auto-executed
Levels	Every level with distance, ATR multiple and touch probability; stop/target what-if over 10,000 paths	Place stops and targets where the odds favor you, not at round guesses
Depth & Tape	Live order book ladder, cumulative depth chart, tape, session CVD, whale prints (crypto)	See buyers and sellers in real time — the "width of the money"
Whale Connector	Top Hyperliquid traders' live positions netted by coin, large prints, liquidations, large BTC transactions	Know when the biggest traders are leaning one way
Derivatives	Perp board (funding, OI, premium); BTC/ETH options: ATM IV, DVOL, realized vol, skew, put/call, max pain, gamma flip, net GEX, basis; IV term structure; GEX by strike	Read positioning and dealer behavior that move price
Options Lab	14 strategy presets, editable legs, payoff at expiry and today, Greeks, expected move, probability of profit, breakevens	Compare risk and reward before you trade an option
Macro & Liquidity	Net liquidity, 2s10s and real yields, dollar index, credit spread and VIX, COT positioning, crypto backdrop	Know the tide under every market
Scanner	Style-based scans (strongest/weakest lattice, volume spike, RSI extremes, breakouts, funding extremes, biggest movers)	Find setups across your universe in seconds
News & Calendar	Official FOMC, CPI, jobs, options expiry and holiday dates; funding countdowns; headlines with tone; AI summary	Avoid trading blind into high-impact releases
Alerts	Price, % move, blended score and single-variable alerts, with sound, desktop notifications and webhooks	Let the terminal watch levels and conditions for you
Risk	Position sizing for shares, contracts, lots and coins; enforced risk policy; kill switch; perp liquidation estimate; VaR; portfolio heat; correlation matrix; US margin-rule selector	Size every trade to a fixed risk and never break your own rules
Strategy Lab	Backtests with next-bar fills, fees and slippage; SMA, RSI, Donchian and lattice strategies; walk-forward test	Test an idea honestly before risking money
Orders & Positions	Sandbox (fake money, real prices), Alpaca paper/live, NinjaTrader signal file; risk checks; typed APPROVE; read-only wallet	Execute with guardrails you cannot skip by accident
Journal	Auto-logged trades with P&L after fees, R-multiple, MFE, MAE, tags, notes; stats; CSV export	Find what actually makes and loses you money

Quantum Lab	Exact QAOA quantum circuit simulation for portfolio selection; quantum amplitude estimation of level-touch odds	A research tool for quantum methods on real market data
Settings	License, connection code, vault, keys, AI, data sources, workspace, security, backup, install, network log, audit	Everything you connect and control in one place
Handbook	This guide	—

10. The lattice: all 50 variables

Each variable returns a score from −1 to +1. ★ marks variables that count double for your style. "Info" variables are shown but do not move the score.

Tier	Variable	What it measures	How it pushes the score
Structure	Trend EMA20 vs EMA50	Short-term trend	Fast average above slow = bullish
Structure	Trend SMA50 vs SMA200	Long-term trend	50 above 200 = bullish
Structure	RSI 14	Momentum extremes	Above 70 = overbought (bearish), below 30 = oversold (bullish)
Structure	MACD histogram / ATR	Momentum change, scaled by volatility	Positive = bullish
Structure	ADX × direction	Trend strength and side	Strong trend in the direction of +DI or −DI
Structure	20-bar breakout	Price beyond the last 20 bars' range	Above the high = bullish, below the low = bearish
Structure	Position in 50-bar range	Where price sits in its recent range	Near the top = bullish lean
Structure	Distance from VWAP	Stretch from the volume-weighted average	Far above = reversion risk (bearish)
Structure	10-bar momentum	Recent percent move	Up = bullish
Structure	Volume z-score × direction	Unusual volume on an up or down bar	Big volume on an up bar = bullish
Structure	Hurst exponent	Whether moves tend to persist or revert	Above 0.55 strengthens the trend's direction
Structure	ATR % of price	Typical bar range	Info (used for sizing and stops)

