

Perth Mint Gold Token

In collaboration with



THE PERTH MINT
AUSTRALIA

Whitepaper

Version 1.1





Perth Mint Gold Token, developed in collaboration between InfiniGold and The Perth Mint, is transforming one of the most enduring and trusted commodities into an innovative, secure, highly efficient and transparent tokenised asset.

This document or any other document that it refers to, or that may be produced or signed or issued by the InfiniGold, is not intended to and does not constitute a prospectus, product disclosure statement or offer document of any sort and does not constitute an offer or solicitation to sell or purchase any shares, securities, derivatives or interests in any managed investment scheme or any other financial products in InfiniGold or any affiliates. None of the information contained in this document is intended to form the basis for any investment decision. There is no guarantee that any forward looking statement in this document will be realised. Risks, uncertainties and future events or plans discussed in this document may not occur as expected or at all.



Table of Contents

1.0	Abstract	4
2.0	Key Features	7
3.0	Use Cases	10
4.0	Gold	13
4.1	Global Currency, Safe Haven, Luxury, Beauty	14
4.2	Digitised Perth Mint Gold – GoldPass	16
4.3	Tokenised Perth Mint Gold – PMGT	18
4.4	The Gold Market Today	19
4.5	Trading PMGT Against Traditional Gold Products	20
5.0	PMGT - Background	23
5.1	InfiniGold	24
5.2	The Perth Mint	25
5.3	GoldPass	26
6.0	The Perth Mint Gold Token Ecosystem	28
6.1	Physical, Digitised, Tokenised	29
6.2	How It Works	31
6.3	Distribution and Trading of PMGT	32
6.4	Redemption and Conversion	34
6.5	Fees and Charges	36
7.0	Smart contract – Technical Design	37
7.1	Smart Contract Separation	38
7.2	Smart Contract Security	40
8.0	Security and Trust	42
8.1	Monitoring	43
9.0	Conclusion	47

1.0

Abstract





1.0

Abstract

Perth Mint Gold Token (PMGT) is a cryptographic token built on the Ethereum network using the ERC20 standard. It is 100% backed by GoldPass certificates, which are in turn backed by physical gold held at The Perth Mint.

PMGT is the first gold token on the public blockchain that is backed by government guaranteed gold. It combines The Perth Mint's expertise, scale and tradition of quality in gold production and storage with the innovative advantages of blockchain technologies.

PMGT is an institutional-grade product, bringing unprecedented efficiency, security, reliability and trust to holding and trading physical gold on the blockchain.

InfiniGold, an Australian fintech company based in Sydney, has developed and is issuing PMGT.

PMGT is fully integrated with The Perth Mint's existing GoldPass platform, which is also based on InfiniGold technology. It offers the direct exchange of PMGT for GoldPass certificates. These certificates are guaranteed by the Government of Western Australia which has a long term credit rating of AA+.

1 unit of PMGT = 1 troy ounce of GoldPass Gold certificates = 1 troy ounce (31.10348 grams) of 100% pure physical gold



1 ounce of gold

=



1 ounce GoldPass certificate

=



1 PMGT



PMGT is a tokenised representation of ownership of underlying GoldPass certificates. Each PMGT corresponds to an underlying GoldPass certificate which is held on trust, by a custodian, for the token holder. Each certificate is held by the custodian separately, without being pooled, combined or comingled with other certificates.

2.0

Key Features





2.0

Key Features

Unique features and benefits of PMGT:



100% backed by gold

Each Perth Mint Gold Token is a tokenised version of the GoldPass digital certificates issued by The Perth Mint (“GoldPass certificates”). Each GoldPass certificate (and hence each PMGT) is 100% backed by physical gold.



Fungible

Convertible/redeemable via GoldPass into a range of Perth Mint products, including LBMA London Good Delivery (LGD) bars. This makes PMGT tradable against traditional gold products. Alternatively, GoldPass certificates can also be sold back to The Perth Mint for fiat currency (AUD, USD).



Price stability

Representing physical gold PMGT offers token holders risk diversification and hedging against market volatility at superior credit quality while avoiding costly conversions between fiat and crypto.



Trustworthiness

The Perth Mint is owned by the Government of Western Australia and offers the only government guaranteed precious metals investment and storage program in the world. All GoldPass digital certificates are 100% backed by physical Perth Mint gold stored in its central bank grade vaults, with the weight and purity of every ounce guaranteed by the Government of Western Australia, which has a long term credit rating of AA+.



Scalable

PMGT are—through the GoldPass certificates—100% backed by physical gold held in The Perth Mint’s inventory, allowing for billions of dollars worth of tokens to be issued.



No fees

InfiniGold does not charge transfer, transaction, storage, or ongoing management fees for issued PMGT unlike other gold products.

See [Fees and Charges](#) for more details.



Real-time auditability

The amount of gold represented by the issued PMGT can be verified at any time against the gold holding balance of InfiniGold's GoldPass accounts, published by The Perth Mint on their website (pmgt.perthmint.com).



Developed by experts

InfiniGold is a Rozetta Ventures company and part of the RoZetta Group (www.rozetta.com.au). Established in 2001 as the Australian Government-backed Capital Markets Cooperative Research Centre (CMCRC), RoZetta's Industrial PhD Program is the world's leading program in the financial markets sector. It has developed successful, market-changing solutions and businesses, including the world-leading market surveillance platform SMARTS (acquired by Nasdaq).



3.0

Use Cases

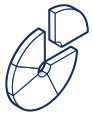
Efficiency, cost effectiveness, security, reliability and trust are the key characteristics of PMGT and the reasons it is applicable to a range of applications:

Safe storage of value



Historically, gold has been one of the most effective stores of value, both as a hedge against inflation and volatility, and as a price stable asset. PMGT introduces institutional-grade gold to the blockchain, allowing digital asset investors to tap into the historically proven investment benefits of gold.

Effective portfolio diversification



Portfolio diversification in digital assets markets is significantly more challenging than that in the traditional financial markets because of higher volatility and higher correlations. PMGT solves both these challenges as the price of PMGT will track spot gold.

Institutional gold traders

PMGT has two key differences to other popular gold products:



- a. there are no management or storage fees to hold PMGT like there are for other gold products such as gold ETFs;
- b. PMGT has a 1:1 exchange ratio with GoldPass certificates and therefore with the physical gold these certificates represent, which is in stark contrast to the fractional reserve methods applied to many popular gold products.

Retail gold buyers on the blockchain



Cost efficient, secure, trusted: PMGT is a desirable product for individuals seeking to buy institutional-grade gold on the blockchain.



Cross asset traders

Due to the institutional-grade credit and fungibility, PMGT is indirectly tradable against traditional gold products such as:



- GLD** → **the world's largest gold ETF**
- COMEX/CME** → **the most popular gold futures market**
- XAU** → **the over-the-counter (OTC) gold market**

This makes PMGT a desirable product to trade from both a statistical arbitrage and a pure arbitrage perspective, which means PMGT is one of the very few tokens that connects the traditional financial markets with the digital assets markets, and allowing for institutional-grade liquidity.

