

Open Gold Protocol Whitepaper

dForce Network

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1. Overview

As one of the scarcest resources in the world, all gold ever mined totaled 150,000 tons throughout the entire history of civilization on this planet, with an average of only around 20 grams per person. Although the price of gold fluctuates in response to a variety of market conditions, the slowdown in number of new gold discoveries will ultimately lead to dip in supply and increase in price. With the changing international economic environment, gold performs strong as a hedge against inflation shocks and reacts to price pressures. Looking ahead, gold is expected to play a starring role as a store of value with investors' expectations on future inflation climb amid global stimulus efforts.

Investing in physical gold comes with issues like difficulties in storage, delivery and trading of gold bar and gold coins, and is often associated with high cost. This gave rise to a variety of gold derivatives for investors to build a diversified portfolio through different instruments, including physical gold bars and coins, jewelry, paper gold, gold ETF, gold futures, and etc. Each is featured by different operational costs and trading rules, catering to investors of different needs.

With the rapid development and progress being made in cryptoassets and blockchain, a number of institutions have launched tokenized solutions for digital gold. These solutions may vary in respect of operating costs, regulatory environment, technology, fee schedule, trading and redemption, but all harvest the best of physical gold and digital currency, providing instant and cheap access for individual investors to obtain, hold, and trade gold, thereby improving accessibility and universal liquidity of gold. However, these solutions are possibly exposed to varying degrees of single-point failures with asset issuers and third-party custodian institutions.

To this end, dForce has launched an open and innovative solution – the Open Gold Protocol, a decentralized and synthetic digital gold token pegged to one or multiple constituent gold tokens that of superb quality and are widely adopted by the market, which is adjustable through on-chain governance. Anyone can use the protocol to mint or redeem digital gold token without the need of any middlemen in attribution. The Open Gold Protocol was introduced with minimized reliance on centralized institutions (i.e. asset issuers, custodian institutions, etc) and enhanced competency in flexibility and scalability.

The first of such is GOLDx, which is 100% backed by constituent gold tokens on-chain (initially with PAXG as its sole constituent gold reserve). We will evaluate and add more gold tokens into the reserve in the future (aka ETF). Anyone can use the protocol to mint or destroy GOLDx at any time, and redeem physical gold through designated agents and brokers worldwide. GOLDx is 100% compatible with all DeFi protocols and is easy for DeFi integrations (trading, lending, derivatives, etc). We charge zero fees for on-chain transactions of GOLDx (noted that there will be fee levied by Paxos, the asset issuer of constituent, for conversions to PAXG and vice versa, as well as gas fees for using the Ethereum network).

2. Traditional Gold Market

Gold has been classified as a commodity, a monetary asset, a trusted store of value and a hedging instrument since antiquity. Its rarity and aesthetic qualities made it an ideal material for ruling classes to demonstrate their power and position, and gave rise to gold standard monetary system that lasted for centuries. In 1976, International Monetary Fund (IMF) approved the “Jamaica Agreement” and a revised agreement two years later, announcing that gold would no longer be defined as money, thus making the end of gold standard. However, gold still holds a prominent place in our global economy today as a crucial settlement method and an indispensable part of official reserves of various countries.

Reported Gold Holdings – Top 20 Countries and Institutions (April 2020)

Rank	Country	Tonnes	Rank	Country	Tonnes
1	USA	8,133.5	11	Netherlands	612.5
2	Germany	3,366.5	12	ECB	504.8
3	IMF	2,814.0	13	Turkey	453.5
4	Italy	2,451.8	14	Taiwan	422.4
5	France	2,436.0	15	Kazakhstan	388.3
6	Russia	2,290.2	16	Portugal	382.5
7	China	1,948.3	17	Uzbekistan	330.6
8	Switzerland	1,040.0	18	Saudi Arabia	323.1
9	Japan	765.2	19	United Kingdom	310.3
10	India	635.0	20	Lebanon	286.8

Source: [World Gold Council](#)

Although the majority of gold reserves is currently controlled by governments, the increase in gold price is led by higher retail participation in the face of rising economic uncertainty.

