Data Savings Calculator API Documentation

# **Endpoint Index**

1. DSP Email Response
2. Randome Name Generator
3. Random Name Dataset
4. Calc Individual Quota
5. Members Database
6. Get Stocks
7. Random Offers
8. Off Loop
9. Plt Graph
10. Dist Calc
11. Df To HTML
12. DS HTML

I - Dsp Email Response

**operationId:** /dsp\_email\_response\_dsp\_email\_sender\_post

**Endpoint category:** POST

**requestBody:** dict

**Description:** This endpoint will send an email of a simulation of revenue distribution of a data savings plan and all relevant details related to this it

**Parameters:**

* dsp
  + Type: String
  + Default: “open health”
  + Description: Name of the data savings plan (only open health or open finance for this example)
* start\_date
  + Type: String
  + Format: YYYY-MM-DD (any other date string format will yield an error)
  + Default: “2023-01-01”
  + Description: Date that the Data Savings Plan was launched
* members\_start\_date\_random
  + Type: Boolean
  + Options: true | false
  + Default: true
  + Description: If members in a data savings plan should all enter the plan in the same data or not. This will influence T in the quota calculation. The default true means that members will start in random months after the plan is launched (start\_date)
* members\_full\_df
  + Type: Boolean
  + Options: true | false
  + Default: false
  + Description: When receiving the email with all aspects of the Data Savings Plan and the calculations the data frame that has the information of the participants could show only relevant columns of their characteristics (false) or all columns (true), for instance address, height, weight ….
* random\_N
  + Type: Boolean
  + Options: true | false
  + Default: true
  + Description: This parameter evaluates whether the number of contributions that each member has per named schema is random or should they all be equal. If false, all N for the quota calculation equation will be = 5
* random\_DIM
  + Type: Boolean
  + Options: true | false
  + Default: true
  + Description: This parameter evaluates whether the DIM score from the members named schemas should be random or should they all be equal. If false, all DIM for the quota calculation equation will be = 2
* n\_members
  + Type: Integer
  + Format: int [0-100]
  + Default: 0
  + Description: Defines the number of members that will participate in the Data Savings Plan. Default = 0 means that this number will be random between 5-80 members
* calculation\_method
  + Type: String
  + Options: “alfa” | “beta” | “gamma” | “delta”
  + Default: “alfa”
  + Description: This parameter refers to the specific methodology which the quota will be calculated. There are four type of equations that can be applied. Alfa is the Standard Baseline Formula, Beta does not take in consideration Qi and Qt, Gamma excludes the DIM score and Delta excludes the total contributions amount (N). These formulas are defined as described below
    - Alfa = (((qi \* t)\*pt + n\*dim\*(1-pt))\*(1+o))/qt
    - Beta = (((t)\*pt + n\*dim\*(1-pt))\*(1+o))/qt
    - Gamma = (((qi \* t)\*pt + n\*(1-pt))\*(1+o))/qt
    - Delta = (((qi \* t)\*pt + dim\*(1-pt))\*(1+o))/qt
* n\_bars
  + Type: Integer
  + Format: Int [5-15]
  + Default: 5
  + Description: Max number of aggregated bars to analyze the distribution of resources at the given time (t)
* offer\_n
  + Type: Integer
  + Format: Int [0-1000]
  + Default: 0
  + Description: Number of offers in period (t). Default = 0 means that it will be a random number between 3 and 9 offers
* offer\_p\_random
  + Type: Boolean
  + Options: true | false
  + Default: true
  + Description: Boolean to choose whether prices of each offer will be the same or not. If false is chosen all offer prices will be equal to min\_offer\_p
* min\_offer\_p
  + Type: Integer
  + Format: Int [0-1000]
  + Default: 0
  + Description: Minimum price (for testing purposes) that an offer should be willing to pay as whole for the offer. This means the total minimum amount that an offer will distribute to those dWallets that are eligible and accepts it. Please use whole values and not approximations
* qi
  + Type: Integer
  + Format: Int [0-1000]
  + Default: 100
  + Description: The initial quota amount that a user receives when entering the plan for the first time (Qi)
* pt
  + Type: Float
  + Format: Float where 0 > pt <= 1
  + Default: 0.75
  + Description: The relative weight that the duration in months that a member is participating in the plan should have. The larger pt is, the less relevant T and Qi becomes and more of the relative weight of offers (O), contributions (N) and DIM score (DIM) yields to Qa
* receiver\_email
  + Type: String
  + Format: “youremail@drumwave.com”
  + Description: The email of the receiver that will receive the Data Savings Plan Info and graphs