4.0

Gold

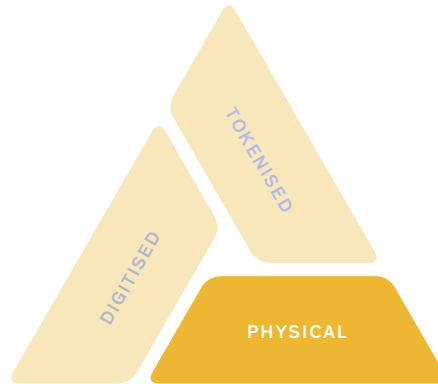
—





4.0 Gold

4.1 Global Currency, Safe Haven, Luxury, Beauty



There is no other asset as closely associated with the holding, exchange and preservation of value than gold. For thousands of years people have relied on gold as a secure, stable and safe store of their wealth. Physical gold carries no counterparty risk, which makes it an ideal vehicle to mitigate losses in times of market stress.

Gold is one of the most effective diversifiers that can serve as a hedge against downside price risk and inflation, particularly when considering the current elevated valuations of many global asset markets and the large debt levels in many economies. Investors rely on gold during periods of market uncertainty, pushing demand up when “risk on” assets tumble.

Furthermore, gold not only provides stability and diversification within a portfolio, it is also a historically proven source of positive returns in long-term investment strategies, often outperforming major asset classes.

Steady growth of emerging markets, such as China and India, continues to have a positive effect on overall consumer and investor demand.¹ Meanwhile the

1. The relevance of gold as a strategic asset—The World Gold Council 23 January, 2018



critical role of gold in the electronics industry ensures rapid growth of industrial gold demand. Electric cars, autonomous vehicles, Internet of Things, clean energy – hardly any high tech sector that does not rely on the unique properties of gold as an industrial metal.

To meet this increased demand, global mine production has increased to all time highs over the past 20 years. However with surging exploration and production cost, and a declining rate at which new gold reserves are being discovered, it is believed that global mine supply will decline over the longer term.²

Growing demand and declining supply are expected to add to gold's intrinsic value and stability, while having a positive effect on its price.

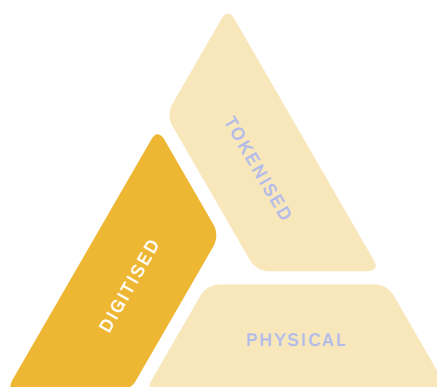
Gold is not directly controlled by any central bank or government, nor has it been adversely affected by inflationary monetary policy. While central banks can directly impact the real value of their respective currencies, the value of gold is far less vulnerable to their expansionary monetary policy. Central banks can print money, but they cannot print gold. It is therefore largely independent from any particular fiat currency.

Stability, risk mitigation and intrinsic value – these are all characteristics of gold, that could hardly be attributed to most cryptocurrencies today. It is these enduring qualities of gold that make it the ideal asset to be digitised/tokenised, filling a void in the fast paced, high volatility digital assets markets.

2. Gold 2048: The next 30 years for gold – The World Gold Council 16 May, 2018



4.2 Digitised Perth Mint Gold – GoldPass



Over time, a range of financial products have evolved, that have made trading and holding the precious metal more convenient, effective and secure.

Whether it is through ETFs, gold savings accounts, commodity futures or gold certificates, one does not have to actually hold and store physical bullion to invest in gold. In fact, a significant number of today's gold products don't actually entitle investors to a claim on the physical gold. Rather, the products merely attempt to track the price of gold, which is a liability of the issuer to pay the investor the gold price equivalent in fiat currency.

A relatively new form of gold trading is digitised gold. The Gartner IT Glossary defines digitization as “the process of changing from analog to digital form”. Physical gold is securely held and stored by the custodian while digital assets, essentially small digitally signed computer files, are created and represent the physical metal in corresponding volume.

The digital assets are cryptographically secured so they cannot be tampered with or forged and to the holder they represent entitlement to the physical gold. Digital assets have many advantages over physical gold, but also over other gold products:

- The physical metal becomes divisible into fractional digital equivalents, so a 50oz bar can be split up into 50 portions of 1 ounce or even smaller. This makes smaller denominations more cost effective



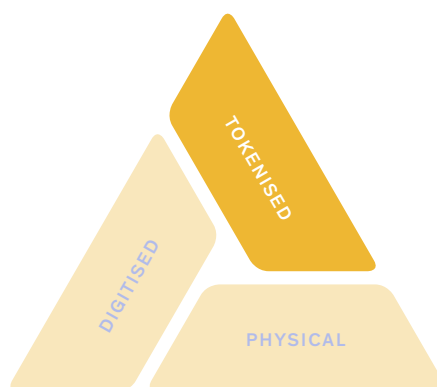
to trade and hold as expensive overheads for smaller bullion trading are no longer required.

- Digital assets are as easily transferable as any other digital information. Trades occur instantaneously and no settlement is required as the transfer of the asset transfers the title of ownership.
- A range of services supporting the digital assets such as storage, convenient 24/7 online access to 24/7 markets for the trading of digitised gold are cost effective, efficient and can be integrated into existing IT systems and banking platforms.
- The digitisation mechanism guarantees full backing with physical gold at any time and a digital asset can be redeemed and the physical gold collected.

Digitised Perth Mint gold is available as part of GoldPass (www.perthmint.com/goldpass), The Perth Mint's full-service gold investment platform operated and powered by InfiniGold and its technology. It allows users to securely buy, store, transfer and sell physical gold via digital certificates.



4.3 Tokenised Perth Mint Gold – PMGT



Blockchain with its distributed ledger technology is another platform for the digitisation of assets – in this case referred to as tokenisation – and the issuing of tokens.

With the tokenisation of assets, blockchain networks are projected to disrupt existing market structures, revolutionising the way the management and trading of assets takes place. The tokenisation of gold, for example, has the potential to have a significant impact on current trading practises, improving the efficiency and transparency of the estimated USD 20 trillion market that is largely dominated by opaque OTC trading.

This opportunity, presented by the tokenisation of gold, is well summarised by the World Gold Council's (WGC) Head of Research and Chief Market Strategist, John Reade, who stated that the tokenisation of gold “could be as big a change to the gold markets as the development of ETFs, but with the added advantage of appealing to younger generations.”³

One of the main advantages of a public blockchain network over a platform such as GoldPass is its interoperability: a large number of projects, marketplaces and investors can interact with each other, exchange and transfer tokens or integrate them into their own applications.

