

### Introduction

The BSN-DDC portal OpenAPI is a set of BSN-DDC management service interfaces developed by the BSN Development Association for Platform Owners. In the BSN-DDC portal, apart from "DDC Service Activation" and "Billing account recharge/withdrawal" functions which Platform Owners need to manually perform, we recommend that all functions use OpenAPI according to the development documentation, so that Platform Owners can integrate BSN-DDC's management functions and query functions into their own business portals. When calling each interface of the BSN-DDC portal OpenAPI, Platform Owners need to fill in the value of the apitoken into the request header. The server side will validate this value and then associate the request to the corresponding platform. Platform Owners should manage their apitoken properly to prevent information leaks.

### Version 1.0.1

Interface Path: /v3/api-docs

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# 1.Open Permissioned Blockchain Framework

## Open Permissioned Blockchain Framework - Query List

**API URL:** /ddcoai/sys/v1/opb/frame/framework/searches

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded

**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: Query the list of OPB framework that supports DDC

**Request parameter:**

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	String	

**Response status:**

State code	Description	schema
200	OK	ResultInfo«List«OutOaiOpbAccountFrameworkSearches»»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

**Response parameter:**

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)

data		array	OutOaiOpbAccountFrameworkSearches
opbAlgorithmType	OPB's algorithm type	integer(int32)	
opbChainId	OPB's chain ID	integer(int32)	
opbChainName	OPB name	string	
opcOnlineCreate	Support chain account online generation, 0=Yes;1=No	integer(int32)	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

#### Response example:

```
{
  "code": 0,
  "data": [
    {
      "opbAlgorithmType": 0,
      "opbChainId": 0,
      "opbChainName": "",
      "opcOnlineCreate": 0
    }
  ],
  "errorLogCode": "0",
  "message": "0"
}
```

### Open Permissioned Blockchain Framework - Supported Chain Account Types

**API URL:** /ddcoai/sys/v1/opb/frame/opbaccounttype/searches

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

#### Interface description:

Open Permissioned Blockchain framework - supported chain account types

#### Request example:

```
{
  "opbChainId": 0
}
```

### Request parameter:

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	String	
inOaiOpbAccountClientTypeSearches	InOaiOpbAccountClientTypeSearches	body	Yes	InOaiOpbAccountClientTypeSearches	InOaiOpbAccountClientTypeSearches
opbChainId	OPB chain ID		Yes	integer(int32)	

### Response status:

State code	Description	schema
200	OK	ResultInfo«List«OutOaiOpbAccountClientTypeSearches»»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

### Response parameter:

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		array	OutOaiOpbAccountClientTypeSearches
opbCertType	Certificate type	integer(int32)	
opbCertTypeName	Certificate type name	string	
opbChainId	OPB chain ID	integer(int32)	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

### Response example:

```
{
  "code": 0,
  "data": [
    {
      "opbCertType": 0,
      "opbCertTypeName": "",
      "opbChainId": 0
    }
  ],
  "errorLogCode": "0",
  "message": "0"
}
```

## 2. Project Management

## Project Management – Project Creation

**API URL:** /ddcoai/sys/v1/opb/project/save

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

### Interface description:

Caller: Platform Owner

Service provider: OpenAPI

Description: A Platform Owner uses the project ID and project key to access the OPB gateway and initiate contract transactions. Note: The project key is not enabled by default for new projects and needs to be manually enabled on the BSN-DDC portal.

### Request example:

```
{
  "opbChainId": 0
}
```

### Request parameter:

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	String	
inOpbOaiProjectSave	InOpbOaiProjectSave	body	Yes	InOpbOaiProjectSave	InOpbOaiProjectSave
opbChainId	OPB chain ID		Yes	integer(int32)	
opbProjectName	Project name		Yes	string	

### Response status:

State code	Description	schema
200	OK	ResultInfo«OutOaiProjectSave»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

### Response parameter:

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		array	OutOaiOpbAccount ClientTypeSearches
opbCertType	Certificate type	integer(int32)	
opbCertTypeName	Certificate type name	string	

opbChainId	OPB chain ID	integer(int32)	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

**Response example:**

```
{
  "code": 0,
  "data": [
    {
      "opbCertType": 0,
      "opbCertTypeName": "",
      "opbChainId": 0
    }
  ],
  "errorLogCode": "0",
  "message": "0"
}
```

**Project Management – Project List**

**API URL:** /ddcoai/sys/v1/opb/project/searches

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: Search the project list created by calling the API.

