GRC20 and Coins

Token Standards in the Gno Ecosystem

How native coins and tokens differs

How to implement tokens and their use cases

⚙️ Coins

Managed by the `banker` module, separate from GnoVM,

✅ **Native type**
✅ Efficient gas use -- Lightweight
✅ Used for staking, fees

❌ **No custom logic**
❌ Limited dApp usage

🔗 Read the Coin and Bankers Docs

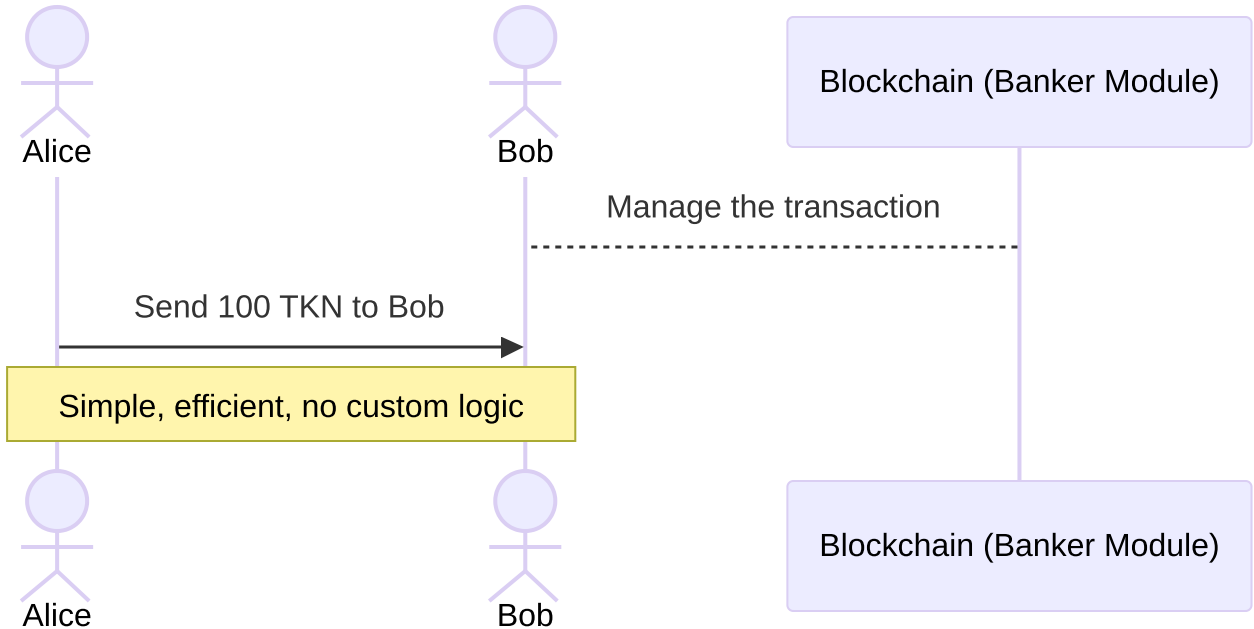
⚙️ Coins

A Coin is a Gno type made of a denomination and an amount.

```
// Defines a basic Coin with a denomination and amount
type Coin struct {
    Denom  string `json:"denom"`  // e.g., "GNOT"
    Amount int64  `json:"amount"` // e.g., 1000
}
```

```
banker.SendCoins(from, to, coins)
banker.IssueCoin(addr, denom, amount)
banker.RemoveCoin(addr, denom, amount)
coins := banker.GetCoins(addr)
```

Coins


Alice
Bob
Blockchain (Banker Module)
Manage the transaction
Send 100 TKN to Bob
Simple, efficient, no custom logic
Alice
Bob
Blockchain (Banker Module)

