

White Paper

PYUSD on Stellar

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PayPal USD (PYUSD) is now available on the blockchain network Stellar. Stellar is a fast, efficient, scalable, and low-cost network that is purpose-built for real-world financial use cases, including payments, real-world assets (RWA), and Decentralized Finance (DeFi).

The financial focus of the Stellar network, combined with its high speed and low cost, make the network a natural fit for the fully-backed, widely distributed stablecoin PYUSD.

Let's look in detail at the Stellar blockchain network, PYUSD, and how together they help to enable the future of modern finance.

What is PYUSD?

PYUSD is a **stablecoin** issued by Paxos Trust Company, LLC (<u>Paxos</u>), a limited-purpose trust company regulated by the New York State Department of Financial Services (<u>NYDFS</u>). PYUSD is 100% backed by high-quality liquid assets.



PYUSD is a stable store of value, <u>fully-backed</u>, built on blockchain, that is redeemable 1:1 for USD. It was created from the ground up to provide the technology needed for the future of digital payments.

As a stablecoin, PYUSD is a fast, cost-effective, and inclusive method for payments.

Callout:

Stablecoins Defined. Most cryptocurrencies fluctuate in price, often considerably, and are unsuitable for payments. For example, the value of Bitcoin in USD can swing by double-digit percentages in a single day. Because of this volatility, users typically don't settle invoices with a cryptocurrency such as Bitcoin. **Stablecoins** are cryptocurrencies designed to solve this problem by maintaining a stable value, often by pegging the value to a fiat currency (such as USD) 1:1. Stablecoins offer the best of both worlds: They keep a low rate of day-to-day volatility yet still provide the benefits of blockchain—fast, cost-effective, global payments that are provable and fraud-proof.

PYUSD can be bought, sold, sent, received, and spent. For example, eligible users can:

Buy PYUSD on PayPal and Venmo.

Buy PYUSD on an eligible exchange using any compatible crypto wallet.

Pay for online transactions using PYUSD.

Send and receive PYUSD to and from eligible persons across the globe, both inside and outside of the PayPal ecosystem.

Redeem PYUSD for USD via PayPal, Venmo, Paxos, and exchanges that support PYUSD.

Convert PYUSD to other cryptocurrencies.

Why do we need stablecoins like PYUSD?

Current payment rails and messaging protocols, such as ACH, SEPA, and Swift form the backbone of global payments. The reality is, they work. They allow us to transact at scale and with sufficient trust that payments will happen the way we expect.

However, these technologies can force trade-offs between speed and cost-effectiveness, at a time when users often expect—and require—both. For example:



Payments accrue fees as they move between parties and require arrangements such as infrastructure overhead and liquidity requirements.

Batch-processing schedules and limited operating hours mean that payments can take days to settle.

Net settlement arrangements make small-dollar value transactions economically untenable to process.

Innovations such as crypto payments offer an opportunity to streamline this process and make payments more efficient, cost-effective, and accessible. And USD-based stablecoins, such as PYUSD, offer an inclusive entry point into crypto payments based on the familiar, traditional, and global fiat USD.

PYUSD: A Modern Payments Solution

PYUSD is a modern payments solution that upgrades stablecoin transactions to stablecoin payments.



PYUSD is fully backed and audited

PYUSD has high levels of distribution

PYUSD supports a wide variety of payment needs

PYUSD has easy on- and off-ramps

PYUSD has anti-fraud measures

Let's look at each of the above points in detail.

PYUSD • Is fully backed and audited

PYUSD is issued by <u>Paxos</u>, a limited-purpose trust company (LPTC) regulated by the New York State Department of Financial Services (<u>NYDFS</u>). NYDFS has established a comprehensive framework for regulating virtual currency businesses, including stablecoin issuance and the required reserves.

