Kaiko

MIGRATION GUIDE

SVI Historical & Minutely

Amberdata → Kaiko

2026

www.kaiko.com

1 At a glance

What this endpoint gives you: for every listed expiry of BTC and ETH options on Deribit and OKX, this endpoint returns the calibrated **SVI smile parameters, in the Jump-Wings parameterization**, at each snapshot of the requested period, together with the market references used for the calibration (index price, forward price). Implied volatilities by delta are no longer returned. Amberdata's two endpoints, **SVI Historical** and **SVI Minutely**, become one Kaiko endpoint, **Mark IV SVI Parameters**, with an `interval` parameter:

Amberdata endpoint	Kaiko request
`.../volatility/svi-hourly` (SVI Historical)	`/mark-iv-svi-parameters?interval=1h` or `?interval=1d`
`.../volatility/svi-minutely` (SVI Minutely)	`/mark-iv-svi-parameters?interval=1m`

What changes for you

- You will call a new endpoint, `/analytics/volatility/mark-iv-svi-parameters`, using your Kaiko API key in the `X-Api-Key` header (§2).
- The frequency is now chosen with `interval`, which defaults to `1m` (every minute). SVI Historical returned daily rows by default: send `interval=1d` to keep them, or `1h` for hourly rows (§3).
- The Jump-Wings parameters (`atm_implied_variance` , `atm_skew` , `left_slope` , `right_slope` , `min_implied_variance`) replace the raw parameters (`sviA` , `sviB` , `sviM` , `sviRho` , `sviSigma`). You can rebuild the raw parameters exactly from them (§7).
- Kaiko calibrates SVI with its own published methodology: values change (§7).
- Implied volatilities by delta are no longer provided: SVI Historical's `call5` ... `call50` , `deltaPut05` and `put10` ... `put50` are discontinued (§5).
- The underlying is now expressed with two lowercase parameters: `currency=BTC` becomes `base_asset=btc` and `quote_asset=usd` . The `exchange` is required at every interval, and `deribit` becomes `drbt` . The `timeFormat` , `sviFormat` , `signature` and days-to-expiration parameters are removed (§3).
- `forwardDifference` is replaced by `underlying_price` , the forward itself, at every interval: `forwardDifference = underlying_price - index_price` (§5).
- Timestamps are now ISO 8601 strings, and `expiry` includes the expiry time (08:00 UTC), not only the date (§5).
- Expiries less than 1 day away are now calibrated. Parameters are returned for listed expiries only, never extrapolated (§7).

Coverage & distribution

Data type: SVI smile parameters (Jump-Wings), one row per snapshot and listed expiry

Model: SVI calibrated on the total implied variance of the exchange mark implied volatilities, Kaiko's published methodology

Snapshots: Every minute (`1m` , default), on each hour (`1h`) or at 00:00 UTC (`1d`)

Exchanges: Deribit and OKX options, BTC/USD and ETH/USD (§6)

History: From 12 February 2021 on Deribit and 16 April 2024 on OKX (first daily snapshot the next day)

Distribution: REST API

2 Endpoint & authentication

	Amberdata (today)	Kaiko (new)
Method	GET	GET
Base URL	`https://api.amberdata.com`	`https://api.kaiko.io`
Path	`/markets/derivatives/analytics /volatility/svi-hourly or /volatility/svi-minutely`	`/analytics/volatility /mark-iv-svi-parameters + interval`
Auth	API key header `x-api-key`	API key header `X-Api-Key` (your Kaiko key)

Header names are not case-sensitive: `x-api-key` and `X-Api-Key` are the same header, so only the key itself changes. **Versioning:** Amberdata reports its version in `payload.metadata.api-version` (`2023-09-30`). Kaiko takes an optional `api_version` query parameter (default and current `2026-10-01`) and returns it in `meta.api_version` .

3 Request parameters

This table covers the parameters of both Amberdata endpoints; a parameter that only one of them took is marked Historical or Minutely.

