

CoinDesk Benchmark Reference Rates Methodology

January 2026

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Introduction

This document provides the methodology for the calculation of CoinDesk Benchmark Reference Rates (referred to herein as “Benchmark Reference Rates”)¹, which provide:

- **Benchmark pricing** for single-asset investment products,
- **Constituent pricing** for multi-asset indices², and
- **Reference and settlement prices** for derivatives.

Benchmark Reference Rates are calculated and published as **spot rates** and **settlement rates**.

- **Spot rates** reflect spot prices and are calculated and published once every five seconds.
- **Settlement rates** reflect a one-hour volume-weighted average price (VWAP) of the spot rates, calculated at the top of each hour, with intermediate values published once every five seconds. Daily settlement rates are also published at 4pm London time, 4pm New York time and other times as needed.

In order to reflect liquidity conditions in the digital asset market, Benchmark Reference Rates incorporate fiat and stablecoin trading pairs. There are two tiers of Benchmark Reference Rates, each assigned based on the exchange listing and liquidity profiles of the underlying digital asset³:

- **CoinDesk Benchmark Rates**⁴ incorporate /USD and /USDC pairs with stricter requirements for contributing exchanges, listing jurisdictions, and trading volume. These rates generally support the largest and most liquid digital assets and provide constituent pricing for the **CoinDesk 20** family of indices and other multi- and single-asset products as needed.
- **CoinDesk Benchmark Extended Rates**⁵ incorporate /USD, /USDC and /USDT pairs with fewer restrictions. These rates support digital assets in the **CoinDesk 80 Index** and other multi- and single-asset products as needed.

¹ CoinDesk Indices (“CDI”) calculates and maintains Benchmark Reference Rates to support their respective objectives, as defined in this document. Unless otherwise stated, each Benchmark Reference Rate described herein is administered, calculated and maintained by CDI’s affiliate, CC Data Limited (“CCData”), an FCA regulated benchmark administrator. References to CDI in this methodology shall be deemed to include CCData. There may be circumstances or market events which require CDI, in its sole discretion, to deviate from rules stated herein to ensure each Benchmark Reference Rate continues to meet its Objective. This document should be read in conjunction with the CoinDesk Digital Asset Indices Policy [Methodology](#).

² The CoinDesk 20 family of indices (CoinDesk 5, 10, 20 and variants thereof), the CoinDesk 80 Index and the CoinDesk 100 Index are among those that use Benchmark Reference Rates.

³ CDI may, in certain cases, support calculation of both tiers of rates for certain digital assets.

⁴ Formerly known as “CCIXber” rates.

⁵ Formerly known as “CCIXbe” rates.

Objective

The objective of Benchmark Reference Rates is to provide representative prices of digital assets denominated in USD. **Spot rates** seek to provide representative spot prices. **Settlement rates** seek to provide representative prices reflecting a one hour, volume-weighted averaging period.

Exchange Eligibility Universe

CoinDesk Benchmark Reference Rates base calculations on traded values from centralized digital asset exchanges (CEXs). The universe of exchanges eligible to contribute (each, an “Eligible Exchange”) is defined in the [CoinDesk Exchange Eligibility Methodology](#).

The CoinDesk Exchange Eligibility Methodology also contains the following definitions and designations referenced below [see Exchange Requirements and Digital Asset Requirements].

- US Licensure and Global Licensure
- Excluded Exchanges
- Grades and scores from the Exchange Benchmark report⁶

⁶ The Exchange Benchmark is produced and distributed by CoinDesk Data. For more information on the Exchange Benchmark, visit [here](#).

Additional Exchange Requirements

In addition to being an Eligible Exchange, as defined above, each Benchmark Reference Rate has additional requirements⁷ for exchanges to be considered to contribute.

Additional Exchange Requirements

CoinDesk Benchmark Rates	CoinDesk Benchmark Extended Rates
Exchange Benchmark score. Exchanges must be among the 15 highest scoring exchanges in the most recent Exchange Benchmark report. Exchanges that do not currently contribute must be among the 12 highest [see Maintenance]. Global Licensure. Exchanges must meet the definition of Global Licensure.	All Eligible Exchanges
Excluded Exchanges. Ineligible to contribute to Benchmark Reference Rates.	

