Crypto.com Exchange Smart Cross Margin Enhancement Highlights and Guide

Last update: Sep 1, 2023
The Crypto.com Exchange will soon introduce the following risk enhancements to improve your trading experience. The effective date will be shared as soon as possible. These enhancements will be implemented without any interruptions to trading services.

Summary of Changes

A. Boost capital efficiency on USD exposure → Remove margin requirement on negative USD balances

Negative USD balances will no longer incur an Initial Margin (IM) or Maintenance Margin (MM) requirement. However, negative USD balances will continue to incur interest charges.

- For derivatives trading (e.g., Futures and Perpetual Contracts), this means that losses during settlement will not lead to an increased margin requirement.
- For margin trading on Spot pairs (e.g., BTC/USD), margin requirement will be calculated on the base token's exposure only.

B. Symmetric margin requirement for long and short exposure → Introduction of a Minimum Haircut Rate

To align our risk management system with established industry standards, we will introduce a **Minimum Haircut Rate** concept to replace the current Maximum Collateral Weight concept. (See Appendix)

- This haircut requirement will be comparable to the position IM requirement. If a short BTC position is subject to a 10% position IM requirement, a long BTC position will also be subject to a 10% haircut requirement.
- The haircut will no longer be deducted from the user's Margin Balance. Instead, it will be added to the user's Margin Requirement (see details in "Key Changes" section below). This leads to a higher liquidation buffer for users.

C. Control Account Leverage without incurring excessive margin requirements → Remove Maximum Account Leverage settings from margin requirement calculation

Maximum Account Leverage (MAL) is defined by the user to specify their risk appetite for a particular account.

- MAL will no longer contribute to the IM and MM requirement. Whether an account will be liquidated will now be based purely on the portfolio's risk profile instead of the user's risk appetite.
- The system will reject further risk-increasing orders when the portfolio's effective leverage exceeds the user's MAL.

Please refer to the "Examples" section below for illustrations of changes.

Will there be any changes to my asset balances and open positions?

These changes **do not** cause any material impact or changes to your positions and Wallet health.

- Your effective Available Balance, Position IM Requirements, and Wallet Risk Health will remain largely unchanged.
- Most users will experience an increase in their available balance because of the removal of the USD margin requirement and the adjustment of the haircut rate.
- Some users may have a slightly reduced available balance if they are holding collateral assets that bear an increased haircut rate. Please refer to the Appendix for more details.

We strongly advise all users to review the upcoming definition and formula changes for a seamless transition.

Key Changes

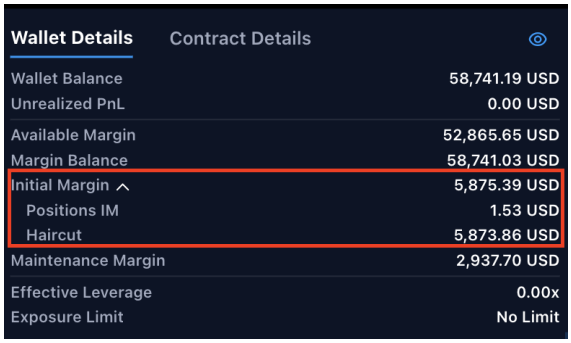
Terms not mentioned here will remain unchanged.

