Elevastrat

Elevado Labs
elevado.xyz

Abstract

We propose Elevastrat, a decentralized reserve asset protocol on Ethereum. Elevastrat issues and manages ESTR, a novel asset denominated in Swiss francs (CHF). Each unit of ESTR is fully collateralized by Frankencoin (ZCHF), a decentralized stablecoin tracking the value of the Swiss franc. Through immutable smart-contract logic and an endogenous fee-retention mechanism, Elevstrat ensures that the collateral per ESTR unit never decreases. In fact, protocol activity – via minting and redemption fees – drives a gradual increase in collateral per unit over time, enhancing purchasing power in CHF while maintaining perpetual solvency and ever-growing collateral backing. Anchored in the Swiss franc's historic resilience and structural appreciation against the U.S. dollar, the Elevastrat protocol establishes a new standard for real-value preservation and incremental growth within on-chain finance.

1 Introduction

Over the past two decades, the Swiss franc (CHF) has distinguished itself as one of the most resilient fiat currencies globally. Its real effective exchange rate (REER) and CPI-adjusted purchasing power have remained remarkably stable, while the currency has appreciated over 40% against the U.S. dollar since the early 2000s. The franc has established itself as a safe-haven asset in both foreign exchange and reserve management.

From a macro-hedging perspective, exposure to CHF-denominated instruments theoretically serves as an implicit purchasing power hedge against dollar debasement.

We introduce Elevastrat, a decentralized reserve protocol that issues and governs ESTR, a novel asset denominated in Swiss francs (CHF) and fully collateralized by Frankencoin (ZCHF), a decentralized stablecoin that tracks the value of the Swiss franc. The protocol establishes an immutable correspondence between collateral and supply through a deterministic 1:1 bootstrap ratio, which can only evolve upward as a result of embedded minting and redemption fees. These fees are retained within the collateral pool and distributed proportionally across the circulating supply, ensuring that the collateral value per ESTR unit increases monotonically. This mechanism forms a self-reinforcing structure for long-term value preservation and real purchasing-power stability and growth.

By encoding the monetary properties of the Swiss franc – a currency distinguished by its historical price stability, disciplined monetary governance, and structural appreciation against the U.S. dollar – Elevastrat effectively transposes the Swiss monetary standard into decentralized finance, creating a market-neutral reserve asset engineered for intertemporal purchasing-power stability and gradual real appreciation.

1.1 Economic Rationale

The demand for CHF exposure in decentralized finance is underrepresented relative to its real-world role as a safe-haven currency.

While USD-based stablecoins dominate the landscape, they embed exposure to U.S. inflation, debt cycles, and dollar liquidity dynamics. A CHF-denominated digital instrument introduces diversification benefits, both in nominal and real terms.

In global portfolio terms, given the long-term appreciation of CHF/USD, ESTR can serve as a non-correlated reserve asset or base collateral unit that hedges against dollar-denominated volatility.

2 Swiss Franc Denomination and Purchasing Power Dynamics

The Elevastrat protocol operates natively in Swiss franc units.

This denomination implies that nominal constancy corresponds to real constancy in CHF terms. For a global user base exposed to USD-based DeFi instruments, this introduces an intrinsic real-value premium.

Let $P_{CHF/USD}(t)$ represent the exchange rate (CHF per USD). The effective USD-denominated NAV is:

$$NAV^{USD}t = NAV_t \times PCHF/USD(t)$$

Even if NAV_t remains constant, an appreciation in CHF against USD increases NAV_t^{USD}. Thus, it is correct to assume that the protocol embeds a real appreciation vector purely through denomination.

3 Protocol Architecture

The Elevastrat protocol is a monolithic Ethereum smart contract. The system has no administrative controls, no upgrade mechanisms, and no governance rights, perpetually running autonomously after deployment.

The protocol issues ESTR, a cryptographic asset fully collateralized by ZCHF, a stablecoin tracking the value of the Swiss franc. The system operates through a deterministic smart-contract framework that ensures perpetual solvency and automatic value accretion.

Users deposit ZCHF into the contract to mint ESTR. The Elevastrat protocol begins with a ratio of 1:1, such that each ESTR is initially backed by exactly one ZCHF. A minting fee (0.5%) and redemption fee (1.5%) are retained by the protocol and compounded into the collateral pool. Conversely, users can deposit ESTR into the contract to redeem ZCHF, at which point the corresponding ESTR units are burned. As transactions occur – minting and redemptions –, these fees increase the total collateral relative to circulating supply, raising the collateral-per-token ratio c_t above 1 in a self-reinforcing virtuous cycle.