**Request example:**

```
{
  "data": {
    "opbChainId": 0,
    "opbProjectName": ""
  },
  "page": {
    "pageNum": 1,
    "pageSize": 5
  }
}
```

```

    }
}

```

#### Request parameter:

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
requestPageInfo«InOpbOaiProjectSearches»	RequestPageInfo«InOpbOaiProjectSearches»	body	Yes	RequestPageInfo«InOpbOaiProjectSearches»	RequestPageInfo«InOpbOaiProjectSearches»
data	The request message body cannot be null, but can be an empty object		Yes	InOpbOaiProjectSearches	InOpbOaiProjectSearches
opbChainId	OPB chain ID		No	integer	
opbProjectName	Project name		No	string	
page	Send parameters by page		Yes	InPage	InPage
pageNum	Page: start with 1, example (1)		Yes	integer	
pageSize	The size of each page, controlled by the front end. If not passed then query all pages, example (5)		No	integer	

#### Response status:

State code	Description	schema
200	OK	ResultInfoPage«List«OutOaiOpbProjectSearches»»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

#### Response parameter:

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		array	OutOaiOpbProjectSearches
opbChainId	OPB chain ID	integer(int32)	
opbChainName	OPB framework name	string	
opbProjectId	Project ID	string	
opbProjectKey	Project key	string	
opbProjectName	Project name	string	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes	string	

	itself		
resultPageInfo		PageInfo	PageInfo
firstPage		boolean	
lastPage		boolean	
pageNum		integer(int32)	
pageSize		integer(int32)	
pages		integer(int32)	
total		integer(int64)	

#### Response example:

```
{
  "code": 0,
  "data": [
    {
      "opbChainId": 0,
      "opbChainName": "",
      "opbProjectId": "",
      "opbProjectKey": "",
      "opbProjectName": ""
    }
  ],
  "errorLogCode": "0",
  "message": "0",
  "resultPageInfo": {
    "firstPage": Yes,
    "lastPage": Yes,
    "pageNum": 0,
    "pageSize": 0,
    "pages": 0,
    "total": 0
  }
}
```

#### Project Management – Enable/Disable/Update Project Key

**API URL:** /ddcoai/sys/v1/opb/project/key/modify

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json



**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: Enable/Disable/Update a project key. Note: Re-enabling a project key after disabling it will update the key value.

**Request example:**

```
{
  "opbProjectId": "",
  "opbProjectKeyType": 0
}
```

**Request parameter:**

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
inOaiProjectKeyModify	InOaiProjectKeyModify	body	Yes	InOaiProjectKeyModify	InOaiProjectKeyModify
opbProjectId	Project ID		Yes	string	
opbProjectKeyType	Project status (0 = enabled, 1 = updated, 2 = disabled)		Yes	integer(int32)	

**Response status:**

State code	Description	schema
200	OK	ResultInfo«OutOaiProjectKeyModify»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

**Response parameter:**

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		OutOaiProjectKeyModify	OutOaiProjectKeyModify
opbProectKey	Project key	string	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

**Response example:**

```
{
  "code": 0,
  "data": {
    "opbProectKey": ""
  },
  "errorLogCode": "0",
  "message": "0"
}
```

### 3. DDC Chain Account Management

#### DDC Chain Account Management – Account Creation

**API URL:** /ddcoai/sys/v1/opb/account/create/save

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: After generating a chain account, the Platform Owner registers the chain account through the official portal OpenAPI. Only chain accounts with access to official DDC contracts can enable BSN-DDC business functions.

When you create a new account, you can access it without accessing the official DDC contract, and you can adjust the "Access to official DDC contract" interface.

**Request example:**

```
{
  "opbChainClientName": "XXXXXX",
  "opbChainClientPass": "1",
  "opbChainClientType": 1,
  "opbChainId": 1,
  "opbClientAddress": "3",
  "opbKeyType": 1,
  "opbPublicKey": "The newline should be replaced to \n",
  "openDdc": 1,
  "proof": ""
}
```

