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KERNOW BITCOIN — API DOCUMENTATION

First Draft • Member Guide

Product family: Macro Labs Bitcoin Mining & on-chain UTXO analytic

Audience: Patreon members (Alchemist → Satoshi Sanctum)

Goal: Handhold you from first API key to confident daily use

1. High-level overview: one suite, two API surfaces

Kernow Bitcoin is built as a **Bitcoin mining-centred analytics suite**: profitability, hashrate economics, price-cycle context, and institutional-style **UTXO / holder-behaviour** metrics in one membership stack.

You get access through **two complementary API surfaces**. They share the same membership, the same API-key model, and the same product philosophy — **plug in a key, pass a date range, get clean data** — but they are optimised for different jobs.

1.1 API surface A — Core Kernow API

Typical base: <https://api.kernowbitcoin.co.uk/api/v1/>

This is the **broad, multi-tier** API that members use from day one.

Characteristic	Detail
Who	All paid tiers (Alchemist upward), with features unlocking as you upgrade
Style	Plug-and-play: API key + optional date range → structured JSON
Focus	Mining metrics, price/cycle metrics, core daily UTXO series
History	Many series available with full history back to 2009 , refreshed on a daily cadence
Best for	Excel / Google Sheets templates, dashboards, ROI models, routine monitoring

Flagship route families (names as on the membership page):

Route family	Role
/GetMiningMetrics	Hashrate, issuance, profitability-style mining analytics; cost basis & TH modelling inputs
/GetPriceMetrics	Hash price, Puell, Pi Cycle, RSI, moving averages, Bollinger, MACD, halving multiples, heatmaps, etc.
/GetUTXOMetrics	Core on-chain UTXO daily series (realized cap, MVRV, SOPR family, HODL waves, LTH/STH, whale concentration, ...)
Hash-price driver routes	Quarterly / monthly / weekly / daily miner-profit swing context (tier-dependent)
Enhanced / premium packs	Extra investor & mining-premium metric packs on higher tiers

Exact path spelling and query parameters are listed in the Core API section of your workbook docs; the important idea is: **this surface is your everyday “series & templates” API.**

1.2 API surface B — UTXO Metrics Enterprise API

Base URL: <https://api.utxo-metrics-enterprise.kernowbitcoin.co.uk/api/v1/>

This is the **advanced, research-grade** UTXO API.

Characteristic	Detail
Who	Chainwarden and higher (Mining Oracle, Satoshi Sanctum). Not available on Alchemist or Hashhound
Style	Versioned REST (/api/v1/...), API key + rate limits + daily row quotas
Backend character	Live, tip-aligned, queryable metric store — date-configurable, thematic packs, and a large library of fixed analytical endpoints (Glassnode-style research views)
Best for	Multi-metric research, regime dashboards, cohort-style views, institutional-style diagnostics
Sanctum-only extra	Controlled output-level access to tip UTXOs and enriched spent outputs (from 2025-01-01), with strict caps

What the membership page means by:

- 100+ custom SQL-powered endpoints** → a large catalogue of **named analytics queries** (you call an ID; the server runs a curated SQL view).
- Date-configurable endpoints** → start_date / end_date on daily and analytics routes.
- Pro-grade analytical endpoints** → regime maps, flow dashboards, LTH/STH structure, SOPR stress, DSA, survival, spent-age scans, etc.

You do **not** paste arbitrary SQL. You call documented routes; the platform executes vetted queries under quota rules.

1.3 How the two surfaces fit together

NEED	PREFER
Mining ROI, downtime, hash ribbons, template workbooks	Core API (GetMiningMetrics, ...)
Classic price-cycle toolkit in sheets	Core API (GetPriceMetrics, ...)
Long daily UTXO series in a simple pull	Core API (GetUTXOMetrics) and/or Enterprise thematic daily routes
Glassnode-style multi-column research views, regimes, stress dashboards	Enterprise API /utxo/analytics/...
Themed slices of the daily UTXO table	Enterprise API /utxo/daily/:theme
Individual output rows (2025+)	Enterprise API /utxo/raw/... (Sanctum only)

Together they form one suite: **mining economics + market structure + holder behaviour**, from entry-level Alchemist through a 50-seat Sanctum.

