Bill-of-Lading

|  |  |
| --- | --- |
| Type: | TemplateDefinition |
| Name: | Bill-of-Lading |
| Id: | 699d5369-e215-40f6-8eaf-a537bd260f1a |
| Visual: | [&tau;<sub>N</sub>{<i>~d,t,c,SC</i>}+&phi;File] |
| Tooling: | [tN{~d,t,c,SC}+phFile] |
| Version: | 1.0 |

## Contributors

|  |  |
| --- | --- |
| Name | Organization |
| Alex Bausch | 2Tokens |
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## Definition

This is a Variable Supply Whole Non-Fungible where the total supply can vary. The tokens in this class will be of the same series, sharing those properties, but also have unique values. It is Whole by setting the Decimals property on the dividable behavior = 0. A token instance can be burned.

## Example

Non-divisible, transferable bills of lading for shipping with supply controls (minting, burning, and roles).

## Analogies

|  |  |
| --- | --- |
| Name | Description |
| Bill-of-Lading | Non-divisible, transferable bills of lading for shipping with supply controls (minting, burning, and roles). |

## 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 | Bill-of-Lading.proto |  |
| Uml | Bill-of-Lading.md |  |

## Code Map

|  |  |  |  |
| --- | --- | --- | --- |
| Map Type | Name | Platform | Location |

## Implementation Map

|  |  |  |  |
| --- | --- | --- | --- |
| Map Type | Name | Platform | Location |

## Resource Map

|  |  |  |  |
| --- | --- | --- | --- |
| Map Type | Name | Location | Description |

# Template Definition

## Template Formula Reference: [tN{~d,t,c,SC}+phFile]

Name: [tN{~d,t,c,SC}+phFile]

Id: 9bdc9483-b679-4d2e-aa61-108edceec303

Reference Notes: Bill-of-Lading

# Base Details

|  |  |
| --- | --- |
| Token Name: |  |
| Symbol: |  |
| Owner: |  |
| Quantity: | 100 |
| Decimals: | 0 |
| Constructor Name: | Constructor |

# Behaviors

## Behavior Reference: Indivisible

Reference Notes: Non-Subdividable

|  |  |
| --- | --- |
| Is External: | True |
| Constructor: |  |

### Applies To

### Invocations

### Influence Bindings

### 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 |

## Behavior Reference: Transferable

Reference Notes: Transferable

|  |  |
| --- | --- |
| Is External: | True |
| Constructor: |  |

### Applies To

### Invocations

#### Transfer

Id: 5d4b8f10-7857-4a2f-9b8c-d61e367a6bcc

Description: A transfer request will invoke a transfer from the owner of the token to the party or account provided in the To field of the request. For fungible or dividable non-fungible tokens, this request may also include value in the Amount field of the request to transfer more than one token of the class in a single request.

##### Request

Control Message: TransferRequest

Description: The request

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| To | AccountId to transfer ownership to. |
| Quantity | Number of tokens to transfer. |

##### Response

Control Message: TransferResponse

Description: The response

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| Confirmation | A confirmation receipt or error may be returned to the owner based on the outcome of the transfer request. |

#### TransferFrom

Id: 516b4e2f-4a14-4c4f-a6f2-1419d4af35c6

Description: >A transfer request will invoke a transfer from the owner of the token to the party or account provided in the To field of the request. For fungible or dividable non-fungible tokens, this request may also include value in the Amount field of the request to transfer more than one token of the class in a single request.

##### Request

Control Message: TransferFromRequest

Description: The request

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| From | AccountId to transfer ownership from. |
| To | AccountId to transfer ownership to. |
| Quantity | Number of tokens to transfer. |

##### Response

Control Message: TransferFromResponse

Description: The response

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| Confirmation | A confirmation receipt or error may be returned to the owner based on the outcome of the transfer from request. |

### Influence Bindings

## Behavior Reference: Compliant

Reference Notes: Compliant

|  |  |
| --- | --- |
| Is External: | True |
| Constructor: |  |

### Applies To

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

### Invocations

#### CheckTransferAllowed

Id: 3f591127-0508-445b-b449-4adc3d8d90e9

Description: Checks if the transfer request is allowed to be executed with the given parameters.

