A guide to Digital Securities Offerings on Swarm

February 2019
V0.3

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Glossary

Compliance Contract	The configuration of token transfer restrictions defined by a token issuer.
ERC-20	Ethereum Token Standard
ERC-1400	Ethereum Token Standard Proposal for Security Tokens
Governance	The process of decision making undertaken by the community of token holders.
Hash Value	A numeric value of a fixed length that uniquely identifies data.
Investor Qualification	The credentials an investor requires (according to the securities regulations in their jurisdiction) to be able to own and trade a specific security token. Investor qualifications are designated by *qualification providers* and cryptographically verified by network service providers.
Market Access Protocol (MAP)	A protocol open ecosystem for programmatic compliance, that allows efficient interaction between token issuers, qualification providers and exchanges, and uses cryptographic proofs to facilitate compliant security trading.
Qualification Provider	An entity that has been permissioned by a *token issuer* to collect and process investor personal data and confirm its correctness and authenticity.
Token Contract	A Smart Contract which resides on a blockchain which defines the fundamental properties of a security token.
Token Issuer	An individual or entity that is undertaking the process of converting an asset into a digital security represented by a cryptographic token.
Tokenization	The process of converting an asset into a digital security using blockchain.
Smart Contract	A smart contract is a computer protocol intended to digitally facilitate, verify, or enforce the negotiation or performance of a contract.
SRC-20	Swarm Security Token Standard

SWM	Swarm Fund Token (An ERC-20 compliant token)

List of Abbreviations

AML	Anti-Money Laundering
AuM	Assets under Management
CDD	Customer Due Diligence
GFO	Gas for Fund Operations
IPO	Initial Public Offering
KYA	Know Your Asset
KYC	Know Your Customer
LLC	Limited Liability Company
MAP	Market Access Protocol
NAV	Net Asset Value
ROFR	Right of First Refusal
SPV	Special Purpose Vehicle

Introduction

Swarm

Swarm is an Open Infrastructure For Digital Securities.

The organization itself is non-profit with the aim of promoting, supporting and building the tools for the tokenization of assets on the blockchain. We are building infrastructure that allows digital securities issuers, AML/KYC providers, exchanges and other applications to interact with individuals in a decentralized regulatory compliant ecosystem.

Swarm solves the problem of the lack of liquidity present in traditional asset ownership, allowing for fractional ownership opportunities of any asset. Tokenization creates opportunities for asset owners to realize capital from new sources, and for individuals and institutions to invest in, own and govern previously unattainable assets.

Swarm's open-source toolkit is technology agnostic and supports:

- creation and issuance of tokens as digital assets
- token compliance with securities regulation in any jurisdiction
- token sales for cryptocurrency and fiat
- token transfer rules and restrictions
- inheritable investor qualification
- tools for token management and governance

Swarm infrastructure is available for use by any blockchain or non-blockchain application. It is built and maintained by a decentralized permissionless network of nodes. These nodes perform the functions required to support the Swarm toolkit:

- SRC-20: Token Standard for Digital Securities
- MAP: Market Access Protocol for investor qualifications
- DS-raise: Smart contract for digital securities offerings, fundraising, and token distribution
- Swarm dApp: Web3 interface to interact with digital securities

Core Principles

Swarm has identified and incorporated the following core principles in order to deliver a sustainable ecosystem for digital securities:

Compliance

SRC-20 and MAP combine as a framework for compliance by ensuring that all applicable rules and restrictions are met before a security token transaction can proceed, and that a fully auditable trail is available to satisfy regulatory scrutiny. SRC-20 token contracts store references to the rules and restrictions as defined by the token issuer, while MAP acts as the authority to determine whether investor compliance has been met. MAP can instantly surface whether or not an individual's wallet is compliant with the requirements for any security token transfer,

Privacy

MAP has built-in privacy protections that decouple personal identifiable information from the actual transacting wallets. It does not store personal identifiable user information, only their qualification status as connected to each cryptographically-proven owned wallet. Investor identity is secure and individuals always maintain control over their data and who can access it.

Ease of Use

Swarm's infrastructure is open-source, simple to implement and portable. Any application can easily integrate with the framework to suit their requirements. Asset fundamentals (KYA / Know Your Asset) and investor qualifications (KYC / Know Your Customer) are available to the right parties at the right time, anywhere they wish to transact.