Amberdata param	Kaiko param	Change	Notes
`exchange` (required, Historical)	`exchange` (required)	RENAMED	`deribit` → `drbt` (§6). Now required for minute data too. Lowercase only.
`currency` (required)	`base_asset` + `quote_asset` (both required)	RENAMED	`BTC` → `btc` + `usd` , `ETH` → `eth` + `usd` . Lowercase only.
`startDate` (optional)	`start_time` (optional)	RENAMED	Included on both sides. ISO 8601 with a time zone.
`endDate` (optional)	`end_time` (optional)	RENAMED	Excluded on both sides. ISO 8601 with a time zone.
`timeInterval` (optional)	`interval` (optional)	RENAMED	Default `1m` . `minute` → `1m` , `hour` → `1h` , `day` → `1d` . Amberdata's defaults: `day` on Historical, `minute` on Minutely.

Amberdata param	Kaiko param	Change	Notes
`daysToExpirationStart`, `daysToExpirationEnd` (optional, Historical)	None	REMOVED	Filter the response on `days_to_expiry` instead.
`sviFormat` (optional)	None	REMOVED	`DTE` (default) or `TAU`. Not needed: the Jump-Wings parameters are annualized, and the time to expiry is in `days_to_expiry`.
`timeFormat` (optional)	None	REMOVED	Kaiko times are always ISO 8601 strings. Amberdata's default here was epoch milliseconds.
`signature` (optional, Minutely)	None	REMOVED	ECDSA signature option, not available on Kaiko.
None	`sort` (optional)	NEW	`desc` (default, newest first, as on Amberdata) or `asc`. Expiries ascending within a snapshot.
None	`api_version` (optional)	NEW	Pins the response format. Default `2026-10-01`.

Window, sampling and limits

- **Boundary, the same as on Amberdata:** the window is `[start_time, end_time)`, so the snapshot at `start_time` is included and the one at `end_time` is not.
- **Sampling:** `1m` returns every minute (SVI Minutely was every 5 minutes). `1h` returns the snapshot stamped on each hour (`hh:00`) and `1d` the one stamped 00:00 UTC, as SVI Historical's `hour` and `day` did. These are the same rows as the `1m` rows stamped at those times.
- **Defaults:** if you include no dates, you receive the latest snapshot. With only `start_time`, the window runs until now. With only `end_time`, you receive the one `interval` before it. A `start_time` equal to `end_time` returns a 400 error, so for one snapshot, simply send `end_time` alone.
- **Limits:** a request covers up to 24 hours at `1m`, 60 days at `1h` (SVI Historical: 90 days) and 1,440 days at `1d` (SVI Historical: 3,660 days). A wider window returns a 400 error naming the cap, so you can split a longer history into several requests. The whole window comes in one response, without pagination.
- **Time format:** ISO 8601 with a time zone and at most millisecond precision, for example `2026-10-29T12:00:00.000Z`. Amberdata also accepted a time without a zone; Kaiko returns a 400 error in that case, and for a precision finer than the millisecond.

4 Response envelope & metadata

The fields around the data, the wrapper your parser reads before reaching the numbers. This envelope is **identical on every Amberdata endpoint**.

Amberdata field	Kaiko field	Change	Notes
`status`	None	REMOVED	Use the HTTP status code (200).
`title`	None	REMOVED	No equivalent on success.
`description`	None	REMOVED	No equivalent on success.

Amberdata field	Kaiko field	Change	Notes
`payload.data`	`data`	RENAMED	Top level. **Array**, one row per snapshot and expiry.
`payload.metadata`	`meta`	RENAMED	Top level.
`api-version`	`api_version`	RENAMED	`2026-10-01` (Amberdata: `2023-09-30`).
None	`count`	NEW	Rows in `data`.
None	`next_url`	NEW	Always `null` (one page).
None	`url`	NEW	Your request URL, with `api_version`.

At Amberdata, `api-version` sits inside `payload.metadata`. At Kaiko, `api_version`, `count`, `next_url` and `url` sit inside `meta`.