**Example of body request:**

**{**

**"dsp": "open health",**

**"start\_date": "2023-01-01",**

**"members\_start\_date\_random": true,**

**"members\_full\_df": false,**

**"random\_N": true,**

**"random\_DIM": true,**

**"n\_members": 0,**

**"calculation\_method": "alfa",**

**"n\_bars": 5,**

**"offer\_n": 0,**

**"offer\_p\_random": true,**

**"min\_offer\_p": 1000,**

**"qi": 100,**

**"pt": 0.75,**

**"receiver\_email": "youremail@drumwave.com"**

**}**

II - Random Name Generator

**operationId:** /random\_name\_generator\_name\_generator\_get

**Endpoint category:** GET

**Description:** This is a generic endpoint that will return a list of random names according to the size and gender informed

**Header parameters:**

* size
  + Type: Integer
  + Options: Int [1-10000]
  + Default: true
  + Description: Inform the size of the list name that is desired
* gender
  + Type: String
  + Options: male | female | random
  + Default: random
  + Description: If there is a gender preference this can be informed in this selection. Default is random which will return both male and female name list

**Example of request URL:** [**http://4.236.198.144/name\_generator?size=10&gender=random**](http://4.236.198.144/name_generator?size=10&gender=random)

**Response:**

{"status\_code":200,"detail":"Deu BOM receba seus abaixo","headers":["Jean Lee","Robert Crowley","Chad Garza","Kenneth Beebe","Kenneth Merklein","Hilda Domingo","Ray Rogers","Rebecca Putnam","Miguel Luechtefeld","Michael Deutsch"]}

III - Random Name Dataset

**operationId:** /random\_name\_dataset\_name\_dataset\_post

**Endpoint category:** POST

**Description:** This is a generic endpoint that will return a full JSON data frame of a list of names

**requestBody:** list

**parameters:** name list, only integers with names separated by comma and quotes enclosed by brackets

**Example of body request:** [ "Ruth Lamphere", "Jolene Duckworth"]

**Response:**

**{**

**"status\_code": 200,**

**"detail": "Deu BOM receba seu DF",**

**"headers": "{\"0\":{\"dw\_id\":\"RU\_001\",\"name\":\"Ruth Lamphere\",\"id\_type\":\"RG\",\"id\_number\":\"77.288.544-41\",\"gender\":\"male\",\"age\":19,\"height\":1.75,\"weight\":88,\"address\":\"3031 Casa Drive\",\"city\":\"Nashville\",\"state\":\"TN\",\"zip\":\"37214\"},\"1\":{\"dw\_id\":\"JO\_001\",\"name\":\"Jolene Duckworth\",\"id\_type\":\"CPF\",\"id\_number\":\"00.617.601-42\",\"gender\":\"female\",\"age\":73,\"height\":1.36,\"weight\":55,\"address\":\"1501 New Hampshire Avenue\",\"city\":\"Lynn Haven\",\"state\":\"FL\",\"zip\":\"32444\"}}"**

**}**

IV - Calc Individual Quota

**operationId:** /calc\_individual\_quota\_quota\_calculator\_get

**Endpoint category:** GET

**Description:** This is the endpoint that actually calculates the quota (Qa) of the member based in the calculation parameters informed and methodology chosen