Elevastrat's protocol design deterministically guarantees that the collateral per ESTR unit can only increase over time, never decrease, making the asset structurally non-dilutive and ensuring that each token accrues additional backing as protocol activity accumulates.

Formally, let:

- C_t = total collateral in ZCHF at time t
- N_t^{ESTR} = total ESTR supply
- f_d = mint (deposit) fee
- f_r = redemption fee

The collateral ratio evolves as:

$$c_t = \frac{C_t}{N_t^{ESTR}}, \qquad c_0 = 1$$

and under all valid protocol operations,

$$\frac{dc_t}{dt} \geq 0$$

ensuring $c_t \geq 1$ at all times.

3.1 Minting

When a user deposits D ZCHF to mint ESTR, the protocol charges a 0.5% fee.

The user receives:

$$M = D \cdot (1 - f_d)$$

ZCHF collateral increases by the full deposit D, while supply increases by M.

Thus:

$$C_{t+1} = C_t + D, \quad N_{t+1}^{ESTR} = N_t^{ESTR} + D(1 - f_d)$$

The new collateral ratio is:

$$c_{t+1} = \frac{C_t + D}{N_t^{ESTR} + D(1 - f_d)} > c_t$$

This fee asymmetry ensures that every mint increases per-token collateral, establishing ESTR's self-reinforcing reserve strength.

3.2 Redemption

When a holder redeems B ESTR for ZCHF, the protocol applies a 1.5% redemption fee.

The redeemer receives:

$$Z = B \cdot (1 - f_r)$$

Supply and collateral evolve as:

$$N_{t+1}^{ESTR} = N_t^{ESTR} - B, \quad C_{t+1} = C_t - Z$$

yielding:

$$c_{t+1} = \frac{C_t - B(1 - f_r)}{N_t^{ESTR} - B} > c_t$$

Thus, both minting and redemption increase the collateralization per unit, as each transaction generates fees that are retained within the collateral reserve.

3.3 Fee Compounding

Fees collected from all minting and redemption operations are accumulated directly into the collateral pool.

Over time, total retained fees F_t are:

$$F_t = \sum_{i=0}^{t} \left(f_d M_i + f_r R_i \right)$$

Total collateral evolves as:

$$C_t = C_0 + \sum_i M_i + \sum_j R_j f_r$$

while circulating supply evolves as:

$$N_t^{ESTR} = N_0^{ESTR} + \sum_i M_i(1 - f_d) - \sum_j R_j$$

Hence the dynamic collateral ratio:

$$c_t = \frac{C_0 + \sum_i M_i + \sum_j R_j f_r}{N_0^{ESTR} + \sum_i M_i(1 - f_d) - \sum_j R_j}$$

is strictly increasing in transaction activity, generating a structural yield in CHF terms for protocol participants. This endogenous yield reflects the accumulation of retained protocol fees and can be interpreted as a real, protocol-native interest rate.

3.4 Bootstrap Ratio State

The Elevastrat protocol is initialized with a deterministic 1:1 collateralization ratio between ESTR and ZCHF.

Let N_0^{ESTR} be the initial supply of ESTR and C_0 the initial ZCHF collateral:

$$C_0 = N_0^{ESTR} \quad \Rightarrow \quad c_0 = \frac{C_0}{N_0^{ESTR}} = 1$$

This ensures that at genesis, every ESTR token is backed by exactly one ZCHF.

4 Protocol Interest Rate and USD Exposure

The minting and redemption fees embedded in ESTR function as a deterministic, protocol-native interest rate, conceptually analogous to a traditional fixed-income coupon. Unlike conventional rates, which are set exogenously by central banks or market forces, this protocol interest rate is endogenously generated: each transaction contributes a fractional increase to the collateral per unit, producing a monotonic, risk-free yield denominated in Swiss francs (CHF).

Formally, let C_t denote collateral per ESTR unit at time t, S_t the circulating supply, and F_m, F_r the fee fractions on minting and redemption. The incremental per-unit yield can be expressed as:

$$\Delta C_t = \frac{F_m \cdot \Delta A_{\text{mint}} + F_r \cdot \Delta A_{\text{redeem}}}{S_t}$$

This yield accrues automatically and continuously, providing holders with a guaranteed CHF-denominated return that compounds over time. In effect, the protocol interest rate functions as a mechanical coupon, requiring no leverage, counterparty exposure, or external credit risk.

From a portfolio perspective, USD-denominated investors benefit from a dual source of expected return. First, as ESTR is denominated in CHF, any appreciation of the Swiss franc relative to the USD generates currency gains in USD terms. Second, the protocol interest rate, derived from deterministic fee compounding, provides a structural yield in CHF per token.