Eligible Pairs

The trading pairs indicated are eligible to contribute to an applicable Benchmark Reference Rate. Each is an Eligible Pair.

Eligible Pairs

CoinDesk Benchmark Rates	CoinDesk Benchmark Extended Rates
/USD, /USDC	/USD, /USDC, /USDT

The current list of exchanges that meet these requirements is posted [here](#).

⁷ Meeting these requirements does not guarantee that any individual exchange will contribute to a Benchmark Rate.

Digital Asset Requirements

Each underlying digital asset must meet the following listing and liquidity requirements⁸ to support an applicable Benchmark Reference Rate, as indicated.

Listing Requirements

CoinDesk Benchmark Rates	CoinDesk Benchmark Extended Rates
The digital asset must be listed in at least one Eligible Pair on a minimum of three exchanges with sufficient listing history to meet the Volume Requirements defined below.	
At least one listing is on an exchange with US Licensure.	

Volume Requirements

CoinDesk Benchmark Rates	CoinDesk Benchmark Extended Rates
At least one Eligible Pair must have traded on each of the 30 days prior to evaluation on three or more exchanges [see Maintenance]. ⁹	
The asset must maintain an aggregate minimum 30-day median daily value traded (MDVT) on exchanges and pairs that meet the respective requirements of the CoinDesk Benchmark Rate or CoinDesk Benchmark Extended Rate. This MDVT threshold is maintained by CDI and evaluated periodically based on market conditions.	

Contributing Pairs

For each underlying digital asset that meets the applicable Digital Asset Requirements, Contributing Pairs are Eligible Pairs on exchanges that meet the Exchange Requirements defined above. Contributing Pairs must also meet and maintain certain characteristics that are evaluated during scheduled monthly reviews [see Maintenance].

Exchanges on which Contributing Pairs are listed are designated Contributing Exchanges.

⁸ Listing and liquidity requirements must be met on exchanges which meet the applicable Exchange Requirements defined above.

⁹ CDI may, in certain cases, create new Benchmark Reference Rates for more recently listed assets that demonstrate consistent trading volume.

Calculation

Spot Rate Calculation

Spot rates are calculated and published every 5 seconds by gathering the most recent traded price for each Contributing Pair. Each Contributing Pair is then weighted based on its trailing 24-hour volume¹⁰ divided by the aggregate 24-hour volume of all Contributing Pairs. Contributing Pair weights are also subject to outlier detection and penalized for inactivity (staleness) as defined below. Stablecoin pairs are converted to USD using a similar calculation.

With respect to each applicable underlying digital asset, spot rates are calculated as follows:

$$S_t = \sum_u^U p_{u,t} \cdot w_{u,t} \cdot FX_{u,t}$$

Where:

S_t is the calculated spot rate at time t ,

u is a Contributing Pair of the underlying digital asset,

U represents all Contributing Pairs of the underlying digital asset,

$p_{u,t}$ is the most recent traded price of Contributing Pair u at time t ,

$w_{u,t}$ is the assigned weight of Contributing Pair u at time t , as defined below,

$FX_{u,t}$ is the rate to convert Contributing Pair u , if a stablecoin pair¹¹, to a USD pair, as defined below.

¹⁰ 24-hour volume is the sum of the volume for the last 23 calendar hours and the cumulative volume from the current calendar hour.

¹¹ If the quote currency of Contributing Pair_u is USD, $FX_{u,t}$ is equal to 1.

$FX_{u,t}$ is a spot rate of an applicable stablecoin /USD pair at time t , calculated in a similar manner as spot rates described above¹². The calculation is as follows:

$$FX_{u,t} = \sum_e^E p_{s,e,t} \cdot w_{s,e,t}$$

Where:

$FX_{u,t}$ is the applicable conversion rate for Contributing Pair u ,
 e is a Contributing Exchange for the underlying stablecoin pair,
 E represents all Contributing Exchanges for the underlying stablecoin pair,
 $p_{s,e,t}$ is the last traded price of the underlying stablecoin pair s on exchange e at time t ,
 $w_{s,e,t}$ is the weight of stablecoin pair s on exchange e at time t as defined below.

