
CLASSATTENDANCE

Contributors

Taxonomy Formula: $tF\{\sim d, t, g, SC\}$

Token Specification Summary

Token Classification

This is a Transferable Whole Fungible Token that uses the behavior group Supply Control to manage the circulating supply, so at creation can be set an initial supply that can be increased or removed as needed. It is whole by setting the decimals property on the dividable behavior to 0, that way it cannot be fractioned. It's Transferable, which means that the owner can transfer the ownership of the tokens to another party.

Example

This token definition's purpose is to register the student attendance to a course, it will be minted according to the number of classes of the course, and transferred to students once they've completed the course. The amount received will depend on the number of classes the student attended.

Analogies

A Student can earn a point/token for each class which the student attended and then hold these points/tokens to serve as proof of attendance to the course.

ClassAttendance is:

- Indivisible
- Transferable
- Delegable
- Mintable
- Burnable
- Roles

ClassAttendance Details

Whole Fungible

Type:

Base

Whole Fungible

Id: b1eacdf8-35d8-454a-b1af-92eb0b6f45d4

τ_F{<i>~d</i>}

Tooling: tF{~d}

1.0

Definition

*Whole Fungible tokens have interchangeable value with each other, where any owned sum of them from a class has the same value as another owned sum from the same class.
A whole token cannot be sub-divided so it doesn't support the notion of 'making change'.*

Example

An inventory item or SKU, where an item is treated as a whole because it makes no sense to own a fraction of a SKU or loyalty point.

Analogies

Name:	Description
Loyalty Points	Most credit card or retail loyalty point programs deal with whole numbers so that redeeming points is easy to understand for their customers.
General Admission	Purchasing a general admission ticket to a movie only allows for you to have a seat, but the seat that you actually get depends on actors like when you arrive.
Movie Ticket	Your not likely to want to share a seat with another adult.

Definition

Dependencies

Artifact Type	Symbol	Description
Base	t	Base Token Definition

Incompatible With

Artifact Type	Symbol	Id
Behavior	~d	d5807a8e-879b-4885-95fa-f09ba2a22172

Influenced By

Artifact Files

Content Type	File Name	File Content
Control	whole-fungible.proto	
Uml	whole-fungible.md	

Code Map

Implementation Map

Resource Map

Base Details

Token Name:	
Fungible	
Representation Type:	Common
Intrinsic	
Token Unit:	Whole
CET	
Owner:	
0	
Decimals:	8
Constructor	

Behaviors

Indivisible

Type:	Behavior
Indivisible	
Id:	d5807a8e-879b-4885-95fa-f09ba2a22172

<i>d</i>

Tooling: ~d

1.0

Definition

An ability or restriction on the token where it cannot be divided from a single whole token into fractions. Sets the base token Decimals property to 0 which will make the token indivisible and a whole token is the smallest ownable unit of the token.

Example

Indivisible is common for items where division does not make sense, like a property title, inventory item or invoice.

Transferable

Type:	Behavior
Transferable	
Id:	af119e58-6d84-4ca6-9656-75e8d312f038
<i>t</i>	
Tooling:	t
1.0	

Definition

Every token instance has an owner. The Transferable behavior provides the owner the ability to transfer the ownership to another party or account. This behavior is often inferred by other behaviors that might exist like Redeem, Sell, etc. This behavior is Delegable. If the token definition is Delegable, TransferFrom will be available.

Analogies

Dependencies

Incompatible With

Artifact Type	Symbol	Id
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Influenced By

Description	Symbol	Applies To
If the token is Delegable, TransferFrom should be enabled.	g	[]
If Compliance is present, a CheckTransferAllowed request has to be made and verified before a Transfer request or a TransferFrom request.	c	[]

Artifact Files

Content Type	File Name	File Content
Control	transferable.proto	
Uml	transferable.md	

Code Map

Implementation Map

Resource Map

Specification Behavior

Delegable

Type:	Behavior
Delegable	
Id:	a3d02076-6009-4a65-9ed4-2deffe5291e1
<i>g</i>	
Tooling:	g
1.0	

Definition

A token class that implements this behavior will support the delegation of certain behaviors to another party or account to invoke them on the behalf of the owner. When applied to a token, behaviors that are Delegable will enable delegated request invocations. This is useful to provide another party to automatically be able to perform

the behaviors that can be delegated without seeking permission up to a certain allowance.

Analogies

Name:	Description
Broker	You may allow a broker to transfer your tokens as a part of an investment strategy. Setting an allowance can cap the total number of tokens the broker is allowed to perform delegated behaviors, when exceeded a new allowance request will need to be granted.

