# **SponsorCoin Class Modules and Methods**

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# Overview

This document details the class modules the methods available to the Ethereum sponsorCoin Token contract. These class modules are JavaScript react access modules for interaction with the sponsorCoin contract on the Ethereum network. This interaction is required to manage the accounts and rewards earned by sponsors, beneficiaries, and agents of the sponsorCoin contract. All erc20 functionality methods are also implemented according to the Ethereum standards.

The access modules are as follows:

**spCoinAddMethods:** This module includes functionalities like adding sponsorships, recipients, agents, account records, and sponsorship transactions. The module generates backdated data for testing purposes involving staking over time..

**SpCoinDeleteMethods:** This module includes functionalities like deleting recipients, agents, account records, and sponsorships. Its primary purpose is to un-sponsor tokens called SponsorCoins so that they may be resold in the crypto token market.

**SpCoinStakingMethods:** This module includes functionalities pertaining to staking functionality such as calculating the staking rewards since last claimed and depositing the rewards to the erc20 balanceOf account, based of time method calculations. Rewards are allocated according to the proportion assigned between the Sponsor, Recipient and Agent allocations.

**SpCoinRewardsMethods:** This module updates the staking rewards for a given account. There are three types of awards which may be generated for any account. Sponsor rewards, Recipient Rewards and Agent Rewards. Any account can be a Sponsor, Recipient, Agent, none, one, two or all three of these entities and hence may have multiple SponsorCoin reward sources attached to there address identities..

**SpCoinReadMethods:** This module requests data which is existing on the blockchain and hence is read only so no signer is required and no network fees are incurred. Such read functions include get a list of recipients or agents or beneficiaries. Git a list of transactions such as rewards generated reward balances and so on. This class is ideal for an account display page for administrative work such as analyzing transactions or determining which beneficiaries to add to or delete from.

**spCoinERC20Methods:** This module requests standard erc20 request and is currently under review for modifications. Currently it is a WIP.

## **SpCoinAddMethods**

***Module Description:***

This JavaScript react module exports the SpCoinAddMethods class, which provides methods for interacting with the SponsorCoin smart contract. It includes functionalities like adding recipients, agents, account records, and sponsorship transactions. Here's a breakdown of the code:

Properties:

* spCoinContractDeployed (Object): The deployed instance of the SpCoin smart contract.
* spCoinLogger (Object): An instance of the SpCoinLogger class for logging purposes.
* signer (Object): The signer for the SpCoin smart contract.

**Constructor(\_spCoinContractDeployed)**

* **Description:**
  + Creates an instance of SpCoinAddMethods and initializes properties.
* **Parameters:**
  + **\_**spCoinContractDeployed (Object): The deployed instance of the SpCoin smart contract.