Higher demand and prices for gold is driven firstly by the market, mainly a broad range of investment funds, with major players including commodity funds, as well as international consortiums, banks, insurance companies, and individual participants from different regions around the globe. Retail participation accounts for more than 95% market share of the trade of gold today. Put another way, today's gold price is determined by the market, not sovereignties.

1) Features of the Traditional Gold Market

As an integral part of the financial system, we have seen an emerging trend in gold investment in recent years featured by:

- I. Globalization of the gold market is featured by trading on a global scale in facilitating price discovery and bringing together buyers and sellers. Today, we see an overall trend with the gold market characterized by trading throughout all time zones, up move on global liquidity and popularity.
- II. For many market participants, gold has been a reliable portfolio diversifier due to the fact

that it has the ability to act as a hedge against volatility. It remains an important asset in the reserve holdings of many countries, as it alone has the requisite stability in value, perpetuation, and increasing liquidity. As such, gold delivers distinct and notable benefits as a tool of hedging against economic downturn, rising inflation and geo-political threats.

III. Gold contributes greatly to the traditional financial system. Presently, there are 36,000 tons of gold held by central banks of various countries as international reserves, accounting for 20% of total gold reserves. Also, gold has been viewed as a vital investment instrument in the financial market. The price level of gold responds reversely to a number of factors including international politics, economic environments, and exchange rates, making gold a popular portfolio diversifier to reduce the overall risk of fiat currency and securities.

2) Three Major Trading Centers of Gold

Gold trading center is the marketplace where gold is traded. The two primary forms of gold trading in the wholesale market are over-the-counter (OTC) and on exchanges. Exchanges are typically regulated platforms in the financial centers of various countries. There are three major gold trading centers in the current global market. They have a large role to play in the financial market and have witnessed robust growth in recent years.

I. London Gold Market

London Bullion Market Association (LBMA), as an important component of the London International Financial Centre, publishes the daily global reference benchmark for gold twice a day. There are five large and long-standing gold merchants who have been accredited to contribute to the LBMA gold price, which dominates worldwide gold price discovery. London Gold Market is an Over-the-Counter (OTC) market where participants trade bilaterally on spot transactions, options, futures, swap, etc.

II. US Gold Market

Presently, New York Gold Market is the world's largest gold futures trading market with increasing importance. The NYMEX division of Chicago Mercantile Exchange (COMEX) provides a broad range of investment instruments including gold futures, options, etc. Gold prices are determined through public auction in NYMEX using a price-time priority precedence hierarchy. NYMEX is famous for the trading of gold futures contracts, which is predominantly used for price hedging and speculation.

III. Hong Kong Gold Market

The Hong Kong Gold Market comprises of 1) an active physical gold trading market; 2) local London OTC market; and 3) gold futures market.

Identical to the London Bullion Market Association (LBMA), the Chinese Gold and Silver Exchange Society publishes the price for gold twice a day denominated in US dollar, but follows the US market in respect of trading rules.

3) Traditional Investment Instruments for Gold

The most traditional ways of investing in gold are buying gold bars, gold coins, accounts, certificates, futures, and options. Gold derivatives demonstrates a robust uptrend in recent years, including gold lending, forwards, futures, options, swap, leasing, deferred settlement

transaction, etc.

3. Digital Gold Market Overview

Digital asset is by far the best-optimized blockchain-based solution that enables cheaper transaction with enhanced efficiency. Digital gold is the tokenized asset backed by physical gold with more convenience and flexibility to transact value on public blockchains.

1) Dominating Digital Gold Tokens

Today, three types of digital gold tokens account for approximately 94% of total trading volume. Despite their distinctions in operating cost, regulatory environment, technology, fee schedule, trading/redemption requirements, they can be used to redeem for physical gold.