Terms	Current	Change
Margin Balance	The USD value (after adjusting for haircut) you possess to support all open positions and open orders in your Wallet. Margin Balance = Wallet Balance - Non-Eligible Collateral Balance - Collateral Haircut + Unrealised PnL - Fee Reserves	The USD value of the eligible collateral asset balance to support open positions, open orders, and risk assets holdings in your Wallet. Margin Balance (new) = Positive cash balance on eligible collateral tokens + Negative balance on all tokens + Unrealised PnL - Fee reserves **Cash balance excludes staking or reserved quantity*
Initial Margin	Initial Margin comprises Position IM only Initial Margin = Position IM	Initial Margin comprises Position IM and Collateral Haircut. It represents the total margin requirement to support all your open positions, open orders, and risk asset holdings. Initial Margin = Position IM + Collateral Haircut
Position IM	Margin requirement to support open positions and orders. See the detailed position IM calculation on the Smart Cross Margin Policy page. Underlying Initial Margin $= max\left(\sum_{Long\ Positions} Margin\ Rate \times Price \times \lvert Position\ Quantity \rvert, \sum_{Short\ Positions} Margin\ Rate \times Price \times \lvert Position\ Quantity \rvert\right)$ Position Initial Margin (excl. fee reserves) $= \sum Underlying\ Initial\ Margin$ This was represented directly as your 'Initial Margin'	Margin requirement to support open positions and orders. See the detailed position IM calculation on the Smart Cross Margin Policy page. Underlying Initial Margin $= max\left(\sum_{Long\ Positions} Margin\ Rate \times Price \times \lvert Position\ Quantity \rvert, \sum_{Short\ Positions} Margin\ Rate \times Price \times \lvert Position\ Quantity \rvert\right)$ Position Initial Margin (excl. fee reserves) $= \sum Underlying\ Initial\ Margin$ Calculation is unchanged. This adds to your 'Initial Margin'.
Collateral Haircut	Haircut on all tokens Collateral Haircut = ∑ Asset Value x (1- Collateral Weight) A non-eligible collateral asset will have CW = 0 This was deducted from your Wallet Balance when calculating your Margin Balance.	Haircut on eligible collateral token assets only Collateral Haircut = ∑ Eligible Collateral Asset Value x Haircut Rate This adds to your 'Initial Margin'. Margin Balance is compared against Position IM + Haircut.
Haircut Rate for Collateral	N/A	Haircut Rate $= min\{1, max(MHR, UMR \times \sqrt{\lvert Collateral\ Quantity \rvert})\}$ Minimum Haircut Rate (MHR) is defined in the Appendix.
Available Margin	Available Balance = Margin Balance - Initial Margin Haircut is deducted from your Margin Balance first.	Available Balance = Margin Balance - Initial Margin Haircut is added to your Initial Margin. The final available balance value is unchanged.
Margin Call & Liquidation Condition	Margin Call: Margin Balance (deducted with haircut) <= 100% Initial Margin Liquidation: Margin Balance (deducted with haircut) <= 50% Initial Margin	Margin Call: Margin Balance <= 100% Initial Margin (added with haircut) Liquidation: Margin Balance <= 50% Initial Margin (added with haircut)
Margin Rate for Position IM	The Margin Rate was defined by user-specified Maximum Account Leverage, the product type risk parameters, and the exposure quantity following the formula below:	The Margin Rate is defined by the product type risk parameters and the exposure quantity following the formula below:

	Margin Rate (MR) $= min\left\{1, max\left(\frac{1}{MAL}, \frac{1}{MPL}, UMR \times \sqrt{\lvert Position\ Quantity \rvert}\right)\right\}$	Margin Rate (MR) $= min\left\{1, max\left(\frac{1}{MPL}, UMR \times \sqrt{\lvert Position\ Quantity \rvert}\right)\right\}$
Maximum Account Leverage	The maximum leverage that the user sets for an account. The MAL affects the Margin Rate calculation applied to positions.	The maximum leverage that the user sets for an account. The MAL does not contribute to the margin requirement calculation applied to positions. However, if the account's total effective leverage from existing positions and orders is above the MAL already, the system will reject further risk-increasing orders.

Display and API Enhancements

After the enhancements are implemented, the 'Wallet Details' section in the trading UI will detail the user's 'Initial Margin'. Users can view their 'Positions IM' and 'Haircut' components that make up the total Initial Margin value.



There will be updates to below API endpoints on the effective date:

user.balance

- Existing field total_margin_balance will return new margin balance calculated without haircut
- Existing field total_initial_margin previously is made up of position IM only. On effective date, this field will return the total sum of total_position_im + total_haircut
- New field total_position_im will be introduced to represent initial margin requirement to support open positions and orders
- New field total_haircut will be introduced to represent the total haircut on eligible collateral token assets

user.balance, user.account_risk, get-subaccount-balances

- Existing field collateral_weight will be deprecated
- New field collateral_eligible will be introduced to indicate if token is eligible collateral
- New field haircut will be introduced to show haircut rate of eligible collateral token, in replacement of collateral weight

Please refer to API documentation for further details closer to date.

Examples

Example A: Boosting capital efficiency by removing Initial Margin on negative USD balances

- User has 10,000 USDT, they buy 1 BTC Perpetual contract at 31,000 USDT, with a maximum product leverage of 20x
- At session settlement, the BTCUSD-PERP price dropped to 30,000 USDT, resulting in a realised PnL of -1,000 USD
- Maximum Collateral Weight for USDT: 0.96
- Minimum Haircut Rate for USDT: 0.04

Current (USD has max. product leverage of 10x, i.e., margin rate is 0.1)

	QTY	Value (USD)	Margin Balance (net of HC)	Position Initial Margin
USDT	10,000	10,000	9,600	0
BTC Perpetual	1	30,000	0	1,500
USD	-1,000	-1,000	-1,000	100

Total Margin Balance = 9,600 - 1,000 = 8,600
Total Initial Margin = Position Initial Margin = 1,500 +100 = 1,600
Available Balance = 7,000

After Change (USD has 0 initial margin)