##### Methods:

1. **setSigner(\_signer)**
   * **Description:**
     + Sets the signer for the SponsorCoin contract
   * **Parameters:**
     + **\_signer**: The signer to be set for the contract.
2. **addRecipient(\_recipientKey)**
   * **Description:** 
     + Adds a recipient to the SpCoin smart contract.
   * **Parameters:**
     + \_recipientKey (string): The key of the recipient to be added.
3. **addReppients(\_accountKey, \_recipientAccountList)**
   * **Description:** 
     + Adds multiple recipients to the SpCoin smart contract.
   * **Parameters:**
     + \_accountKey (string): The key of the account associated with the recipients.
     + \_recipientAccountList (string[]): The list of recipient keys to be added.
   * **Returns:**
     + (number): The count of successfully added recipients.
4. **addAgent(\_recipientKey, , \_recipientRateKey, \_accountAgentList)**
   * **Description:** 
     + Adds an agent to the SpCoin smart contract.
   * **Parameters:**
     + \_recipientKey (string): The key of the associated recipient.
     + \_recipientRateKey (string): The key representing the rate of the recipient.
     + \_accountAgentKey (string): The key of the agent to be added.
5. **addAgents(\_recipientKey, , \_recipientRateKey, \_ agentAccountList)**
   * **Description:** 
     + Adds multiple agents to the SpCoin smart contract.
   * **Parameters:**
     + \_recipientKey (string): The key of the associated recipient.
     + \_recipientRateKey (string): The key representing the rate of the recipient.
     + \_agentAccountList (string[]): The list of agent keys to be added.
   * **Returns:**
     + (number): The count of successfully added agents.
6. **addAccountRecord (\_accountKey)**
   * **Description:** 
     + Adds an account record to the SpCoin smart contract.
   * **Parameters:**
     + \_accountKey (string): The key of the account to be added.
7. **addAccountRecords (\_accountListKeys)**
   * **Description:** 
     + Adds multiple account records to the SpCoin smart contract.
   * **Parameters:**
     + \_accountListKeys (string[]): The list of account keys to be added.
   * **Returns:**
     + (number): The count of successfully added account records.
8. **addSponsorship(\_sponsorSigner, \_recipientKey, \_recipientRateKey, \_transactionQty)**
   * **Description:** 
     + Adds a sponsorship transaction to the SpCoin smart contract.
   * **Parameters:**
     + \_sponsorSigner (Object): The signer of the sponsoring account.
     + \_recipientKey (string): The key of the sponsored recipient.
     + \_recipientRateKey (string): The key representing the rate of the recipient.
     + \_transactionQty (number): The quantity of the sponsorship transaction.
9. **addAgentSponsorship(\_sponsorSigner, \_recipientKey, \_recipientRateKey, \_accountAgentKey, \_agentRateKey, \_transactionQty)**
   * **Description:** 
     + Adds an agent sponsorship transaction to the SpCoin smart contract.
   * **Parameters:**
     + \_sponsorSigner (Object): The signer of the sponsoring account.
     + \_recipientKey (string): The key of the sponsored recipient.
     + \_recipientRateKey (string): The key representing the rate of the recipient.
     + \_accountAgentKey (string): The key of the sponsored agent.
     + \_agentRateKey (string): The key representing the rate of the agent.
     + \_transactionQty (number): The quantity of the agent sponsorship transaction.
10. **addBackDatedSponsorship(\_sponsorSigner, \_recipientKey, \_recipientRateKey, \_transactionQty, \_transactionBackDate)**
    * **Description:** 
      + Adds a backdated sponsorship transaction to the SpCoin smart contract.
    * **Parameters:**
      + \_sponsorSigner (Object): The signer of the sponsoring account.
      + \_recipientKey (string): The key of the sponsored recipient.
      + \_recipientRateKey (string): The key representing the rate of the recipient.
      + \_transactionQty (number): The quantity of the backdated sponsorship transaction.
      + \_transactionBackDate (number): The timestamp of the backdated sponsorship transaction.
11. **addBackDatedAgentSponsorship(\_sponsorSigner, \_recipientKey, \_recipientRateKey, \_accountAgentKey, \_agentRateKey, \_transactionQty, \_transactionBackDate)**
    * **Description:** 
      + Adds a backdated agent sponsorship transaction to the SpCoin smart contract.
    * **Parameters:**
      + \_sponsorSigner (Object): The signer of the sponsoring account.
      + \_recipientKey (string): The key of the sponsored recipient.
      + \_recipientRateKey (string): The key representing the rate of the recipient.
      + \_accountAgentKey (string): The key of the sponsored agent.
      + \_agentRateKey (string): The key representing the rate of the agent.
      + \_transactionQty (number): The quantity of the backdated agent sponsorship transaction.
      + \_transactionBackDate (number): The timestamp of the backdated agent sponsorship transaction.

## **SpCoinDeleteMethods**

***Module Description:***

This module exports the SpCoinDeleteMethods class, which provides methods for interacting with the SpCoin smart contract. It includes functionalities like deleting recipients, agents, account records, and sponsorships. This module also exports the SpCoinDeleteMethods for integration into other JavaScript programs.

#### Properties:

* spCoinContractDeployed (Object): The deployed instance of the SpCoin smart contract.
* spCoinLogger (Object): An instance of the SpCoinLogger class for logging purposes.
* signer (Object): The signer for the SpCoin smart contract.