3. Gold 2048: The next 30 years for gold – The World Gold Council 16 May, 2018



Transactions are being recorded on the immutable blockchain and transacting parties can trust the registry of ownership and the exchange of tokens without even knowing each other. This allows for highly efficient, fully automated processes that eliminate intermediary middlemen.

To bring Perth Mint gold to a public blockchain, InfiniGold is tokenising GoldPass certificates onto the Ethereum blockchain, combining the strengths of GoldPass with the advantages of the Ethereum blockchain infrastructure.

For an asset-backed token like PMGT, trust is essential: InfiniGold as issuer and technology provider, The Perth Mint as custodian for the physical gold, and the Ethereum Blockchain as the underlying infrastructure all play their role in providing a unique level of trust in PMGT.

4.4 The Gold Market Today

Size

The global gold market is one of the most popular and liquid asset classes in the investment world. In the 2018 financial year, the daily average trading volumes of major gold ETFs exceeded USD 1.3 billion and COMEX gold futures daily volumes averaged over USD 41 billion.

LBMA

The London Bullion Market Association (LBMA) is the pre-eminent body for the world's largest and most important market for gold and silver bullion. The international bullion market is centred in London, with a global client base comprising all the central banks that manage their gold reserves, private sector investors, mining companies and others. The LBMA's membership incorporates approximately 150 firms, including traders, refiners, producers, fabricators, as well as those providing storage and secure carrier services. PMGT, via GoldPass certificates, can be converted into physical gold that meets the specifications of the LBMA. As such, PMGT is indirectly fungible with the interbank market.



Traditional Gold Trading

Members of the global precious metals markets trade with each other and their clients on a principal-to-principal, or bilateral basis. This means all risks, including those of credit, are between the two parties to a transaction. This is known as an OTC market as opposed to an exchange traded environment. While transactions between members tend to be in standard dealing amounts, when interacting with clients, a dealer will provide a tailor-made service. They may offer quotes for variable quantities, qualities and types of precious metal as well as for various value dates and settlement locations.

The interbank LBMA gold price (XAU) requires a minimum of 99.5% fineness as well as the assay stamp of the refiner being an LBMA approved member.

The Exchange for Physical (EFP) is one of the most widely traded arbitrages in the institutional market. Traders who have access to the LBMA interbank market (XAU) as well as Chicago Mercantile Exchange (CME) Futures regularly hold large positions of long XAU vs short CME. The reason behind this trade is market access. CME Futures are readily available for most retail investors as well as traders who don't have the balance sheet to access the interbank market. As such, the curve on the CME Futures contract regularly demonstrates a larger carry than the XAU market and traders short the futures and then hold the physical against it.

4.5 Trading PMGT Against Traditional Gold Products

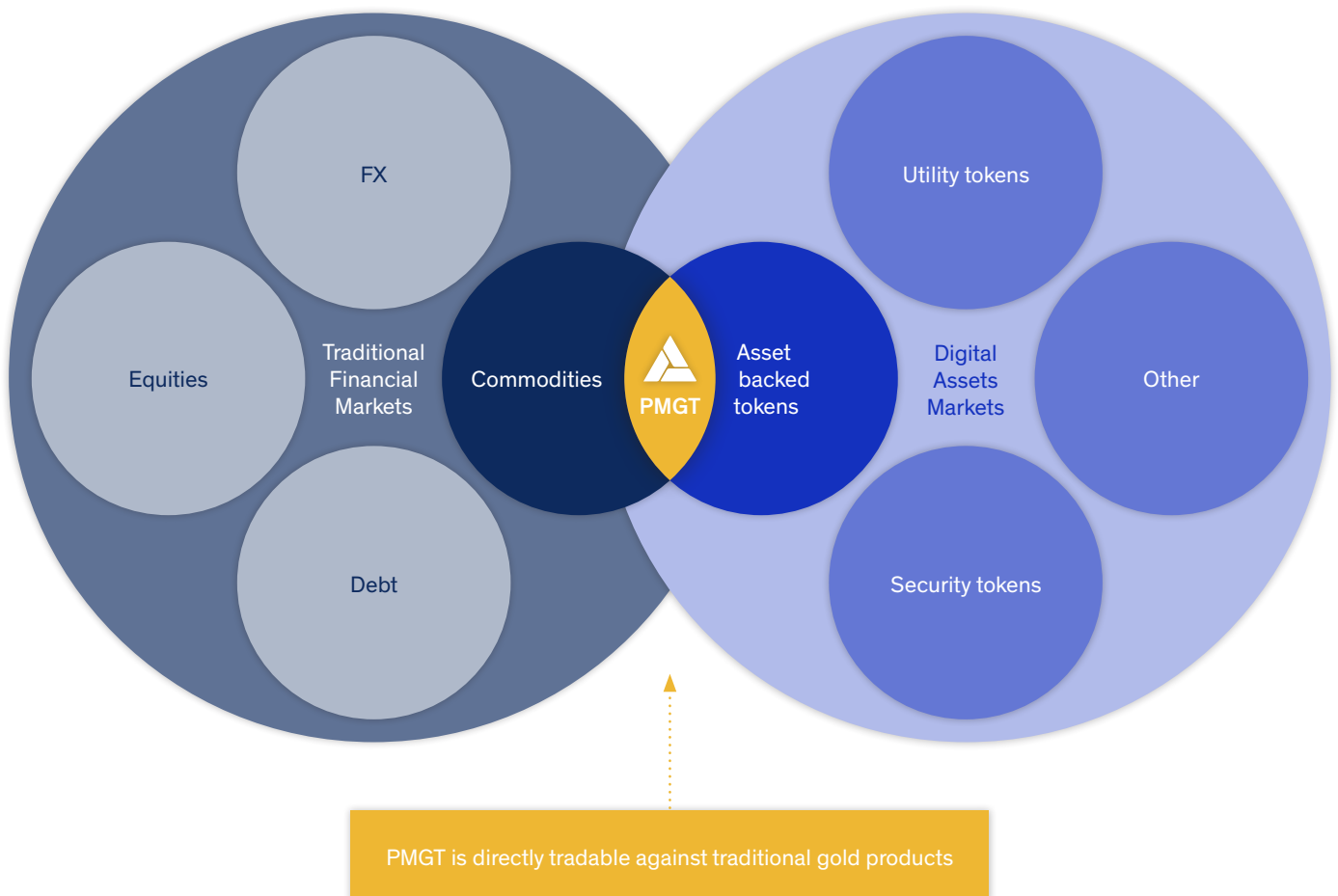
Deliverable gold under Chicago Mercantile Exchange (CME) rules is to have a minimum 99.5% fineness and must be a brand approved by the exchange. The Perth Mint is an approved brand of the CME and PMGT can be exchanged via GoldPass for an allocated bar of 99.5% fineness with the Perth Mint brand stamp. This is unique as it makes PMGT indirectly fungible with CME Futures contracts that currently trade on average USD 41 billion per day.