**Request parameter:**

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
inOaiOpbAccountCreateSave	InOaiOpbAccountCreateSave	body	Yes	InOaiOpbAccountCreateSave	InOaiOpbAccountCreateSave
opbChainClientName	Chain account name, example (XXXXX)		Yes	string	
opbChainClientPass	Password of Key Trust Mode (Required if the chain account type is 1), example (1)		No	string	
opbChainClientType	User type (1= Platform Owner 2= End User), example (1)		No	integer(int32)	
opbChainId	OPB chain ID (Calling API: OPB – Query List), example (1)		Yes	integer(int32)	
opbClientAddresses	Upload Chain Account Address (Required if the chain account type is 3), example (3)		No	string	
opbKeyType	Chain account type (Calling API: OPB - Supported Chain Account Types) , example (1)		Yes	integer(int32)	
opbPublicKey	Upload Public Key (Required if the chain account type is 2), example		No	string	

	(replace the newline with \n)				
openDdc	Use BSN- DDC Contract 1= No 5= Yes , example (1)		Yes	integer(int32)	
proof	DDC Service Certificate. The content is a JSON string and needs to be escaped.		Yes	string	

#### Response status:

State code	Description	schema
200	OK	ResultInfo«OutOpbAccountControllerCreateSave»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

#### Response parameter:

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		OutOpbAccountControllerCreateSave	OutOpbAccountControllerCreateSave
opbChainClientAddress	Chain account address	string	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

#### Response example:

```
{
  "code": 0,
  "data": {
    "opbChainClientAddress": "",
  },
  "errorLogCode": "0",
  "message": "0"
```

```
}
```

## DDC Chain Account Management – Access to BSN-DDC Contract

**API URL:** /ddcoai/sys/v1/opb/account/access/official/save

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

**Interface description:**

Access to BSN-DDC contracts based on the existing chain account address

**Request example:**

```
{
  "opbChainClientAddress": "",
  "opbChainClientType": 0,
  "opbChainId": 0,
  "proof": ""
}
```

**Request parameter:**

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
inOaiDdcAccountCreateSave	InOaiDdcAccountCreateSave	body	Yes	InOaiDdcAccountCreateSave	InOaiDdcAccountCreateSave
opbChainClientAddress	Chain account address		Yes	string	
opbChainClientType	User type (1 = Platform Owner, 2 = End User)		Yes	integer(int32)	
opbChainId	OPB chain ID		No	integer(int32)	
proof	DDC Service Certificate. The content is a JSON string and needs to be escaped.		Yes	string	

**Response status:**

State code	Description	schema
200	OK	ResultInfo«string»

201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

**Response parameter:**

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		string	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

**Response example:**

```
{
  "code": 0,
  "data": "",
  "errorLogCode": "0",
  "message": "0"
}
```

## DDC Chain Account Management – View Details

**API URL:** /ddcoai/sys/v1/opb/account/check/details/search

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: View basic information about a DDC chain account.

**Request example:**

```
{
  "opbChainClientAddress": "",
  "opbChainId": 0
}
```

**Request parameter:**

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	String	
inOaiOpbAccountCheckDetailsSearch	InOaiOpbAccountCheckDetailsSearch	body	Yes	InOaiOpbAccountCheckDetailsSearch	InOaiOpbAccountCheckDetailsSearch
opbChainClientAddress	DDC chain account address		Yes	string	
opbChainId	OPB chain ID		Yes	integer(int32)	

#### Response status:

State code	Description	schema
200	OK	ResultInfo«OutOaiOpbAccountCheckDetailsSearch»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

#### Response parameter:

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		OutOaiOpbAccountCheckDetailsSearch	OutOaiOpbAccountCheckDetailsSearch
business	BSN-DDC service fee balance (cent)	integer(int64)	
createDate	Created time	string	
did	DID	string	
gasNum	Gas balance (Maximum 50 length 8 decimal points)	string	
opbChainClientAddress	Chain account address	string	
opbChainClientName	Chain account name	string	
opbChainClientType	User type (1 = Platform Owner, 2 = End User)	integer(int32)	
opbChainName	OPB chain ID	string	
opbChainType	Chain account type	string	
openDdcYn	Use BSN-DDC Contract 1= No 5= Yes	integer(int32)	
opsPlatformState	Operator setting status (0=not connected to the BSN-DDC contract 1=frozen 2=enabled (not frozen)	integer(int32)	

	3=freezing 4=unfreezing)		
platformSetState	Platform Owner setting status (0=not connected to the BSN-DDC contract 1=frozen 2=enabled (not frozen) 3=freezing 4=unfreezing)	integer(int32)	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