Overview of Leading Gold-Backed Digital Tokens: XAUT, PAXG, DGLD

Name (Project)	Tether Gold	PAX Gold	DGLD
Ticker	XAUT	PAXG	DGLD
Launch Date	23 Jan 2020	5 Sep 2019	12 Dec 2019
Key Differentiators	Multiple redemption options (physical gold or cash); “allocated gold is identifiable with a unique serial number, purity and weight	Regulated by NYDFS, NY trust entity creates added legal protections; provides serial number of corresponding gold bar(s) in London (customer may hold fractions in multiple bars); ease of mapping PAXG and gold spot prices	Bitcoin (BTC) sidechain security anchor; regulatory compliance (i.e. customer whitelisting, KYC, provable chain of custody) tokens mapped to specific gold bars viewable on public block explorer; physical redemption of as little as 1g of gold
Trade-offs	Large minimum purchase (50 oz); potential exposure to related Tether entities and Tether’s transparency track record	Fees for transacting and buy/redeem can be relatively expensive on smaller quantities; US regulated	Annual cost charged to DGLD owner in the form of 1% dilution; mental mapping of DGLD price to gold spot price
Stability Benchmark / Reference Peg	One fine troy ounce	One fine troy ounce of London Good Delivery gold certified by the London Bullion Market Association	1/10th of a fine troy oz of London Good Delivery gold certified by the London Bullion Market Association
Gold Reserve Location	Switzerland	London	Switzerland (MKS PAMP vault facility in Castle San Pietro)
Gold Reserve Third-Party Custodian	Unknown	Brinks	MKS
Current Market Cap	\$88,388,286	\$39,514,583	\$25,196,423

Source: [Blockchain.com](https://blockchain.com)

Current Market Cap dated on 2 July 2020 from Etherscan and <https://explorer.dgld.ch/>

It can be seen that the existing dominating digital gold tokens carry a number of characteristics in common:

- I. **Backed by physical gold:** each digital gold token represents a portion of the physical gold assets under custody (reserve).
 - II. **Physical backing gold are held in third-party custodian:** gold reserve storage locations often in the world's major gold markets (i.e. Switzerland and London).
 - III. **Most of digital gold tokens are linked to specific gold bars:** individual digital gold token can be tracked online against specific physical gold bars held in storage.
 - IV. **Leveraging existing public blockchains for strong network effects:** often launched on existing public blockchains (mostly Ethereum-based ERC-20 standard), making it easy to store, transfer and trade digital gold tokens, with enhanced security and traceability.
 - V. **Micro-ownership of gold supported:** Digital gold tokens can support up to 18 decimal points, making it possible and easy for users to hold a miniscule portion of gold.
 - VI. **Easy trading of digital gold:** Digital gold tokens can be traded on exchanges against fiat currencies and other digital assets at exchange rates that tracks the real-time spot price of gold;
 - VII. **Fee-based business model:** token issuers will charge fees for a variety of services associated, including the storage, delivery, custody of physical gold, as well as issuance, transaction, and redemption of digital gold tokens.
- 2) Benefits of Digital Gold
- Digital gold has emerged as an alternative to invest directly in gold while avoiding many of the challenges of owning physical gold or other gold assets in the traditional financial market. Digital gold offers attractive merits compared to its physical counterparts, including high scalability, interoperability and programmability of cryptocurrency. In addition, digital gold token can be traded at anytime with low fees and easy storage. The emerging decentralized finance will unlock more opportunities for digital gold derivatives.
- The birth of digital gold is expected to develop better connections with foreign exchange market and capital market for a more unified gold market with enhanced efficiency.
- 3) Digital gold against traditional ways of investing in gold