SRC-20 can be adopted by any distributed ledger, and MAP can be opened to any other token infrastructure to be used as a data ruleset/transfer agent. One of the many benefits of this portability is to provide token issuers with a leaner way to connect to exchanges and to create liquidity around their tokens.

Integrating MAP mitigates significant time and cost inefficiencies otherwise borne by having to develop and implement a compliance and transaction system from scratch. Since MAP is open-sourced and decentralized, it acts as compliance ledger that enables security token platforms and exchanges throughout the industry to leverage its globally compliant protocol.

Read more about Swam at https://swarm.fund and on Medium.

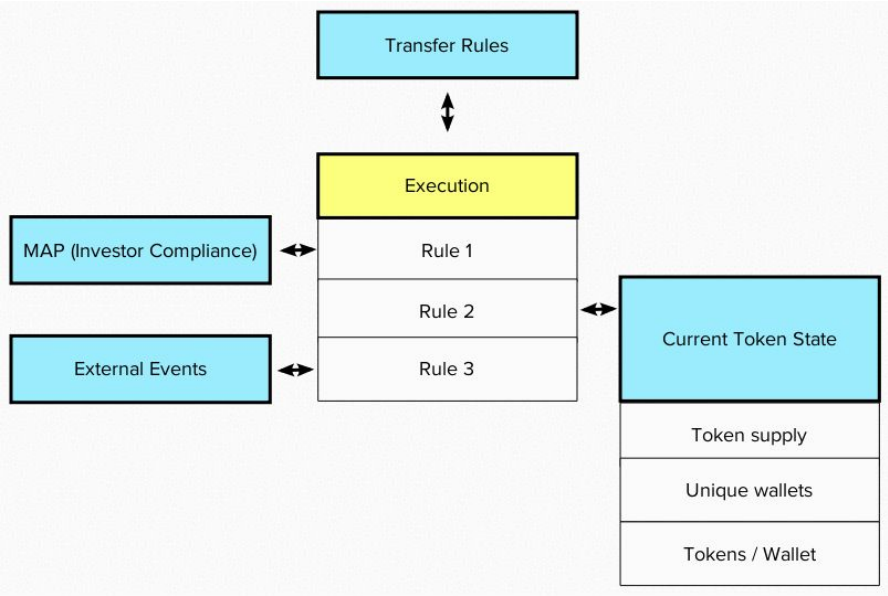
SRC-20: Standard for Digital Securities

As a non-profit foundation, Swarm is uniquely positioned to take a supportive role in the development of digital securities.

ERC-20 + TRANSFER RULES/RESTRICTIONS = SRC-20

Key to Swarm's infrastructure is *SRC-20*, a standard that extends Ethereum's ERC-20 fundamental token standard to support regulatory compliant transfers. Tokens that support the SRC-20 standard can represent fractional ownership in assets and are often termed 'security tokens' or 'digital securities'.

The SRC-20 standard includes a stack that allows token issuers to define the rules and restrictions that must be satisfied in order to facilitate a regulatory compliant transaction. Rules include checking for investor compliance (specific to applicable jurisdictions), ensuring cap table and holding limits are enforced, provisions for a right of first refusal, time-based restrictions, and any other programmable rule that can be processed by a smart contract.



Market Access Protocol

Market Access protocol (MAP) is Swarm's investor compliance ecosystem, built and maintained by a decentralized network of nodes. It is a protocol that defines how applications (blockchain or non-blockchain) interact with people in a regulatory compliant manner, and results in a distributed ledger that stores investor qualification data, respecting user privacy. All personal identifiable information that is processed by MAP nodes remains the property of the owner, and can only be revealed with the owner's authority.

MAP provides liquidity for digital securities markets by leveraging investor qualifications through inheritance, network effects and automating workflows amongst network participants.

Investor qualifications can be on-ramped to the MAP ecosystem and offered up by any market participant. Qualifications are then inherited from a single master identity to multiple wallets and can then be used within any blockchain or application that supports the protocol. Liquidity is further improved as network effects develop from the increased pool of qualified investors and use of the compliance infrastructure.

The protocol enables the flow of compliant securities transactions to be processed by defining how market access data is stored, read, written and audited in accordance with the SRC-20 standard. MAP takes care of investor compliance so that token issuers can focus on their core function of managing the assets and conveying their investment's value proposition.