#### Response example:

```
{
  "code": 0,
  "data": {
    "business": 0,
    "createDate": "",
    "did": "",
    "gasNum": "",
    "opbChainClientAddress": "",
    "opbChainClientName": "",
    "opbChainClientType": 0,
    "opbChainName": "",
    "opbChainType": "",
    "openDdcYn": 0,
    "opsPlatformState": 0,
    "platformSetState": 0
  },
  "errorLogCode": "0",
  "message": "0"
}
```

### DDC Chain Account Management – Public/Private Key of Chain Account Online

#### Generation

**API URL:** /ddcoai/sys/v1/opb/account/create/publicprivatekey

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json



**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: Platform Owners can generate public-private key pairs online through OpenAPI for their DDC chain accounts. Which framework supports this function can be searched by the value the "Open Permissioned Blockchain Framework - Query List" interface return value of opbChainId is 0.

**Request example:**

```
{  
  "opbChainId": 0  
}
```

**Request parameter:**

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
inOaiOpbAccountCreateOnlineDownload	InOaiOpbAccountCreateOnlineDownload	body	Yes	InOaiOpbAccountCreateOnlineDownload	InOaiOpbAccountCreateOnlineDownload
opbChainId	OPB chain ID		Yes	integer(int32)	

**Response status:**

State code	Description	schema
200	OK	ResultInfo«string»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

**Response parameter:**

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		string	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

**Response example:**

```
{  
  "code": 0,  
  "data": "",  
  "errorLogCode": "",  
  "message": ""  
}
```

```
{
  "errorLogCode": "0",
  "message": "0"
}
```

## DDC Chain Account Management – EOS Resource Allocation

**API URL:** /ddcoai/sys/v1/opb/eos/resource/save

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: Platform Owners can allocate resources to their DDC chain accounts via OpenAPI. The total amount required to allocate resources to chain accounts can be previewed through the “EOS Resource Allocation Price Calculation” interface.

**Request example:**

```
{
  "cpuValue": 0,
  "netValue": 0,
  "opbChainClientAddress": "",
  "opbChainId": 0,
  "proof": "",
  "ramValue": 0,
  "reqTransactionSn": "",
  "validDate": ""
}
```

**Request parameter:**

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
inOaiOpbEosResourceSave	InOaiOpbEosResourceSave	body	Yes	InOaiOpbEosResourceSave	InOaiOpbEosResourceSave
cpuValue	Number of CPUs to be recharged		Yes	integer(int64)	
netValue	Amount of net to be recharged		Yes	integer(int64)	
opbChainClientAddress	Chain account address		Yes	string	
opbChainId	OPB chain ID		Yes	integer(int32)	

proof	DDC Service Certificate The content is a JSON string and needs to be escaped.		Yes	string	
ramValue	Amount of RAM to be recharged		Yes	integer(int64)	
reqTransactionSn	Third party transaction ID		Yes	string	

#### Response status:

State code	Description	schema
200	OK	ResultInfo
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

#### Response parameter:

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		Object	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

#### Response example:

```
{
  "code": 0,
  "data": "",
  "errorLogCode": "0",
  "message": "0"
}
```

### DDC Chain Account Management – Query Allocated EOS Resources

**API URL:** /ddcoai/sys/v1/opb/eos/resource/search

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: Platform Owners can query the allocated EOS resources of the DDC chain account through OpenAPI.

**Request example:**

```
{  
  "opbChainClientAddress": "",  
  "reqTransactionSn": ""  
}
```

**Request parameter:**

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
inOaiOpbEosResourceResultSearch	InOaiOpbEosResourceResultSearch	body	Yes	InOaiOpbEosResourceResultSearch	InOaiOpbEosResourceResultSearch
opbChainClientAddress	Chain account address		Yes	string	
reqTransactionSn	Third party transaction ID		Yes	string	

**Response status:**

State code	Description	schema
200	OK	ResultInfo«OutOaiOpbEosResourcesResultSearch»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

**Response parameter:**

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		OutOaiOpbEosResourcesResultSearch	OutOaiOpbEosResourcesResultSearch
opbChainClientAddress	Chain account address	string	
rechargeState	Gas recharge status 1 = recharge in progress 5 = recharge failed 10 = recharge successful	integer(int32)	
reqTransactionSn	Third party transaction ID	string	
errorLogCode	This marker is also written to the log file to make it easier to find	string	

message	Message encoding, front-end internationalizes itself	string	
---------	--	--------	--

#### Response example:

```
{
  "code": 0,
  "data": {
    "opbChainClientAddress": "",
    "rechargeState": 0,
    "reqTransactionSn": ""
  },
  "errorLogCode": "0",
  "message": "0"
}
```

### DDC Chain Account Management – Query EOS Resource Price

**API URL:** /ddcoai/sys/v1/opb/account/eos/resource/price/search

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

#### Interface description:

Caller: Platform Owner

Service provider: OpenAPI

Description: Platform Owners can query the resource price of the Open Permissioned Blockchain framework to which the DDC chain account belongs through OpenAPI.