Errors and empty results

- **Underlying not served:** Amberdata returned a 400 error ("unsupported currency for SVI"), while Kaiko returns a **404** error with the code `unknown_instrument` (for example "drbt does not serve doge-usd").
- **Uppercase values or Amberdata codes:** Amberdata accepted both `BTC` and `btc`, while Kaiko returns a **400** error (for example for `BTC`, `deribit` or `interval=hour`).
- **No snapshot in the window:** you receive a 200 response with an empty `data` array.
- **Missing key:** Kaiko returns a **401** error with the code `missing_api_key`.
- **Missing or invalid parameter:** both APIs return a 400 error. Kaiko errors are `application/problem+json` (RFC 9457) bodies with `status`, `title`, a `detail` message naming the parameter, and the code `invalid_parameter`.

5 Response data fields

This table covers the fields of both Amberdata endpoints; a field that only one of them returned is marked Historical or Minutely. Kaiko returns one row per snapshot and listed expiry, with the same fields at every interval.

Amberdata field	Kaiko field	Type	Change
`timestamp`	`value_time`	string	RENAMED
`exchange` (Historical)	None	string	REMOVED
`currency`	None	string	REMOVED
`expirationTimestamp`; `expiry` (Minutely)	`expiry`	string	RENAMED
`daysToExpiration`; `dte` (Minutely)	`days_to_expiry`	number	RENAMED
`indexPrice`	`index_price`	number	RENAMED
`underlyingPrice` (Historical)	`underlying_price`	number	RENAMED
`forwardDifference`	None	number	REMOVED
`sviA`, `sviB`, `sviM`, `sviRho`, `sviSigma`	None	number	REMOVED

Amberdata field	Kaiko field	Type	Change
None	`atm_implied_variance`	number	NEW
None	`atm_skew`	number	NEW
None	`left_slope`	number	NEW
None	`right_slope`	number	NEW
None	`min_implied_variance`	number	NEW
`call5` , `call10` ... `call50` (Historical)	None	number	REMOVED
`deltaPut05` , `put10` ... `put50` (Historical)	None	number	REMOVED

- **value_time:** the snapshot time, in ISO 8601 (`"2026-10-29T12:00:00.000Z"`). Amberdata returned epoch milliseconds by default (`1793275200000`).
- **exchange, currency:** these are no longer repeated in the rows. They are in your request and in `meta.url` .
- **expiry:** the full expiry timestamp, in ISO 8601 with its time of day (08:00 UTC on Deribit), for example `"2026-10-31T08:00:00.000Z"` , where Amberdata returned the date only (`"2026-10-31"`).
- **days_to_expiry:** the fractional calendar days from `value_time` to `expiry` (for example `1.8333`), below 1 for an expiry within the day.
- **index_price, underlying_price:** the index (spot) price and the forward of the expiry that the calibration used, in `quote_asset` . `underlying_price` is returned at every interval and replaces `forwardDifference` : `forwardDifference = underlying_price - index_price` .
- **The five Jump-Wings fields:** `atm_implied_variance` (v) is the at-the-money implied variance, annualized; `atm_skew` (ψ) the at-the-money skew; `left_slope` (p) the slope of the put wing; `right_slope` (c) the slope of the call wing; `min_implied_variance` (ṽ) the minimum implied variance, annualized.
- **sviA, sviB, sviM, sviRho, sviSigma:** these are removed. You can rebuild the raw parameters exactly from the five Jump-Wings fields (§7), on Kaiko's calibration.

Units: the variances are annualized decimals, not percent: for example, `0.0790` is a 28.1% volatility squared. The slopes and the skew have no unit.

Implied volatility by delta is discontinued

SVI Historical's `call5` ... `call50` , `deltaPut05` and `put10` ... `put50` are not returned by Kaiko, at any interval. For implied volatilities from the same SVI calibration, we suggest calling `/analytics/volatility/mark-iv-moneyness-surfaces` , which returns the implied volatility at fixed moneyness levels. If your workflow uses these fields, or if you have any request about this change, please do not hesitate to contact us at support@kaiko.com.

6 Exchange & venue names

SVI Historical took `exchange=deribit` , while SVI Minutely had no exchange parameter. Kaiko asks for the exchange at every interval. Map the exchange and the currency you send as follows:

Amberdata exchange	Amberdata currency	Kaiko exchange	base_asset	quote_asset	History from
deribit	BTC	drbt	btc	usd	Feb 2021
deribit	ETH	drbt	eth	usd	Feb 2021
None	None	okex	btc	usd	Apr 2024
None	None	okex	eth	usd	Apr 2024

`drbt` and `okex` are Kaiko's codes for Deribit and OKX. Uppercase values and Amberdata's code `deribit` return a 400 error.

