



# Clearpool | Whitepaper

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[www.clearpool.finance](http://www.clearpool.finance)

# Abstract

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Digital asset institutions such as crypto hedge funds, market makers and trading desks, do not have the same access to capital as their traditional counterparts. Traditional lending institutions do not typically lend to crypto institutions, leading them to seek alternative methods of funding in DeFi and CeFi markets. These alternatives, whilst being novel in design, also present novel problems, mainly in the form of over-collateralization and risk of liquidation from a borrower's perspective, whilst default risks remain from a lender's perspective. Clearpool, a decentralized capital markets ecosystem, enables institutions to access unsecured liquidity, eliminates liquidation risk, and creates attractive risk-adjusted return opportunities for liquidity providers.

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# 1. Introduction

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The global crypto hedge fund landscape has been growing at a fast pace since the emergence of the first funds approximately 7 years ago. The growth in active funds accelerated during the bull market years of 2017 and 2020, and there are now some 150-200 active crypto hedge funds globally. Crypto hedge funds have perennially outperformed their traditional peers, in 2020 crypto hedge funds had a median return of 184%<sup>1</sup> compared to 11.6%<sup>2</sup> for traditional funds.

Despite the outperformance, crypto hedge funds, and many other similar crypto institutions such as traders and market makers, are severely limited in their access to credit facilities and loans. Traditional hedge funds have access to prime brokers who extend such services as credit, margin and leverage along with access to multiple markets and financial instruments. But these and other traditional lenders do not service crypto institutions, forcing them to search elsewhere for capital.

DeFi lending protocols have emerged as a source of capital for crypto institutions. Novel in their design and architecture, these protocols essentially replace counterparty risk with the concept of collateral, allowing borrowers to tap decentralized liquidity pools, and giving lenders peace of mind that the loans are collateralized.

However, novel solutions often give birth to novel problems, and in the case of DeFi lending, over-collateralization and the risk of liquidation emerge as the two most prominent. Due to the volatility of the digital assets used as collateral, DeFi loans end up being severely over-collateralized, 150-200% is common, and in some cases much higher.

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<sup>1</sup> <https://www.pwc.com/gx/en/financial-services/pdf/3rd-annual-pwc-elwood-aima-crypto-hedge-fund-rep..>

<sup>2</sup> <https://www.reuters.com/article/us-hedgefunds-returns-idUSKBN29U00R>

# 1. Introduction

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This volatility gives rise to the risk of liquidation, if the value of the underlying asset falls below the collateral ratio, the borrower risks losing it. The result is a system that is extremely capital intensive, and one where new risks replace the old ones.

Clearpool introduces a decentralized capital markets ecosystem where institutional borrowers can access unsecured liquidity. Counterparty risk is re-introduced, but can be mitigated through secondary trading of tokenized credit and pool diversification.

## 2. The Clearpool Protocol

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Clearpool is a decentralized capital markets ecosystem. The first dynamic marketplace for unsecured institutional capital. Merging the sophistication of traditional capital markets with the benefits of decentralization, Clearpool significantly improves the landscape for both borrowers and lenders, and creates opportunities which will spur the growth of DeFi, taking it to new heights.

Borrowers on the Clearpool protocol, typically institutions, will be able to access unsecured liquidity, and eliminate risks of liquidation, significantly enhancing capital efficiency.

Lenders (liquidity providers/LPs) on the Clearpool protocol, typically individual or institutional investors, are rewarded fairly for risk taking, with pool interest rates rising when risk increases, and falling when risk decreases.

This dynamic process, which is driven by the market forces of supply and demand, ensures that each pool will always reach a state of equilibrium in terms of interest rate and pool size.

- Single-borrower, continuous duration liquidity pools
- Dynamic interest rate mechanism based on liquidity utilization
- Equilibrium pool size and interest rates determined by market supply and demand
- Un-collateralized liquidity for institutional borrowers
- Attractive risk-adjusted returns for lenders
- On-chain real-time credit risk metrics
- Automatic diversification through Thematic Pools
- Tokenized credit leading to risk management and hedging

## 2. The Clearpool Protocol

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- No regular interest payments or scheduled principal repayments for borrowers
- Default defined as an on-chain observable parameter

Clearpool is powered by the CPOOL utility and governance token. CPOOL enables various staking and voting interactions for Clearpool participants, and will allow the community to propose, vote on and implement future protocol changes and upgrades.