PMGT holders therefore have the ability to trade the arbitrage between CME Gold Futures and PMGT, taking advantage of mispricings between these



markets. Furthermore, PMGT does not charge storage or management fees, whereas, for instance, the world's largest gold ETF, GLD, charges 0.4% per year. PMGT will offer the same benefits as XAU without the associated storage costs. As such, for astute traders PMGT will become a better tool for holding and rolling the EFP trade than XAU.

PMGT also offers an alternative to ETF gold investors than traditional products such as GLD. ETFs are hedged with a range of physical and financial products which attract storage and management fees. PMGT will give gold investors the physical backing without the associated cost base of holding an ETF and will also come with a government guarantee on the physical gold backing GoldPass.



The diagram above depicts PMGT as one of the very few tokens that connect the traditional financial markets with the digital assets markets.



Feature	PMGT	Institutional comparable			Crypto comparable
		CME/COMEX	GLD (#1 gold ETF globally)	IAU (iShares Gold Trust)	DGX (Digix)
Underlying asset Gov't guaranteed	Yes – AA+ (S&P) Aa2 (Moody's)	No	No	No	No
Physical gold backing	Yes	Yes	Yes but leveraged and no claim on the physical	Yes but leveraged and no claim on the physical	Yes
Transfer fees	None	N/A	N/A	N/A	13bps
Annual storage and management fees	Zero	CME margin requirements	40bps	25bps	60bps
24/7 Trading	Yes	CME hours	No – Exchange hours	No – Exchange hours	Yes
Immediate settlement	Yes	Yes into fiat. For physical, at contract expiration	T+2 settlement of trades	T+2 settlement of trades	DGX holders can't sell back to Digix, but rather need to sell on exchanges
Redeemable for physical gold	Yes ⁴ – via GoldPass	Yes	No	No	Yes – Singapore only

4. A redemption requires a verified GoldPass account. GoldPass is not available in all jurisdictions. An up-to-date list of countries where GoldPass accounts are available can be found under www.perthmint.com/goldpass. Standard GoldPass fees apply for the redemption for physical gold. See [www.perthmint.com/documents/GoldPass/GoldPass Users Terms and Conditions - 06-2019.pdf](http://www.perthmint.com/documents/GoldPass/GoldPass%20Users%20Terms%20and%20Conditions%20-%2006-2019.pdf) for details

5.0

PMGT— Background



5.0 PMGT–Background

5.1 InfiniGold

The issuer of PMGT is InfiniGold through its subsidiary InfiniGold Operating Pty Ltd. InfiniGold is an Australian fintech company that has developed a platform for the digitisation of gold and other precious metals.

InfiniGold is majority owned by the Rozetta Ventures (www.rozetta.com.au/ventures), part of the RoZetta Group (www.rozetta.com.au). Established in 2001 as the Capital Markets Cooperative Research Centre (CMCRC), offering unrivalled expertise in data management, mining and visualisation, RoZetta provides access to world-class academic resources and a network of Australian and international universities to solve industry problems, while delivering commercial outcomes and developing future R&D leaders in financial and energy markets. Its mission is to invent and implement technology solutions that make markets better and generate transformative impact. RoZetta's research excellence and partnerships with leading industry organisations has resulted in groundbreaking developments such as SMARTS, now the world's leading real-time surveillance system for securities markets, acquired by Nasdaq in 2010. SMARTS is now in use by more than 50 international exchanges and regulators, as well as over 200 brokers across 50 countries. RoZetta has also developed a similar product called LORICA Health (www.loricahealth.com), which provides health claims analytics and fraud detection in the health industry.

The InfiniGold core team was instrumental in developing and growing the SMARTS and LORICA products and associated businesses. This led to its in-depth knowledge and expertise in financial market microstructure, processes, policies and procedures required to operate a fair and efficient market, as well as strategies for transaction monitoring and detection of irregular or fraudulent trading behaviour.

There is significant experience within the InfiniGold team about the rules and regulations in traditional capital markets. Even though digital assets markets have not yet reached this level of maturity, InfiniGold is committed to act in line with the high standards that were applied to SMARTS and LORICA.



Organisational Structure

To ensure the highest standards in protecting investor assets, a separate legal entity, InfiniGold Custodian Pty Limited (InfiniGold Custodian), has been established with the sole purpose of holding and safeguarding the assets represented by PMGT. For this purpose, InfiniGold Custodian maintains an account in GoldPass holding the GoldPass certificates that are backing PMGT. (GoldPass certificates in turn are the evidence of ownership of the equivalent physical gold held by The Perth Mint).

InfiniGold Operating Pty Ltd is the legal entity that is issuing PMGT. It manages the processes required to operate the smart contract on the blockchain and in the text below is referred to as InfiniGold Operations. It is also responsible for managing the supply of PMGT in the smart contract, and provides the interfaces to exchange GoldPass certificates for PMGT and vice versa.

5.2 The Perth Mint

The Perth Mint is a global leader in precious metals dedicated to combining the convenience of leading edge investment vehicles with a trusted store of wealth.

As the largest newly mined gold refinery in the world, The Perth Mint process more than 300 tonnes of gold, worth in excess of AUD 18 billion, every year. This equates to in excess of 10% of global production and more than 90% of Australia's production.

The Perth Mint operates the southern hemisphere's largest network of central bank grade vaults, safeguarding wealth worth more than AUD 4 billion for clients from more than 130 countries.

Investors choose from a range of services with the knowledge that The Perth Mint provides a unique government guarantee on the safekeeping of precious metals held on clients' behalf through its owner, the Government of Western Australia.



The Perth Mint physical products include a wide range of globally renowned investor bars and coins. The Perth Mint branded bars are the most imported into the expanding Chinese market and its coins are among the most popular in the US. Sales of bullion products into Europe place The Perth Mint as Australia's largest exporter by value into Germany.

Dedicated to boycotting conflict metals, The Perth Mint supply chain due diligence systems and procedures are compliant with the responsible gold and silver guidelines published by the London Bullion Market Association (LBMA) and the Organisation for Economic Cooperation and Development (OECD).

Additionally, The Perth Mint refinery achieved international accreditation for Environment AS/NZS ISO 14001:2004, recognising its compliance with the highest environmental standards.

5.3 GoldPass

GoldPass (www.perthmint.com/goldpass) is The Perth Mint's full-service gold investment platform powered by InfiniGold and its technology. It allows users to securely buy, store, sell and transfer physical gold via digital certificates.

All GoldPass digital certificates are 100% backed by physical Perth Mint gold stored in its central bank grade vaults. The liabilities of The Perth Mint Depository, including its obligations to GoldPass certificate holders, are guaranteed under section 22 of the *Gold Corporation Act 1987*, an Act of the Western Australian Parliament.

GoldPass provides free AUD and USD deposit and withdrawal facilities via wire transfers to/from The Perth Mint's bank accounts.

