

Permissionless Portfolio Management on the Internet Computer (ICP)

Whitepaper

Introduction

The cryptocurrency ecosystem is evolving beyond centralized exchanges and custodial solutions. In a world increasingly embracing decentralization and self-sovereignty, we propose a fully permissionless portfolio management platform built natively on the Internet Computer Protocol (ICP). This platform empowers users to build, manage, and automate multichain portfolios without relying on legacy intermediaries.

Vision

Our vision is to provide a seamless and powerful self-custody platform where anyone, anywhere, can:

- Create diversified portfolios with multiple crypto assets
- Onboard capital with ease and transparency
- Automate rebalancing and strategy execution
- Offboard capital without centralized constraints

All powered by canister smart contracts, Internet Identity, and ICP's unique capabilities.

Architecture Overview

Component	Description
ICP Canister Smart Contracts	Manage portfolio logic, rebalancing, fee logic, and automation.
Web3 Wallet Integration	Connect via Internet Identity, Plug, MetaMask, and WalletConnect.
Cross-Chain Integration (HTTP Outcalls)	Fetch prices, balances, and execute DEX trades across multiple chains.
Frontend Interface	A responsive UI deployed on-chain using the IC's asset canisters.

Bitcoin Integration

Send and receive native BTC via direct Bitcoin support on ICP.

Key Features

1. Portfolio Management Engine

Users can define asset allocations, deposit funds, and automate rebalancing. Portfolios are represented as on-chain NFT contracts with customizable rules.

2. Web3 Wallet Connectivity

Leverages Internet Identity for secure login, with optional external wallet integrations for multichain capital flow.

3. Cross-Chain Asset Support

Utilizes HTTP outcalls to access on-chain balances and swap capabilities via DEX APIs like Uniswap, Orca, or Jupiter.

5. Native Bitcoin Logic

Thanks to ICP's direct Bitcoin integration, users can manage BTC allocations without bridging or wrapping.

User Stories

- **As a crypto user**, I want to create and manage a multichain portfolio without trusting a centralized exchange.
 - **As a long-term investor**, I want to automate rebalancing based on my risk profile.
 - **As a Web3-native user**, I want to deposit and withdraw funds through my ICP, ETH, or BTC wallets.
 - **As a DeFi explorer**, I want to earn rewards for holding my portfolio position long term.
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On-Ramp Strategy

Method	Description	Benefit
ICP Deposit	Native deposit via Plug or Internet Identity	Fully decentralized and low cost

Third-Party Fiat Gateways	Optional integration with Transak, MoonPay	Accessible to non-crypto users
Cross-Chain Transfer	Import assets from EVM chains or Bitcoin	Enables multichain strategy

Off-Ramp Strategy

Method	Description	Benefit
DEX Swaps via HTTP Outcalls	Token swaps on-chain via integrated APIs	Efficient and permissionless
Fiat Off-Ramp (Optional)	Withdraw via MoonPay or Transak	User-friendly for beginners
Native BTC Withdrawals	Direct Bitcoin send	No bridges or wrapped tokens

Values and Philosophies

- **Self-Custody First:** Every feature respects the user's autonomy and ownership.
 - **Permissionless Access:** No gatekeepers, KYC optional and never enforced at the base layer.
 - **Transparency Always:** Fee structures, rebalancing logic, and trade routes are always visible.
 - **Composability:** Fully open infrastructure for developers and DAO builders.
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Smart Contract Interface (Candid Example)

```
service : {
  create_portfolio: (PortfolioConfig) -> (text);
  get_portfolio: (text) -> (PortfolioConfig);
  deposit_funds: (text, Asset) -> (bool);
  withdraw_funds: (text, Asset) -> (bool);
  auto_rebalance: (text) -> ();
}
```

Deployment on ICP

All core modules are deployed as canisters:

Module	Deployed on ICP?	Notes
Portfolio Engine	✓	On-chain strategy and rule logic
User Interface	✓	Served via asset canisters
BTC Integration	✓	Native Bitcoin via IC support
Cross-Chain Data	✓	Powered by HTTP outcalls

Conclusion

This platform represents a leap toward sovereign financial tooling. Built entirely on the Internet Computer, it offers a fast, low-cost, and truly decentralized experience for crypto investors who want total control. With native smart contracts, full-stack deployment, and direct Bitcoin integration, we are redefining portfolio management for the Web3 era.

Financial freedom for everyone, everywhere.