Order flow	Order-book imbalance ±0.5%	Bid money vs ask money near price	More bids = bullish
Order flow	Cumulative volume delta	Aggressive buying minus selling (20 bars)	Net buying = bullish
Order flow	Taker buy share	Share of the last bar bought aggressively	Above 50% = bullish
Order flow	Whale prints net	Large trades on the live tape	Net large buying = bullish
Order flow	VPIN	Order-flow toxicity	Info (high = widen stops)
Derivatives	Perp funding (annualized)	Cost of holding leveraged longs	Very positive = crowded longs (bearish, contrarian)
Derivatives	Open interest × price	New positions entering or leaving	Rising OI with rising price = bullish
Derivatives	Mark vs oracle premium	Perp price vs index	High premium = froth (bearish)
Derivatives	Futures basis	Annualized dated-future premium	Very high = crowded (bearish)
Derivatives	Liquidations (1h)	Longs vs shorts forced out	Long flush = bounce risk (bullish, contrarian)
Derivatives	Implied – realized vol	Option richness	Info (rich = sellers favored)
Derivatives	25-delta skew	Put demand vs calls	Heavy put fear = contrarian bullish
Derivatives	Dealer gamma vs flip	Whether option dealers dampen or amplify moves	Above the flip = calmer (bullish), below = volatile (bearish)
Derivatives	Distance to max pain	Pull toward the strike where most options expire worthless	Far above near expiry = bearish pull
Derivatives	Put/call open interest	Positioning	High puts = contrarian bullish
On-chain & sentiment	Fear & Greed	Crowd emotion (alternative.me)	Fear = contrarian bullish
On-chain & sentiment	Stablecoin supply 30d	Dry powder entering crypto	Growing = bullish
On-chain & sentiment	Exchange inflow z-score	Coins moving to exchanges	High inflow = sell pressure (bearish)

On-chain & sentiment	MVRV / NUPL	Market value vs cost basis	Very high = euphoric (bearish), below 1 = cheap (bullish)
On-chain & sentiment	BTC mempool fees	Network demand	Info
On-chain & sentiment	Top-trader net positioning	Hyperliquid leaderboard wallets' net exposure	Net long = bullish
On-chain & sentiment	Off-exchange short volume	FINRA short share (DIX-style)	High = bullish (dealer hedging read)
Macro & liquidity	Net liquidity 30d	Fed balance sheet − Treasury cash − reverse repo	Rising = bullish for risk assets
Macro & liquidity	2s10s curve	Yield curve slope change	Steepening = mild bullish
Macro & liquidity	10Y yield 30d	Rates	Rising = bearish for most assets
Macro & liquidity	10Y real yield 30d	Inflation-adjusted rates	Rising = bearish for gold, crypto and growth
Macro & liquidity	Dollar index 30d	Dollar strength (ECB-derived, approximate)	Rising = bearish for most non-dollar assets
Macro & liquidity	High-yield spread	Credit stress	Widening = bearish
Macro & liquidity	VIX level	Equity fear	Above 28 = bearish, below 14 = bullish
Macro & liquidity	VIX / VIX3M	Volatility term structure	Above 1.05 (backwardation) = stress
Macro & liquidity	COT speculators percentile	Speculator positioning vs 3 years	Extreme long = contrarian bearish
Macro & liquidity	COT commercials percentile	Hedger positioning vs 3 years	High = bullish
AI & memory	Pattern analogues (kNN)	What happened after the 25 most similar past setups	Average forward return × hit rate
AI & memory	Hidden-Markov regime	Calm, normal or stressed state	Regime mean return, damped in stress
AI & memory	GARCH vol forecast	Volatility now vs long-run	Rising volatility = bearish
AI & memory	Kalman trend slope	Noise-filtered trend	Positive slope = bullish

AI & memory	Return anomaly	How extreme the latest move is	Extreme up bar = reversion risk
AI & memory	Memory Core forecast	The learned model's prediction	Its predicted move vs its own error

11. Chart indicators

Indicator	What it shows
EMA 9 / EMA 20	Fast exponential averages for intraday trend
SMA 20 / 50 / 200	Classic short, medium and long trend lines
Bollinger Bands (20, 2)	Volatility envelope; touches show stretch
VWAP	Volume-weighted average price, reset daily on intraday charts
Volume and volume profile	Where volume traded; POC and value area in copper
RSI 14 pane	Momentum, with 30/70 guide lines
MACD 12·26·9 pane	Momentum and its signal line
CVD pane	Cumulative taker buy minus sell volume (crypto)
Heikin-Ashi	Smoothed candles that show trend more clearly
Probability cone	50/80/95% ranges for the next bars, calibrated on your device
Levels	Dashed lines with names and touch probabilities
Hindcast	Replays what the cone said in the past against what happened

12. Lattice comparison: the real edge

- **Many angles at once.** Few retail tools put trend, order flow, options positioning, on-chain flows, macro liquidity and statistical models on one scale for one symbol. The lattice does, and shows each piece.
- **It compares itself to reality.** The Memory AI records every variable and later checks which ones actually pointed the right way. It reports the information coefficient of each variable for your symbol and timeframe.
- **It is honest about edge.** Learned weights switch on only when the held-out hit rate beats both a coin flip and the market's base rate. Otherwise you see "no proven edge yet".
- **Across markets.** Run the scanner or the watcher on your whole watchlist and compare lattices side by side: which markets have broad agreement and which are split.
- **Across time.** Variable history charts show how each number moved before past turns.