PYUSD is 100% backed by cash and cash equivalents held in:

Cash Deposit accounts with insured depository institutions, with each such account segregated from any proprietary assets of Paxos and PayPal and from any reserve assets that Paxos maintains on behalf of holders of other tokens issued by Paxos,

US treasury bonds with remaining maturities of less than 90 days held in custody accounts protected from bankruptcy at highly rated financial institutions.

PYUSD transactions are subject to regular audits and daily attestations, including the <u>publication of monthly third-party attestation reports</u>.

PYUSD • Has high levels of distribution

Distribution of PYUSD is achieved in a variety of ways, including:

On **PayPal and Venmo**, PYUSD is available for purchase and transfer by eligible persons. On Xoom, PYUSD can be used to fund cross-border P2P payments.

Outside of the PayPal ecosystem, PYUSD can be transferred using supported exchanges via a compatible wallet.



PYUSD can also be used for a variety of use cases that encourage distribution. For example, PYUSD can be used as a fast, low-cost funding instrument for venture investments such as the <u>investment made by PayPal Ventures</u> in Mesh, or for invoicing vendors, and for other services.

PYUSD • Supports a wide variety of payment needs

Existing stablecoin infrastructure can facilitate the transaction of stablecoin assets between wallets. But with payments payments made through PayPal using PYUSD, eligible users can leverage the full range and power of PayPal.

PYUSD • Has easy on- and off-ramps

As some of the most widely used financial services applications in the US, the PayPal and Venmo apps provide easy and straightforward ways to move fiat to PYUSD and back. This simplified user experience allows eligible consumers to easily on- and off-ramp, without worrying about asset custody, multichain switches, and key management. Additionally, token holders can redeem PYUSD directly with the issuer, Paxos.

PYUSD • Offers anti-fraud measures

When used on PayPal, PYUSD incorporates PayPal's anti-fraud mechanisms to help protect users and facilitate mainstream payments at scale.

PayPal has collaborated with leading blockchain forensics firms Chainalysis, TRM Labs, and Elliptic Forensics, as well as created custom investigation teams to help identify and prevent fraudulent and illicit activity involving PYUSD. PayPal also partners with Inca Digital to identify scam PYUSD tokens and have them pulled down from the exchanges where they are listed. PayPal is also a member of the TRUST consortium, a group of leading cryptocurrency firms that jointly share information on customer crypto transfers, including PYUSD, to satisfy requirements of the Financial Crimes Enforcement Network (FinCEN) of the US Treasury Department.



PYUSD is now available on Stellar

Next let's look at the technology behind the blockchain network Stellar.

Stellar . The Solution for Real-World Financial Problems

Stellar, launched in 2014, is a <u>blockchain network</u> for fast, low-cost, global payments at scale. Stellar is a proven and popular blockchain network with over <u>9 million accounts</u> and <u>20 billion all-time operations</u>. It's also a highly cost-efficient network with an <u>average transaction cost of just \$0.001</u>.

Stellar was purpose-built for fast, low-cost payments. This focus on financial services has resulted in a network that excels at real-world financial use cases, such as fast and cheap cross-border payments, global accessibility, easy on- and off-ramps to fiat, and more.

With its powerful suite of developer tools, it also gives teams the power to bring everyday financial services on-chain.

Callout:

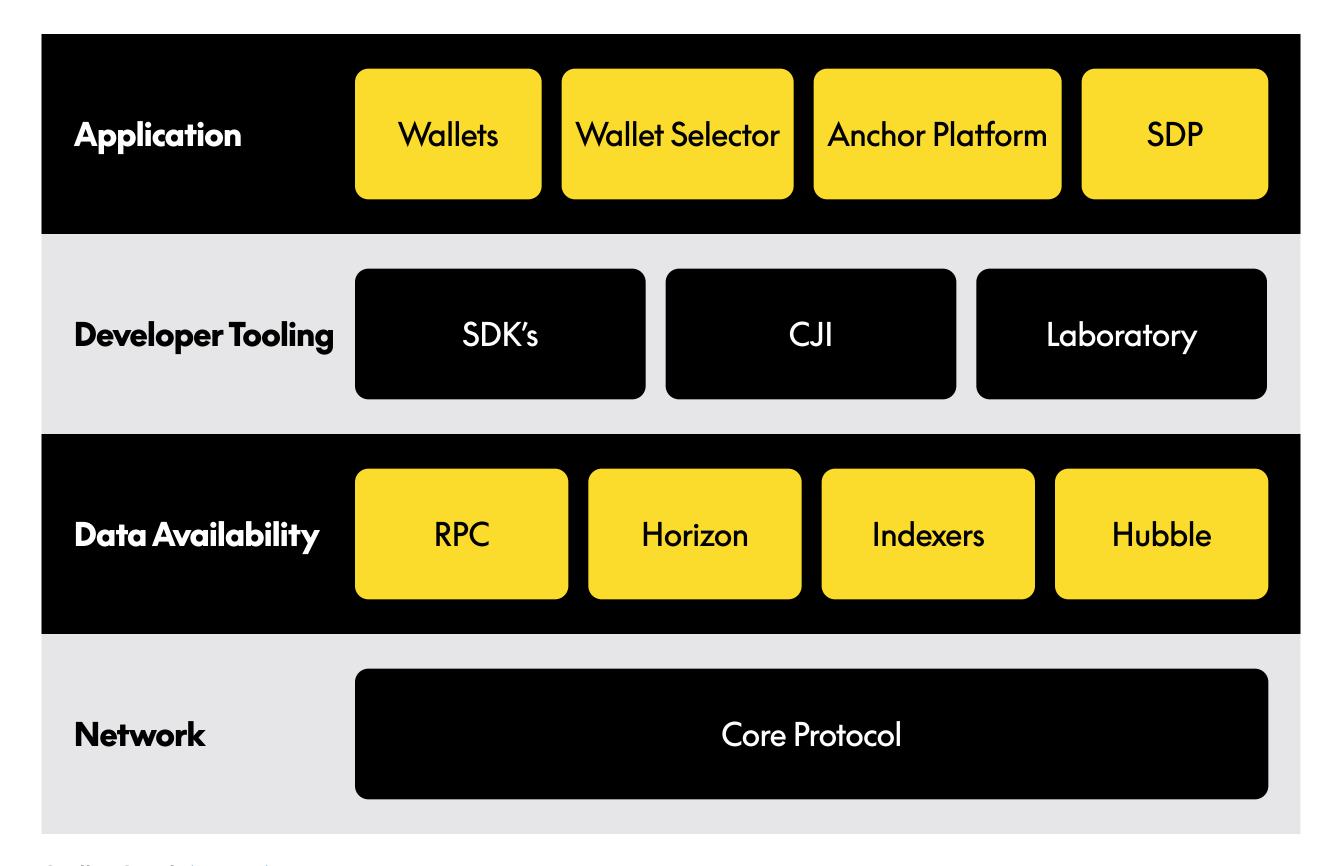
The Stellar network's native currency is <u>Lumens</u> (XLM). Lumens are used to <u>pay</u> transaction fees, fund rent, and cover minimum balance requirements on the <u>network</u>. The Stellar network also requires that every account hold a small number of Lumens at all times. This nominal cost stops the network from being spammed with junk or arbitrary data.



Stellar • Stellar Technical Stack Overview

Let's look in detail at the technical stack that enables the power of the Stellar network. The stack consists of four layers:

Network
Data availability
Developer tooling
Application



Stellar Stack (source)



Network Layer

The **Network layer** consists of three distinct networks: Mainnet (for production, also called the public network), Testnet (for testing), and Futurenet (for development).

Within these networks is the Stellar Core Protocol ("SCP"), the aptly named program that is the true core of the network. This core protocol is used by nodes on the network for transaction processing, validation, and consensus.

Callout:

Most blockchain networks use either Proof of Work (PoW) or Proof of Stake (PoS) for consensus. But Stellar uses a novel consensus protocol mechanism called Proof-of-Agreement (PoA).