**Header parameters:**

* o
  + Type: Integer
  + Format: Int [0-100]
  + Description: The total offers that this user has participated in period (t)
* n
  + Type: Integer
  + Format: Int [0-1000]
  + Description: The total sum of contributions that this user has done from all named schemas evaluated
* t
  + Type: Integer
  + Format: Int [0-100]
  + Description: The total time in months that this user has been member of the data savings plan
* dim
  + Type: Float
  + Description: The average DIM score of all named schemas evaluated in offers
* qi
  + Type: Integer
  + Format: Int [0-1000]
  + Default: 100
  + Description: The initial quota amount that a user receives when entering the plan for the first time (Qi)
* qt
  + Type: Integer
  + Format: Int [0-1000]
  + Default: 1000
  + Description: The total sum quotas of all members participating in the plan
* pt
  + Type: Float
  + Format: Float where 0 > pt <= 1
  + Default: 0.75
  + Description: The relative weight that the duration in months that a member is participating in the plan should have. The larger pt is, the less relevant T and Qi becomes and more of the relative weight of offers (O), contributions (N) and DIM score (DIM) yields to Qa
* method
  + Type: String
  + Options: “alfa” | “beta” | “gamma” | “delta”
  + Default: “alfa”
  + Description: This parameter refers to the specific methodology which the quota will be calculated. There are four type of equations that can be applied. Alfa is the Standard Baseline Formula, Beta does not take in consideration Qi and Qt, Gamma excludes the DIM score and Delta excludes the total contributions amount (N). These formulas are defined as described below
    - Alfa = (((qi \* t)\*pt + n\*dim\*(1-pt))\*(1+o))/qt
    - Beta = (((t)\*pt + n\*dim\*(1-pt))\*(1+o))/qt
    - Gamma = (((qi \* t)\*pt + n\*(1-pt))\*(1+o))/qt
    - Delta = (((qi \* t)\*pt + dim\*(1-pt))\*(1+o))/qt

**Example of request URL:** [**http://4.236.198.144/quota\_calculator?o=8&n=63&t=12&dim=5.6&qi=100&qt=100000&pt=0.25&method=alfa**](http://4.236.198.144/quota_calculator?o=8&n=63&t=12&dim=5.6&qi=100&qt=100000&pt=0.25&method=alfa)

**Response:** 0.050814

V - Members Database

**operationId:** /members\_database\_fill\_db\_post

**Endpoint category:** POST

**Description:** This is the endpoint fills in the names database with random information of contributions, start dates and DIM scores

**Header parameters:**

* start\_date
  + Type: String
  + Format: YYYY-MM-DD (any other date string format will yield an error)
  + Default: “2023-01-01”
  + Description: Date that the Data Savings Plan was launched
* members\_start\_date\_random
  + Type: Boolean
  + Options: true | false
  + Default: true
  + Description: If members in a data savings plan should all enter the plan in the same data or not. This will influence T in the quota calculation. The default true means that members will start in random months after the plan is launched (start\_date)
* random\_N
  + Type: Boolean
  + Options: true | false
  + Default: true
  + Description: This parameter evaluates whether the number of contributions that each member has per named schema is random or should they all be equal. If false, all N for the quota calculation equation will be = 5
* random\_DIM
  + Type: Boolean
  + Options: true | false
  + Default: true
  + Description: This parameter evaluates whether the DIM score from the members named schemas should be random or should they all be equal. If false, all DIM for the quota calculation equation will be = 2

**requestBody:** dict

**Parameters:**

* + members: List of member names in the plan
  + Plan\_info
    - Data savings plan name
    - Data savings plan ID
    - Data savings plan category
    - Named schemas eligible to this plan
  + Start date: plan start date (same as header parameter)
  + Payment frequency: time in months when offer payments get distributed to plan members

**Example of body request:**

**{**

**"members": [**

**"Your name",**

**"My name"**

**],**

**"plan\_info": {**

**"open health": {**

**"id": "HC\_001",**

**"category": "health care",**

**"ns": [**

**"Blood Test",**

**"Glicose Level",**

**"Mamography",**

**"X-Ray"**

**],**

**"start\_date": "2022-01-01",**

**"payment\_freq\_M": 12**

**}**

**}**

**}**

VI - Get Stocks

**operationId:** /get\_stocks\_sp\_stocks\_get

**Endpoint category:** GET

**Description:** This is just a generic function that brings S&P companies by name, ticker and industry. Very useful to create random generic offers