These holdings in fiat currency can then be used to trade Gold in a real-time 24/7 market where investors can buy and sell digital certificates at the current market spot price (trading fees apply).



Digital gold certificates can also be redeemed for physical bullion (delivery and fabrication fees may apply), which can be collected from The Perth Mint or delivered almost anywhere in the world.

No annual management or storage fees apply.

GoldPass is fully compliant with Australian Anti Money Laundering and Counter Terrorism Financing laws and regulations.

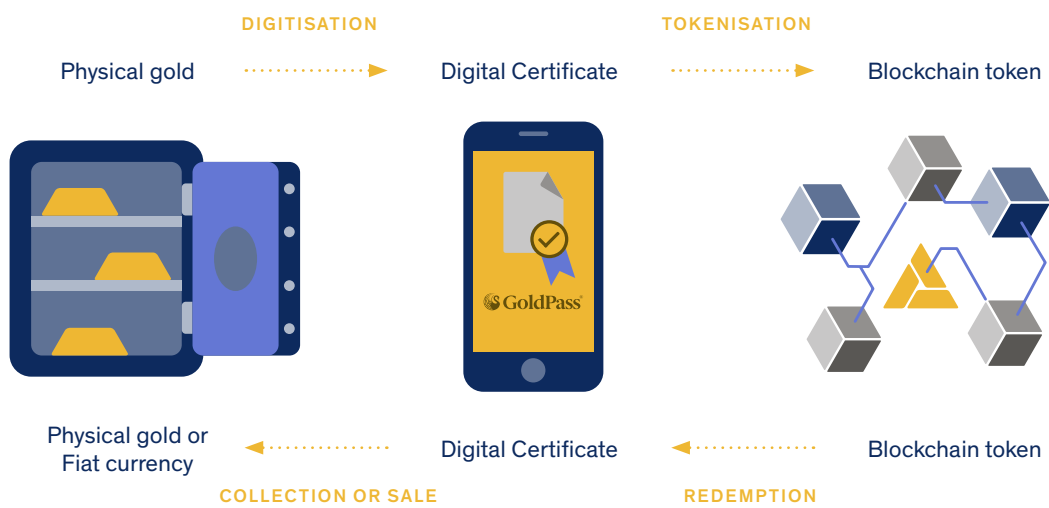
6.0

The Perth Mint Gold Token Ecosystem



6.0 The Perth Mint Gold Token Ecosystem

6.1 Physical, Digitised, Tokenised



The diagram above shows the relationship and convertibility between physical gold stored at The Perth Mint, digitised gold as GoldPass certificates and the new tokenised gold as PMGT on the Ethereum blockchain, which can be bought and sold on digital assets exchanges.

The Perth Mint, as the custodian of the physical gold, has offered gold services for more than 120 years. It is presently storing gold and silver for 37,000 clients worldwide.

Based on this excellence, and the extensive storage and distribution network for physical gold, InfiniGold and The Perth Mint have implemented GoldPass as the platform to digitise physical gold stored at The Perth Mint.

Rather than re-implementing a new digitisation process, InfiniGold is using this well established and reliable infrastructure and is drawing on GoldPass certificates as the gold backing for PMGT.



GoldPass certificates are 100% backed by physical gold securely stored with The Perth Mint and guaranteed by the Government of Western Australia. It is these digital certificates that provide the 1:1 gold backing for PMGT.



1 unit of PMGT = 1 troy ounce of GoldPass gold certificates = 1 troy ounce (31.10348 grams) of 100% pure physical gold

Collectively this ensures PMGT is 100% backed by physical gold stored with The Perth Mint.

PMGT may be exchanged for GoldPass certificates. Equally GoldPass certificates may be exchanged for PMGT. In each direction the exchange rate is 1:1. The exchange is performed by InfiniGold, and no exchange fee applies.

For each PMGT in circulation, there will always be 1 ounce of digital gold in GoldPass certificates in the custody of the InfiniGold Custodian.

The smallest denomination of PMGT is 0.00001 (5 decimal places) – the same precision used for GoldPass certificates – valued at USD 0.015 as at September 2019.

PMGT is a tokenised version of the GoldPass certificate, which implements additional cryptographic features for secure use on the blockchain. An investor seeking to own gold secured by The Perth Mint can also do so by purchasing standard GoldPass certificates directly from The Perth Mint. However, the tokenised version of the GoldPass certificate – in the form of the PMGT – allows



the holder to track and record their ownership on a public blockchain.

Although the GoldPass certificates are also digitised forms of physical gold, they are not engineered for use as part of a smart contract. They must therefore be converted into PMGT in order for the GoldPass certificate holder to utilise the features of a public blockchain.

PMGT are issued by Infinigold Operating Pty Ltd and are individual investments with no pooling of assets. PMGT are not intended to be shares, securities, derivatives or interests in any managed investment scheme or any other financial products under the Corporations Act 2001 (Cth).

Each PMGT entitles you to beneficial ownership of a corresponding Certificate held by InfiniGold Custodians on your behalf, as custodian and bare trustee. Each Certificate is held separately by InfiniGold Custodians and there is no pooling, combinations or comingling of Certificates by InfiniGold Custodians. The rights and value attributable to each PMGT are independent from, and not impacted by, the rights or value attributable to other PMGT.

6.2 How it works

Minting of PMGT

The mechanism for creating PMGT is very simple: A GoldPass customer initiates a request to exchange their GoldPass gold certificates for Perth Mint Gold Token at a 1:1 exchange rate (no exchange fee applies).

As a first step, they need to register their Ethereum address within GoldPass. The GoldPass system will verify the address and create a permanent link between the GoldPass account and the Ethereum address.

The minting request submitted by the customer will transfer their GoldPass gold certificates to the InfiniGold Operation's GoldPass account. InfiniGold Operations will then automatically issue PMGT to the specified Ethereum address linked to the customer's GoldPass account. Once the minting transaction has been successfully executed and confirmed on the blockchain, InfiniGold Operations



will then transfer the GoldPass gold certificates to InfiniGold Custodian. The process of minting new PMGT should not take longer than a few minutes and depends on processing speed on the Ethereum blockchain.



The diagram above depicts the minting process and shows how new PMGT are created 1:1 in exchange for GoldPass certificates.

6.3 Distribution and Trading of PMGT

It's important to note that InfiniGold doesn't buy or sell PMGT, but rather, as issuer only creates (ie. mints) new tokens in exchange for deposited GoldPass certificates, or destroys (ie. burns) tokens and returns the GoldPass certificates deposited on creation.

InfiniGold will employ the services of top tier Market Makers, also referred to as liquidity providers (see section Liquidity), and trading desks to distribute PMGT via exchanges and directly OTC through larger block trades.