PoA does not use the traditional blockchain concept of miners. Instead, it creates consensus through a series of messages exchanged between participants that confirm transactions and finalize the ledger.

SCP and PoA make Stellar faster, cheaper, and far more energy-efficient than most chains.

Stellar • Smart Contracts

As part of the Core Protocol, <u>smart contracts</u> on Stellar are the logic that drives the apps on the Stellar blockchain.

Smart contracts on Stellar are written in Rust and deployed with <u>Soroban</u>, the smart contract platform integrated into the Stellar blockchain.

Developers are encouraged to check out Contract Copilot, the new Al-powered assistive tool that helps generate, validate and test Stellar contracts, effectively serving as an intelligent IDE plugin for the Stellar ecosystem.



Data Availability Layer

The **Data Availability layer** allows access to the data and smart contracts on the Stellar network. Some key components include:

RPC	JSON RPC server that provides an interface for applications (and users) to interact with smart contracts. The RPC server receives and interprets requests and returns results.
<u>Horizon</u>	A client-facing RESTful HTTP API server that allows programs to submit transactions and query the network. Access to Horizon can be through an SDK, a browser, or command tools such as cURL.
<u>Hubble</u>	An open-source, public dataset containing the complete historical record of the Stellar network.

Developer Tooling Layer

For **Developer Tooling,** Stellar offers a wide variety of helpful tools and libraries, including:

<u>Several SDKs</u> that allow you to interact with Stellar in a variety of languages, such as Rust, JavaScript, and Python.

A command line interface (CLI).

The tool <u>Stellar Lab</u> for development, testing, and exploring APIs.



Application Layer

At the Application Layer, Stellar offers a variety of tools and applications to help developers, such as <u>Wallets</u>, <u>Freighter</u>—an open-source browser extension wallet designed with both usability and extensibility in mind, and, critical to stablecoins, **the Stellar Disbursement Platform (SDP)** and the **Anchor Platform**.

The Stellar Disbursement Platform (SDP) is an open-source tool that makes sending cross-border payouts at scale easy, fast, and cheap. SDP automatically creates wallets for receivers, removing any setup complications and barriers.

The <u>Anchor Platform</u> is a set of tools and APIs that enable developers and businesses to build their own on and off-ramp services for the Stellar network. These services (called "Anchors") connect Stellar to traditional financial rails. They can accept deposits of fiat (such as the US dollar) via existing rails (such as bank deposits or PayPaI), send the user the equivalent digital tokens on the Stellar network, then allow the token holder to redeem their tokens for the real-world assets they represent.

Teams often offer these Anchors as pre-built services, so that developers building on Stellar can create apps with the on-ramps and off-ramps already built.

Callout:

View the <u>Anchor Directory</u> for more information on Stellar Anchors, including Anchors that support PayPal and PYUSD.



Stellar • Advantages of PYUSD on Stellar

Since Stellar was built for financial use cases, it offers many benefits when combined with PYUSD:

PYUSD on Stellar can be used for fast (\sim 5 seconds), affordable ($\frac{$0.001}{}$) cross-border payments, giving expanded access to essential financial services to underserved locations across the globe.

With Anchors and third-party products, Stellar connects PYUSD seamlessly to local payment systems and cash networks.

Access to the Stellar network's infrastructure enhances how people use PYUSD in their everyday financial activities, from payments to remittances to merchant services.

Users benefit from improved daily payment options and financing solutions such as working capital and business loans—use cases already thriving on the Stellar network.

Stellar gives PYUSD users access to its vast network of on- and off-ramps, making it easy to move between digital and physical.

Small businesses and individuals in emerging markets now have access to a digital currency that may be more inclusive and stable than their local flat currency.

PYUSD on Stellar can enhance liquidity and financing opportunities through Payment Financing or 'PayFi', an emerging innovation in digital finance.