Further Reading:

- Market Access Protocol Overviews:
    - https://medium.com/swarmfund/tagged/market-access-protocol
    - https://medium.com/swarmfund/map-for-security-token-issuers-3d4af2d4ae24
    - https://medium.com/swarmfund/map-for-investors-cea2d57be1b
    - https://medium.com/swarmfund/supercharging-security-token-compliance-447b5d6a050
- Market Access Protocol - API
  https://swarmmap.docs.apiary.io/#introduction/authentication

What is a Digital Securities Offering (DSO)?

> *"A digital securities offering or 'STO' (security token offering) is an offering of traditional securities for fundraising purposes in a digitized format. Instead of receiving paper or electronic share certificates, investors receive digital tokens that represent the economics the investor is bargaining for in the deal."*
>
> *- Robin Sosnow, Esq., Partner at Digital Securities Law Group in New York City*

Digital securities offerings are investments that are distributed to investors digitally as opposed to on paper. They may be asset-backed (e.g. real estate, equity) or independent of any asset (e.g. crypto hedge funds). A DSO is a complex process that begins with the token issuer consulting with legal and tax advisors about their objectives and the parameters of the endeavour.

This guide provides an overview of the legal, compliance and technical considerations when creating and issuing a digital security, as well as a high level description of the steps involved.

Use Cases

Swarm provides *token issuers* with free and open infrastructure for the creation of digital securities (tokens) that allow co-ownership and co-investment, as well as a protocol for ensuring that all investments are made in a regulatory compliant manner by individuals who are qualified to participate in the investment.

Investors use Swarm's dApp as a passport to the world of owning and governing investments on the blockchain, allowing them to acquire digital securities in a regulatory compliant manner whilst maintaining ownership of their private investor information.

Typical use cases that can benefit from tokenization are:

- Raising capital for an investment opportunity
- Shared ownership of an asset
- Divesting from / Selling assets
- Asset management
- Shared governance

Swarm's infrastructure is an open, full-stack tokenization solution for the life-cycle management of a DSO including token creation, configuration, fundraising, issuance, and post-distribution activities such as token redemption, dividend issuance, asset governance, investor administration, reporting and communications.

Things to know

Token issuers should consider the following important issues and discuss them with legal and tax experts in the relevant jurisdiction.

1. **Asset Backing:** If tokenizing an asset, the nature of the asset being tokenized can affect how the token will be structured.
2. **Jurisdiction:** The token issuer's place of incorporation, the location of targeted investors, the physical location of any underlying asset, and any restrictions related to the location where transactions are processed.
3. **Legal Entity:** Determine the ideal corporate structure and legal residence for the legal entity (LLC, SPV, partnership, etc…) which acts as the interface between token holders and the underlying investment.
4. **Regulatory Compliance:** In each jurisdiction, offering a security as an investment is regulated by laws that govern who can participate in the offering, the requirement to ensure the legitimacy of the source of their funds and the level of accreditation or investor sophistication they need to demonstrate. These matters are important when a token issuer configures the token's transfer restrictions.
5. **Funding:** Will the purchase of tokens (and the allocation of capital) be restricted to cryptocurrencies or will it also accept *fiat* currencies, and how is this funding going to be raised.
6. **Marketing:** It is crucial to promote any fundraising activities to the appropriate target audiences in the relevant markets, and to do this without violating rules around public offerings. A well-planned, strategic campaign is essential to successful fundraising.
7. **Custodianship:** For larger and institutional investors, it is important, for security and compliance requirements, to ensure that allocated capital is stored securely.
8. **Secondary Trading:** As with token issuance, secondary trading of security tokens is strictly regulated in most jurisdictions. It is important to secure trading functionality with exchanges that understand and can ensure regulatory compliance.
9. **Post-Allocation Considerations:**

Investor Communication	Community Management
Dividend Payouts	NAV Reporting
Auditing	Tax
Governance	Redemption

Anatomy of a DSO

Creating and issuing a digital security involves a number of steps, some of which are optional and depend on the token issuer's objectives. Described below is an overview of the key steps involved when tokenizing using Swarm's infrastructure.