**Constructor(\_spCoinContractDeployed)**

* **Description:**
  + Creates an instance of SpCoinDeleteMethods and initializes properties.
* **Parameters:**
  + **\_**spCoinContractDeployed (Object): The deployed instance of the SpCoin smart contract.

##### **Description:**

##### Initializes an instance of the SpCoinDeleteMethods class.

##### Takes the deployed instance of the SpCoin contract as a parameter.

##### **Parameters:**

##### spCoinContractDeployed: The deployed instance of the SpCoin contract.

#### Methods:

1. **setSigner**
   * **Description:**
     + Sets the signer for the SponsorCoin contract
   * **Parameters:**
     + **\_signer**: The signer to be set for the contract.
2. **deleteAccountRecord(\_accountKey)**
   * **Description:**
     + Deletes an account record from the SpCoin contract.
   * **Parameters:**
     + **accountKey**: The key of the account to be deleted.
3. **deleteAccountRecords(accountListKeys)**
   * **Description:**
     + Deletes multiple account records from the SpCoin contract.
   * **Parameters:**
     + \_**accountListKeys**: The list of account keys to be deleted.
4. **unSponsorRecipient(\_sponsorKey, \_recipientKey)**
   * **Description:**
     + Un-sponsors a recipient from the SpCoin contract.
   * **Parameters:**
     + **sponsorKey**: The key of the sponsor initiating the unsponsorship.
     + **recipientKey**: The key of the recipient to be unsponsored.
5. **deleteAgentRecord(\_accountKey, \_recipientKey, \_ accountAgentKey)**
   * **Description:**
     + Deletes an agent record from the SpCoin contract.
   * **Parameters:**
     + **accountKey:** The key of the account associated with the agent.
     + **recipientKey:** The key of the recipient associated with the agent.
     + **accountAgentKey:** The key of the agent to be deleted.

## **SpCoinStakingMethods**

***Module Description:***

This code defines a JavaScript module exports the SpCoinStakingMethods class, which provides methods for interacting with the SpCoin smart contract for staking method access. Here's a breakdown of the code:

Properties:

* spCoinContractDeployed (Object): The deployed instance of the SpCoin smart contract.
* spCoinLogger (Object): An instance of the SpCoinLogger class for logging purposes.
* signer (Object): The signer for the SpCoin smart contract.

### Class SpCoinStakingMethods:

**Constructor(\_spCoinContractDeployed)**

* **Description:**
  + Creates an instance of SpCoinStakingMethods and initializes properties.
* **Parameters:**
  + **\_**spCoinContractDeployed (Object): The deployed instance of the SpCoin smart contract.