	QTY	Value (USD)	Margin Balance (no HC)	Haircut	Position Initial Margin
USDT	10,000	10,000	10,000	400	0
BTC Perpetual	1	30,000	0	0	1,500
USD	-1,000	-1,000	-1,000	0	0

Total Margin Balance = 10,000 - 1,000 = 9,000
Total Initial Margin = Position Initial Margin + Haircut = 1,500 + 400 = 1,900
Available Balance = 7,100 → **Higher balance to support new positions/orders**

Example B: Symmetric margin requirement through Minimum Haircut Rate

- User A has 20,000 USD, they margin buy 2.5 BTC
- BTC's index price is US$20,000
- Maximum Collateral Weight for BTC: 0.9
- Minimum Haircut Rate for BTC: 0.1

- User B has 20,000 USD, they margin sell 2.5 BTC.
- BTC's index price is US$20,000
- BTCUSD's leverage is 10x

Current (USD has max. leverage of 10x, i.e., margin rate is 0.1)

User A:

	QTY	Value (USD)	Margin Balance (net of HC)	Position Initial Margin
USD	-30,000	-30,000	-30,000	3,000
BTC	2.5	50,000	45,000	0

Total Margin Balance = -30,000 + 45,000 = 15,000
Total Initial Margin = Position Initial Margin = 3,000
Available Balance = 12,000

User B:

	QTY	Value (USD)	Margin Balance (net of HC)	Position Initial Margin
USD	70,000	70,000	70,000	0
BTC	-2.5	-50,000	-50,000	5,000

Total Margin Balance = 70,000 - 50,000 = 20,000
Total Initial Margin = Position Initial Margin = 5,000
Available Balance = 15,000

After Change (USD has 0 initial margin)

User A:

	QTY	Value (USD)	Margin Balance (no HC)	Haircut	Position Initial Margin
USD	-30,000	-30,000	-30,000	0	0
BTC	2.5	50,000	50,000	5,000	0

Total Margin Balance = -30,000 + 50,000 = 20,000
Total Initial Margin = Position Initial Margin + Haircut = 5,000
Available Balance = 15,000 → **Higher balance to support new positions/orders**

User B:

	QTY	Value (USD)	Margin Balance (no HC)	Haircut	Position Initial Margin
USD	70,000	70,000	70,000	0	0
BTC	-2.5	-50,000	-50,000	0	5,000

Total Margin Balance = 70,000 - 50,000 = 20,000
Total Initial Margin = Position Initial Margin + Haircut = 5,000
Available Balance = 15,000 → **Buy or sell on the same BTC amount yields symmetric margin requirement and available balance**

Example C: Control Account Leverage without incurring excessive margin requirement

- Maximum Product Leverage defined for BTC Perpetual = 20x
- Unit Margin Rate defined for BTC underlying = 0.002
- Maximum Account Leverage defined by User = 5x
- User traded 1 unit of BTC perpetual contract, BTC perpetual price at USD 20,000. Assume no other trades.

Current	After Change
Margin Rate (MR) $= \ min \left\{ 1 , \ max \left(\frac{1}{MAL} , \ \frac{1}{MPL} , \ UMR \times \sqrt{\lvert \ Position \ Quantity \ \rvert} \right) \right\}$ = min { 1, max (1/5), (1/20), 0.002 x √1) } = 0.2 0.2 Margin Rate will be reserved up-front on the BTC perpetuals position. Position IM = Position Value * Margin Rate = 1 * 20000 * 0.2 = 4,000	Margin Rate (MR) $= \ min \left\{ 1 , \ max \left(\frac{1}{MPL} , \ UMR \times \sqrt{\lvert \ Position \ Quantity \ \rvert} \right) \right\}$ = min { 1, (1/20), 0.002 x √1) } = 0.05 0.05 Margin Rate will be reserved on the BTC perpetuals position. Position IM = Position Value * Margin Rate = 1 * 20000 * 0.05 = 1,000 → **lower margin requirement** When the account's effective leverage exceeds the 5x MAL setting, the system will reject further risk-increasing orders.

Appendix: Minimum Haircut Rate (MHR)

The table below highlights the new “minimum haircut rate” for each collateral eligible token. For comparison purposes, the implied minimum haircut rate under the current framework is also provided.

- Users will experience no change in their available balance if the minimum haircut rate is the same under the current and new framework, and can afford an even lower trigger price before liquidation is triggered.

- In some cases, users may see a drop in their available balance because of the increase in the minimum haircut rate, but they can still afford a lower trigger price before liquidation. See Example D below for more details.

Users are advised to monitor their margin requirements and ensure that sufficient collateral is available to support their positions.