### 2.1 Borrower Whitelisting

There are multiple types of institutional borrowers in crypto and DeFi, many of whom possess significant demand for unsecured liquidity. To gain access to unsecured liquidity via the Clearpool protocol, these institutions must first become whitelisted, a process which is supervised by the CPOOL token holding community - the Clearpool community.

To become whitelisted, the institution must stake an amount of CPOOL tokens, and make a proposal to the Clearpool community to open an individualized liquidity pool.

The staked CPOOL acts as an incentive for the borrower to act with integrity on the Clearpool protocol. Staking incurs rewards during the borrower's participation, but can also be revoked in the event of default or malpractice.

During the proposal process, the borrower must create a profile on the Clearpool app, and is required to input a valid and dedicated ERC-20 address generated from their KYC'd account at a Clearpool governance approved regulated and licensed digital asset custodian.

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The purpose of this step is to provide verification of the borrower's identity. Since only the borrower would be able to provide this information, it provides validation that the borrower's identity is real, and that they have completed a full KYC process with a regulated and licensed institution. Furthermore, if the proposal goes on to be successful, the borrower will only be permitted to withdraw funds from the clearpool smart contract to this specific address, reducing the possibility of fraud and further validating user identity.

The full proposal will be subject to a vote conducted by the Clearpool community, who, through this decentralized governance process, have the ability to reach a consensus on which borrowers' proposals become successful.

### 2.2 Clearpool Liquidity Pools

Clearpool liquidity pools - smart contracts running on the Ethereum blockchain, are continuous and borrower specific, meaning that there is only one borrower for each pool. Pool interest rates are dynamic, they rise and fall as a function of the pool utilization rate - the amount of liquidity that the borrower is currently utilizing

After a proposed clearpool has been successfully approved by the Clearpool community, it can be launched by the pool borrower and will subsequently become visible on the protocol's main dashboard, where it can be viewed and funded by liquidity providers.

Anybody can be an LP on Clearpool. When connected to the Clearpool app via web3, LPs can view information on whitelisted borrowers and the details for each pool. Selecting a pool and supplying liquidity is a simple process, and when doing so, the liquidity provider will receive LP tokens called cpTokens in return.



## 2. The Clearpool Protocol

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cpTokens represent the amount of liquidity that has been supplied to a pool, and accrue the pool interest rate on every Ethereum block. cpTokens are redeemable at any point in time, subject to liquidity being available in the pool, and represent the credit profile of the pool borrower.

cpTokens allow LPs to manage risk. They are transferable, tradeable and programmable tokens. cpTokens will unfurl a new paradigm of opportunities for the DeFi community. They are discussed in more detail in a later section titled Tokenized Credit & Risk Management.

### 2.3 Liquidity Utilization

As soon as a pool has been funded, the liquidity within it can be utilized by the pool borrower.

The liquidity ratio represents the amount of total pool liquidity that is currently being utilized by the pool borrower. As this ratio increases, so does the interest rate.

As the borrower returns more liquidity to the pool, the liquidity ratio will decrease, as will the pool interest rate.

Thus, LPs are rewarded with higher interest rates as risk increases, and receive lower rates of interest as risk decreases.

This dynamic interest rate mechanism will always lead to an equilibrium level of interest rate and pool size for each borrower. Furthermore, it eliminates the requirement for regular interest payments and the scheduled repayment of principal.

## 2. The Clearpool Protocol

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Borrowers must maintain a liquidity ratio below 95%. If a borrower exceeds 95% utilization, the pool enters a high-utilization warning state. The pool borrower will then have 72 hours in which to normalize the utilization rate below 95%.

If during this period the utilization reaches 100%, the pool will be in provisional default, and if not normalized by the end of the 72 hour period, will be in default and a recovery process will begin. More information on default and recovery can be found in section 3.

All else equal, the utilization ratio will constantly rise with the accumulation of interest. This however can be offset either through new liquidity supplied by LPs or through the borrower returning liquidity to the pool.