$w_{u,t}$ and $w_{s,e,t}$ are weights calculated and assigned to any Contributing Pair u and any stablecoin pair s , respectively (each referred to below as an “underlying pair”), reflecting:

1. The trailing **24-hour volume**¹³ of the underlying pair, as defined below,
2. The application of an **Outlier Detection Factor** which sets the weight of a price observation to 0 (zero) if the price deviates by more than 5% from the previous applicable value,
3. The application of a **Time Penalty Factor** used to reduce the influence of less recent price observations, as defined below.

$w_{u,t}$ and $w_{e,s,t}$ are calculated using the following formula:

$$w_t = \frac{V_t \cdot ODF_t \cdot TPF_t}{\sum V_t \cdot ODF_t \cdot TPF_t}$$

Where,

w_t is the weight assigned ($w_{u,t}$ or $w_{e,s,t}$) at time t ,
 V_t is the 24-hour volume of the underlying pair at time t ,
 ODF_t is the Outlier Detection Factor for the underlying pair at time t ,
 TPF_t is the Time Penalty Factor for the underlying pair at time t ,
 Σ represents the summation of all underlying pairs.

¹² Contributing Exchanges for stablecoin/USD spot rates are determined utilizing the Exchange Eligibility Universe and Additional Exchange Requirements rules for CoinDesk Benchmark Rates as defined above.

¹³ 24-hour volume is the sum of the volume for the last 23 hours and the cumulative volume from the current calendar hour measured in units of the base currency.

The **Outlier Detection Factor (ODF)** is calculated in reference to a price observation of an underlying pair, based on its ratio to the most recently calculated respective spot rate:¹⁴

Ratio of Underlying Pair Prices to Spot Rate	ODF
Underlying pair price $> 1.05 \times$ spot rate (upside outlier) - or - Underlying pair price $\times 1.05 <$ spot rate (downside outlier)	0
Otherwise	1

The **Time Penalty Factor (TPF)** is calculated in reference to a price observation of an underlying pair, based on the elapsed time since the most recent observed price of that underlying pair, is determined as follows:

Elapsed time	TPF
Less than 5 minutes	1
Greater than or equal to 5 and less than 10 minutes	0.8
Greater than or equal to 10 and less than 15 minutes	0.6
Greater than or equal to 15 and less than 20 minutes	0.4
Greater than or equal to 20 and less than 25 minutes	0.2
Greater than or equal to 25 minutes	0.001

¹⁴ In cases where *all* observed values are outliers, and no observed values are inliers, then outlier values will be used for the calculation (i.e., assigned an Outlier Detection Factor of 1, rather than 0). If the number of downside outliers is greater than the number of upside outliers, downside outlier values are used; otherwise, upside outlier values are used for the calculation.

Settlement Rate Calculation

Settlement Rates provide a corresponding settlement value to spot rates, reflecting a one-hour volume-weighted averaging price (VWAP) of the respective spot rate, calculated at the top of each hour, with intermediate values published once every five seconds¹⁵.

Settlement rates multiply, for each 5-second period, the calculated spot rate by the total volume of all Contributing Pairs¹⁶. The sum of those products is divided by the total volume of all Contributing Pairs during the hour (or, for intermediate calculations, the total volume since the beginning of the hour). The formula to calculate settlement rates is as follows:

$$ST_T = \frac{\sum_{t=1}^T S_t \cdot V_t}{V_T}$$

Where:

ST_T is the calculated settlement rate for the averaging period up to elapsed time T ¹⁷,

t represents each 5 second intervals beginning at the top of the hour,

S_t is the corresponding spot price at time t ,

V_t is the total volume traded across all Contributing Pairs during the 5 second interval t ,

V_T is the total volume traded across all Contributing Pairs up to elapsed time T .

¹⁵ Daily settlement rates are also published at 4pm London time, 4pm New York time and other times as needed.

¹⁶ For the avoidance of doubt, the product calculated is the spot rate published at the *end* of each 5 second interval multiplied by the total volume of all Contributing Pairs *during* that 5 second interval.

¹⁷ During a calendar hour, the settlement rate calculation is performed once every five seconds. T represents the elapsed time since the beginning of the hour in 5 second increments. At the close of each hour, when the hour's settlement rate is published, $T = 720$.