Preparation	Consult with legal, tax and marketing experts to determine the most suitable structure for your digital security.
Token Creation	Define the basic properties of the token, for example token name, total supply, ticker, etc.
Configuring Compliance	Configure the token to be regulatory compliant by defining investor qualifications and any transfer restrictions.
Adding KYA	Add additional token metadata that provides investors with full transparency. Know your Asset / KYA includes references to the token set-up and configuration, corporate structure of the investment, legal agreements, assets under management, governance models, financial reporting, valuation reports, and a host of other important information.
Tokenizing Existing Cap Tables	Tokenizing an existing cap table simply requires allocating tokens to any number of wallet addresses that represent existing owners or investors. A valuation report (NAV) is required to establish a base cap for the entity.
Fundraising (STO, DSO)	A fundraising round involves setting the parameters for the token sale, including selecting the accepted fiat and cryptocurrencies, the funding period, the number of tokens to sell, etc.
Staking	Token issuers are required to stake a percentage of the NAV or of funds successfully raised - in SWM tokens - to issue tokens to investors and release any funds raised to the token issuer..

Issuance Process	Tokens can be issued without fundraising to represent an existing cap table, or can be issued after a fundraising or investment round.
Post-Sale Activities	Communicating with and managing the investor community and cap table, including configuring secondary trading, dividend payouts,, reporting requirements, ongoing valuations, auditing and governance.
Liquidation Strategies and Redemption	Various options to conclude a security token issuance, from buybacks to token redemption.

Tokenization using Swarm dApp

Swarm's issuance dApp is a decentralized application that interacts directly with the ethereum blockchain (soon to support other chains) to create and configure digital securities. Users connect to the dApp via Metamask, hardware wallets (Ledger), keystore files and other secure web3 tools.

Token Creation

Creating a token is a two-step process consisting of defining an initial token contract and then configuring it to support the *SRC-20* security token standard for regulatory compliance.

Step 1 - Initial Token Setup

The first step in creating a token is defining its fundamental properties to be compatible with the ERC-20 token standard. This is required for all use cases, irrespective of whether the token is asset-backed. Asset pairing is done in a later step.

Required	Features
Token supply	***Does not* represent ownership of a real asset**
Ticker code	**No ownership restrictions**
Token name	**No transfer restrictions**

Examples	
Membership Token	Governance Token
Cryptocurrency	

Step 2 - Configuring support for SRC-20 security token standard

The SRC-20 token standard allows a digital security to adhere to a set of rules and restrictions that ensures that only qualified can participate in the tokens sale and that any secondary trading is regulatory compliant.

Investor qualification rules and transfer restrictions may be required for digital securities that need to comply with securities laws in various jurisdictions (check with your lawyer).

Rules are recorded in a document called *KYA* which is referenced in the original token contract, and which is stored in IPFS, a decentralized storage network. The rules are required to be checked in the process of approving every transfer, and are only editable by the token issuer and any delegates she permissions.

Tokens that support the SRC-20 standard are natively MAP-compliant, benefiting from the liquidity provided by MAP's pool of qualified investors. Upcoming standards that are currently in development (eg, ERC-1400) will be supported when the framework is sufficiently decided upon and adopted.

Compliance rules and requirements are set in two parts:

1. Investor Qualifications - Defining exactly **who** can own the token
2. Transfer Restrictions - Defining exactly **when** (or the conditions under which) the token can be transferred

For a token sale or transfer to proceed, MAP ensures that the recipient of the tokens is appropriately qualified **and** that any transfer rules or restrictions are not being infringed. If both conditions are passed, MAP authorizes the sale or transfer to proceed by providing a cryptographic signature.

Setting Investor Qualifications

Individuals that wish to buy security tokens need to meet specific criteria as set by the regulatory authorities in their jurisdiction. These criteria are deemed *investor qualifications*. Token issuers set these criteria when configuring their token. In the Swarm ecosystem, investor qualifications are recorded in MAP's distributed ledger using *certificates*.

Certificates are issued by a *qualification provider* (QP) after processing an individual's personal data and confirming its authenticity. Certificates prove - without revealing any personal identifiable information - that a certain check or verification has been made against an individual's personal data. For example, a certificate may state that QP A has verified that Investor 123 does not appear on any sanctions list.

When configuring a token, issuers configure investor compliance as follows:

- Select jurisdiction to display available QPs that service that jurisdiction,
- Select the desired QP(s) to display the certificates available,
- Select the certificates an investor will require.

Investors that possess the required certificates in their jurisdiction are considered qualified to hold the specific token.

Setting Transfer Restrictions

Digital securities may have rules and restrictions that define and stipulate the conditions that need to be met in order for a token transfer to proceed. These conditions are in addition to any investor qualifications that might be required.