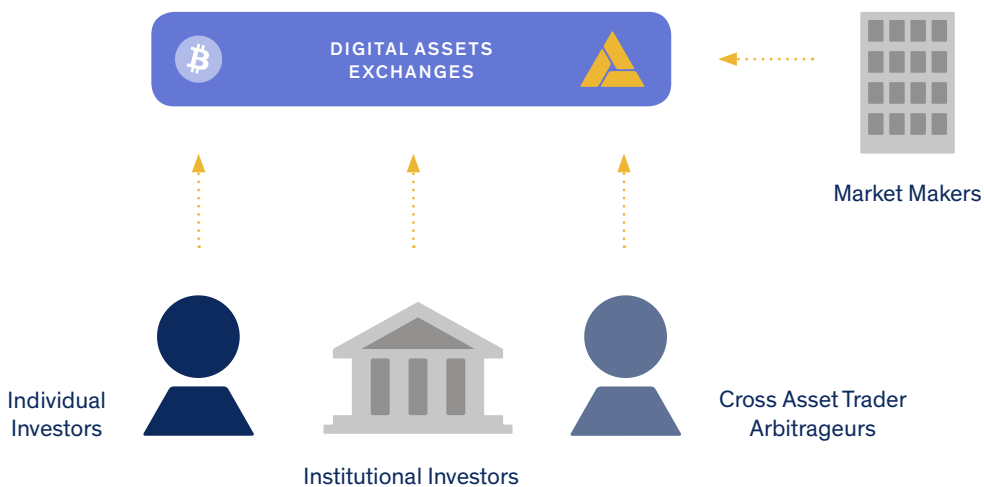


Market Makers will buy GoldPass certificates from The Perth Mint and initiate the swap for PMGT. The newly created tokens are then offered for sale on selected, independent exchanges. An up-to-date list of exchanges that PMGT is listed on can be found on the PMGT website under pmgt.io/where-to-buy-pmgt.

An investor who wants to buy PMGT needs to sign up with one of these exchanges, open an account and complete the mandatory ID verification process (KYC requirement as part of Anti Money Laundering legislation). They can then buy PMGT in any of the markets maintained by InfiniGold's Market Makers (initially PMGT will be trading against ETH, BTC and USDT). If token holders want to sell PMGT, they can do so at any time at one of the exchanges where PMGT is listed.

PMGT is fully compliant with the ERC20 standard, so once an investor has bought PMGT on an exchange, the tokens can be transferred freely on the Ethereum network and sent to another investor or smart contract.

InfiniGold recommends investors hold PMGT securely in a cold wallet or use one of the custody solution providers supported by PMGT (see pmgt.io/custodians). For more information on facilitating larger block trades, including available custody solutions, please visit pmgt.io/blocktrades





6.4 Redemption and Conversion

PMGT holders can—at any time—redeem their tokens for GoldPass certificates⁵ and therefore convert back into Perth Mint gold and/or fiat currency.

All that is required is a GoldPass account with a verified ID and a linked Ethereum address as described in section Minting of PMGT.

Redemption is initiated by burning PMGT, a standard smart contract function that can be called from the PMGT holder's Ethereum wallet. Only token holders that have a verified link between their GoldPass account and Ethereum address will be whitelisted and allowed to use the burn function.

Once the burning of PMGT has been completed and confirmed on the blockchain, InfiniGold Operations will transfer an equal amount of gold in GoldPass certificates to the GoldPass account associated with the previous PMGT holder's Ethereum address. This process should not take longer than a few minutes and depends on processing speed on the Ethereum blockchain

GoldPass gold certificates can then either be sold for fiat currency—which can be withdrawn to a nominated bank account—or redeemed for delivery/collection of physical bullion manufactured by The Perth Mint (fabrication & delivery fees apply).

Liquidity

PMGT aims to become the #1 asset backed token on the public blockchain. In order to achieve this, liquidity will be vital. If there is not sufficient liquidity available in the market, the cost to buy will be higher, or the return for selling will be lower than what is considered fair market value. This is particularly crucial in times of market stress when speed of filling large orders is of the essence. Professor Michael Aitken⁶, AM, Founder of CMCRC (now RoZetta Institute), describes the cause for such undesired price moves as a demand/supply

5. GoldPass is not available in all jurisdictions. An up-to-date list of countries where GoldPass accounts are available can be found under perthmint.com/goldpass/
6. Michael Aitken—<https://cmcrc.com/about/management/#michael-aitken>



imbalance, which he characterises as giving rise to bad volatility. The higher the liquidity of an asset, the lower the bad volatility. Liquidity is crucial in order to achieve efficiency and fairness in a market, and it is the lifeblood of a properly functioning market.

There are three key factors that will drive significant liquidity in PMGT:

- 1. Arbitrage relationships between PMGT and traditional gold products**
As PMGT is indirectly fungible and tradeable with traditional gold products, arbitrage forces will aid PMGT to closely track the price of spot gold. Furthermore, traditional gold products are some of the most liquid markets globally, so these relationships will hold in institutional-grade size too.
- 2. Top tier market makers**
InfiniGold will employ top tier market makers for liquidity provision. These market makers have direct market access to both traditional financial



markets and digital assets markets, which is the key enabler for trading arbitrage relationships in large size.

3. Access to institutional-grade gold

The Perth Mint refines and distributes more than USD 18 billion worth of physical gold (around 300 tonnes) each year. Allowing InfiniGold to issue billions of dollars worth of PMGT from its inventory is providing deep liquidity even in times of high demand.

6.5 Fees and Charges

There are no fees for Perth Mint Gold Tokens:

- No issuance fee to convert GoldPass certificates to PMGT
- No redemption fee to convert PMGT to GoldPass certificates
- No storage or management fees
- No PMGT transfer fee⁷

Standard GoldPass fees apply to:

- Buy/Sell GoldPass certificates with/for fiat currency, eg. AUD, USD
- Redeem GoldPass certificates for physical bullion

See www.perthmint.com/goldpass for GoldPass fees.

7. Note that the Ethereum network charges “gas” fees for transfers and transactions on its blockchain. These are the fees of Ethereum, and as such are outside of InfiniGold’s influence and do not go to, nor are shared with, InfiniGold in anyway.

7.0

Smart contract – Technical Design





7.0 Smart contract– Technical Design

PMGT is an ERC20⁸ compliant token on the Ethereum network, ensuring ease-of-use and accessibility for investors and exchanges alike. It has additional smart contract features for the purposes of security and regulation.