2. MEMBERSHIP TIERS — PRICE, SEATS, AND API ACCESS

Spaces are **hard-capped** (“never anymore”). Pricing below follows the public join page (monthly, plus VAT where applicable). USD labels on the page are approximate marketing pairs to GBP.

TIER	PRICE	SEATS	API EMPHASIS
Alchemist	\$25	350	Core entry: Mining + core UTXO series; 2 workbooks
Hashhound	\$35	250	+ Price metrics + quarterly hash-price drivers; 4 workbooks
Chainwarden	\$45	200	+ Monthly drivers + mining-premium UTXO + Enterprise UTXO API
Mining Oracle	\$55	150	+ Weekly drivers + enhanced price pro pack; deeper Enterprise use
Satoshi Sanctum	\$65	50	Full stack + daily drivers + Enterprise Pro raw output-level tables + council/voting positioning

Founding 50 is not a separate paid tier on the join ladder; it is an **additive privilege** for early members (API catalogue bonuses and, on Enterprise, extra metric themes / analytics where marked Founding50-only).

All tiers also include the non-API membership benefits listed on Patreon (episodes, newsletter, live Q&A, Discord, etc.). This document focuses on **API behaviour**.

3. GETTING STARTED (BOTH APIS)

3.1 Your API key

1. Join the appropriate Patreon tier.
2. Receive or generate your **API key** via the process described in your welcome / Discord ops notes.
3. Keep the key private. Treat it like a password.
4. If a key is leaked, revoke and re-issue through support.

3.2 Authentication

Enterprise API (and typically Core) accept:

- Query: ?api_key=YOUR_KEY or ?key=YOUR_KEY (as implemented on your account), and/or

- Header: X-API-Key: YOUR_KEY

Smoke test (Enterprise):

https://api.utxo-metrics-enterprise.kernowbitcoin.co.uk/api/v1/test?api_key=YOUR_KEY

Expect JSON confirming the API is up and echoing your tier email / tier name.

Root health page:

<https://api.utxo-metrics-enterprise.kernowbitcoin.co.uk/>

3.3 Date format

Always use **ISO dates**: YYYY-MM-DD (example: 2025-06-01). Do not use UK DD/MM/YYYY or US MM/DD/YYYY in query strings.

3.4 Tools you can use

- Browser (quick checks)
- Excel / Google Sheets
- Python (requests), R, Power BI, Tableau, curl / Postman for debugging

3.5 Private Charts – On the website

PATREON Subscription with Kernow Bitcoin opens up secure, API Key gated access to over 50 Private Charts via kernowbitcoin.co.uk/charts. Unlike the Free Sample Charts, there is no time range restriction in Months or Years. Use them as much as you want, whenever you want. The charts at kernowbitcoin.co.uk/charts are a reading of the same daily tables the API already serves. They are not a second database, and they are not a place where you paste SQL. A chart asks a documented route for rows, draws those rows, and throws the response away when you leave the page. Nothing on the website keeps a private copy of your pull. There are three doors, and they are not the same product.

Door	Who	What it draws	Where the numbers come from
Free charts	Anyone	Five Sample Charts, time range limited to the past two years from the current date: BTC Price with Adjusted Spent Output Profit Ratio, Market cap with Realized cap and MVRV Z-Score, Realized price for BTC / LTH / STH, Circulating supply with LTH/ STH, Supply In Profit too.	A published sample of the daily UTXO file. It starts on 18 August 2010, the first day with a price above zero, and it ends on the date printed on the axis. It moves only when Kernow Bitcoin publishes a new sample. It is not the live table.
Private charts	Any paid key that passes the check in 3.6	Over 30 Charts across Metrics of; Mining, Price, UTXO On Chain Data	Live JSON from the Core Kernow API, fetched by your browser when the page opens
Founding50 charts	A key the server recognises as one of the first fifty	Nine UTXO charts, listed in 3.10	Live JSON from dedicated Core chart routes. The full history is returned. The page then shows a short window of it.

Log scale is used on the long series so 2010 and the present can sit on one axis. A straight line on a log axis is a constant rate of change, not a constant number of dollars or coins. Where a chart has two units, it has two axes. The left axis is never asked to show both bitcoin and a ratio.