Examples of transfer restrictions include:

- Maximum number of investors per token
- Maximum token holding per investor
- Per transaction transfer limits
- Locking periods
- Geographic restrictions
- Right of first refusal, and so on….

Swarm provides token issuers with a comprehensive interface for setting transfer restrictions based on **time**, **jurisdiction**, **cap table restrictions**, and other parameters that are validated by MAP in the course of every transaction.

Additional resources:

- Read this guide for an overview of regulations covering investor qualification in various jurisdictions.

Features added in this step	
Investor Qualification	**Transfer restrictions**

Examples
Regulatory compliant security token

Checklist
❑ Legal opinion on regulatory compliance requirements.

Adding Assets

Once a token issuer has setup and configured a token, the next step is, if applicable, to define the underlying asset that the token represents ownership in.

This is an optional step as not all tokens represent ownership of an asset.

Any tangible asset (real estate, companies, index funds, etc) or virtual asset (video game objects, cryptocurrencies) can be paired with a token, creating an asset-backed digital security.

Things to consider

Before pairing an asset to a token, it is advised that token issuers consider the following:

- **Build accountability by creating a legally binding connection between the token and the asset:**
  This involves providing documentation that details the exact nature of the underlying asset. Typically this is described in a share purchase agreement, limited partner purchase agreement or other similar documentation. Alternatively, token issuers can provide prospective documents and terms that the syndicate is aiming to execute, once certain milestones (e.g. soft cap) are reached.

- **Build trust by demonstrating that the asset truly exists and is under the control of the token issuer:**
  Try to think from the perspective of the investor. Provide information that instills confidence or proof that the underlying asset really exists (use certificates, detailed data, videos, link to registries, etc.) and is owned, controlled or available for its intended purpose. Ideally this happens in conjunction with sources of external validation.

- **Build confidence by regularly updating and communicating with investors and token holders**
  Provide independent third-party NAV reports, financial documentation, detail achievement of KPIs, photographic evidence, and any other relevant documentation that demonstrates the life-cycle of the asset.

- **Build flexibility by providing ways for investors to redeem the asset's underlying value**
  Consider defining processes by which the investor could get access to the underlying value (for example,buy-backs or redemptions) should she decide to no longer hold it in a digital form.

The general rule is, the greater underlying data and transparency provided, the higher the confidence of an investor in the asset.

Adding an asset to a token

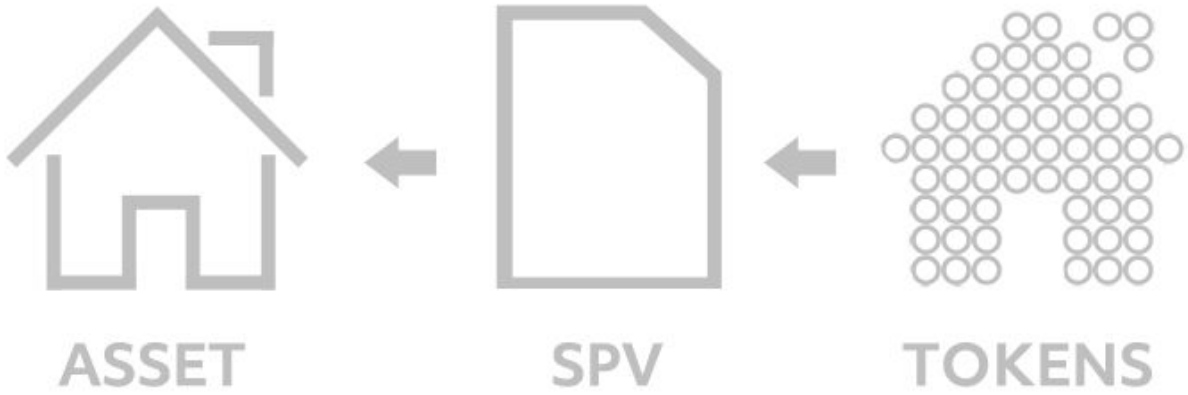
Assets are described in the same KYA document that includes compliance and other references. Various metadata and documentation that identify the asset can be added to the KYA informations.

Attributes such as names, location, images, document references and uniquely identifying numbers or codes can all be recorded and referenced in KYA information.

Asset metadata is always publicly available and, can be modified over time by the token issuer. Changes can be tracked and all information is cryptographically verifiable as being officially provided by the token issuer or someone permissioned by the token issuer.