##### **Description:**

##### Initializes an instance of the SpCoinStakingMethods class.

##### Takes an instance of a smart contract (\_spCoinContractDeployed) as an argument.

##### Initializes a logger (spCoinLogger) with the provided smart contract instance and sets the signer.

##### **Parameters:**

##### spCoinContractDeployed: The deployed instance of the SpCoin contract.

##### Methods:

1. **setSigner(\_signer)**
   * **Description:**
     + Sets the signer for the SponsorCoin contract
   * **Parameters:**
     + **\_signer**: The signer to be set for the contract.
2. **testStakingRewards (** lastUpdateTime, \_testUpdateTime, \_interestRate, \_quantity **)**
   * **Description:** Tests staking rewards by simulating a staking operation.
   * **Parameters:**
     + \_lastUpdateTime: The last update time for staking rewards.
     + \_ testUpdateTime: The simulated time for testing staking rewards.
     + \_ interestRate: The interest rate for staking rewards.
     + \_quantity: The quantity to be staked.
3. **getStakingRewards ( (** lastUpdateTime, \_interestRate, \_quantity **)**
   * **Description:** Retrieves staking rewards for a specified account.
   * **Parameters:**
     + \_lastUpdateTime: The last update time for staking rewards.
     + \_interestRate: The interest rate for staking rewards.
     + \_quantity: The quantity to be staked.
4. **getTimeMultiplier (** \_timeRateMultiplier **)**
   * **Description:** Gets the time multiplier based on the provided time rate multiplier.
   * **Parameters:**
     + \_timeRateMultiplier: The time rate multiplier.
5. **getAccountTimeInSecondeSinceUpdate (** \_tokenLastUpdate **)**
   * **Description:** Retrieves the time elapsed in seconds since the last update for a specified account.
   * **Parameters:**
     + \_tokenLastUpdate: The last update time for the account.
6. **getMillenniumTimeIntervalDivisor (** \_timeInSeconds **)**
   * **Description:** Gets the annualized percentage for the provided time in seconds.
   * **Parameters:**
     + \_timeInSeconds: The time interval in seconds.
7. **depositSponsorStakingRewards (** \_sponsorAccount, \_recipientAccount, \_recipientRate, \_amount **)**
   * **Description:** Deposits staking rewards for the sponsor account.
   * **Parameters:**
     + \_sponsorAccount: The sponsor account.
     + \_recipientAccount: The recipient account.
     + \_recipientRate: The recipient rate.
     + \_amount: The amount to be staked.
8. **depositRecipientStakingRewards (** \_sponsorAccount, \_recipientAccount, \_recipientRate, \_amount **)**
   * **Description:** Deposits staking rewards for the recipient account.
   * **Parameters:**
     + \_sponsorAccount: The sponsor account.
     + \_recipientAccount: The recipient account.
     + \_recipientRate: The recipient rate.
     + \_amount: The amount to be staked.
9. **depositAgentStakingRewards (** \_sponsorAccount, \_recipientAccount, \_recipientRate, \_agentAccount, \_agentRate, \_amount **)**
   * **Description:** Deposits staking rewards for the agent account.
   * **Parameters:**
     + \_sponsorAccount: The sponsor account.
     + \_recipientAccount: The recipient account.
     + \_recipientRate: The recipient rate.
     + \_agentAccount: The agent account.
     + \_agentRate: The agent rate.
     + \_amount: The amount to be staked.

## **SpCoinRewardsMethods**

***Module Description:***

This code defines a JavaScript module that exports a class SpCoinRewardsMethods along with some constants and utility functions. The module is required for the calculation of the rewards to be issued.

Here's a breakdown of the code:

### Constants and Dependencies:

1. **Constants:** The code starts by importing necessary modules. Three utility modules are imported.
   * dateTime
     1. Date and time utility functions
   * SpCoinLogging
     1. Required for SpCoin logging
   * SpCoinSerialize
     1. Required for transport serialization } from the serialize module: A utility for serialization The code starts by
2. **Dependencies:**
   * The code imports some utility functions related to serialization from a module located in the "./utils/serialize” file.
   * It also imports a logger class (SpCoinLogger) from another module in “./utils/logging”.

This module exports the SpCoinRewardsMethods class, which provides methods for interacting with the SpCoin smart contract for rewards calculations.

Properties:

* spCoinContractDeployed (Object): The deployed instance of the SpCoin smart contract.
* spCoinLogger (Object): An instance of the SpCoinLogger class for logging purposes.
* signer (Object): The signer for the SpCoin smart contract.

### Class SpCoinRewardsMethods:

**Constructor(\_spCoinContractDeployed)**

* **Description:**
  + Creates an instance of SpCoinRewardsMethods and initializes properties.
* **Parameters:**
  + **\_**spCoinContractDeployed (Object): The deployed instance of the SpCoin smart contract.
    - **\_**spCoinContractDeployed (Object): The deployed instance of the SpCoin smart contract.