🧬 GRC20 Tokens

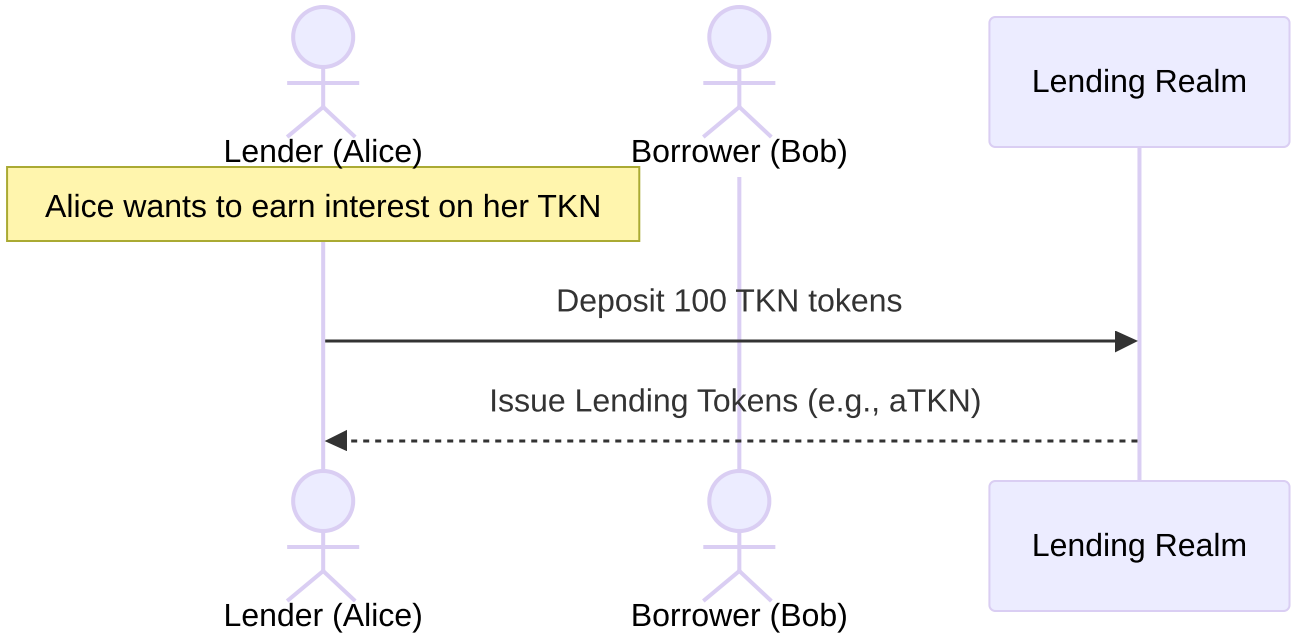
ERC20-style Smart Contracts

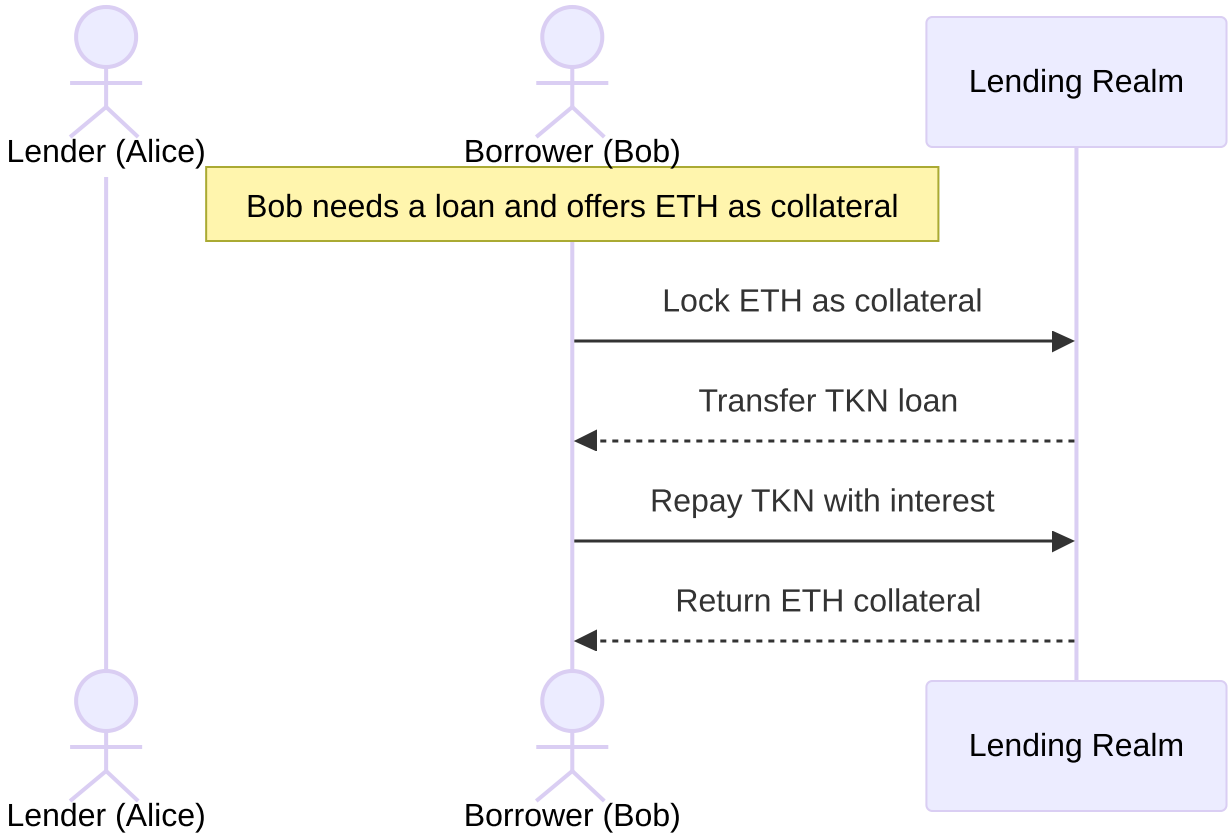
- 🔁 **Fungible**, programmable token standard
- ⚙️ Stored and executed in **Gno realm**