Typically, a legal entity (Special Purpose Vehicle ("SPV") is established, its purpose being to purchase or hold the asset. The legal form (LLC, partnership, etc) and domicile of the SPV depends on the token issuers' considerations and is formalized by submitting a legal document (Articles of Association and Token Sale Agreement) to the KYA document.

The SPV acts as the interface between token holders and the underlying asset, as described in the agreement. It facilitates legal fractional ownership in the underlying asset.



In order to instill confidence in investors, assets that are already under the control of the token issuer should be added to the KYA information attached to the token before commencing a token sale.

When considering asset tokenization, counsel should advise on:

- structure and place of incorporation of the corporate entity (SPV)
- the provision of the binding agreement.

Any resulting legal ownership of the asset by the token holders is independent of Swarm and can continue to exist independently from the Swarm Foundation.

Examples of tokenized assets
Real Estate
Collectibles (non-fungible assets)
Art
Infrastructure

Checklist	
Asset	
❑ Name	❑ Image
❑ Description	❑ Unique Identifier
❑ Location	❑ Documentation
SPV	
❑ Articles of Association or similar documentation	

Token Issuance

Tokens created on Swarm can be issued to investors immediately after creation or after a fundraising event.

Staking is not a fee. The stake always remains in the custody of the token issuer, and is simply a mechanism that locks the tokens until the end of the life of the investment opportunity.

Fundraising

A key feature of the SRC-20 tokens is the ability to raise capital from qualified investors in a regulatory compliant manner. Token issuers raise capital by offering tokens in exchange for cryptocurrencies or fiat.

Note, that in Swarm's architecture, fundraising is simply a module that is independent from the token creation (minting) and can either be done before the token creation, in the aftermath or on an ongoing basis. Also, to match the regular procedures of the capital markets, the fundraising module can be executed in several sequential stages or even on an ongoing basis, all of which depend of the type of underlying asset and operational set-up of the syndicate.

Fundraising for investment purposes is regulated in most jurisdictions, and may require registration of the digital security with appropriate authorities. Consider (and consult with legal counsel) whether your token is deemed a security, a utility/commodity or something else. Security tokens must have ownership and transfer configurations set accordingly to ensure regulatory compliance.

What are the costs associated with fundraising using Swarm?

Swarm does not charge any fees for issuing tokens, initiating or running a token sale.

To support the ongoing operations and growth of the Swarm network, the only requirement is that token issuers must stake an amount of SWM token to trigger the minting and distribution of SRC-20 tokens to investors.

The staking requirement applies to all uses of the infrastructure, independent of whether a fundraising event has taken place, including pure tokenization use cases (for example, tokenizing an existing investor cap table). The staking requirement persists for the life of the token. Please check with your Swarm contact about the latest policies on issuance stakes.

This *issuance stake* is deposited into a smart contract, which then enables the release of raised funds and the tokens to be issued to investors,

Staked SWM tokens are returned to the token issuer whenever outstanding SRC-20 tokens are redeemed and burned, up to the full staked amount.

Token sales

A token sale involves raising funds from *investors* in exchange for the issuance of tokens. It is strongly recommended to incorporate a well-planned marketing campaign to accompany the token sale.

Token sales can be private or public. It is important to understand and abide with the regulations in the applicable jurisdiction.

Private token sale

Token issuers may elect to conduct a private sale of tokens. This type of offering is limited to selected investors which the token configures by a whitelist of wallet addresses that are permitted to participate.

Public token sale

Swarm supports public token sales for both utility and security tokens.

Utility tokens

A *utility token* offering has the objective of selling access to a product or service, and is not designed as a security. It is analogous to offering tokens that can run a laundromat.

Security tokens

A *security token offering* has the objective of selling tokens that represent a participation in an underlying security and derive their value from the management or value appreciation of some asset. It is considered an investment.

Raising funds by selling tokens requires consultation with legal counsel to determine whether a token qualifies as a utility or security.

Setting up a public security token sale using Swarm

The following checklist serves as minimum requirements and preparations to be able to schedule a token sale on Swarm.