Gold ETF/Futures vs Physical Gold vs Digital Gold

Characteristics	Traditional financial instrument gold (ETFs, futures)	Physical Gold	Digital Gold
Liquidity	~\$200 billion in daily trading volume of ETFs and futures; fungibility within the same type of instrument but not always across different types of instruments	Physical gold is difficult to deliver, the transaction process is slow and cumbersome with high credit requirements for all parties involved in the transaction, which greatly affects the transaction speed and market liquidity	~\$1-2 million in daily trading volume; tokens are highly fungible
Accessibility	Accessible through traditional financial markets (retail brokers, institutional traders, retirement accounts, etc)	Subject to the geographic location of physical gold storage. The physical delivery of gold bars can be cumbersome, expensive, and slow	Trade at any time via the Internet (web, mobile); digital wallet storage and transfer with low cost, making it a better medium of exchange
Pricing	Price of the spot futures market has obvious advantages	Slightly higher than the spot price (usually 1 ~ 4% higher than the spot price of gold coins/bars, depending on size)	The price varies with the fee structure of each asset issuer and other factors; correlates with spot gold price but may deviate
Yield generating	Lend assets to third parties for margin trading, options, etc., and earn interest income	Gold in the name of an individual usually has no interest income, while gold in custody / treasury can be lent out to earn interest income	The emerging DeFi protocols provide more lending platforms and interest-bearing products for digital gold tokens
Regulatory status	Most regulated. Legal recourse against counterparties relatively more established	Physical ownership possible outside regulated institutions; regulation for purchase and trading is subject to local jurisdiction	Regulatory status varies by token
Cost of ownership	Varies. The annual service fee of the largest gold ETF (GLD) is 0.4%	Self-custody offers the lowest storage cost for smaller retail brokers, but physical security costs, insurance, etc may offset benefits	Onwership cost varies depending on the issuer's fee structure, transaction frequency, and holding duration, and etc

Security and insurability	Retail brokerage and institutional accounts usually introduce some of insurance or risk mitigation options (i.e. credit default swaps); financial instruments and underlying gold subject to forfeiture and seizure	Holding physical gold is easier to get a sense of security than holding "paper gold or digital gold tokens"; under certain circumstances, possession of physical gold may offer seizureship advantages; possible to purchase anti-theft insurance for physical gold	Gold recovery may be possible in certain cases as the underlying asset (physical gold) is stored off-chain; The freezing function of smart contracts can facilitate law enforcement seizure. underlying gold subject to forfeiture and seizure
Other benefits	Facilitate borrowing on margin	Can also be assets in the forms of jewelry, art, etc.	Programmability (such as smart contracts), ownership cutting into very small units, redeemable for specific physical gold; facilitate borrowing on crypto-asset platforms

Sources: [Blockchain.com](https://blockchain.com)

4. Open Gold Protocol

1) Product Design

Open Gold Protocol is a synthetic digital gold protocol launched by dForce and built atop the Ethereum, a wrapper of ERC-20 token with enhanced scalability and programmability and minimized friction and reduced costs. It is 100% compatible with all DeFi protocols and is easy for DeFi integrations, allowing people to obtain, hold, trade, invest, and lend digital gold (backed by physical gold reserves) with ease, up move on global liquidity and popularity.

2) Product Highlights

As a decentralized and synthetic digital gold token, the Open Gold Protocol is fully on-chain and is backed by one or multiple constituent gold tokens that are widely adopted by the market and are adjustable through on-chain governance. Users can use the protocol to mint or destroy digital gold token on-chain without the need of any intermediary in attribution.

The Open Gold Protocol is featured by a number of benefits :

- I. ERC-20 token deployed on the Ethereum, and thus, is capable of interacting with all infrastructures built atop the Ethereum (exchanges, wallets, DeFi protocols, etc.) and integrating with all smart contract applications seamlessly, wielding massive influence and adoptions across the crypto ecosystem.
- II. Overcomes challenges with ownership transfer, delivery failure, high custody costs, and lack of transparency associated with the trade of physical gold.
- III. Users can use the protocol to mint or destroy digital gold token on-chain without the need of any intermediary in attribution.
- IV. Constituent digital gold tokens can be added, removed or adjusted through on-chain governance – it can peg to one or multiple digital gold tokens simultaneously with

enhanced scalability and flexibility (aka ETF), as well as an effective risk mitigate against single-point failures (regulatory risk, censorship risk, operational risk of centralized organizations, etc).

- V. Resembles the most attractive attributes of digital assets, namely friction-lessness, fungibility, programmability and interoperability;
- VI. Like other Ethereum-based cryptocurrencies, the Open Gold Token is verifiable in respect of total supply, balances, and on-chain transactions;
- VII. Customized product catering to different markets, for example, digital gold tokens denominated in different pricing units (gram, ounce, etc).
- VIII. Attends to a broad range of DeFi protocols, including trading, lending, derivatives, etc.
- IX. Initially deployed on the Ethereum with the flexibility to expand to other blockchains as we scale up.