7.1 Smart Contract Separation

In the interests of stability, security and long term maintainability, the PMGT implementation needs to be upgradeable so InfiniGold can:

- Resolve vulnerabilities and respond to identified risks
- Add new features and functionality
- Improve the system and optimise its operational efficiency

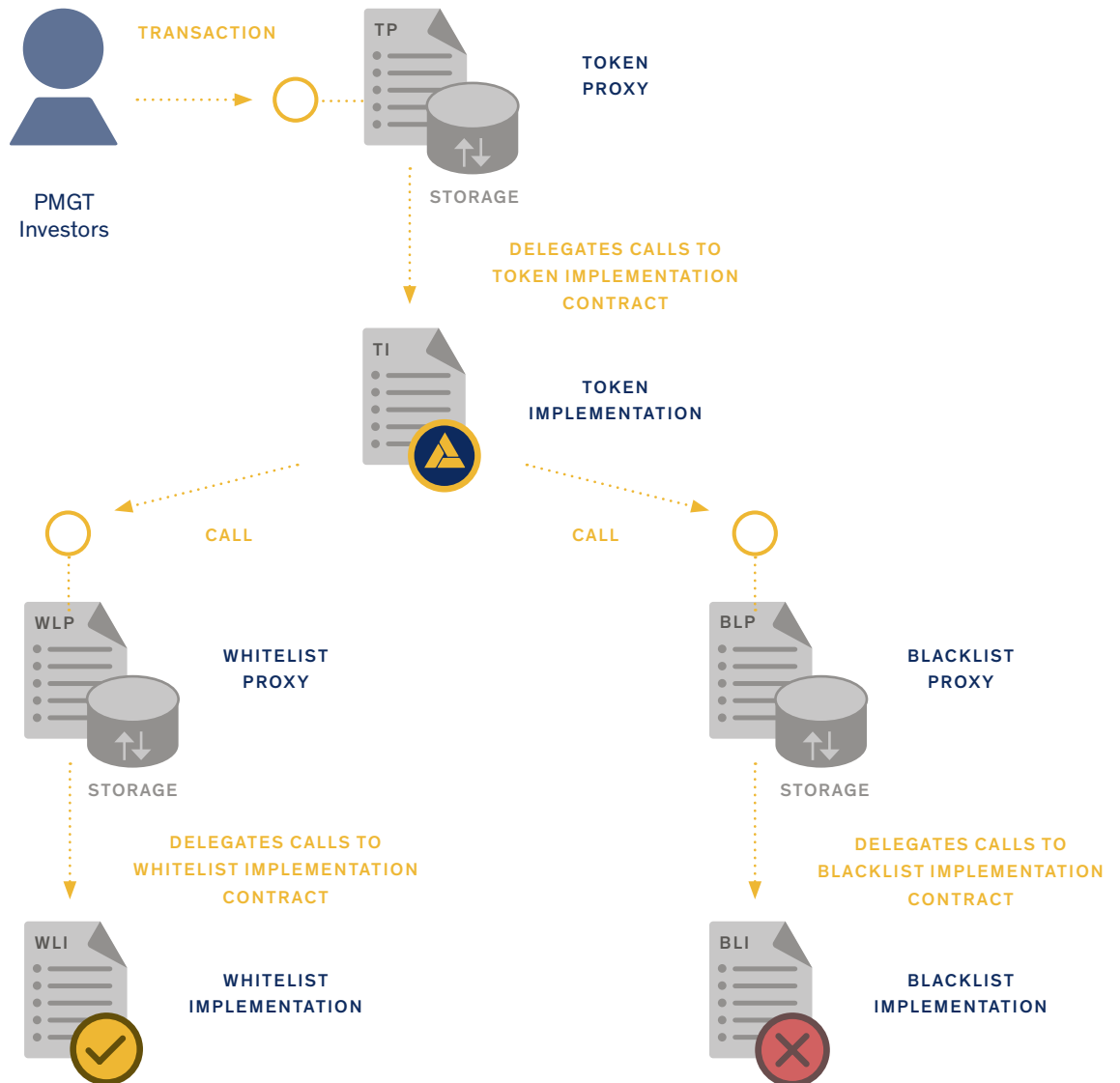
Smart contract upgradeability is achieved by grouping individual smart contracts to interoperate as a cohesive system. The ZeppelinOS proxy pattern⁹ is used to provide a permanent smart contract address for users to interact with, while allowing the PMGT implementation and business logic to be upgraded over time.

There are essentially three types of smart contracts: the PMGT proxy, the PMGT implementation and externally-managed storage smart contracts for providing blacklists and whitelists.

An overview of this architecture, and the core smart contract components, is given on the next page:

8. https://theethereum.wiki/w/index.php/ERC20_Token_Standard

9. <https://blog.zeppelinos.org/proxy-patterns>



The PMGT contract architecture separates the blacklist and whitelist into individual smart contracts with their own storage to provide maximum flexibility. The registry of marked addresses can be shared with future releases of assets such as silver, platinum, allocated metals, collector coins, etc.

Token Contract

PMGT consists of an upgradeable PMGT implementation contract and a permanent proxy contract that delegates calls to the current implementation.

The token proxy is the public interface of PMGT and provides the permanent address of the PMGT smart contract on the network. It also holds all storage



for PMGT, including balances, allowances, mappings of accounts to assigned operational roles, etc. All PMGT transactions are delegated to the current implementation smart contract.

The PMGT implementation contract includes all of the code containing the implementation logic for PMGT, such as ERC20 transfer functionality and token minting and burning functionality. The implementation also queries the referenced blacklist and whitelist contracts.

Blacklist and Whitelist Contracts

The blacklist and whitelist each have their own implementation contracts and a permanent proxy contract that delegates calls to the current implementation.

The blacklist and whitelist smart contracts maintain a list of Ethereum addresses. InfiniGold adds and removes addresses from these lists as required, and the smart contracts expose the interface for querying whether an account is on the list to external smart contracts such as the token implementation smart contract.

The blacklist is used to restrict smart contract functionality for addresses that have been requested by regulators or law enforcement agencies to be frozen.

The whitelist is used to flag addresses where InfiniGold have verified the link to their GoldPass account and that are therefore granted access to additional functionality such as redeeming PMGT for GoldPass certificates.

7.2 Smart Contract Security

Secure Code

The smart contract code has been developed using robust, battle-tested open source libraries such as OpenZeppelin and ZeppelinOS.¹⁰

Sigma Prime—a leading blockchain and cybersecurity firm—has performed an

10. <https://openzeppelin.org/> and <https://zeppelinos.org/>



independent smart contract security review of InfiniGold's implementation and security model. The report of this review can be downloaded from Sigma Prime's github repository (<https://github.com/sigp/public-audits>).

Key Management

Functions on the smart contract can only be invoked by ETH addresses (keys) that have been assigned specific roles. Each key is owned and operated by a principal, which can be a human or a system process. The system uses a number of different types of cryptographic keys, with different security classifications. InfiniGold's key management practices include the following safeguards:

Continuous monitoring



The blockchain is continuously monitored by a separate system to reconcile usage of any of the keys against validated transactions and alerts will be triggered if unsanctioned key usage is detected.

Dual operatorship



High-value transactions and high-risk operational actions such as limit increases require multiple operators (keys) to authorise the operation.

Secure key storage



Human operated keys are stored offline in tamper-resistant security tokens. System process operated keys are stored online in encrypted keystores, with system permissions that restrict the usage of the key to only specific processes.

Operational limits



The keys have built-in operational limits, such as limits on the amount that can be minted, to restrict the amount of exposure in the event of a key compromise.