Consider idle capital U in USD intended for medium-term preservation. Allocating this capital to ESTR converts it into CHF-denominated collateral that accrues both currency appreciation $\Delta_{\text{CHF/USD}}$ and protocol yield ΔC_t.

The expected USD-adjusted growth over a given period T can be approximated as:

$$U_{\text{ESTR}}(T) \approx U \cdot \big(1 + \Delta_{\text{CHF/USD}}\big) \cdot \left(1 + \sum_{t=0}^{T} \frac{\Delta C_t}{C_t}\right)$$

Where $\Delta_{\text{CHF/USD}}$ represents USD devaluation relative to CHF and $\Delta C_t / C_t$ is the per-period protocol interest accrual. This framework formalizes how ESTR transforms static USD holdings into a CHF-denominated, yield-bearing, capital-preserving instrument, combining safe-haven currency characteristics with a predictable, structural return analogous to traditional fixed-income assets.

4.1 Minting Fees as an Endogenous Hedge Mechanism

Within the Elevastrat architecture, the minting fee assumes a function beyond its nominal role as a transaction cost. It operates as an endogenous hedge that simultaneously reinforces systemic solvency and protects depositor purchasing power.

When a user mints ESTR, they deposit an amount D of ZCHF collateral. The protocol charges a minting fee F_m (0.5%), while issuing new ESTR at the net value $D \cdot (1 - F_m)$. Crucially, the entire deposit, not the net issuance amount, remains within the collateral pool, leading to an immediate marginal increase in collateralization per token.

Formally, the post-mint collateral ratio evolves as:

$$C_{t_1} = \frac{C_{t_0} \cdot S_{t_0} + D}{S_{t_0} + (1 - F_m)D}$$

Where C_t represents the collateral per token and S_t the circulating supply at time t. Since $F_m > 0$, it follows deterministically that $C_{t_1} > C_{t_0}$. The depositor's apparent cost in fees therefore capitalizes directly into the system's balance sheet, enhancing the value backing of both new and existing ESTR units.

This mechanism creates an instantaneous micro-accretion in value per unit. Although the depositor's position begins at a slight nominal discount relative to par, the subsequent rise in system-wide collateral intensity means that each token, including those newly issued, is now supported by a marginally higher real backing. In macro-financial terms, the depositor has paid a self-financing insurance premium that enhances the stability of their own position.

5 Superior Store of Value Asset

ESTR embodies a structurally superior store of value compared to USD-denominated stablecoins or short-term Treasury exposures. Its advantage derives from two reinforcing pillars: denomination in the Swiss franc – a currency that has exhibited long-term real appreciation against the U.S. dollar – and endogenous collateral yield from Elevastrat's fee mechanism.

Over the last two decades, the CHF has appreciated roughly 1.5-2.0% annually versus the USD, while maintaining inflation near 0.8% compared to the U.S. average of 2.1%. This produces an average real appreciation differential of about 3% per year.

Simultaneously, ESTR accrues a mechanical yield as every minting and redemption transaction embeds protocol fees (0.5% and 1.5%, respectively) into the collateral pool. The result is a steadily increasing collateral-per-token ratio, theoretically producing an additional 1-3% annualized growth in CHF terms without leverage or counterparty risk.

From a portfolio allocation perspective, consider idle capital intended for medium-term preservation in USD Treasury bills or USD stablecoins. Allocating that exposure to ESTR converts it into CHF-denominated collateral that (i) appreciates in USD terms as the franc strengthens, and (ii) compounds intrinsically through protocol fee accretion. Theoretically, such a reallocation could deliver an expected 5-6% annual real improvement over passive USD exposure, driven by the combined effects of currency appreciation and structural yield premia inherent to ESTR's design.

For capital seeking stability and purchasing-power preservation, idle USD capital is more efficiently parked in ESTR than in any USD-linked instrument – offering deterministic solvency, positive real yield, and asymmetric upside during global risk stress.

6 Risk Considerations

The Elevastrat protocol inherits the operational and collateral risk profile of its underlying reserve asset, Frankencoin (ZCHF). While ZCHF is a decentralized, overcollateralized stablecoin, its peg stability ultimately depends on the depth and efficiency of secondary-market arbitrage mechanisms that maintain the 1:1 parity with the Swiss franc.

Because Elevastrat's internal architecture is deterministically solvency-preserving – that is, the collateral-per-token ratio $c_t \geq 1$ under all valid state transitions – its systemic exposure is bounded by the stability of ZCHF itself.

