LICENSE-DIPLOMA

Taxonomy Formula: tN{s,~t,a}

Token Specification Summary

Token Classification

Template Type:	SingleToken	This token has no sub or child tokens.
Token Type:	NonFungible	This token is not interchangeable with other tokens of the same type as they have different values.
Token Unit:	Singleton	There is only one instance of this token and it cannot be subdivided.
Value Type:	Intrinsic	This token is purely a digital token represents value directly, it represents no external physical form and cannot be a receipt or title for a material item or property.
Representation Type:	Common	This token is simply represented as a balance or quantity attributed to an owners address where all the balances are recorded on the same balance sheet, like a bank account. All instances can easily share common properties and locating them is simple.

A singleton is a non-subdividable whole token with a quantity of 1. Generally used to represent digital or physical items where there will be a single owner. A singleton implies non-subdividable, so the decimal value for the base token should be 0 and a total Quantity be 1, both are established upon creation. This singleton is non-transferable and attestable.

Example

A educational diploma issued to a student, is not valid to transfer to someone else.

Analogies

Name	Description
Certification	A person may obtain some certification to prove that they attended and passed

	some set of requirements.
License	A business may obtain license from the government to prove that they are registered and recognized.

Comments

License-Diploma is:

- Singleton
- Non-Subdividable
- Non-transferable
- Attestable

License-Diploma Details

Base: Singleton

Type:	**Base**
Name:	Singleton
Id:	53101d87-3c93-4d8b-ab39-1e629406d062
Visual:	&tau_N{s}
Tooling:	tN{s}
Version:	1.0

Definition

A restriction on the token in that there can only be 1 whole token in the class and is not subdividable. This behavior is only available to non-fungible base types. By definition, a Singleton cannot be mintable.

Example

CryptoKitties, Art, Reserved Seat for an event.

Analogies

Name	**Description**
Property Title	The physical property title, land for example, have the identical look and feel

	from the paper, colors and seal. The difference between them are the values like property address, plot numbers, etc. These values make the title unique. There are some properties on a class of titles that are the same, like the county or jurisdiction the property is in. For titles that have some shared values and unique values, it may make more sense to define them in the same class.
Art	The valuable painting or other unique piece of art may not share any property values with other paintings, unless the artist is extremely prolific in generating tens of thousands of pieces of art, it would make sense to define each piece of art as its own class. Meaning there would be only a single piece of art represented by the token class. If the art cannot be sub-divided, meaning there can be no fractional owners, this token class can be a singleton if the quantity in the class is set to 1. A singleton has only one instance in the class, essentially meaning the class is the instance, and not be sub-dividable and no new tokens can be minted in the class.

Comments

Non-fungible tokens require additional thought about how these tokens may or may not be grouped together in the same class.

Dependencies

Artifact Type	Symbol	Description
Base	t	Base Token Definition
Behavior	~d	non-subdividable

Incompatible With

Artifact Type	Symbol	Id
Behavior	d	6e3501dc-5800-4c71-b59e-ad11418a998c
Behavior	m	f9224e90-3cab-45bf-b5dc-0175121e2ead

Influenced By

Description	Symbol	Applies To

Artifact Files

Content Type	File Name	File Content
Control	singleton.proto	
Uml	singleton.md	
Other	.DS_Store	

Code Map

Map Type	Name	Platform	Location

Implementation Map

Map Type	Name	Platform	Location

Resource Map

Map Type	Name	Location	Description

Base Details

Token Name:	
Token Type:	NonFungible
Representation Type:	Common
Value Type:	Intrinsic
Token Unit:	Singleton
Symbol:	
Owner:	
Quantity:	0
Decimals:	0

Constructor Name:	Constructor

Behaviors

Base: Singleton

Type:	**Behavior**
Name:	Singleton
Id:	c1189d7a-e142-4504-bf26-44c35b76c9d6
Visual:	s
Tooling:	s
Version:	1.0

Definition

A restriction on the token in that there can only be 1 whole token in the class and is not subdividable. This behavior is only available to non-fungible base types. By definition, a Singleton cannot be mintable.