**Parameters:** No parameters needed

**Request URL**: <http://4.236.198.144/sp_stocks>

VII - Random Offers

**operationId:** /random\_offers\_generate\_offers\_post

**Endpoint category:** POST

**Description:** This endpoint creates a generic offer dictionary using only basic information of the offer scope

**Header parameters:**

* dsp\_target
  + Type: String
  + Default: “open health”
  + Description: Inform only the name of the Data Savings Plan that is being targeted by this offer
* price
  + Type: Integer
  + Options: int [1-10000]
  + Default: 100
  + Description: Inform the price to the end user directly, not the total price attributed to this offer. Of instance 100 means that each user will be eligible to receive 100 (currency) if this offer is accepted
* offer\_creation\_date
  + Type: String
  + Format: YYYY-MM-DD
  + Description: Date that the offer was created. Must be after the attributed Data Savings Plan (dsp\_target) was launched

**requestBody:** dict

**Parameters:**

* + Company information
    - Company ticker
    - Company name
    - Company economic segment
  + NS list: the name of all named schemas targeted by this offer

**Example of body request:**

{

"company\_info": {

"ticker": "ITUB4",

"company": "Itau Unibanco",

"industry": "Finance"

},

"ns\_list": [

"fatura\_cartao",

"credito\_consignado",

"despesas\_restaurante"

]

}

VIII – Off Loops

**operationId:** /off\_loop\_multiple\_offer\_loop\_post

**Endpoint category:** POST

**Description:** This endpoint will create multiple offer structures based on the length and other parameters informed. The response will be a fairly large dictionary

**Header parameters:**

* length
  + Type: Integer
  + Format: Int [0-1000]
  + Default: 0
  + Description: Number of offers in period (t). Default = 0 means that it will be a random number between 3 and 9 offers
* rand\_price
  + Type: Boolean
  + Options: true | false
  + Default: true
  + Description: If all offer prices will be equal to “price” or they will be random price between [price – price\*5]
* price
  + Type: Integer
  + Options: int [1-10000]
  + Default: 100
  + Description: Inform the price to the end user directly, not the total price attributed to this offer. Of instance 100 means that each user will be eligible to receive 100 (currency) if this offer is accepted

**requestBody:** dict

For format and example please see: requestBody: dict

Located in: Members Database - Item V

IX – Plt Graph

**operationId:** /plt\_graph\_plot\_g\_post

**Endpoint category:** POST

**Description:** This endpoint will create a graph related to the distribution of resources allocated to members of a data savings plan. Please note that if this function is called from the container instance the image will not pop up. This will only happen when the API thru your localhost or through the email endpoint (dsp\_email\_sender)

**requestBody:** dict

**Parameters:**

* + qa\_df
    - name: name list of members in the data savings plan
    - cash: cash distributed to each member
  + path: “image path to be saved”
  + n\_bars: number of bars that ill aggregate the cash count

**Example of body request:**

**{**

**"qa\_df": {**

**"name": [**

**"You",**

**"Me",**

**"Us",**

**"Them",**

**"Drumwave team US",**

**"DrumWave team BR"**

**],**

**"cash": [**

**50.5,**

**200.72,**

**700.2,**

**500.44,**

**300.97,**

**340.74**

**]**

**},**

**"path": "img.png",**

**"n\_bars": 5**

**}**

X – Dist Calc

**operationId:** /dist\_calc\_dsp\_distribution\_calc\_post

**Endpoint category:** POST

**Description:** This endpoint makes all the distribution calculation for the members of the data savings plan. Its an aggregated function. Therefore in the body request, it requires to be informed of the data savings plan info an also the offers loops as well as the members schemas information

**requestBody:** dict

For plan info see: requestBody: dict example from Members Database - Item V

For offers see: header result from Off Loops – Item VIII

For member\_ns\_df: header result from Members Database - Item V

For full example see documentation endpoint as explained in the welcome function

X – Df to HTML

**operationId:** /df\_to\_html\_df\_to\_html\_post

**Endpoint category:** POST

**Description:** This endpoint only captures dictionaries that can be converted into data frames and outputs an HTML for that respective data frame. So that it can be visualized in the browser

**requestBody:** dict

**Example of body request:**

{

"df": {

"name": {

"0": "Edna Wallace",

"1": "Edna Wallace",

"2": "Edna Wallace",

"3": "Emily Odonnell",

"4": "Emily Odonnell"