Checklist	
Token Issuer	
❏ Token Issuer Profile	❏ Team Member Profiles

Marketing	
❑ Creative Assets	❑ Marketing Collateral
❑ Community Building Strategy	❑ Marketing Budget and Plan
Financial	
❑ Amount to raise (soft/hard cap)	❑ Price per token (in base currency)
❑ Currencies Accepted (USD,SWM,BTC,ETH,DASH,DAI)	
Offer Details	
❑ Project Description	❑ Team Track Record
❑ Investment Strategy	❑ Risk Analysis
❑ Expected Returns	❑ Funding Period
Legal	
❑ Prospectus	❑ Token Sale Agreement

Scheduling a token sale is a simple process and involves providing the above information into the Swarm platform. When scheduling a token sale, it is recommended to allow sufficient time in advance of the sale to create market awareness and plan quality marketing activity.

The mechanics of a token sale

Token sales run for a predetermined period with the objective of raising cryptocurrency in exchange for tokens.

Swarm currently supports investing using BTC, ETH, DAI, DASH and SWM with more on the horizon.. Additionally, there is also support for a broad basket of fiat currencies (USD, EUR, and many more). Please check with your Swarm contact about the latest available currencies.

Participation in a token sale is restricted to those investors that meet the compliance requirements configured by the token issuer in the token's contract. Funds invested by unqualified investors will not be eligible for token transfers or to hold to such tokens.

Qualified investors allocate capital to the opportunity in any of the accepted asset types. Allocating capital is done by locking funds against a specific investment opportunity. During the

funding period, allocations are maintained in their original deposited currency. When the opportunity reaches its cap, and the issuance stake is made, allocated funds are exchanged for tokens.

Token issuers can monitor the token sale via their account, are provided with important notifications, and are encouraged to communicate with potential investors via the Swarm platform and in social channels and communities.

A token sale closes as funded when it:

- reaches the end date and has raised at minimum the soft cap, or
- as soon as the hard cap is raised.

The release of funds as well as the issuance of the tokens can be dependent on other conditions. More on that and the issuance of tokens to investors against successful completion of a fundraise to investors are covered in the next section.

Issuance

Issuance Stake

The issuance of tokens, and their distribution to investors require the token issuer to stake an amount of SWM proportional to the funds raised. The amounts of staking requirements depend on the funding volume and have a minimum and maximum amount.

As soon as the token issuer deposits at least the minimum required staking amount of SWM into a smart contract, it triggers the issuing and distribution of the corresponding SRC-20 tokens.

The token issuer can also keep larger amounts than the minimum staking requirement in their staking wallet. That way the provision of funds as well as the issuance of tokens are not blocked by the required increments. This is particularly useful for ongoing fundraising, where syndicates allow investors to constantly provide and retract investment against declared net asset value.

For tokens that are created outside of a fundraise - e.g. as a digital representation of assets that already owned by shareholders - there are no staking amount required.

At any point when SRC-20 tokens are destroyed / burned by the token issuer or any token holder, the smart contract holding the issuance stakes, automatically release proportional amounts of the staking amount back to the token issuer.

Tokens can be issued:

- after a successful token sale, or
- without an associated purchase, contribution or investment of funds.

If a token has transfer and ownership restrictions configured, the token's compliance contract uses Swarm's Market Access Protocol to restrict token transfers only to qualifying token holders. It will not permit transfer of tokens to unqualified token holders.

Issuing tokens after fundraising

Subsequently to a successful fundraising for a token, the tokens are issued to investors in an amount equivalent to their investment. In determining token allocation, the value of invested crypto is taken as a snapshot at the moment when the fund closes. Until that moment the custody of the raised funds are with the individual investor and can be retracted at any time. This changes at the moment of closing the fundraise - either based on reaching the end date or reaching the defined hard cap. At that moment the raised capital remain in each if the deposited currencies and is handed over to the token issuer's account. The subsequent conversion of capital to *fiat* is then in the responsibility of the token issuer.

Note: As part of their investment proposal, token issuers can define additional conditions that are needed to close the fundraise. These can be milestones for the syndicate specified in advance (e.g. forming of the SPV entity, presentation of an asset purchase agreement based on previously communicated terms, etc.). In that case the syndicate would present the new facts and investors would be able to review in an adequate time frame to confirm their investment subscriptions.

Issuing tokens without funding

This type of issuance is equivalent to allocating a pre-existing *cap table*. Each recipient will need to provide a wallet address to send the tokens to.

Post-Distribution

After distribution of tokens to investors or recipients has taken place, there are various administrative, financial, compliance and strategic actions that a token issuer may choose or be obliged to take.