Coverage as of today: these are the underlyings served today, and our teams are working to extend this coverage.

7 Will your values change?

Short answer

Yes. The SVI parameters are calibrated with a different methodology and returned in a different parameterization (Jump-Wings instead of raw). You can rebuild the raw parameters exactly from Kaiko's output, but they will not equal Amberdata's, because the calibration differs. Implied volatilities by delta are no longer provided.

- **Calibration methodology:** Kaiko calibrates Gatheral's SVI model on the **total implied variance** $\omega(\tau, k) = \sigma^2(k) \times \tau$, at each snapshot t and for each listed expiry T, where $\tau = T - t$ is the time to maturity, $k = \ln(K / F)$ the forward log-moneyness and σ the exchange mark implied volatility. The calibration follows Kaiko's published methodology (Kaiko quantitative white papers, paper on HAL, hal-03715921).
- **Amberdata's calibration:** Amberdata calibrated on the **squared volatility** σ^2. Its parameters are therefore on a different scale from the standard SVI definition (Gatheral and Jacquier, Arbitrage-free SVI volatility surfaces): the raw SVI formula with Amberdata's `sviA` ... does not give the same smile as with the raw parameters rebuilt from Kaiko's output.
- **Why Jump-Wings:** each parameter has a direct market meaning, namely the at-the-money variance, the at-the-money skew, the put-wing slope, the call-wing slope and the minimum variance. Unlike the raw parameters, they also scale naturally across expiries.

Rebuilding the raw SVI and the smile

With τ = `days_to_expiry` / 365 in years, F = `underlying_price`, $k = \ln(K / F)$, and $(v, \psi, p, c, \tilde{v})$ = (`atm_implied_variance`, `atm_skew`, `left_slope`, `right_slope`, `min_implied_variance`), let $w = v\,\tau$ (the at-the-money total variance). The raw parameters (a, b, m, ρ, σ) are, in this order:

Step	Formula
b	$b = (\sqrt{w} / 2) \times (c + p)$
ρ	$\rho = 1 - p\,\sqrt{w} / b$
β, α	$\beta = \rho - 2\,\psi\,\sqrt{w} / b, \quad \alpha = \text{sign}(\beta) \times \sqrt{(1 / \beta^2 - 1)}$
m	$m = (v - \tilde{v})\,\tau / (b \times [-\rho + \text{sign}(\alpha)\,\sqrt{(1 + \alpha^2)} - \alpha\,\sqrt{(1 - \rho^2)}])$
σ	$\sigma = \alpha\, m$

Step	Formula
a	$a = \tilde{v}\,\tau - b\,\sigma\,\sqrt{(1 - \rho^2)}$
Smile	$\omega(k) = a + b \times [\,\rho\,(k - m) + \sqrt{((k - m)^2 + \sigma^2)}\,]$, implied volatility $= \sqrt{(\omega(k) / \tau)}$

- **Units:** the Jump-Wings variances are annualized decimals (`0.0790`), not percent.
- **Frequency:** the default is one snapshot per minute (SVI Minutely was every 5 minutes). `1h` and `1d` return the snapshots stamped on each hour and at 00:00 UTC.
- **Expiry timestamp:** it includes the time (08:00 UTC), not only the date.
- **Expiry life cycle:** a new expiry appears shortly after Deribit lists it. An expiring series stops shortly before 08:00 UTC on its expiry date.
- **Maturity range:** expiries less than 1 day away are calibrated, which Amberdata did not provide. There is no extrapolation: parameters are returned for listed expiries only, never below the closest expiry or above the farthest one.