##### **Description:**

##### Initializes an instance of the SpCoinRewardsMethods class.

##### Takes an instance of a smart contract (\_spCoinContractDeployed) as an argument.

##### Initializes a logger (spCoinLogger) with the provided smart contract instance and sets the signer.

##### **Parameters:**

##### spCoinContractDeployed: The deployed instance of the SpCoin contract.

#### Methods:

1. **setSigner(\_signer)**
   * **Description:**
     + Sets the signer for the SponsorCoin contract
   * **Parameters:**
     + **\_signer**: The signer to be set for the contract.
2. **updateAccountStakingRewards (\_accountKey)**
   * **Description:** Updates rewards for a specified account.
   * **Parameters:**
     + **\_accountKey:** The account for requested staking rewards update.
3. **Exporting the Module:**
   * The module exports an object with a single property SpCoinRewardsMethods which holds the class.

## **SpCoinReadMethods**

***Module Description:***

This class provides read methods to interact with a SpCoin contract. It has methods to retrieve information about accounts, recipients, agents, and reward-related data.

**Constructor(\_spCoinContractDeployed)**

* **Description:**
  + Creates an instance of SpCoinReadMethods and initializes properties.
* **Parameters:**
  + **\_**spCoinContractDeployed (Object): The deployed instance of the SpCoin smart contract.