Investor Relations and Communications

Swarm recommends that token issuers inform investors and token holders about key events and updates to their investment and the management of the underlying asset. This may be facilitated in a number of ways, including via social channels, the Swarm platform, and in future, via smart events that can act as notifications via specific communication channels.

Examples of important events that should be communicated to the investor community are:

- Secondary Exchange Listings
- Dividend Payments
- Net Asset Valuations (NAV), audits, and other financial reporting.
- Unexpected changes in the underlying asset

We are working on open infrastructure that will help improve this communication and make it trustworthy and reliable.

Financial

Dividends

The Swarm infrastructure supports the payment of dividends by the token issuer to token holders. Token issuers will be able to use a payout module to distribute value based on token holder preferences.

Net Asset Valuations (NAV) Reports

NAV reports are critical to the investor community, are required to be published at least once a year and are available on the blockchain for investors to review. For certain asset categories NAV reports will be done on an ongoing basis. NAV values represent a price basis for further token issuances.

Token Administration and Functionality

Liquidity and Secondary Trading

Secondary trading of the issued tokens is supported by any exchange that supports MAP and the SRC-20 token standard. These could be centralized or decentralized exchanges.

In the future, additional ongoing liquidity solutions may be supported, for example collateralization of real assets, liquidity contracts, and margin trading.

Note, that secondary trading of securities is a highly regulated area, which is currently a highly dynamic regulatory focus area. We are working with various partners in different jurisdictions on the adaption of MAP and SRC-20 and to power processes around security token tradability and liquidity.

Token Replacement

Token replacement can occur in the case of someone losing access to their tokes. This involves the token issuer validating ownership, burning the old tokens, and re-issuing new ones.

Governance

The rate of adoption and success of real asset tokenization will strongly rely on the ability of token holders to easily express their desires, through governance, regarding how the underlying asset or investment opportunity should be managed. A key element to the Swarm infrastructure is the Liquid Democracy Voting Module that enables token holders to vote on governance issues regarding the specific SRC-20 tokens or the overall network. Votes can be binding or non-binding, depend on the specific charter and governance defined by the syndicate and can be structured in a number of ways.

Certificate of Good Standing

To manifest a consistent base governance for the security tokens on the network, Swarm is introducing a “Certificate of Good Standing”. This certificate is optional to include in the structure of an offering. It can be issued as a result of a vote taken by token holders of any particular SRC-20 token. These votes are required to be held quarterly, in which the SRC-20 holders need to confirm, that the syndicate is in good standing. This intends to ensure that syndicate managers remain accountable and are incentivized to manage the investment appropriately. Additionally, token holders may at any point outside of the quarterly schedule decide to vote on whether to issue a Certificate of Good Standing.

In the case of a vote not passing and a Certificate of Good Standing not being issued, certain sanctions may apply. E.g. it can trigger another election to determine a new manager for the investment.

Once a new syndicate or asset manager has been identified, ownership and management of the governance wallet transfers to them.

Compliance-related Obligations

The Swarm platform has many built-in functions which support token issuer's compliance-related obligations. Auditing, and reporting tools are available on the Swarm platform and third party solutions can be built on top of the existing infrastructure for specific needs.

Liquidation Strategies

IPO

In cases where the tokenized asset represents a private entity or participation in such, that company may decide to perform an Initial Public Offering (IPO). In that case the private company or corporation raises investment capital by offering its stock to the public for the first time and it can impact the status of all shares in the entity. The exact mechanics of how this would affect existing token holders are subject to specific regulations and procedures. The token issuer will need to define the specific mechanisms, but a potential outcome could be that token holders would be able to redeem their tokens in exchange for publicly issued securities or proceeds from the IPO.

Redemption / Token Burning

The token issuer may at any time offer investors or token holders the opportunity to redeem their tokens. Redemption is the act of a token issuer buying some of the outstanding tokens with the objective of reducing the number of tokens available on the open market. Once the corresponding value is redeemed by the token holder, the token issuers is required to burn the corresponding tokens. Reminting of new tokens only happens when a corresponding value is brought into the syndicate.

What to do next?

This document forms both a conceptual outline and a practical guide to the process of preparing for, issuing and distributing digital securities using Swarm. A full implementation of the processes described in this guide is currently underway, culminating in the release of a self-serve open interface that provides all the necessary tools a token issuer requires. To stay up-to-date with product developments from Swarm, sign up for the Swarm newsletter at https://swarm.fund/ .