Maintenance

Benchmark Reference Rates and their inputs are reviewed monthly and on an ad hoc basis as needed. The monthly review comprises the following:

1. If the Exchange Benchmark has been updated¹⁸, a review and update of **Eligible Exchanges**, including reselection of exchanges eligible to contribute to Benchmark Reference Rates [see Exchange Eligibility Universe and Additional Exchange Requirements],
2. A review and update of **listings, delistings, and liquidity** of applicable digital assets,
3. Evaluation of **Contributing Pairs** for all applicable underlying digital assets,
4. **Retirement** of Benchmark Reference Rates which **no longer meet applicable requirements**.

Evaluation of Contributing Pairs

Contributing Pairs, as defined above, are Eligible Pairs on exchanges that meet the Exchange Requirements on underlying digital assets that meet the Digital Asset Requirements. Contributing Pairs must also meet additional criteria to be included in Benchmark Reference Rate calculations. These additional criteria, evaluated during each monthly review, evaluate:

- The **liquidity** of the Contributing Pair,
- The **deviation** of each Contributing Pair from all other Contributing Pairs of the respective underlying digital asset,
- The **price impact** of each Contributing Pair on the applicable Benchmark Reference Rate, based on its liquidity and deviation.

The process to evaluate Contributing Pairs is reviewed on a periodic basis and updated if necessary. Additional details of the evaluation process for Contributing Pairs is available upon request.

Review of Benchmark Reference Rates

Additions

To support multi-asset indices and single asset financial products, and otherwise as needed, CDI will commence calculation and publication of Benchmark Reference Rates on digital assets which meet the Digital Asset Requirements defined above. Benchmark Reference Rates can be added during the monthly review process, or otherwise as needed.

¹⁸ The Exchange Benchmark is generally published twice a year. If there has been no update to the Exchange Benchmark since the prior monthly review, the list of Eligible Exchanges is carried over from the previous monthly review.

Retirements

CDI may discontinue the calculation and publication of a Benchmark Reference Rate if:

- The underlying digital asset no longer meets the Digital Asset Requirements defined above, or,
- The underlying digital asset is no longer used to support a multi-asset index or other single asset financial product.

Schedule of Monthly Review

The monthly review is conducted and communicated on the following schedule:

1. **Reference Date.** This is the snapshot date for data used to perform the monthly review. This is the first Tuesday of each month.
2. **Announcement Date.** This is the date on which changes to Contributing Pairs are announced. This is the second Tuesday of each month, or if not a business day, the following business day.
3. **Effective Date.** The date on which the changes become effective. This is the third Tuesday of each month, or if not a business day, the following business day.

Monthly Review Example

Activity	Timing	Example
Reference Date	First Tuesday of the Month	Jan 6th, 2026
Announcement Date	Second Tuesday of the Month, or if not a business day, the following business day	Jan 13th, 2026
Effective Date	Third Tuesday of the Month, or if not a business day, the following business day	Jan 20th, 2026

Governance

Pursuant to CDI's arrangement with its affiliate CCData to perform administration and calculation services, the Benchmark Reference Rates are subject to CCData's governance and oversight functions.

The Technical Committee is the committee that carries out reviews of the Benchmark Reference Rates and passes recommendations on reviews and methodology changes to the CCData Benchmark Oversight Committee for review.

The CCData Benchmark Oversight Committee is the sovereign body, responsible for the administration of the Benchmark Reference Rates. CCData is authorized by the FCA as an administrator of significant and non-significant benchmarks.

For more details, see [here](#).

Appendix 1: Data Sources

Data used to maintain and review the CoinDesk Benchmark Rates, including digital asset pricing and volume data, are sourced from CoinDesk Data.

Appendix 2: Methodology Changes

The table below is a summary of modifications to this Methodology.

Effective Date	Prior Treatment	Updated Treatment	Material Change
Jan 2026	Reference Rates referred to as CCIX Blended Rates: -CCIXber -CCIXbe	Reference Rates renamed to the CoinDesk Benchmark Rates: -CoinDesk Benchmark Rates -CoinDesk Benchmark Extended Rates	No

Appendix 3: Document Revision History

Date	Description
Jan 14, 2026	Initial version ¹⁹ Annual Review including minor edits and clarifications including renaming to CoinDesk Benchmark Rates

¹⁹ The CoinDesk Benchmark Rates were formerly referred to as the CCIX Blended Rates (CCIXber and CCIXbe). These indices were renamed and standardized into the CoinDesk methodology format. The prior version of the methodology can be found [here](#).

Disclaimer

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