Dependencies

Incompatible With

Influenced By

Artifact Files

Content Type	File Name	File Content
Control	delegable.proto	
Uml	delegable.md	

Code Map

Implementation Map

Resource Map

Specification Behavior

Mintable

Type:	Behavior
Mintable	
Id:	f9224e90-3cab-45bf-b5dc-0175121e2ead
<i>m</i>	
Tooling:	m
1.0	

Definition

A token class that implements this behavior will support the minting or issuing of new token instances in the class. These new tokens can be minted and belong to the owner or minted to another account. This behavior may be invalidated by a restrictive behavior like Singleton, where only a single instance of the token can exist. Mintable is technically delegable, but it's delegation should be controlled by a behavior like Roles.

Example

A consortium of oil producers needs to create tokens for each barrel of oil they are putting on the market to trade. There are separate classes of tokens for each grade of oil. Producers of barrels will need to have the ability to mint new tokens in order to facilitate the trading of them in the supply chain.

Analogies

Name:	Description
SKU	A token class can represent a particular item SKU, where the manufacturer of the item has the ability to mint or issue new inventory of the SKU into the supply chain.

Dependencies

Incompatible With

Influenced By

Description	Symbol	Applies To
Roles is common to implement to provide authorization checks for invoking the behavior. Highly Recommended that Role restrictions be applied to MintTo invocations.	r	[]
If Compliance is present, a CheckMintAllowed request has to be made and verified before a Mint request or a MintTo request.	c	[]

Artifact Files

Content Type	File Name	File Content
Control	mintable.proto	
Uml	mintable.md	

Code Map

Map Type	Name	Platform	Location
SourceCode	Openzeppelin	EthereumSolidity	https://github.com/OpenZeppelin/openzeppelin-contracts/blob/master/contracts/token/ERC20/ERC20Mintable.sol

Implementation Map

Resource Map

Specification Behavior

Burnable

Type:	Behavior
Burnable	
Id:	803297a1-c0f9-4898-9d44-29c9d41cca97
<i>b</i>	
Tooling:	b
1.0	

Definition

A token class that implements this behavior will support the burning or decommissioning of token instances of the class. This does not delete a token, but rather places it in a permanent non-use state. Burning is a one way operation and cannot be reversed. This behavior is Delegable. If the token definition is Delegable, BurnFrom will be available.

Example

When a token is used in a certain way, you may want to remove it from circulation or from being used again. Since the ledger doesn't allow for deletions, burning a token essentially 'deletes' the token from being used, but not from history.

Analogies

Name:	Description
Oil Barrels	If you mint a new token for each barrel of oil created, you may transfer ownership several times until the barrel is refined. The refining process should

burn the barrel of oil to remove it from circulation.

Redeem

A token that is a coupon or single use ticket, should be burned when it is redeemed.

Dependencies

Incompatible With

Influenced By

Description	Symbol	Applies To
Delegable or not, will determine if the BurnFrom Control will be available in the implementation.	g	[]
If Compliance is present, a CheckBurnAllowed request has to be made and verified before a Burn request or a BurnFrom request.	c	[]

Artifact Files

Content Type	File Name	File Content
Control	burnable.proto	
Uml	burnable.md	

Code Map

Map Type	Name	Platform	Location
SourceCode	Openzeppelin	EthereumSolidity	https://github.com/OpenZeppelin/openzeppelin-contracts/blob/master/contracts/token/ERC20/ERC20Burnable.sol

Implementation Map

Resource Map

Specification Behavior

Roles

Type:	Behavior
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Roles	
Id:	c32726da-9787-4dd8-8de3-d07d1733d0f6
<i>r</i>	
Tooling:	r
1.0	

Definition

A token can have behaviors that the class will restrict invocations to a select set of parties or accounts that are members of a role or group. This is a generic behavior that can apply to a token many times to represent many role definitions within the template. This behavior will allow you to define what role(s) to create and what behavior(s) to apply the role to in the TemplateDefinition.

Example

Analogies

Name:	Description
Minters	A role called 'Minters' for a token can have accounts in the role. The MintTo behavior invocation will be bound to the role check to ensure only account in the 'Minters' role are allowed to mint new instances in the class.

Dependencies

Incompatible With

Influenced By

Artifact Files

Content Type	File Name	File Content
Control	roles.proto	
Uml	roles.md	

Code Map

Implementation Map

Resource Map

Specification Behavior