#### Request example:

```
{
  "opbChainId": 0
}
```

#### Request parameter:

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
inOaiOpbEosResourcePriceSearch	InOaiOpbEosResourcePriceSearch	body	Yes	InOaiOpbEosResourcePriceSearch	InOaiOpbEosResourcePriceSearch
opbChainId	OPB chain ID		Yes	integer(int32)	

#### Response status:

State code	Description	schema
------------	-------------	--------

200	OK	ResultInfo«OutOaiOpbEosResourcePriceSearch»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

#### Response parameter:

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		OutOaiOpbEosResourcePriceSearch	OutOaiOpbEosResourcePriceSearch
opcCpuRmb	CPU price of the current framework, unit: cent	integer(int64)	
opcCpuValue	CPU ratio of the current framework, unit: SYS	integer(int64)	
opcNetRmb	Net price of the current framework, unit: cent	integer(int64)	
opcNetValue	Net scale of the current framework, unit: SYS	integer(int64)	
opcRamRmb	RAM price of the current framework, unit: cent	integer(int64)	
opcRamValue	RAM scale of the current framework, unit: KB	integer(int64)	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

#### Response example:

```
{
  "code": 0,
  "data": {
    "opcCpuRmb": 0,
    "opcCpuValue": 0,
    "opcNetRmb": 0,
    "opcNetValue": 0,
    "opcRamRmb": 0,
    "opcRamValue": 0
  },
  "errorLogCode": "0",
```

```
"message": "0"
}
```

## DDC Chain Account Management – EOS Resource Allocation Price Calculation

**API URL:** /ddcoai/sys/v1/opb/eos/resource/price/calculate

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: Platform Owners can calculate the cost of resources to be allocated to their DDC chain accounts via OpenAPI.

**Request example:**

```
{
  "cpuValue": 0,
  "netValue": 0,
  "opbChainClientAddress": "",
  "opbChainId": 0,
  "ramValue": 0,
  "validDate": ""
}
```

**Request parameter:**

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
inOaiOpbEosResourcePriceCalculate	InOaiOpbEosResourcePriceCalculate	body	Yes	InOaiOpbEosResourcePriceCalculate	InOaiOpbEosResourcePriceCalculate
cpuValue	Number of CPUs to be recharged		Yes	integer(int64)	
netValue	Amount of net to be recharged		Yes	integer(int64)	
opbChainClientAddress	Chain account address		Yes	string	
opbChainId	OPB chain ID		Yes	integer(int32)	
ramValue	Amount of RAM to be recharged		Yes	integer(int64)	
validDate	Resource valid period (Minimum 30 days)		Yes	string(date-time)	

**Response status:**

State code	Description	schema
200	OK	ResultInfo«OutOaiOpbEosResourcePriceCalculate»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

**Response parameter:**

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		OutOaiOpbEosResourcePriceCalculate	OutOaiOpbEosResourcePriceCalculate
resourcePrice	Resource price, unit: cent	integer(int64)	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

**Response example:**

```
{
  "code": 0,
  "data": {
    "resourcePrice": 0
  },
  "errorLogCode": "0",
  "message": "0"
}
```

**DDC Chain Account Management – Freeze BSN-DDC Business**

**API URL:** /ddcoai/sys/v1/opb/account/freeze

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: Freeze the chain accounts of end-users. The freezing and unfreezing operations only change the availability of end-user's official BSN-DDC business, and shall not affect the



transactions that have occurred and the BSN-DDC service fees and gas balance in the frozen chain accounts.