Example

Analogies

Name	Description
Analogy 1	singleton analogy 1 description

Dependencies

Artifact Type	Symbol	Description
Base	tN	Singleton must be have a non-fungible base.
Behavior	~d	Singleton requires non-sub-dividable.

Incompatible With

Artifact Type	Symbol	Id
Behavior	d	6e3501dc-5800-4c71-b59e-ad11418a998c
Behavior	m	f9224e90-3cab-45bf-b5dc-0175121e2ead

Influenced By

Description	Symbol	Applies To

Artifact Files

Content Type	File Name	File Content
Control	singleton.proto	
Uml	singleton.md	
Other	.DS_Store	

Code Map

Map Type	Name	Platform	Location
SourceCode	Code 1	Daml	

Implementation Map

Map Type	Name	Platform	Location
Implementation	Implementation 1	ChaincodeGo	

Resource Map

Map Type	Name	Location	Description
Resource	Regulation		

	Reference 1		

Specification Behavior

Singleton

Taxonomy Formula: s

A restriction on the token in that there can only be 1 whole token in the class and is not subdividable. This behavior is only available to non-fungible base types. By definition, a Singleton cannot be mintable.

Example

Analogies

Name	Description
Analogy 1	singleton analogy 1 description

Comments

Is External:	**True**
Constructor:	

Singleton responds to these Invocations

Properties

Base: Non-Subdividable

Type:	Behavior
Name:	Non-Subdividable
Id:	d5807a8e-879b-4885-95fa-f09ba2a22172
Visual:	~d
Tooling:	~d

Version:	1.0

Definition

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

Example

Non-subdividable is common for items where subdivision does not make sense, like a property title, inventory item or invoice.

Analogies

Name	Description
Non-Fractional	It is not possible to own a fraction of this token.
Barrel of Oil	Barrels of Oil don't make sense to subdivide.

Dependencies

Artifact Type	Symbol	Description

Incompatible With

Artifact Type	Symbol	Id
Behavior	d	6e3501dc-5800-4c71-b59e-ad11418a998c

Influenced By

Description	Symbol	Applies To

Artifact Files

Content Type	File Name	File Content

Control	non-subdividable.proto	
Uml	non-subdividable.md	
Other	.DS_Store	

Code Map

Map Type	Name	Platform	Location
SourceCode	Code 1	Daml	

Implementation Map

Map Type	Name	Platform	Location
Implementation	Implementation 1	ChaincodeGo	

Resource Map

Map Type	Name	Location	Description
Resource	Regulation Reference 1		

Specification Behavior

Non-Subdividable

Taxonomy Formula: ~d

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

Example

Non-subdividable is common for items where subdivision does not make sense, like a property title, inventory item or invoice.

Analogies

Name	Description
Non-Fractional	It is not possible to own a fraction of this token.
Barrel of Oil	Barrels of Oil don't make sense to subdivide.

Comments

Is External:	True
Constructor:	

Non-Subdividable responds to these Invocations

Properties

Name: Decimals

Value Description: Set to Zero, not allowing any subdivision, usually this is applied to the base token.

Template Value: 0

Invocations

GetDecimals

Id: 2ca7fbb2-ce98-4dda-a6ae-e4ac2527bb33

Description: Should return 0

Request

Control Message: GetDecimalsRequest

Description:

Parameters

Name	Value

Response

Control Message: GetDecimalsResponse

Description: Return 0

Parameters

Name	Value
Decimals	0

GetDecimals

Id: 2ca7fbb2-ce98-4dda-a6ae-e4ac2527bb33

Description: Should return 0

Request

Control Message: GetDecimalsRequest

Description:

Parameters

Name	Value

Response

Control Message: GetDecimalsResponse

Description: Return 0

Parameters

Name	Value
Decimals	0

Properties

Base: Non-transferable

Type:	Behavior
Name:	Non-transferable

Id:	a4fa4ca8-6afd-452b-91f5-7103b6fee5e5
Visual:	~t
Tooling:	~t
Version:	1.0

Definition

Every token instance has an owner. The Non-transferable behavior prevents the owner of a token from changing.

Example

A vote token, for a citizen in a public election would be non-transferable.