Underlying Asset	Minimum Haircut Rate (current)	Minimum Haircut Rate (new)	Impact on Available Balance	Impact on Liquidation buffer
AAVE	0.1	0.33	reduced	reduced
ADA	0.1	0.2	reduced	no change
ALGO	0.15	0.33	reduced	reduced
ARB	0.5	0.5	no change	increase
ATOM	0.15	0.2	reduced	increase
AVAX	0.2	0.2	no change	increase
BCH	0.15	0.2	reduced	increase
BTC	0.1	0.1	no change	increase
CRO	0.5	0.5	no change	increase
CRV	0.5	0.33	increase	increase
DOGE	0.15	0.2	reduced	increase
DOT	0.15	0.2	reduced	increase
DYDX	0.5	0.5	no change	increase
EOS	0.2	0.33	reduced	increase
ETC	0.2	0.33	reduced	increase
ETH	0.1	0.2	reduced	no change
EUR	0.04	0.04	no change	increase
FLOW	0.2	0.33	reduced	increase
GAL	0.3	0.33	reduced	increase
ICP	0.2	0.33	reduced	increase
LINK	0.15	0.2	reduced	increase
LTC	0.1	0.2	reduced	no change
MATIC	0.15	0.2	reduced	increase
OP	0.5	0.5	no change	increase
QNT	0.2	0.2	no change	increase
SHIB	0.15	0.2	reduced	increase
SNX	0.5	0.5	no change	increase
SOL	0.5	0.5	no change	increase
THETA	0.2	0.33	reduced	increase
UNI	0.15	0.33	reduced	reduced
USD	0	0	no change	no change
USDT	0.04	0.04	no change	increase
VET	0.2	0.33	reduced	increase
XLM	0.15	0.2	reduced	increase
XRP	0.15	0.2	reduced	increase

Example D: Changing from Maximum Collateral Weight to Minimum Haircut Rate provides a higher liquidation buffer

- User A has 15,000 USDT. They margin buy 10,000 DOT at the initial index price of US$ 5
- USDT's leverage is 10x

Current (Maximum Collateral Weight for DOT: 0.85 → Implied Minimum Haircut rate = 0.15 under the current framework)

	QTY	Unit Price	Value (USD)	Margin Balance (net of HC)	Position Initial Margin
DOT	10,000	5	50,000	42,500	0
USDT	-35,000	1	-35,000	-35,000	3,500

Total Margin Balance = 42,500 - 35,000 = 7,500
Total Initial Margin = Position Initial Margin = 3,500
Available Balance = 4,000
Total Maintenance Margin = Total Initial Margin * 50% = 1,750
Total Liquidation Buffer = Total Margin Balance - Total Maintenance Margin = 5,750

The liquidation buffer is depleted when the price of DOT drops below 4.3235, User's portfolio will be liquidated:

	QTY	Unit Price	Value (USD)	Margin Balance (net of HC)	Position Initial Margin
DOT	10,000	4.32354	43,235	36,750	0
USDT	-35,000	1	-35,000	-35,000	3,500

Total Margin Balance =36,750 - 35,000 = 1,750
Total Initial Margin = Position Initial Margin = 3,500
Total Maintenance Margin = Total Initial Margin * 50% = 1,750
Total Liquidation Buffer = Total Margin Balance - Total Maintenance Margin = 0
DOT Price at liquidation: 4.32354

After Change (Minimum Haircut Rate for DOT under the new framework: 0.2)

	QTY	Unit Price	Value (USD)	Margin Balance (no HC)	Haircut	Position Initial Margin
DOT	10,000	5	50,000	50,000	10,000	0
USDT	-35,000	1	-35,000	-35,000	0	3,500

Total Margin Balance = 50,000 - 35,000 = 15,000
Total Initial Margin = Position Initial Margin + Haircut = 13,500
Available Balance = 1,500 → Reduced available balance under new framework
Total Maintenance Margin = Total Initial Margin * 50% = 6,750
Total Liquidation Buffer = Total Margin Balance - Total Maintenance Margin = 8,250 → **Higher liquidation buffer**

Only when the price of DOT drops below 4.08328, the User's portfolio will get liquidated

	QTY	Unit Price	Value (USD)	Margin Balance (no HC)	Haircut	Position Initial Margin
DOT	10,000	4.083285	40,833	40,833	8,167	0
USDT	-35,000	1	-35,000	-35,000	0	3,500

Total Margin Balance = 40,833 - 35,000 = 5,833
Total Initial Margin = Position Initial Margin + Haircut = 11,667
Total Maintenance Margin = Total Initial Margin * 50% = 5,833
Total Liquidation Buffer = Total Margin Balance - Total Maintenance Margin = 0
DOT Price at liquidation: 4.08328 → **Lower price at liquidation**

Although the available balance is slightly reduced under the new framework, the price at which triggers the liquidation will be much lower under the new framework. **The new framework provides additional liquidation buffer.**