##### Methods:

1. **setSigner(\_signer)**
   * **Description:**
     + Sets the signer for the SponsorCoin contract
   * **Parameters:**
     + **\_signer**: The signer to be set for the contract.
2. **getAccountList()**
   * **Description:** Get a list of all account keys.
   * **Returns:** Promise containing the list of account keys.
3. **getAccountListSize()**
   * **Description:** Get the size of the account list.
   * **Returns:** Promise containing the size of the account list.
4. **getAccountRecipientList(\_accountKey)**
   * **Description:** Get the list of recipients for a given account key.
   * **Parameters:**
     + \_accountKey: Key of the account.
   * **Returns:** Promise containing the list of recipient account keys.
5. **getAccountRecipientListSize(\_accountKey)**
   * **Description:** Get the size of the recipient list for a given account key.
   * **Parameters:**
     + \_accountKey: Key of the account.
   * **Returns:** Promise containing the size of the recipient list.
6. **getAccountRecord(\_accountKey)**
   * **Description:** Get the detailed record for a given account key, including recipient records and staking rewards.
   * **Parameters:**
     + \_accountKey: Key of the account.
   * **Returns:** Promise containing the account record.
7. **getAccountStakingRewards(\_accountKey)**
   * **Description:** Get staking rewards for a given account key.
   * **Parameters:**
     + \_accountKey: Key of the account.
   * **Returns:** Promise containing staking rewards.
8. **getRewardTypeRecord(\_accountKey, \_rewardType, \_reward)**
   * **Description:** Get reward type record for a specific account, including sponsor, recipient, or agent rewards.
   * **Parameters:**
     + \_accountKey: Key of the account.
     + \_rewardType: Type of reward (SPONSOR, RECIPIENT, or AGENT).
     + \_reward: Reward value.
   * **Returns:** Promise containing the reward type record.
9. **getAccountRewardTransactionList(\_rewardAccountList)**
   * **Description:** Get a list of reward transactions for a given account.
   * **Parameters:**
     + \_rewardAccountList: List of reward accounts.
   * **Returns:** List of reward transactions.
10. **getAccountRewardTransactionRecord(\_rewardRecordStr)**
    * **Description:** Get a single reward transaction record from the serialized string.
    * **Parameters:**
      + \_rewardRecordStr: Serialized string containing reward transaction details.
    * **Returns:** Reward transaction record.
11. **getAccountRateRecordList(rateRewardList)**
    * **Description:** Get a list of reward rate records for a given account.
    * **Parameters:**
      + rateRewardList: List of serialized reward rates.
    * **Returns:** List of reward rate records.
12. **getRateTransactionList(rewardRateRowList)**
    * **Description:** Get a list of rate transactions for a given reward rate row list.
    * **Parameters:**
      + rewardRateRowList: List of serialized reward rate transactions.
    * **Returns:** List of rate transactions.
13. **getSPCoinHeaderRecord(getBody)**
    * **Description:** Get the SpCoin header record, including account records if specified.
    * **Parameters:**
      + getBody: Boolean flag indicating whether to include account records.
    * **Returns:** SpCoin header record.
14. **getAccountRecords()**
    * **Description:** Get a list of all account records.
    * **Returns:** Promise containing the list of account records.
15. **getAgentRateList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of agent rates for a specific agent.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of agent rates.
16. **getAgentRateRecord(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey, \_agentRateKey)**
    * **Description:** Get the agent rate record for a specific agent rate key.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
      + \_agentRateKey: Key of the agent rate.
    * **Returns:** Promise containing the agent rate record.
17. **getAgentRateRecordList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of agent rate records for a specific agent.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of agent rate records.
18. **getAgentRecord(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the agent record for a specific agent.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the agent record.
19. **getAgentRecordList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentAccountList)**
    * **Description:** Get the list of agent records for a list of agent accounts.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentAccountList: List of agent accounts.
    * **Returns:** Promise containing the list of agent records.
20. **getAgentRateTransactionList(\_sponsorCoin, \_recipientKey, \_recipientRateKey, \_agentKey, \_agentRateKey)**
    * **Description:** Get the list of agent rate transactions for a specific agent rate.
    * **Parameters:**
      + \_sponsorCoin: Sponsor coin key.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
      + \_agentRateKey: Key of the agent rate.
    * **Returns:** Promise containing the list of agent rate transactions.
21. **getAgentTransactionList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of agent transactions for a specific agent.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of agent transactions.
22. **getRecipientRateTransactionList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey, \_agentRateKey)**
    * **Description:** Get the list of recipient rate transactions for a specific recipient rate.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
      + \_agentRateKey: Key of the agent rate.
    * **Returns:** Promise containing the list of recipient rate transactions.
23. **getRecipientTransactionList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of recipient transactions for a specific recipient.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of recipient transactions.
24. **getSponsorRecipientTransactionList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of sponsor-recipient transactions for a specific recipient.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of sponsor-recipient transactions.
25. **getRecipientRateRecordList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of recipient rate records for a specific recipient.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of recipient rate records.
26. **getRecipientRecord(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the recipient record for a specific recipient.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the recipient record.
27. getRecipientRecordList(\_**sponsorKey**, \_recipientKey, \_recipientRateKey, \_agentKey)
    * **Description:** Get the list of recipient records for a specific recipient.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of recipient records.
28. **getRecipientRateList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of recipient rates for a specific recipient.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of recipient rates.
29. **getRecipientRateRecord(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey, \_recipientRate)**
    * **Description:** Get the recipient rate record for a specific recipient rate.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
      + \_recipientRate: Key of the recipient rate.
    * **Returns:** Promise containing the recipient rate record.
30. **getRecipientRateRecordList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of recipient rate records for a specific recipient.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of recipient rate records.
31. **getRewardRateRecordList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of reward rate records for a specific recipient.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of reward rate records.
32. **getSponsorRecord(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the sponsor record for a specific sponsor.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the sponsor record.
33. **getSponsorRecordList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of sponsor records for a list of sponsor accounts.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of sponsor records.
34. **getRewardTransactionList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of reward transactions for a specific sponsor.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of reward transactions.
35. **getRewardTypeList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of reward types for a specific sponsor.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of reward types.
36. **getRewardRecordList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of reward records for a specific sponsor account.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of reward records.
37. **getRewardTypeRecordList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of reward type records for a specific sponsor account.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of reward type records.
38. **getRecipientRateTypeList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of recipient rate types for a specific sponsor account.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of recipient rate types.
39. **getAgentRateTypeList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of agent rate types for a specific sponsor account.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of agent rate types.
40. **getSponsorRateTypeList(\_sponsorKey, \_recipientKey, \_recipientRateKey, \_agentKey)**
    * **Description:** Get the list of sponsor rate types for a specific sponsor account.
    * **Parameters:**
      + \_sponsorKey: Key of the sponsor.
      + \_recipientKey: Key of the recipient.
      + \_recipientRateKey: Key of the recipient rate.
      + \_agentKey: Key of the agent.
    * **Returns:** Promise containing the list of sponsor rate types.