Elevastrat thus behaves as a collateral amplifier of ZCHF stability: it cannot weaken the reserve base, but it inherits its risk vector proportionally to the quality of the underlying peg and collateral mechanisms.

7 Conclusion

This initial draft of the Elevastrat whitepaper is meant to establish a conceptual understanding of the high-level design and architecture of the proposed protocol. It should not be considered complete or final. The version 1.0 of this paper will be published for public review and community input on https://github.com/elevadoxyz.

A Historical Swiss franc appreciation and ESTR collateral stability

Over the 2005-2025 period, the Swiss franc appreciated by more than 35% against the U.S. dollar. By denominating ESTR in CHF, the protocol anchors its value to a currency that has consistently preserved and strengthened real purchasing power, thereby enhancing long-term value resilience relative to USD-based assets.

Let the CHF/USD spot rate be S_t, and ESTR's NAV in CHF be NAV_t^{ESTR}.

The collateralization in ZCHF ensures:

$$C_t^{ESTR} = NAV_t^{ESTR} \cdot ZCHF_t$$

Where $ZCHF_t \approx 1, \mathrm{CHF}$. The nominal appreciation of CHF versus USD:

$$r_t^{CHF/USD} = \frac{S_t - S_{t-1}}{S_{t-1}}$$

By anchoring ESTR to ZCHF, the protocol ensures that any NAV expressed in USD indirectly benefits from CHF structural appreciation:

$$NAV_t^{ESTR,USD} = C_t^{ESTR} \cdot S_t$$

Historical data indicates that the Swiss franc has appreciated by an average of approximately 1.8% per year against the U.S. dollar, reflecting its long-standing role as a global safe-haven currency. Consequently, ESTR holders inherently gain purchasing power in USD terms, as the asset's CHF denomination captures this structural appreciation, while its protocol design ensures deterministic stability in CHF value.

B Inflation resilience and ESTR value preservation

Let CHF inflation be π_t^{CHF} and USD inflation π_t^{USD}. The real NAV of ESTR denominated in CHF is:

$$R_t^{ESTR} = \frac{NAV_t^{ESTR}}{\prod_{i=0}^{t}(1+\pi_i^{CHF})}$$

For a USD investor, purchasing power is:

$$R_t^{ESTR,USD} = \frac{NAV_t^{ESTR} \cdot S_t}{\prod_{i=0}^{t}(1+\pi_i^{USD})}$$

Given the historically lower inflation of the Swiss franc (~0.8% versus ~2.1% for the USD), ESTR inherently preserves and enhances real value over time. For USD-based investors, this effect is twofold: first, through the structural appreciation of the CHF against the USD, and second, through the endogenous yield generated by Elevastrat's fee mechanism. Minting and redemption fees (0.5% and 1.5%) are continuously reinvested into the collateral pool, compounding the net asset value (NAV) per ESTR and reinforcing purchasing-power resilience in both CHF and USD terms.

C Protocol invariant equation

Let:

- C_t = total ZCHF collateral at time t
- N_t^{ESTR} = total ESTR supply at time t
- f_d = deposit fee (0.5%)
- f_r = redemption fee (1.5%)
- M_t = amount of ZCHF deposited to mint ESTR at t
- R_t = amount of ESTR units redeemed at t

Then the collateral-per-token ratio c_t evolves according to:

$$c_{t+1} = \frac{C_t + M_t - f_r \cdot R_t}{N_t^{ESTR} + M_t \cdot (1 - f_d) - R_t}$$

With initial bootstrap condition at 1:1 ratio:

$$c_0 = \frac{C_0}{N_0^{ESTR}} = 1$$

C.1 Interpretation

Deposit (minting) effect:

M_t increases collateral faster than supply because of the fee f_d, so $c_{t+1} > c_t$.

Redemption (burning) effect:

R_t reduces supply faster than it reduces collateral due to f_r, again ensuring $c_{t+1} > c_t$.

Monotonic growth:

By construction, $c_{t+1} \geq c_t \geq 1$, so the collateral-per-token ratio can never decrease.

Bootstrap state:

At genesis, $c_0 = 1$.

D Fee structure and NAV compounding

Fees from minting (f_d) and redemption (f_r) are reinvested into the collateral pool.