3.6 Private Charts – Access via API Key

1. Open <https://kernowbitcoin.co.uk/charts> in the browser. The page calls the API itself. If you are not on that site, the browser may be blocked before your key is even judged, and the message will say the browser could not read the API.

2. In the members box, paste the same API key you use in Excel or Python. The key is not written into the address. It is kept for this browser session only. Close the browser and you will be asked again. Do not put it in a screenshot, a shared sheet, or a chat.
3. The page sends that key to the Core surface as a short proof, not as a full history:

https://api.kernowbitcoin.co.uk/api/v1/getPriceMetrics/puell-and-miner-revenue?key=YOUR_KEY&start_date=YYYY-MM-DD&end_date=YYYY-MM-DD

Dates in that call are ISO, as in 3.3. The proof looks for real Puell rows inside the returned data array. A key that the API accepts, but which brings back no usable Puell column, is refused. You stay on the free page and the reason is printed under the box. A key that returns rows is let through, and the page shows the tier name the API sent back. Underscores in that name are shown as spaces.

1. You land on /private-charts. Every chart on that page uses the key already stored for the session. You do not append the key to each chart. If the session is empty, the page sends you back to the free charts rather than drawing an empty frame.

The check does not raise your tier, and it does not change the day caps on GetMiningMetrics, GetPriceMetrics or GetUTXOMetrics. Those caps still apply when you call the workbook routes yourself.

An additional 10x Private Charts are available to first fifty PATREON subscribers, aka those members who belong to the 'Founding50'. This is a bonus perk never offered to other tiers or members. Founding50 Private Charts currently encompass (more to follow);

1. **Spent Volume Age Bands**
2. **Dormant Supply Activation & Rejuvenation Ratio**
3. **HODL Waves as BTC & Bitcoin Price**
4. **Coin Maturity Gradient & Coin Dormancy**
5. **UTXO Entropy & Humpback Supply**
6. **UTXO Fragmentation & Liveliness**
7. **UTXO Velocity & Coin Dormancy**
8. **UTXO Realized Volatility & MVRV Z-Score**
9. **UTXO Profit Concentration & Net Unrealized Profit Loss**

3.7 Private Charts – How these are supplied

Each private chart is one HTTP GET from your browser to the Core base in 1.1. The response is JSON. The useful part is the data array: one object per day, ordered by date. The page **reads readable_date** or date, **accepts either YYYY-MM-DD or a UK DD/MM/YYYY if a column arrives that way**, and plots the numeric columns named below. An empty cell is a gap, not a zero. A row with no date is dropped. For example see how the 2 charts below would be displayed;

Chart	Route	Columns the drawing uses	Window
Hashrate 30-Day Average & Annual Hashrate Growth	/api/v1/getMiningMetrics	sma30_eh (exahashes per second), Annual_Hashrate_Growth, Annual_Hashrate_Growth_SMA30	The page asks for the last 500 days, then draws the 365 days that end on the newest row actually in the mining table. When that table gains a day, the window moves. No website file is updated.
Puell Multiple	/api/v1/charts/puell	puell_multiple, the five band flags puell_lt_0_5, puell_0_5_1, puell_1_2, puell_2_4, puell_ge_4, plus issuance_value and issuance_value_365dma in raw USD	Counted back from the newest Puell row in price_metrics, not from today. Alchemist 5 years, Hashhound 8, Chainwarden 11, Mining Oracle 14. Satoshi Sanctum sees the whole series. A tier name the server does not recognise is given 5 years, not the whole series.

Pass the key as key. Both chart calls require a paid key. The Puell route is a chart route on purpose. It does not inherit the day cap on the main price endpoint, and calling it does not change that cap for your workbooks. The bar colour is whichever band flag is set on that row. Under 0.5 is dark green, 0.5 to 1 is light green, 1 to 2 is yellow, 2 to 4 is orange, and 4 and above is red. The left axis runs from 0.20 to 8 on a log scale, so each doubling has the same height. A day above 8 stops at the top edge. Hover or tap still shows the real multiple. Issuance value is drawn in millions of USD on the right axis, with its 365-day average in white. The steel-blue line is the day, not the average.

Annual hashrate growth is a percent. A bar at 8 is an 8 percent rise on the year before. A bar under the dashed zero line is a fall. The navy line is only the 30-day average of hashrate, so the raw daily spikes are not on this chart.