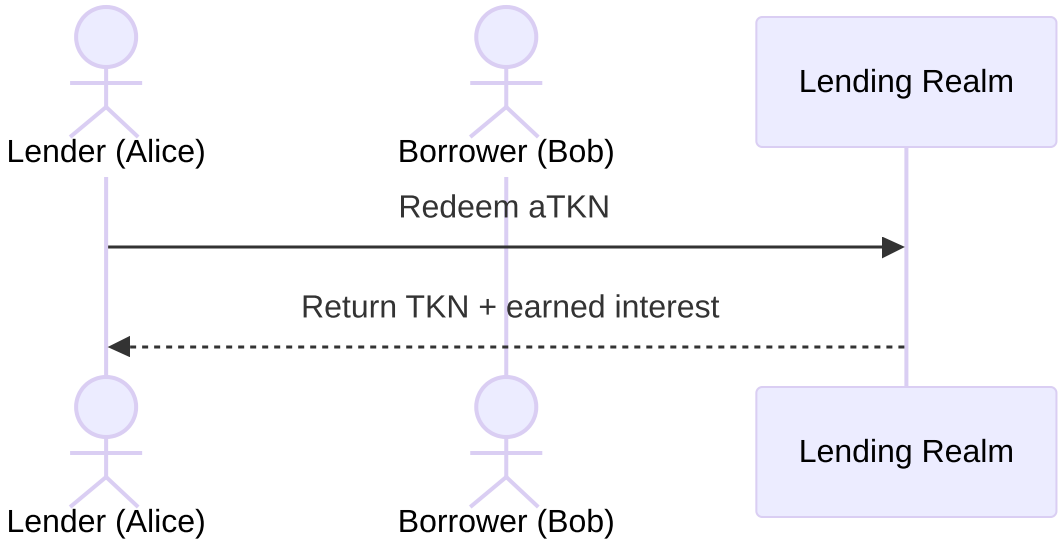
> 💡 **GRC20 = Gno's version of ERC20/CW20**

🛠 Fully programmable logic on-chain

GRC20 Tokens




Lender (Alice)
Borrower (Bob)
Lending Realm
Bob needs a loan and offers ETH as collateral
Lock ETH as collateral
Transfer TKN loan
Repay TKN with interest
Return ETH collateral
Lender (Alice)
Borrower (Bob)
Lending Realm


Lender (Alice)
Borrower (Bob)
Lending Realm
Redeem aTKN
Return TKN + earned interest
Lender (Alice)
Borrower (Bob)
Lending Realm

Why use GRC20 ?

🎟 Use Case 1: Token Gating

🎟 Token Gating

Use GRC20 tokens to:

- 🔐 Unlock gated content
- 🗳 Access private organizations
- 🎫 Control premium event access

```
if (!hasGRC20(user)) {
  return "Access Denied"
}
```

💰 Use Case 2: Vaults

💰 Vaults: Passive Income

- Deposit GRC20 → Get yield-bearing shares
- 📈 Earn interest as the vault grows
- 🔁 Withdraw anytime with rewards

```
vault.deposit(user, GRC20.amount)
shares = calculateShares(user)
```

♻️ Use Case 3: Wrapping Coins

♻️ Wrapping Native Coins

- 🧃 Works in DeFi (Decentralized Finance)
- 🔁 Composable – Connects to other apps

✅ Enables:

- Liquidity pools
- Lending protocols
- Cross-chain assets

⚔️ Comparison Table

Feature	🪙 Coins (Banker)	🧬 GRC20 Token
Native to chain	✅	❌
Composable in dApps	❌	✅
Custom Logic	❌	✅
Governance Control	Centralized	Decentralized
Efficiency	✅	⚠️ Slight overhead

Coins vs Grc20

🔧 Let’s build our own GRC20

Let’s fill our functions !

```
func init() {}

// Informations
func TotalSupply() uint64 {}
func BalanceOf(owner std.Address) uint64 {}

// Create / Delete
func Mint(to std.Address, amount uint64) {}
func Burn(from std.Address, amount uint64) {}

// Send
func Transfer(to std.Address, amount uint64) {}

// Send from another address
func Allowance(owner, spender std.Address) uint64 {}
func Approve(spender std.Address, amount uint64) {}
func TransferFrom(from, to std.Address, amount uint64) {}
```

🔗 Sources

- 🌐 gno.land
- foo20
- bar20

> 💻 Fully on-chain Gno smart contracts

Read the Coin and Bankers Docs