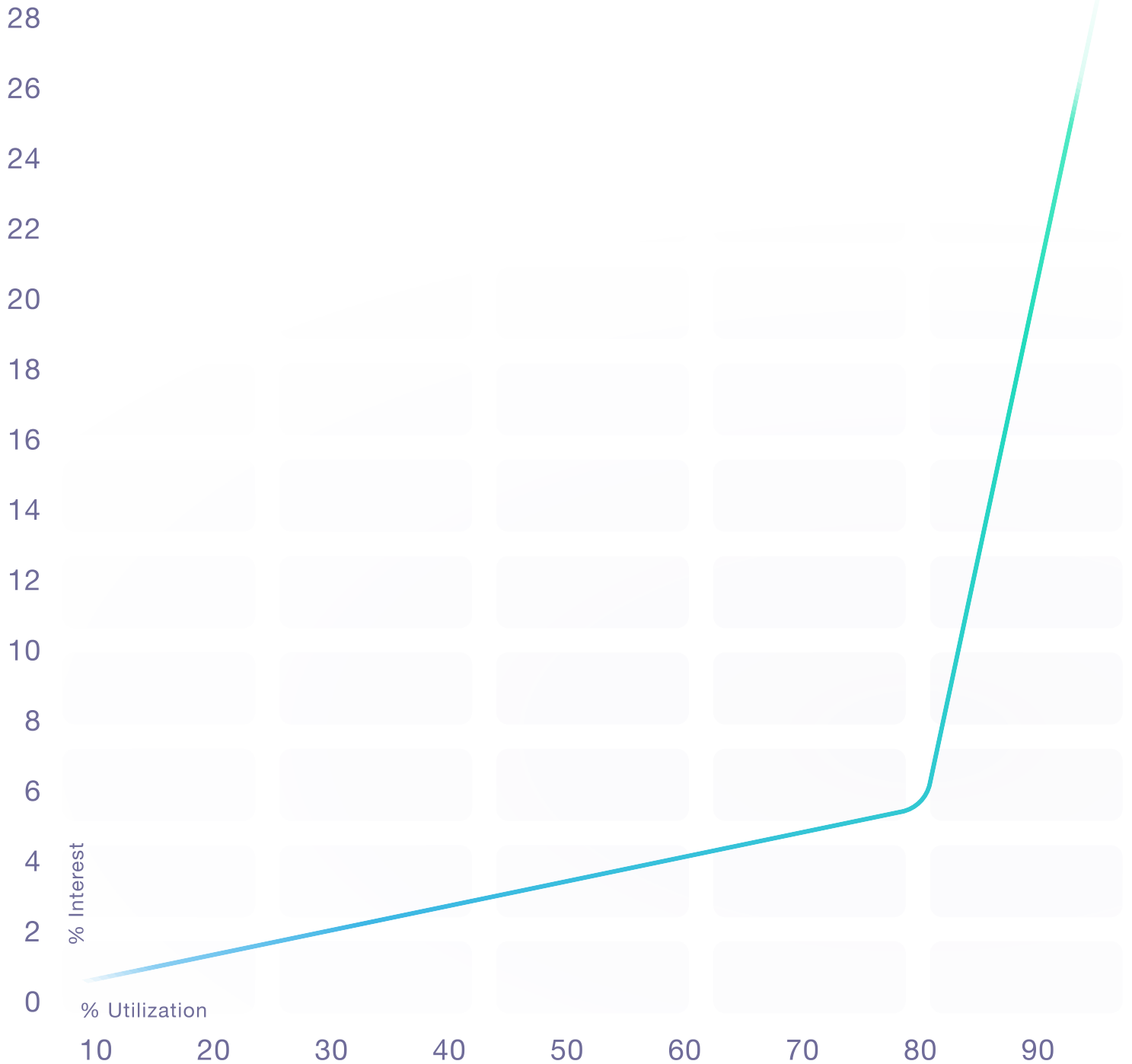
### 2.4 Interest Rates

The interest rate mechanism for each pool is identical, and derives its main input from the utilization rate.