3) Technology

I. Architecture

The Open Gold Protocol adopts a programmable architecture with the core module stipulating key logics and core functions, and auxiliary modules in pluggable design for customized products catering to different markets.



II. Functional Modules

- Core Module: defines key logic and core functions, including conversion of pricing unit, constituents, mintage and destroy of digital gold token.
- Constituents Module: defines constituent tokens supported. Today, gold-backed digital tokens dominating the market are PAXG, XAUT, DGLD. There may also be index gold token in the future. Constituent modules provide a unified access for constituent token integrations, decimals and other functions.
- Risk Management Module: defines key risk indicators and assessment framework, facilitating selection of constituents and definition of index.
- Governance Module: functions to facilitate update of key indicators through on-chain governance and stipulation on effective time (time lock).
- Fee Model Module: defines functions including interest rate model, fee schedule,

etc.

- Oracle Module: provides an interface for acquiring prices of physical gold on-chain. Price feed will be aggregated from various sources with the mediated one published on-chain.

III. Risk Assessment Model for Constituent Gold Tokens

An in-depth and multi-dimensional risk assessment will be performed in respect of constituent reserve selection and its weighting:

- Rating: constituents are given a rating scale of one to ten for each of the following areas and an overall rating based on these results: launch time, security threats (hacker attack), security audit result, third-party integrations, total circulating volume, daily transaction volume, admin key access, etc. The scale has 10 as a maximum score denoting superb quality.
- Weighting: result of the assessment and rating visit will decide on whether to add it to the constituent basket and its weighting.

IV. Governance Model

- Voting: holders of governance token will have the right to vote on governance proposals through smart contract.
- Effectiveness: the corresponding interface will be called for any changes agreed upon through on-chain governance, and parameter or function updates will be implemented prior to the effective time agreed (which will be executed by smart contract through time lock)

4) Different Types of Synthetic Gold Tokens

GOLDx is the first gold protocol built upon the Open Gold Protocol by dForce. GOLDx is a synthetic digital gold token 100% back by constituent gold tokens on-chain (currently with PAXG as its sole constituent gold reserve). We will evaluate and add more gold tokens into the reserve in the future (aka ETF).

In the future, dForce will launch more customized digital gold tokens catering to different markets and use cases, including different pricing units (gram, ounce, etc), product design (single anchor or indexed product), types (spot, future, derivative, etc).

5. GOLDx Overview

GOLDx is the first gold protocol built upon Open Gold Protocol by dForce. It is a digital gold token (ERC-20 token) deployed on Ethereum. 1 GOLDx represents one gram of gold, with price tracking the gold spot price from LME (London Metal Exchange) (however, secondary market may produce a price variance). The minimum mintage in GOLDx is 0.001, allowing investors to own a minuscule portion of gold.

1) Product Design

GOLDx is an Ethereum-based smart contract built upon the Open Gold Protocol, a digital gold token backed by PAX Gold (PAXG) denominated in gram instead of troy ounce (1 troy ounce = 31.1034768 grams). As an ERC-20 token, GOLDx is 100% compatible with all DeFi protocols and can be minted or destroyed on-chain without the need of any middlemen in

attribution.

2) Product Highlights

GOLDx offers attractive merits compared with other market offerings:

- I. Zero fees associated with on-chain transactions of GOLDx, 100% compatible with all DeFi protocols and easy for DeFi integrations (noted that there will be fee levied by Paxos, asset issuer of PAXG, for conversions to PAXG and vice versa).
- II. Reserved fee module for future adjustment through on-chain governance.
- III. Flexibility with adjustments to constituent reserves and effective date. Users can mint or destroy GOLDx at pre-determined weighting prior to the effective date. After activation of the approved proposal, minting and destroying GOLDx will follow the new weighting agreed.
- IV. Reserved governance module for DF holders to participate in the governance process (update of key parameters of the contract, fee schedule, constituent adjustments, etc) through voting.
- V. Support the setting of minimum input for mintage (deposit PAXG to receive GOLDx) and destruction (deposit GOLDx to receive PAXG).
- VI. Ownership cutting to smaller units (GOLDx is denominated in grams versus PAXG in troy ounces) with enhanced flexibility.