InfiniGold has appointed Ernst and Young to review its ETH key management processes and to witness the secure key generation ceremony (also see section Auditing and Reporting).

8.0

Security and Trust





8.0

Security and Trust

It has always been InfiniGold's intention to bring a new standard of trust, creditworthiness and asset protection to the blockchain ecosystem. The Perth Mint Gold Token now offers that surety as the gold which underpins each token is supplied by The Perth Mint. Operating one of the largest refineries in the world and wholly owned by the highly rated Government of Western Australia, Perth Mint gold carries a government guarantee which is unique to the investment market.

The following describes PMGT operational policies, procedures and implementations that put this new standard into practice.

8.1

Monitoring

Extensive monitoring of the PMGT environment, both on the blockchain and within the GoldPass system, ensures that unauthorised interactions with the smart contract or GoldPass accounts will be identified and acted upon.

The GoldPass risk alerting system will classify the expected transfer patterns into high-level transactions. Any transfers that do not match the expected patterns are alerted against and automatically reported to InfiniGold Operations.

Additionally, InfiniGold will monitor the balances of PMGT related GoldPass accounts and ensure any anomalies will be detected and reported. Of utmost importance is that the InfiniGold Custodian account balance equals the total amount of PMGT on issue while the balances of other accounts are reconciled against transactions currently in progress, for example when a request is still being verified.

InfiniGold monitors all PMGT operational transactions on the blockchain to ensure that all transactions have a matching record in the PMGT services database to detect any unauthorised interaction with the smart contract.



Ensuring Integrity of PMGT Supply

Besides the standard ERC-20 functionality, the PMGT smart contract implements additional functions to increase and decrease the supply of PMGT. Only specific registered operational keys can request transactions with these functions.

Increase of total supply only occurs when a request is processed to 'mint' more value in the smart contract. The minting transaction can only be requested by a key with the "minter" role. The "minter" role is held exclusively by the minting service – PMGT minting cannot be directly requested by an operator. This ensures that all minting requests are validated and verified prior to the request being executed. The minting process ensures that GoldPass certificates of the corresponding amount are always deposited with InfiniGold prior to PMGT being issued. The minting service is split into a number of different components to minimise the number of keys that each component can access. When the PMGT minting operation is confirmed on the blockchain, the GoldPass certificates are transferred to the InfiniGold Custodian.

A whitelist maintains the addresses that have successfully verified a link to their GoldPass account and that are therefore allowed to 'burn' PMGT which will initiate the destruction of PMGT and the return of the equal amount of GoldPass certificates to the associated GoldPass account. Only when the burning of tokens has been confirmed on the blockchain by a sufficient number of blocks will the GoldPass certificates be transferred to the account.

These methods ensure that no PMGT investor can interface the custodian account directly, but always has to go through an intermediary burn service. This safeguards proper authorisation and also ensures that the tokens get burned first before GoldPass certificates are returned to the previous token holder.

All procedures that modify PMGT balances or InfiniGold's GoldPass certificate holdings are implemented in such a defensive way to ensure that the balances of total PMGT in circulation and GoldPass gold held by InfiniGold are always equal.

Additionally, InfiniGold has external monitoring processes in place that will trigger precautionary measures should these two balances ever show any unexpected deviation.



Auditing and Reporting

Transparency and auditability are key elements of PMGT. All PMGT are fully backed 1:1 by GoldPass certificates held in the GoldPass accounts of InfiniGold Custodian and InfiniGold Operations. For the purposes of verification, The Perth Mint publishes the current amount of gold that InfiniGold as the issuer of PMGT holds in their GoldPass accounts on their website under pmtg.perthmint.com. This amount in ounces matches the total supply of PMGT as part of the PMGT contract. This number is exposed as part of the ERC20 interface of the PMGT and can easily be accessed via respective websites.¹¹

InfiniGold has appointed Ernst and Young as one of the world's largest, most trusted, and top-ranking accounting firms to perform a findings and recommendations report on the design effectiveness of the procedures and controls over the PMGT platform. InfiniGold works with EY to implement effective management of digital assets risks, especially with a focus on InfiniGold's processes and policies for issuing and burning PMGT.

Additionally, InfiniGold has appointed leading blockchain technology and information security firm Sigma Prime as their independent technology security auditor, to ensure the integrity, reliability and security of the PMGT operational environment.

The source code of the deployed PMGT smart contracts is publicly available, allowing anyone to inspect and verify the code running on the Ethereum network. InfiniGold also monitors the code running on the Ethereum network to ensure it matches the secure source code that was reviewed by Sigma Prime.

KYC / AML Compliance

InfiniGold follows strict Know Your Customer (KYC) and Anti Money Laundering (AML) policies.

These policies apply on three different levels:

11. E.g. <https://etherscan.io/> or <https://coinmarketcap.com/>



1. GoldPass

GoldPass is a Perth Mint product, and customers of GoldPass are customers of The Perth Mint. In compliance with the Australian Anti Money Laundering and Counter Terrorism Financing laws and regulations, all customers of GoldPass that wish to enable the full functionality of their account, will have to provide full personal details and proof of identity to The Perth Mint. The name of a customer's bank account must also be provided and must be verified with a supporting bank statement before any fiat currency can be withdrawn. The identity of a GoldPass account holder must also be fully verified before a redemption of PMGT into GoldPass certificates is possible.

2. PMGT Partners

Exchanges, market makers and other potential third parties involved in the issuance, distribution and redemption of PMGT must follow extensive Know-Your-Partner (KYP) procedures and adhere to InfiniGold's policies.

3. Customers of PMGT Partners

PMGT Partners will require their customers to fully comply with KYC / AML policies before they are able to buy or sell PMGT.

Additionally, InfiniGold conducts ongoing transaction monitoring and risk assessments on transactions occurring on the Ethereum blockchain in the PMGT contract to identify any suspicious transactions in compliance with Anti-Money-Laundering and Counter-Terrorism-Financing laws and regulation. with the goal to prevent or otherwise detect money laundering and terrorism financing.

If InfiniGold detects, becomes aware of, suspects, or has reason to suspect that a suspicious transaction or otherwise suspicious activity has occurred in the PMGT contract, it will investigate and may report (in accordance with the law) any such suspicious activities of users or potential users to the applicable authorities. InfiniGold may maintain a list of blocked Ethereum addresses that are denied access to the PMGT smart contract in order to protect PMGT users from transacting with accounts sanctioned by the authorities and to support regulatory compliance.

9.0

Conclusion





9.0

Conclusion

Perth Mint Gold Token brings together InfiniGold's experienced team of experts as the issuer, with one of the world's largest and most reputable gold refineries to create an institutional-grade token backed by government guaranteed gold. As such PMGT connects the traditional financial market with the digital assets market, bringing an unprecedented level of trust, efficiency and scale to the new and exciting blockchain world.

For any enquiries relating to the project please email support@pmgt.io