The utilization rate represents the amount of liquidity that the borrower has removed from the pool at any point in time. As such, the interest rate for each pool will rise and fall with the utilization rate.

This process, which is driven by the market forces of supply and demand, ensures that each pool will always reach a state of equilibrium in terms of interest rate and pool size.

## 2. The Clearpool Protocol



Interest accrues to cpTokens on each Ethereum block. When cpToken holders redeem, they will receive the principal amount of liquidity supplied plus accrued interest.

## 2. The Clearpool Protocol

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### 2.5 Tokenized Credit & Risk Management

Clearpool introduces the tokenization of credit and risk management with the development of cpTokens. cpTokens represent the amount of liquidity that the LP has supplied to a specific pool, and the risk that they have taken on by funding the pool borrower.

cpTokens are transferred from the smart contract to the LPs connected wallet when liquidity is supplied to a pool. They accrue the interest rate for the pool on each subsequent Ethereum block.

As mentioned earlier, cpTokens can be redeemed whenever liquidity is available in the pool, but they can also be traded in a secondary market, giving LPs an additional source of liquidity and the opportunity to trade risk.

The possibilities created with the issuance of cpTokens will create unprecedented opportunities in risk management solutions for Clearpool LPs. In addition to being tradable, they can be stripped into their underlying and yield components. This programmability will further enhance the secondary market for these assets. It will also pave the way for the development of decentralized credit derivatives such as default swaps.

The sophistication of these tools will allow Clearpool LPs to manage and hedge risks, broaden the scope of trading strategies, attract new participants to DeFi, and garner a new level of information to assist in decision making processes.

## 2. The Clearpool Protocol

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### 2.6 Thematic Pools

Thematic Pools are governance-created multi-borrower liquidity pools that conveniently provide Clearpool LPs with the benefits of diversification.

Liquidity supplied to a Thematic Pool is algorithmically distributed to multiple borrowers, and periodically rebalanced, as per the pools governance approved mandate.

LPs who supply liquidity to a Thematic Pool, also receive cpTokens, representing the liquidity supplied, and automatically accruing the aggregate interest rate for the pool.

A key difference however, is that Thematic Pool cpTokens represent the blended risk exposure of the borrower pools that qualify for inclusion in the Pools mandate, not individual risk exposures.

Thematic Pools can be proposed, created and launched through Clearpool governance.

### 2.7 On-Chain Credit Risk Metrics

Clearpool has partnered with the market leading project in the space of on-chain credit risk metric analysis.

The solution that Clearpool is able to provide as a result of this collaboration gives borrowers the optionality to display real-time portfolio risk metrics, while preserving the privacy of trades, positions, and other sensitive information by leveraging Zero Knowledge technology.

## 2. The Clearpool Protocol

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Credit risk metrics will be used to define which pools qualify to be included in Clearpool Thematic Pool mandates through a system of credit scoring.

Real-time credit scores are calculated using a variety of risk metrics on each borrower's portfolio, including equity, balance, margin usage, maximum loss (SPAN or VaR calculations), aggregate absolute delta, and gamma.

More information on this partnership will be announced soon.

### 3. Default & Recovery

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If a pool breaches 95% utilization it enters a high-utilization warning period which lasts for 72 hours. If during the 72 hour period the pool reaches 100% utilization it enters a state of provisional default.

During the 72 hour period, whether the pool is in high-utilization warning or in provisional default, the borrower must reduce the utilization ratio below 95% for the pool to remain active.

If after 72 hours the utilization ratio remains above 95% then the pool will enter a state of default. In a default scenario the pool will enter the recovery phase.

Each pool has a separate recovery pool. On every Ethereum block a percentage of pool interest is diverted to the recovery pool where it accumulates and can be used only in the event of a default.

In the event of a default an auction process will commence whereby auction participants can bid for the pool's cpTokens.

The auction process is open to all users, including debt recovery companies and/or distressed debt funds etc., who compete to purchase the cpTokens from the cpToken holders.

The winning bidder will also receive the recovery fund proceeds, and then, as the new holder of the pools cpTokens, will be able to pursue the borrower legally to recover the pools funds.

In the event that there are no auction bids, the recovery pool funds will be distributed to cpToken holders proportionately.