3) Constituent Reserves

GOLDx token is 100% backed by PAXG. 1 GOLDx represents 1 gram of gold (1 PAXG represents one troy ounce of London Good Delivery standard bars managed by professional custodial services in London).

We have performed in-depth and multi-dimensional assessments for the selection of constituent reserves to mint GOLDx, including circulating market capitalization, price peg, level of compliance, transparency with asset issuer and custodian institution, custody of physical gold, financial audit and disclosures, security of codes, number of exchanges supported, delivery of physical gold, bankruptcy protection, etc, and ultimately chose PAXG as the sole constituent gold reserve at launch. We will evaluate and add more gold tokens into the reserve in the future (aka ETF). dForce Token (DF) is the utility token that facilitates governance, incentivization, risk buffers, etc.

4) Technology

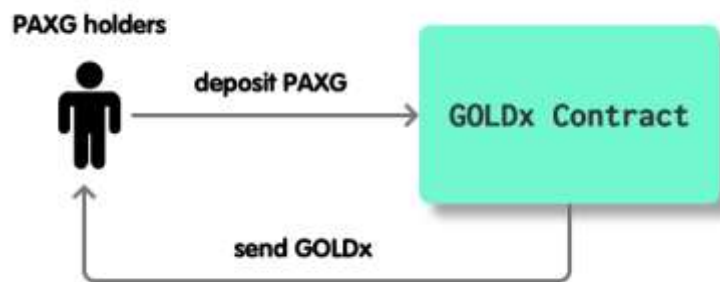
I. Architecture

The GOLDx contract adopts an upgradeable architecture, with a unified interface and data storage for external contracts. The logic contract for the implementation of main logics is upgradable.



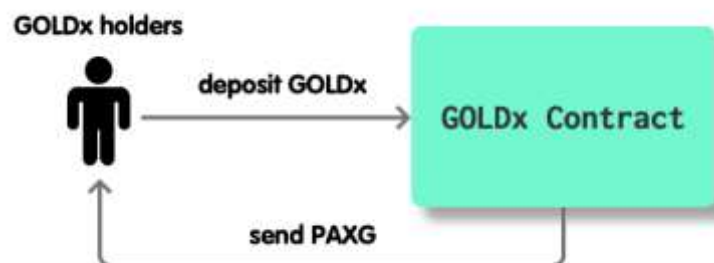
II. Mintage Process

User deposits PAXG into the GOLDx contract and will receive pro rata GOLDx denominated in gram based on the exchange rate (noted that there will be fee levied by Paxos, asset issuer of PAXG, for conversions to PAXG and vice versa).



III. Destruction Process

User deposits GOLDx into the GOLDx contract and will receive pro rata PAXG denominated in troy ounce based on the exchange rate (noted that there will be fee levied by Paxos, asset issuer of PAXG, for conversions to PAXG and vice versa).



IV. Adjustments to Constituent Reserve Tokens

- DF holders have voting rights to participate in governance. The activation of proposal will automatically trigger adjustments to constituent reserve tokens.
- Prior to that, users can exchange GOLDx back to the original constituent token;
- Set lock period for the adjustment, with immediate implementation upon expiration.

- d) Following the implementation, bilateral exchanges of GOLDx and the new constituent reserve token will be supported. But basic parameters, for example, circulating supply and pricing unit of GOLDx will remain unchanged.

V. Regulatory Compliance

In July 2019, the New York State Financial Services Authority (NYDFS) granted regulatory approval for PAXG tokens. The approval process includes an in-depth review of the token operation and compliance workflow within Paxos. In addition, Paxos obtained the opinion of legal counsel that PAXG should not be considered a securities or futures contract under the US Securities and Commodities Act.