Let cumulative fees be F_t:

$$F_t = \sum_{i=0}^{t} (f_d \cdot M_i + f_r \cdot R_i)$$

The collateral per token evolves as:

$$c_t = \frac{C_0 + F_t}{N_t^{ESTR}}$$

Under reasonable activity assumptions, the compounding of protocol fees is expected to increase the net asset value (NAV) per ESTR by approximately 1-3% annually in CHF terms. When measured in USD, this appreciation is further magnified during periods of dollar weakness, as the Swiss franc tends to strengthen in such environments. Together, these effects produce a structurally appreciating USD-denominated profile, positioning ESTR as a superior vehicle for long-term purchasing-power preservation relative to USD-pegged assets.

E Collateralization invariant and anti-dilution proofs

The Elevastrat protocol maintains a collateralization invariant:

$$c_t = \frac{C_t}{N_t^{ESTR}} \geq 1, ZCHF$$

E.1 Proofs

Minting

$$C_{t+1}/N_{t+1} = (C_t + M_t \cdot (1 - f_d))/(N_t + M_t) \geq C_t/N_t) for(0 < f_d < 1$$

Redemption

$$C_{t+1}/N_{t+1} = (C_t - R_t \cdot (1 - f_r))/(N_t - R_t) \geq C_t/N_t) if(C_t/N_t \geq 1$$

Thus, collateral per token is monotonic; minting or redemption cannot dilute existing holders.

F Bootstrap and initial collateral ratio

The Elevastrat protocol is bootstrapped with a 1:1 ratio between ESTR and ZCHF.

Let N_0^{ESTR} be the initial supply and C_0 the initial collateral in ZCHF:

$$C_0 = N_0^{ESTR} \quad \Rightarrow \quad c_0 = \frac{C_0}{N_0^{ESTR}} = 1$$

This deterministic starting point establishes unit collateralization, ensuring that at genesis each ESTR token is initialized backed by exactly one ZCHF.

F.1 Monotonic collateral accrual after minting

When a user deposits D ZCHF to mint ESTR, a deposit fee f_d is applied.

The net issuance of ESTR is:

$$M = D \cdot (1 - f_d)$$

Total reserve and supply post-mint:

$$C_{t+1} = C_t + D, \quad N_{t+1}^{ESTR} = N_t^{ESTR} + M$$

Resulting collateral-per-token ratio:

$$c_{t+1} = \frac{C_t + D}{N_t^{ESTR} + D(1 - f_d)}$$

Since $f_d > 0$, it follows that $c_{t+1} > c_t \geq 1$. Every mint therefore produces a ratio above 1, e.g., 1.0001 ZCHF per ESTR, which never decreases, reflecting protocol anti-dilution and value accrual.

F.2 Monotonic collateral accrual after redemption

During redemption, a holder burns B ESTR tokens and pays a redemption fee f_r.

The protocol returns:

$$Z = B \cdot (1 - f_r)$$

ZCHF retained in reserve:

$$C_{t+1} = C_t - Z = C_t - B(1 - f_r)$$

Total supply post-redemption:

$$N_{t+1}^{ESTR} = N_t^{ESTR} - B$$

The new collateral-per-token ratio:

$$c_{t+1} = \frac{C_t - B(1 - f_r)}{N_t^{ESTR} - B} > c_t$$

Because the fee ensures $Z < B$, the ratio increases, reinforcing the anti-dilution invariant.

Once above 1, the ratio monotonically grows, reflecting accumulated fees and protocol efficiency in preserving NAV.

F.3 Long-term dynamics of collateral ratio

Let $c_t = \frac{C_t}{N_t^{ESTR}}$ and assume a sequence of minting M_i and redemption R_j events.

Then:

$$c_{t+n} = \frac{C_0 + \sum_i M_i + \sum_j R_j \cdot f_r}{N_0^{ESTR} + \sum_i M_i \cdot (1 - f_d) - \sum_j R_j}$$

Properties:

1. $c_0 = 1$ (bootstrap)
2. $c_{t+n} \geq c_0 = 1$ (monotonicity)
3. c_{t+n} strictly increases with any fee-generating transaction

Thus, the collateral ratio evolves from 1:1 at genesis to 1:>1 over time, ensuring continuous value accretion per unit in Swiss francs. The ratio is monotonic and non-reversible, meaning it can only remain constant or increase, never decline. For example, if the current ratio reaches 1:1.03 – indicating that each ESTR is backed by 1.03 ZCHF – this ratio becomes a new permanent floor; it can stabilize or rise further, but will never fall below 1.03.

From that, in conclusion, ESTR qualifies as a decentralized reserve asset because it fulfills the core function of a traditional reserve asset: preserving and enhancing purchasing power over time. By anchoring its value in Swiss francs, a historically stable and resilient currency, and by implementing a protocol design that ensures monotonically increasing collateral per unit, ESTR provides holders with deterministic value protection and structural appreciation.