##### Request

Control Message: CheckTransferAllowedRequest

Description: The request

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| From | AccountId to transfer ownership from. |
| To | AccountId to transfer ownership to. |
| Quantity | Number of tokens to transfer. |

##### Response

Control Message: CheckTransferAllowedResponse

Description: The response

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| Result | A boolean value whereas true means the transfer is allowed and false means it is not. |

#### CheckMintAllowed

Id: 0323b374-71af-48f6-93ff-2a63366267db

Description: Checks if the mint request is allowed to be executed with the given parameters.

##### Request

Control Message: CheckMintAllowedRequest

Description: The request

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| ToAccount | Account Id to mint the tokens to. |
| Quantity | Number of tokens to transfer. |

##### Response

Control Message: CheckMintAllowedResponse

Description: The response

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| Result | A boolean value whereas true means the minting request is allowed and false means it is not. |

#### CheckBurnAllowed

Id: 8edffc4d-d14e-4a98-8c96-338835d5534c

Description: Checks if the burn request is allowed to be executed with the given parameters.

##### Request

Control Message: CheckBurnAllowedRequest

Description: The request

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| From | AccountId to transfer ownership from. |
| Quantity | Number of tokens to transfer. |

##### Response

Control Message: CheckMintAllowedResponse

Description: The response

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| Result | A boolean value whereas true means the burn request is allowed and false means it is not. |

### Influence Bindings

Influenced Id: af119e58-6d84-4ca6-9656-75e8d312f038

Influenced Name: Transferable

Influenced Invocation Id: 5d4b8f10-7857-4a2f-9b8c-d61e367a6bcc

Influence Type: Intercept

Influencing Invocation:

### CheckTransferAllowed

Id: 3f591127-0508-445b-b449-4adc3d8d90e9

Check to see if the account has been whitelisted and KYC'd, by the custodian.

#### Request

Control Message: CheckTransferAllowedRequest

Description: Checking the whitelist.

#### Parameters

|  |  |
| --- | --- |
| Name | Value |
| From | AccountId to transfer ownership from. |
| To | AccountId to transfer ownership to. |
| Quantity | Number of tokens to transfer. |

#### Response

Control Message: CheckTransferAllowedResponse

Description: The response

#### Parameters

|  |  |
| --- | --- |
| Name | Value |
| Result | A boolean value whereas true means the transfer is allowed and false means it is not. |

Influenced Invocation:

### Transfer

Id: 5d4b8f10-7857-4a2f-9b8c-d61e367a6bcc

A transfer request will invoke a transfer from the owner of the token to the party or account provided in the To field of the request. For fungible or dividable non-fungible tokens, this request may also include value in the Amount field of the request to transfer more than one token of the class in a single request.

#### Request

Control Message: TransferRequest

Description: The request

#### Parameters

|  |  |
| --- | --- |
| Name | Value |
| To | AccountId to transfer ownership to. |
| Quantity | Number of tokens to transfer. |

#### Response

Control Message: TransferResponse

Description: The response

#### Parameters

|  |  |
| --- | --- |
| Name | Value |
| Confirmation | A confirmation receipt or error may be returned to the owner based on the outcome of the transfer request. |

## Behavior Groups

Name: Supply Control

Id: 91cb89b6-a2ce-44ff-b3a0-f0cb3f117e56

Reference Notes: Supply Control

## Reference Values

## Artifact Files

|  |  |  |
| --- | --- | --- |
| Content Type | File Name | File Content |

## Code Map

|  |  |  |  |
| --- | --- | --- | --- |
| Map Type | Name | Platform | Location |

## Implementation Map

|  |  |  |  |
| --- | --- | --- | --- |
| Map Type | Name | Platform | Location |

## Resource Map

|  |  |  |  |
| --- | --- | --- | --- |
| Map Type | Name | Location | Description |

## Behavior

## Behavior Reference: Mintable

Reference Notes: Mintable in SupplyControl will be bound to the Roles behavior to determine if the requesting minter is allowed to invoke the behavior.

|  |  |
| --- | --- |
| Is External: | False |
| Constructor: |  |

### Applies To

### Invocations

### Influence Bindings

## Behavior

## Behavior Reference: Burnable

Reference Notes: Burnable is not modified from the referenced behavior.

|  |  |
| --- | --- |
| Is External: | False |
| Constructor: |  |

### Applies To

### Invocations

### Influence Bindings

## Behavior

## Behavior Reference: Roles

Reference Notes: Roles support requires that a role or group called 'Minters' be created that allows for account to be added. These accounts will be allowed to invoke MintTo.