### 3. Default & Recovery

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Institutional debt recovery companies and distressed debt funds etc. are whitelisted in the same way as borrowers. The vetting and whitelisting of these institutions is an important element of the protocol's governance, as the presence of such institutions will act as a further deterrent of borrower malpractice.



## 4. Governance

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One of the primary goals of Clearpool's founding team is to build a resilient governance framework, stabilizing the platform and ensuring the long-term potential for growth. In the longer run, the protocol strives to become fully trustless and censorship-resistant, relying purely on the CPOOL token and its holders.

By holding CPOOL tokens, individuals gain the right to propose, vote on, and implement upgrades and future configurations to Clearpool. The protocol determines voting power on a 1:1 basis, in proportion to the individual's CPOOL ownership—one token represents one vote.

To gain voting rights on Clearpool, individuals shall delegate their CPOOL holdings either to their own address, retaining the voting power themselves, or to another network address, transferring their voting power to another CPOOL holder.

Governance voting will follow a limited period, minimum quorum procedure for recording votes followed by a further time-delayed monitoring/opt-out period, prior to implementation.

The following sections provide a high-level overview of Clearpool governance; the full details of the mechanism shall be released later in a dedicated document.

### 4.1 Clearpool Proposals & Membership Staking

In order to become whitelisted, Clearpool users must first stake a specified amount of CPOOL tokens and, as previously discussed, make a proposal to the Clearpool community.

## 4. Governance

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The membership stake acts as an incentive for members to act with integrity when using the Clearpool protocol. The staked amount will be subject to staking rewards during the members participation, but can also be revoked in the event of malpractice, such as in a default situation.

### 4.2 Protocol Changes

CPOOL addresses with at least 1% of available delegated voting power can propose changes to the Clearpool protocol. Amendment proposals are subject to the general voting mechanism and are approved through favorable majority consensus. To eliminate malicious behavior, the proposing address is required to maintain a minimum number of delegated votes, failing which the proposal may be deemed null and void. As described above, following the voting period, a time-delay opt-out period ensues.

## 5. Team

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Our senior leadership team consists of highly experienced professionals from traditional finance, fintech, consumer startup, and blockchain technology backgrounds.

CEO

### **Robert Alcorn, CFA**

- 20+ years of business experience
- 12 years experience in global financial markets
- Expertise in capital markets, liquidity and collateral management and collateral trading
- CFA charterholder and MIT Fintech Future Commerce graduate. Early adopter of bitcoin and cryptocurrency

CCO

### **Jakob Kronbichler**

- Track record of launching various startups for Rocket Internet in multiple countries
- Expert in business development and go-to-market strategy
- Experienced in alternative lending during management role at Aspire, SEAs leading business Neobank

## 5. Team

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CTO

### **Pavel Ivanov**

- Blockchain developer with 11 years experience
- Five years of experience leading development teams
- Competed at and won multiple hackathons including winning at ETH Waterloo 2017 and 2018

PRODUCT OWNER

### **Vadim Zolotokrylin**

- Blockchain enthusiast since 2011. Twelve years experience in early stage ventures
- Former CEO - Holdex, & CTO - Amplify
- Masters in Computer Science and Masters in Economy of Enterprise

## 6. Summary

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Crypto and DeFi markets are growing at an immense pace, as are the institutions that operate within them. As these markets and participants continue to grow in size and sophistication, access to unsecured capital will become vital. This will not only spur the growth of existing participants, but it will attract new ones, broadening the scope of the DeFi ecosystem.




Clearpool is building a decentralized capital markets ecosystem, where institutions can access unsecured capital, where liquidity providers are rewarded fairly for taking risk, and where risks can be quantified, monitored, and managed through systems of governance, credit reputation, tokenized credit, and risk management. Clearpool is creating the first decentralized dynamic credit market for unsecured liquidity, driven by market supply and demand forces.

Merging the sophistication of traditional financial markets with the benefits of decentralization, Clearpool will usher in a new era of financial innovation on a level playing field, where central intermediaries are replaced by smart contracts, significantly reducing costs and increasing efficiencies in speed and transactional capabilities.







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## Thank you

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