

## GBP-13 Define token format (GRC20)

### I. Overview

- GRC20 token format is based on ERC20 token format, and the smart contract is written in decorated JavaScript (djs).

- It contains many state variables:

- `_balances` [1]
- `_allowances` [2]
- `_totalSupply` [3]
- `_name` [4]
- `_symbol` [5]
- `_decimals` [6]

And methods:

- `constructor(name_ : string, symbol_ : string, totalSupply_ : number, decimals_ : number)` [1]
- `balancesOf(account : string) : number` [2]
- `transfer(recipient : string, amount : number) : boolean` [3]
- `allowance(owner : string, spender : string)` [4]
- `approve(spender : string, amount : number) : boolean` [5]
- `transferFrom(sender : string, recipient : string, amount : number) : boolean` [6]
- `increaseAllowance(spender : string, addedValue : number) : boolean` [7]
- `decreaseAllowance(spender : string, subtractedValue : number) : boolean` [8]
- `_transfer(sender : string, recipient : string, amount : number)` [9]
- `_mint(account : string, amount : number)` [10]
- `_burn(account : string, amount : number)` [11]
- `_approve(owner : string, spender : string, amount : number)` [12]
- `_beforeTokenTransfer(from : string, to : string, amount : number)` [13]

### II. Contract State

[1]: mapping between account address and token value

[2]: mapping allowance of an user to others users

[3]: total current token in market

[4]: name of token

[5]: symbol of token

[6]: number of decimals of a token

### III. Contract's Methods

[1]: initial value of *\_name*, *\_symbol*, *\_totalSupply*, *\_decimals*

[2]: check balances of an account address

[3]: transfer token to others account address

[4]: number of token an user can take from others accounts's balances

[5]: assign *\_allowances* to a number

[6]: transfer token between 2 accounts

[7]: add an amount of token to *\_allowances*

[8]: subtract an amount of token from *\_allowances*

[9]: transfer token between 2 accounts (private method)

[10]: add an amount of token to *\_totalSupply* and an account's balances

[11]: subtract an amount of token from *\_totalSupply* and an account's balances

[12]: assign *\_allowances* to a number (private method)

[13]: do anything before transferring token