8 Before / after examples

Hourly: request

Amberdata (SVI Historical)

```
GET https://api.amberdata.com
    /markets/derivatives/analytics
    /volatility/svi-hourly
    ?exchange=deribit
    &currency=BTC
    &startDate=2026-11-05T12:00:00
    &endDate=2026-11-05T13:00:00
    &timeInterval=hour
x-api-key: <your-amberdata-key>
```

Kaiko

```
GET https://api.kaiko.io
    /analytics/volatility
    /mark-iv-svi-parameters
    ?exchange=drbt
    &base_asset=btc
    &quote_asset=usd
    &start_time=2026-11-05T12:00:00.000Z
    &end_time=2026-11-05T13:00:00.000Z
    &interval=1h
    &api_version=2026-10-01
X-Api-Key: <your-kaiko-key>
```

Hourly: response (real responses, 12:00 snapshot, values rounded, fields reordered; 6 Nov expiry not in Amberdata)

Amberdata (SVI Historical)


```
{
  "status": 200,
  "title": "OK",
  "description": "Successful request",
  "payload": {
    "data": [
    {
      "timestamp": 1793880000000,
      "exchange": "deribit",
      "currency": "BTC",
      "expirationTimestamp": "2026-11-07",
      "daysToExpiration": 1.83,
      "indexPrice": 80301.29,
      "underlyingPrice": 80327.29,
      "forwardDifference": 26,
      "sviA": -0.97325259,
      "sviB": 6.96119547,
      "sviM": -0.00976759,
      "sviRho": -0.06061996,
      "sviSigma": 0.15766309,
      "call5": 41.58, "call10": 38.46,
      "call15": 37.20, "call20": 36.50,
      "call25": 35.91, "call30": 35.46,
      "call35": 35.29, "call40": 35.15,
      "call45": 34.99, "call50": 34.96,
      "deltaPut05": 41.66, "put10": 38.70,
      "put15": 37.30, "put20": 36.20,
      "put25": 35.91, "put30": 35.44,
      "put35": 35.27, "put40": 35.04,
      "put45": 34.98, "put50": 34.96
    },
    … 10 more expiries, to 2027-09-24
    ],
    "metadata": {
      "api-version": "2023-09-30"
    }
  }
}
```


Kaiko


```
{
  "data": [
  {
    "value_time": "2026-11-05T12:00:00.000Z",
    "expiry": "2026-11-06T08:00:00.000Z",
    "days_to_expiry": 0.8333,
    "index_price": 80306.38,
    "underlying_price": 80331.19,
    "atm_implied_variance": 0.13785450,
    "atm_skew": 0.03049093,
    "left_slope": 0.94923617,
    "right_slope": 0.56353000,
    "min_implied_variance": 0.13639131
  }, {
    "value_time": "2026-11-05T12:00:00.000Z",
    "expiry": "2026-11-07T08:00:00.000Z",
    "days_to_expiry": 1.8333,
    "index_price": 80306.38,
    "underlying_price": 80334.59,
    "atm_implied_variance": 0.12253863,
    "atm_skew": 0.00688977,
    "left_slope": 0.94098351,
    "right_slope": 0.71935624,
    "min_implied_variance": 0.12248779
  },
  … 10 more expiries, to 2027-09-24
  ],
  "meta": {
    "api_version": "2026-10-01",
    "count": 12,
    "next_url": null,
    "url": "https://api.kaiko.io/analytics/
volatility/mark-iv-svi-parameters?
exchange=drbt&base_asset=btc&quote_asset=usd&start
_time=2026-11-05T12%3A00%3A00.000Z&end_time=2026-1
1-05T13%3A00%3A00.000Z&interval=1h&api_version=202
6-10-01"
  }
}
```


Minutely: request (Amberdata: one snapshot on its 5-minute grid; Kaiko: every minute)

Amberdata (SVI Minutely)

```
GET https://api.amberdata.com
    /markets/derivatives/analytics
    /volatility/svi-minutely
    ?currency=BTC
    &startDate=2026-11-05T12:00:00
    &endDate=2026-11-05T12:05:00
x-api-key: <your-amberdata-key>
```

Kaiko

```
GET https://api.kaiko.io
    /analytics/volatility
    /mark-iv-svi-parameters
    ?exchange=drbt
    &base_asset=btc
    &quote_asset=usd
    &start_time=2026-11-05T12:00:00.000Z
    &end_time=2026-11-05T12:05:00.000Z
    &interval=1m
X-Api-Key: <your-kaiko-key>
```

Questions? Kaiko support · support@kaiko.com

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