|  |  |
| --- | --- |
| Is External: | False |
| Constructor: |  |

### Applies To

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

### Invocations

### Influence Bindings

Influenced Id: f9224e90-3cab-45bf-b5dc-0175121e2ead

Influenced Name: Mintable

Influenced Invocation Id: 70499b23-a1dd-4c87-90d6-6e45400f28b5

Influence Type: Intercept

Influencing Invocation:

### RoleCheck

Id: 00a665e3-1dda-441e-8262-5750435c153c

Check to see if the account is in the Role called 'Minters'

#### Request

Control Message: IsInRole

Description: Checking the 'Minters' role.

#### Parameters

|  |  |
| --- | --- |
| Name | Value |
| AccountId | AccountId of the requestor. |

#### Response

Control Message: True/False

Description: Respond true if the account is in the 'Minters' role.

#### Parameters

|  |  |
| --- | --- |
| Name | Value |
| IsInRole | True/False |

Influenced Invocation:

### MintTo

Id: 70499b23-a1dd-4c87-90d6-6e45400f28b5

A request to create new token instances in the class by the owner or a party or account in a role that is granted this permission to another party or account. Requires a To and Quantity fields in the request.

#### Request

Control Message: MintToRequest

Description: The request

#### Parameters

|  |  |
| --- | --- |
| Name | Value |
| ToAccount | Account Id to mint the tokens to. |
| Quantity | Number of new tokens to create. |

#### Response

Control Message: MintToResponse

Description: The response

#### Parameters

|  |  |
| --- | --- |
| Name | Value |
| Confirmation | A confirmation receipt or error may be returned to the invoker based on the outcome of the MintTo request. |

### Properties

#### Name: Role

Value Description: A group or list an account can be a member or be in.

Template Value: Minters

### Invocations

#### GetMinters

Id:

Description: Request the the list of member accounts in the 'Minters' role.

##### Request

Control Message: GetMintersRequest

Description: The request

###### Parameters

|  |  |
| --- | --- |
| Name | Value |

##### Response

Control Message: GetMintersResponse

Description: The response

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| Members | Returning the list of accounts in the 'Minters' role. |

#### AddRoleMember

Id: 600357f8-0499-47f8-87a5-eedf4ad034af

Description: Add a member to the group or role property.

##### Request

Control Message: AddRoleMemberRequest

Description: The request

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| RoleName | Value is always set to 'Minters' |
| AccountAddress | Address, name or identifier of the account to be added to the 'Minters' role. |

##### Response

Control Message: AddRoleMemberResponse

Description: The response

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| Added | True or False. |

#### RemoveRoleMember

Id: 97e160bb-6c60-4f1d-923b-813b07b89638

Description: Remove a member to the group or role property.

##### Request

Control Message: RemoveRoleMemberRequest

Description: The request

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| RoleName | Always set to 'Minters' |
| AccountAddress | Address, name or identifier of the account to be removed from the role. |

##### Response

Control Message: RemoveRoleMemberResponse

Description: The response

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| Added | True or False. |

#### IsInRole

Id: e42b1b16-074a-4d7d-b9f9-f69a2397a21b

Description: Check to see if an account is in the role.

##### Request

Control Message: IsInRoleRequest

Description: The request may be internal only and not exposed externally.

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| RoleName | Always be bound to 'Minters' |
| AccountAddress | Address, name or identifier of the account to be checked. |

##### Response

Control Message: IsInRoleRequestResponse

Description: The response

###### Parameters

|  |  |
| --- | --- |
| Name | Value |
| InRole | True or False. |

## Property Sets

Name: File

Id: 79d40648-02ba-4055-b700-01dce32196ec

Reference Notes: file

## Reference Values

## Artifact Files

|  |  |  |
| --- | --- | --- |
| Content Type | File Name | File Content |

## Code Map

|  |  |  |  |
| --- | --- | --- | --- |
| Map Type | Name | Platform | Location |

## Implementation Map

|  |  |  |  |
| --- | --- | --- | --- |
| Map Type | Name | Platform | Location |

## Resource Map

|  |  |  |  |
| --- | --- | --- | --- |
| Map Type | Name | Location | Description |

### Properties

## Child Tokens