GOLDx enjoys the same level of trust as it is 100% backed by PAXG: simple and direct (digital tokens backed by physical gold), transparent (regular audits), high level of regulatory compliance. In addition, minimized single-point failures with centralized institutions due to the flexibility with adjustments to constituent token reserves through on-chain governance.

VI. Security Audit

- 1) GOLDx: https://github.com/dforce-network/documents/tree/master/audit_report/GOLDx/EN
- 2) Constituent Reserve (PAXG)
Financial report: <https://www.paxos.com/attestations/>
Security report: <https://github.com/paxosglobal/paxos-gold-contract/tree/master/audit-reports/paxg-audits>

VII. Related Costs

Zero fees associated with on-chain transactions of GOLDx. 100% compatible with all DeFi protocols and easy for DeFi integrations (noted that there will be fee levied by Paxos, asset issuer of PAXG, for conversions to PAXG and vice versa).

VIII. Instructions for Use

The mintage and destruction of GOLDx is automatically facilitated through smart contract. Users can log into goldx.dforce.network at any time to mint or destroy your GOLDx.

- **Mintage:** User deposits PAXG into the GOLDx contract and will receive GOLDx on a pro rata basis. PAXG deposited will be locked in smart contract.
- **Destruction:** User deposits GOLDx into the GOLDx contract and will receive PAXG on a pro rata basis. GOLDx deposited will be destroyed automatically.

IX. Disclaimer

GOLDx is an Ethereum-based smart contract, users have complete access over your cryptocurrency assets and are solely responsible for the security of your private key. GOLDx protocol and dForce, the developer of the GOLDx protocol, do not store any of your personal information and thus cannot recover funds in the event you lost your private key.

Appendix: PAX Gold (PAXG) Overview

1. Basics

PAX Gold (PAXG) is a digital asset where one token represents one fine troy ounce of a London Good Delivery gold bar, stored in professional vaults in London. It is built as an Ethereum-based token following the ERC-20 protocol as a tokenized version of gold that represents real, physical gold. Anyone who owns PAX Gold owns the underlying gold which is held under the custody of Paxos Trust Company. The value of PAX Gold therefore also tracks with the real-time market price of gold. Each PAXG token represents one fine troy ounce of physical gold from a specific serialized gold bar, with ownership can be divided into units up to 18 decimal points.

By tokenizing gold and putting it on a blockchain, anyone can own miniscule amounts of top-quality gold for the first time. PAX Gold solves the challenges of today's gold market by marrying the benefits of physical gold ownership with the speed and mobility of digital assets, mobilizing and democratizing access to gold globally.

2. Underlying Asset

The underlying asset of PAXG is London Bullion Market Association -accredited London Good Delivery gold bars held in the most secure vaults in the world. These investment-grade gold bars are typically about 400 fine troy ounces, and therefore typically only accessible to the largest of institutions.

3. Custody of Physical Gold

Paxos is a chartered trust company regulated by the New York State Department of Financial Services (NYDFS). It is a qualified custodian and must always meet the highest standards of customer asset protection.

Paxos partners with top gold providers, vaults and miners to ensure PAX Gold is only supported by the highest-quality gold and stored in some of the most reliable vaults in the world. Paxos has opened accounts with Brink's bullion vaults in London, which will maintain the vault or vaults for storage of allocated gold corresponding to PAX Gold tokens. As a fiduciary and qualified custodian, Paxos custodies gold for PAX Gold token holders in a segregated account at the vault. For sourcing of gold, Paxos also maintains an account with INTL FCStone, a well-established gold-trading and wholesale institution, that sells gold to Paxos and buys gold from PAX as needed for token issuance and redemption. Customers can also purchase or redeem PAX Gold at participating gold retail locations or websites, such as Bullion Exchanges.

At any time, PAX Gold holders can go to the Paxos website to retrieve the serial number and physical characteristics of the vaulted gold they own. The only input required is an Ethereum address holding PAX Gold tokens.