3.8 Private Charts – How to Interpret including on Mobile

On a wide screen, move the pointer across the plot. The readout shows the date and every series on that day, in the units of that chart. Click and drag sideways to zoom into a stretch of dates. The axes then fit the readings inside that stretch, so a line is not cut off just because an older cycle was larger.

Once you are zoomed, the orange slider under the chart slides that same window earlier or later through the history the route returned. Double-click the plot, or press Reset, to come back to the window the chart opened on.

A phone has no hover. Tap a day. The same readout appears and stays until you tap another day. A sideways drag still zooms. A vertical swipe still scrolls the page. Lifting your finger does not wipe the readout.

If a route returns no rows, or returns rows without the column that chart needs, the page prints the HTTP reason, the row count, and the first column names. That is a failed pull, not an empty market. Try the same key in the browser against the smoke test in 3.2 before you assume the chart is wrong.

3.9 Private Charts – Founding50: an additional Layer

Founding50 is not a sixth paid tier. On the private-charts page there is a second box. The same key is checked again, this time against a single day of: `/api/v1/getUTXOMetrics/entropy-fragmentation-maturity-profit-rejuvenation`

A paid key that is not in the Founding50 set is refused. The message says the key is paid, and that those charts stay shut. **You cannot type a tier name, an ID, or a date to get past that.** The server decides from the key itself. A key that passes is kept for the session, separately from the private-charts key, and the page opens `/founding50-charts`.

Each of those charts is its own route under /api/v1/charts/. A paid Founding50 key is required. They do not change the day cap on GetUTXOMetrics. They return the precomputed UTXO history, not a four-month extract. The page is what shortens the view.

Chart	Route	What is drawn
Spent Volume Age Bands	charts/spent-volume-age-bands	Daily bitcoin spent, stacked from 1 to 3 months up to 10 years and over. Under 1 month is left off, because on a typical day it is almost all of the volume and it hides every older band. One axis.
Dormant Supply Activation & Rejuvenation Ratio	charts/dormant-supply-activation	The share of that day's movement which had already slept 1, 2, 3, 5 or 10 years. The line is the Rejuvenation Ratio, not the price.
HODL Waves as BTC & Bitcoin Price	charts/hodl-waves-absolute	Unspent bitcoin from 1 to 2 years, then 2 to 3, 3 to 5, 5 to 10, and 10 years and over. Coins under 1 year are not in this stack. Price is on the other axis.
Coin Maturity Gradient & Coin Dormancy	charts/coin-maturity-gradient	Age of what is still unspent, against the age of what was spent that day.

UTXO Entropy & Humpback Supply	charts/utxo-entropy	How mixed the unspent set is across output sizes, against bitcoin sitting in outputs of 10,000 BTC and over.
UTXO Fragmentation & Liveliness	charts/utxo-fragmentation	Whether the set is splitting into more outputs or joining into fewer, against liveliness.
UTXO Velocity & Coin Dormancy	charts/utxo-velocity	The day's pace of movement, against the age of the coins that moved.
UTXO Realized Volatility & MVRV Z-Score	charts/utxo-realized-volatility	How widely cost bases inside the unspent set are spread. This is not the price swinging. MVRV Z-Score is the other series.
UTXO Profit Concentration & Net Unrealized Profit Loss	charts/utxo-profit-concentration	Whether unrealized profit sits in a few cohorts, against the size of that unrealized profit or loss.

On a wide screen every Founding50 chart opens on the latest four months and will not show more than four months at once. Drag still zooms in. The slider still walks that window through the full history the route returned. Reset, or a double-click, brings back the latest four months. On a phone, only the first two — Spent Volume Age Bands and Dormant Supply Activation — open on the latest thirty days, and they cannot be opened wider than that. The other seven stay on the four-month rule. The two series on the paired charts are drawn as different marks, an area, columns, or a step, so you can tell them apart when they cross.

3.10 Private Charts – What these Charts will not do

A chart will not accept a SQL string, a column list, or a start date that you type. If you need a different date range, a different column, or a row-level extract, use the Core and Enterprise routes in sections 1 and 4, with start_date and end_date in YYYY-MM-DD. The free page will not update itself overnight. The private and Founding50 pages will, because they ask the live tables when you open them.