Small and medium-sized businesses that face delayed receivables or pre-funding requirements can access new sources of real-time working capital, disbursed in PYUSD.

This capital can be used to pay suppliers, manage inventory, or address other operational needs, all with instant settlement on Stellar.

Liquidity providers can fund these opportunities and earn potential, sustainable benefits from real-world economic activity.

PYUSD on Stellar can drive efficient, modernized money movement, cost transparency, and minimize settlement delays by unlocking better borderless financial flows.



Stellar • Building with PYUSD on Stellar

Next, let's look at what teams need to start building with PYUSD on Stellar.

Callout:

PYUSD is also available on Solana, Ethereum, and Arbitrum blockchains.

Stellar . Advantages of Building with PYUSD and Stellar

Stellar is focused on developers. It offers a highly active ecosystem with <u>years of consistent</u> development activity and support, an active <u>developer community</u>, well-funded <u>developer</u> grants, and a <u>roadmap</u> that promises to increase scalability and usability even further.

Developers building with PYUSD on Stellar have several advantages:

Stellar is built for real-world payments, with native features to help developers, such as:

path payments where the asset received in a transaction can change from the asset sent, all within one atomic transaction.

an on-chain, native DEX/AMM at the protocol layer offering deep composability without third-party risk or infrastructure.

Stellar is built to support real-world financial use cases, including cross-border money movement, remittances, payouts, neobanks, fintech wallets, tokenized deposits, RWas, and fiat ramps. Developers building these types of services will find support, knowledge, community, documentation, and tools focused on the financial industry.

Anchors and third-party providers make it simple to exchange flat for PYUSD, use PYUSD across the global blockchain network, and convert it back to flat. With Anchors, users can on- and off-ramp from local currencies into PYUSD using PayPal and other compliant flat ramps that may support payment methods such as Apple Pay or bank transfers. Since Anchors provide these rails, developers don't need to rebuild them from scratch.

Performance milestones for 2025 include several enhancements, with work underway to increase theoretical peak throughput to 5,000 transactions per second (on par with major credit card networks) and reduce ledger close times to 2.5 seconds.



And with the new Al-powered <u>Stella</u> that aggregates technical video content, github, repositories, developer documentation and Discord conversations, developers can easily find the information they need.

Bridging

Bridging in Web3 is the ability to move assets/tokens from one network to another. Bridging PYUSD on Stellar is supported by third parties and by Soroban libraries.

Axelar	The universal interoperability network that securely connects all blockchain ecosystems, applications, assets, and users
General Message Passing (GMP) contracts	Core contracts used by Axelar to integrate Stellar with other blockchains
Interchain Token Service (ITS)	Protocol that allows tokens to move freely between different blockchains

PYUSD Smart Contract

PYUSD on Stellar is a <u>Stellar Asset</u> (as opposed to a <u>custom token</u>) that leverages the <u>Stellar Asset Contract</u> (SAC)—a contract that allows users and contracts to make payments with, and interact with, assets—making PYUSD broadly compatible with Soroban protocols.

Callout:

Assets on Stellar can represent cryptocurrencies, fiat currencies, tokens of value (such as NFTs), pool shares, or bonds and equity.



Testnet

Testing of PYUSD/Stellar apps should be done on the <u>Stellar Testnet</u>. This testnet is a smaller, free-to-use network maintained by the Stellar Development Foundation that functions like Mainnet but doesn't connect to real money. It is ideal for testing implementations before moving to a public environment.

As a test network, testnet uses corresponding test versions of tokens such as PYUSD and XLM. These test tokens allow developers to deploy and interact with smart contracts, test transactions, verify wallet integrations, and more. Unlike mainnet tokens, these testnet tokens have no real-world value.

Test PYUSD is available for free using the Google Cloud Web3 faucet or the Paxos faucet.