Analogies

Name	Description
Diploma	A diploma from an educational institution is not transferable to another party that can claim to have earned the diploma.
Airline Ticket	Due to security restrictions at airports and airlines, tickets can only be used by the person they were issued to.

Dependencies

Artifact Type	Symbol	Description

Incompatible With

Artifact Type	Symbol	Id
Behavior	t	af119e58-6d84-4ca6-9656-75e8d312f038

Influenced By

Description	Symbol	Applies To

Artifact Files

Content Type	File Name	File Content
Control	non-transferable.proto	
Uml	non-transferable.md	
Other	.DS_Store	

Code Map

Map Type	Name	Platform	Location
SourceCode	Code 1	Daml	

Implementation Map

Map Type	Name	Platform	Location
Implementation	Implementation 1	ChaincodeGo	

Resource Map

Map Type	Name	Location	Description
Resource	Regulation Reference 1		

Specification Behavior

Non-transferable

Taxonomy Formula: ~t

Every token instance has an owner. The Non-transferable behavior prevents the owner of a token from changing.

Example

A vote token, for a citizen in a public election would be non-transferable.

Analogies

Name	Description
Diploma	A diploma from an educational institution is not transferable to another party that can claim to have earned the diploma.
Airline Ticket	Due to security restrictions at airports and airlines, tickets can only be used by the person they were issued to.

Comments

Is External:	True
Constructor:	

Non-transferable responds to these Invocations

Properties

Base: Attestable

Type:	Behavior
Name:	Attestable
Id:	189b1589-a93a-4aa6-8d9d-0d9237ab5b42
Visual:	a
Tooling:	a
Version:	1.0

Definition

A token class that implements this behavior will support a basic attestation request returning a true or false and if true it will return a cryptographic proof the requester may store for future validations. Attestable will accept a simple ownership query to validate that an account is the owner of the token or a attestation proof and validate it.

Example

Certain tokens will want to prove something like ownership or validation of an issued proof from the token for applications wanting to check attestations.

Analogies

Name	Description
Diploma	Check to see if an account is the owner or holder of a diploma token. This can be done by the Account Id or a stored attestation issued by the Diploma Token.

Dependencies

Artifact Type	Symbol	Description

Incompatible With

Artifact Type	Symbol	Id

Influenced By

Description	Symbol	Applies To

Artifact Files

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

Code Map

Map Type	Name	Platform	Location

Implementation Map

Map Type	Name	Platform	Location

Resource Map

Map Type	Name	Location	Description

Specification Behavior

Attestable

Taxonomy Formula: a

A token class that implements this behavior will support a basic attestation request returning a true or false and if true it will return a cryptographic proof the requester may store for future validations. Attestable will accept a simple ownership query to validate that an account is the owner of the token or a attestation proof and validate it.

Example

Certain tokens will want to prove something like ownership or validation of an issued proof from the token for applications wanting to check attestations.

Analogies

Name	Description
Diploma	Check to see if an account is the owner or holder of a diploma token. This can be done by the Account Id or a stored attestation issued by the Diploma Token.

Comments

Is External:	True
Constructor:	

Attestable responds to these Invocations

Attest

Id: f404f43f-c922-475d-9a0c-b4a0bdca6029

Description: A request to validate a rule or attestation.

Request Message:

AttestRequest

Description: The request to Attest an attestation.

Request Parameters

Name	Value
Attestation	Value of the attestation to validate

Response Message

AttestResponse

Description: The response from the AttestRequest.

Response Parameters

Name	Value
Confirmation	A true or false result

AttestByAccount

Id: c573dc98-d669-4e24-a06d-70a7c1d29078

Description: A request to validate a rule or attestation.

Request Message:

AttestByAccountRequest

Description: The request to Attest by an account id.

Request Parameters

Name	Value

AccountId	The Id of the account to validate.

Response Message

AttestByAccountResponse

Description: The response from the AttestByAccountRequest, if true can include a Attestation for the caller to use in subsequent attestation checks.

Response Parameters

Name	Value
Confirmation	A true or false result
Attestation	A cryptographic signature that can be validated with AttestRequest.

Properties