- **Private compounding.** The memory belongs to you and grows every day you run EsoTrade. Nobody else's copy has your history.

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13. Agents

Agent	Runs every	What it does	License
Scout	5 min	Sweeps the watchlist and flags strong or flipping scores	Licensed
Analyst	30 min	Your AI reads the full lattice and writes a thesis (feeds the AI slider)	Licensed
Risk Guard	30 s	Daily loss limit, positions near stops, event windows; optional auto kill switch	Always
Calibrator	1 h	Refits the Memory AI and reports whether edge is improving	Always
Whale Watch	15 min	Reports big changes in top traders' positions	Licensed
Proposer	10 min	Drafts a ticket when lattice, memory and calendar agree — never sends it	Licensed
Research agent	On request	Your AI uses EsoTrade's tools step by step to answer a question	Always

Agents run while EsoTrade is open.

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14. Quantum Lab

- **QAOA portfolio selection:** picks the best k of up to 10 assets by return versus risk. EsoTrade simulates the quantum circuit exactly (every amplitude) and compares it with the true best answer and with classical annealing.
- **Quantum amplitude estimation:** estimates the probability of reaching a price level using Grover-style amplification and maximum likelihood, step by step, compared with classical Monte Carlo at the same number of samples.

Both are simulated on your computer. On problems this size, classical methods are just as good; no quantum advantage is claimed.

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15. Safety, orders and risk controls

- Every order: risk checks → review screen → you type APPROVE → audit log.
- Checks include: required stop-loss, maximum position size, quote age, price-move guard, fat-finger guard, daily loss lock and the kill switch.

- Market orders to brokers are converted to protected limit orders.
- The kill switch cancels open sandbox and Alpaca orders and locks trading until you re-arm it.
- **US margin rules:** FINRA replaced the pattern-day-trader rule with intraday margin requirements, effective June 4, 2026. Brokers may keep the old rules until they switch, up to October 20, 2027. Choose your broker's status in Risk.

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16. Install, backup and moving devices

- **Home screen icon:** installed EsoTrade uses the red (ROI) badge as its app icon.
- **Windows/Mac/Linux:** open EsoTrade in Chrome or Edge → menu → Install app (or the **Install** button at the bottom right). For wallets and notifications, serve it locally: `python -m http.server 5050` in its folder, then open `http://localhost:5050/ROI-EsoTrade.html`.
- **Android:** Chrome → menu → Add to Home screen.
- **iPhone/iPad:** Safari → Share → Add to Home Screen. Full functionality is not guaranteed on Apple devices: Safari may clear data saved in the browser after a period without use, so back up regularly. Offline AI is not available on iPhone; use Ollama on a computer on your network or a cloud AI key.
- **Backup:** Settings → Back up everything (settings, journal, sandbox, alerts, audit log and memory). Keys are never included. Your data lives only on this device, so back up weekly and before clearing your browser.
- **New device:** install EsoTrade, Settings → Restore, then paste your license key and connection code again.

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17. Troubleshooting

You see	Meaning	Fix
"Stocks need the Cloud key vault..."	No gateway connected	Paste your AMV1 connection code (Settings)
"Token rejected"	Gateway token changed	Ask for or generate a new connection code
"No crypto bars — ... Could not reach ..."	Your network, browser extension or a preview window is blocking exchange sites	Open the file in Chrome or Edge (not a preview). With your gateway connected, EsoTrade tries 5 exchanges (Binance, OKX, Coinbase, Kraken, Hyperliquid) and automatically routes blocked ones through your own gateway
"Could not reach the gateway"	Page address not allowed	Add the page's address to `ALLOWED_ORIGINS` and redeploy
"FRED needs the Cloud key vault"	No FRED key in the gateway	Add `FRED_KEY` to the gateway
Red MISSING rows in the lattice	One source not connected or not	The row says exactly why

	applicable	
"Ollama not reachable"	Ollama off or origin not allowed	Section 7, step 3
"Memory needs more resolved snapshots"	Not enough history yet	Memory AI → Backfill
"...needs an active license"	Licensed feature	Settings → License

18. Limits

- Free data can be delayed or rate-limited. The free Alpaca IEX feed is a subset of US trading.
- Futures charts use ETF proxies (for example ES via SPY) and are labeled.
- Free options and on-chain data cover BTC and ETH.
- Models describe the past; markets change. A hit rate near 50% means no edge.
- EsoTrade is information and education, not investment advice.

19. Support

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