PYUSD Testnet contract

PYUSD Testnet asset

Issuer: GBT2KJDKUZYZTQPCSR57VZT5NJHI4H7FOB5LT5FPRWSR7I5B4FS3UU7G

AdminContract: CBZ5K5D736MF5QEUSSPTEXSOUQUWDQBATDY3O7HNYOMRSJQG7PVPTVD3

Callout:

Callout: A Web3 faucet is an online tool that gives out small amounts of test tokens on demand and for free. See our <u>article on the Google Faucet</u> for more information.



Mainnet

Production apps on Stellar deploy to **Stellar Mainnet**.

PYUSD Mainnet contract

PYUSD Mainnet asset

Issuer: GDQE7IXJ4HUHV6RQHIUPRJSEZE4DRS5WY577O2FY6YQ5LVWZ7JZTU2V5

AdminContract: CAKBVGHJIK2HPP5JPT2UOP27O2IMKIUUCFGP3LOOMGCZLE3NP73Z44H6

Exploring Stellar Further

For more information on building with PYUSD and on Stellar, check out these resources:

Stellar developer hub

Complete Stellar <u>Developer Documentation</u>

Write your first smart contract with Soroban - Write, deploy, and invoke your first Rust/WASM contract

Build your first app - build a simple payments app on Testnet and learn about accounts, transactions, and app flow

PYUSD developer hub

<u>Scaffold Stellar</u> - a new onramp for developers entering the ecosystem, built to simplify onboarding and to cut down time-to-prototype.



PYUSD on Stellar use cases

Let's next look at some of the most common use cases that PYUSD on Stellar supports.

Fast, affordable cross-border payments

Sending cross-border payments is a thriving market, with \$685 billion USD in flat payments sent in 2024 alone to low- and middle-income countries. However, fees for these transfers can be high, and are especially impactful for individuals in disadvantaged countries.

With PYUSD and Stellar, individuals can send funds to eligible recipients with a compatible wallet and get near-instant settlement at minimal to no cost.

Expanded access to essential financial services

PayFi, short for payment financing, is already happening on Stellar. By leveraging payment flows on-chain, PayFi enables financial solutions such as working capital and business loans, giving users faster and more efficient access to capital. PYUSD can be used within these PayFi solutions as the currency layer.

Easily bridge the digital and physical worlds

Stellar supports a vast array of on- and off-ramps (such as Anchors) and third-party products, making it simple and seamless to exchange fiat to PYUSD, use PYUSD as part of a global blockchain network, and then exchange the PYUSD back to fiat as needed.

And with the Stellar Development Foundation's <u>focus on RWAs</u>, users and businesses can easily move assets between the digital and physical worlds, enabling a truly global commerce of both currency and assets in non-restricted areas.

The Stellar Development Foundation recently joined the ERC-3643 Association. ERC-3643 is an open-source framework for issuing and managing permissioned tokens that meet regulatory and compliance requirements for RWAs. With ERC-3643, Stellar becomes a foundational layer for institutional-grade RWAs.



Business-to-business transfers

A majority of B2B payments are still made on legacy payment rails such as wire transfers. While these rails work, they are often slow (sometimes taking more than a day), expensive (they can cost \$25-45 for the sender with possible additional fees for the recipient), and inefficient. These pain points are even more pronounced when working with cross-border B2B payments, where multiple entities or currencies can be involved.

With PYUSD and Stellar, businesses can solve these issues, building services that support near-instant, cost-effective transfers across borders. Businesses can also write their own smart contracts to govern these transactions, making payments even faster.

Merchant payments

With PYUSD and Stellar, merchants can accept payments in a stable, widely recognized digital dollar while settling instantly on-chain at lower cost.

Conclusion

PYUSD on Stellar combines the fully-reserved PYUSD stablecoin with the speed, affordability, and financial focus of the Stellar network. Together, they create an inclusive, fast, and cost-efficient network built for payments, real-world assets, and institutional-grade finance.

We are excited to see what you'll build! Start today by exploring the PYUSD developer hub, Learning more about Stellar, and minting test PYUSD today.