4. Technology

PAX Gold is an ERC-20 token on the Ethereum blockchain issued by Paxos. An ERC-20 token is an Ethereum smart contract that follows a standard protocol for representing custom tokens on the blockchain. Specifically, the contract must declare basic token characteristics (name, symbol, decimal precision), track the total number of tokens, track a token balance for each Ethereum address, and permit address owners to transfer portions of their balance to other

addresses.

Because PAXG follows the standard ERC-20 protocol, exchanges and wallet applications that support Ethereum already have built-in support for viewing and transferring PAXG.

5. Regulatory Compliance

Paxos is the first regulated trust company to trade digital assets.

In 2015, the NYDFS granted Paxos its Limited Purpose Trust charter and it continues to regulate the company as a Trust organized under New York banking law. This includes ensuring consumer protection through maintenance of substantial capital reserve requirements, frequent regulatory examinations and monitoring of our operating procedures.

In 2018, the USD-backed PAX Standard token was granted regulatory approval by the NYDFS and continues to be overseen by the regulator.

In July 2019, the NYDFS granted regulatory approval for the PAX Gold token. The approval process included an in-depth vetting of Paxos' internal token-specific operational and compliance workflows and its consumer protection measures. In addition, Paxos has secured the advice of legal counsel that PAX Gold should not be considered a security or futures contract under U.S. securities and commodities laws.

6. Financial Audit

Paxos works with a third-party, independent, trusted, nationally top-ranking public accounting firm to review and attest on a monthly basis that PAX Gold tokens correspond 1:1 with ounces of London Good Delivery gold held in vaults by verified third-party partners.

To view the report, please visit: <https://www.paxos.com/attestations/>.

7. Smart Contract Audit

The PAX Gold smart contract is based upon the Paxos Standard smart contract which was audited by three third-party specialists (Nomic Labs, ChainSecurity, and Trail of Bits) from September to October 2018. In January 2019, Trail of Bits performed an additional audit for a potential upgrade to the PAX USD smart contract.

Once the PAX Gold contract was developed, Paxos engaged two third-party specialists: ChainSecurity and CertiK. ChainSecurity, a leading research lab in blockchain security, audited the new code differentiating PAX Gold from PAX USD and proposed amendments which Paxos implemented. CertiK, a technology-led blockchain security company founded by Computer Science professors from Yale University and Columbia University, audited the entire PAX Gold smart contract and performed formal verification using its proprietary technology that applies rigorous and complete mathematical reasoning against code. CertiK proposed amendments regarding code organization, coding style and best practices around signature verification. Paxos incorporated these suggestions into the PAX Gold smart contract.

8. Market Hours

The London Gold Market closes for one hour each working day to settle all transactions that occurred within the previous 23 hours. In addition, the London Gold Market is closed from 5 pm Friday (Eastern Time) to 6 pm Sunday (Eastern Time). During these time periods, Paxos does not support buying and selling PAXG on its platform.

9. Price System

The gold market is global and evolves rapidly, so gold prices continue to fluctuate. In order to always get the most accurate gold price, the PAXG price tracks the real-time price directly from INTL FCStone and represents the current price of the London gold market.

10. Fee Schedule

Paxos charges small fees to process both the creation and destruction of PAXG tokens based on volume. For transactions that occur on-chain (transferred via Ethereum), there is a low Paxos transaction fee (0.02%) as well as the usual Ethereum gas fees (typically a few cents). Please visit <https://www.paxos.com/paxgold/> for the complete fee schedule.

11. Physical Delivery

If customers hold more than 430 oz in PAX Gold, they can redeem their tokens for a physical gold bar and pay transaction fees. Then you can proceed with exchange from digital wallet. Customers can also purchase or redeem PAX Gold at participating gold retail locations or websites, such as Bullion Exchanges.

12. Bankruptcy Remote

Since PAX Gold is issued by a state-chartered trust company, customer assets are kept separately from the company's assets. All gold bars represented by PAX Gold tokens are custodied by Paxos for PAX Gold holders and do not become a part of the company's estate in the event of the company's insolvency.

References:

1. Blockchain.com [Medium](#)
2. PAXOS Gold Whitepaper
3. [Gold Industry Research Report](#)