},

"id\_number": {

"0": "15.582.333-02",

"1": "15.582.333-02",

"2": "15.582.333-02",

"3": "67.730.146-84",

"4": "67.730.146-84"

},

"gender": {

"0": "female",

"1": "female",

"2": "female",

"3": "female",

"4": "female"

},

"age": {

"0": 81,

"1": 81,

"2": 81,

"3": 52,

"4": 52

},

"zip": {

"0": "05680",

"1": "05680",

"2": "05680",

"3": "94538",

"4": "94538"

},

"ns": {

"0": "CBC",

"1": "CEA",

"2": "GL",

"3": "CBC",

"4": "CEA"

},

"DIM": {

"0": 7,

"1": 5,

"2": 5,

"3": 5,

"4": 7

}

}

}

XI – DS HTML

**operationId:** /ds\_html\_datasavings\_html\_post

**Endpoint category:** POST

**Description:** This endpoint creates all the HTML that will be shown inside the email when the Dsp Email Response (I) endpoint is requested. This is useful to seeing all information if a data savings plan distribution without the image plot

**Header parameters:**

* members\_full\_df
  + Type: Boolean
  + Options: true | false
  + Default: false
  + Description: When receiving the email with all aspects of the Data Savings Plan and the calculations the data frame that has the information of the participants could show only relevant columns of their characteristics (false) or all columns (true), for instance address, height, weight ….

**requestBody:** dict

**Example of body request:**

{

"plan\_info": {

"open health": {

"id": "HC\_001",

"category": "health care",

"ns": [

"CBC",

"CEA",

"GL"

],

"start\_date": "2023-01-01",

"payment\_freq\_M": 12

}

},

"calc\_dicty": {

"qa\_df": {

"name": {

"0": "Elizabeth Irving",

"1": "Dustin Alexander",

"2": "Nelda Hatcher"

},

"qa": {

"0": 0.13,

"1": 0.59,

"2": 0.66

},

"cash": {

"0": 108.68,

"1": 480.86,

"2": 539.21

}

},

"m": 10000,

"qi": 100,

"qt": 10000,

"pt": 0.75,

"formula": "(((Qt \* T)\*Pt + N\*DIM\*(1-Pt))\*(1+O))/Qt = Standard Base LiNe Formula",

"pay\_formula": "alfa",

"members\_df": {

"dw\_id": {

"0": "EL\_001",

"1": "EL\_001",

"2": "DU\_001"

},

"name": {

"0": "Elizabeth Irving",

"1": "Elizabeth Irving",

"2": "Dustin Alexander"

},

"id\_type": {

"0": "RG",

"1": "RG",

"2": "RG"

},

"id\_number": {

"0": "41.071.082-03",

"1": "41.071.082-03",

"2": "41.730.754-84"

},

"gender": {

"0": "female",

"1": "female",

"2": "female"

},

"age": {

"0": 47,

"1": 47,

"2": 18

},

"height": {

"0": 1,

"1": 1,

"2": 1.9

},

"weight": {

"0": 94,

"1": 94,

"2": 100

},

"address": {

"0": "10340 West 62nd Place",

"1": "10340 West 62nd Place",

"2": "34 Belair Drive"

},

"city": {

"0": "Arvada",

"1": "Arvada",

"2": "Holbrook"

},

"state": {

"0": "CO",

"1": "CO",

"2": "MA"

},

"zip": {

"0": "80004",

"1": "80004",

"2": "02343"

},

"start\_date": {

"0": "2023-02-01",

"1": "2023-02-01",

"2": "2023-03-01"

},

"ns": {

"0": "CBC",

"1": "GL",

"2": "CBC"

},

"N": {

"0": 20,

"1": 11,

"2": 66

},

"DIM": {

"0": 5,

"1": 9,

"2": 9

},

"o": {

"0": 4,

"1": 4,

"2": 4

},

"t": {

"0": 2,

"1": 2,

"2": 2

},

"qa": {

"0": 0.133,

"1": 0.13,

"2": 0.59

},

"cash": {

"0": 108.68,

"1": 108.67,

"2": 480.85

}

},

"offer\_html": "<html><p>HTML Example: Offers </p></html>"

}

}