#### Request example:

```
{
  "opbChainClientAddress": "",
  "opbChainClientFrozenDesc": "",
  "opbChainId": 0
}
```

#### Request parameter:

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
inOaiOpbAccountFreeze	InOaiOpbAccountFreeze	body	Yes	InOaiOpbAccountFreeze	InOaiOpbAccountFreeze
opbChainClientAddress	DDC chain account address		Yes	string	
opbChainClientFrozenDesc	Reason		Yes	string	
opbChainId	OPB chain ID		Yes	integer(int32)	

#### Response status:

State code	Description	schema
200	OK	ResultInfo«string»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

#### Response parameter:

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		string	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

#### Response example:

```
{
  "code": 0,
  "data": "",
  "errorLogCode": "0",
}
```

```
    "message": "0"
}
```

## DDC Chain Account Management – Unfreeze BSN-DDC Business

**API URL:** /ddcoai/sys/v1/opb/account/unfreeze

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: Unfreeze the chain accounts of end-users. The freezing and unfreezing operations only change the availability of end-user's official BSN-DDC business, and shall not affect the transactions that have occurred and the BSN-DDC service fees and gas balance in the frozen chain accounts.

**Request example:**

```
{
  "opbChainClientAddress": "",
  "opbChainClientFrozenDesc": "",
  "opbChainId": 0
}
```

**Request parameter:**

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
inOaiOpbAccountFreeze	InOaiOpbAccountFreeze	body	Yes	InOaiOpbAccountFreeze	InOaiOpbAccountFreeze
opbChainClientAddress	DDC chain account address		Yes	string	
opbChainClientFrozenDesc	Reason		Yes	string	
opbChainId	OPB chain ID		Yes	integer(int32)	

**Response status:**

State code	Description	schema
200	OK	ResultInfo«string»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

**Response parameter:**

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		string	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

#### Response example:

```
{
  "code": 0,
  "data": "",
  "errorLogCode": "0",
  "message": "0"
}
```

### DDC Chain Account Management – Query BSN-DDC Business Status

**API URL:** /ddcoai/sys/v1/opb/account/freeze/status

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

#### Interface description:

Caller: Platform Owner

Service provider: OpenAPI

Description: This interface can check the frozen and unfrozen status of the chain accounts belonging to the platform. Mainly divided into the operation of the operator and the operation of Platform Owners.

#### Request example:

```
{
  "opbChainClientAddress": "",
  "opbChainId": 0
}
```

#### Request parameter:

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
inOaiOpbAccountFreezeStatus	InOaiOpbAccountFreezeStatus	body	Yes	InOaiOpbAccountFreezeStatus	InOaiOpbAccountFreezeStatus
opbChainClientAddress	DDC chain account address		Yes	string	

opbChainId	OPB chain ID		Yes	integer(int32)	
------------	--------------	--	-----	----------------	--

#### Response status:

State code	Description	schema
200	OK	ResultInfo«OutOaiOpbAccountFreezeStatus»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

#### Response parameter:

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		OutOaiOpbAccountFreezeStatus	OutOaiOpbAccountFreezeStatus
opsPlatformState	Operator setting status (0=not connected to the BSN-DDC contract 1=frozen 2=enabled (not frozen) 3=freezing 4=unfreezing)	integer(int32)	
platformSetState	Platform Owner setting status (0=not connected to the BSN-DDC contract 1=frozen 2=enabled (not frozen) 3=freezing 4=unfreezing)	integer(int32)	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

#### Response example:

```
{
  "code": 0,
  "data": {
    "opsPlatformState": 0,
    "platformSetState": 0
  },
  "errorLogCode": "0",
  "message": "0"
}
```

## DDC Chain Account Management – Recharge Gas Fee

**API URL:** /ddcoai/sys/v1/opb/account/gas/save

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

### Interface description:

Caller: Platform Owner

Service provider: OpenAPI

Description: Platform Owners recharge the gas fee to their end users' chain accounts through OpenAPI.

### Request example:

```
{
  "businessMoney": 0,
  "opbChainClientAddress": "",
  "opbChainId": 0,
  "proof": "",
  "reqTransactionSn": ""
}
```

### Request parameter:

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
inOaiOpbAccountGasSave	InOaiOpbAccountGasSave	body	Yes	InOaiOpbAccountGasSave	InOaiOpbAccountGasSave
businessMoney	The amount of recharged gas		Yes	integer(int64)	
opbChainClientAddress	DDC chain account address		Yes	string	
opbChainId	OPB chain ID		Yes	integer(int32)	
proof	DDC Service Certificate. The content is a JSON string and needs to be escaped.		Yes	string	
reqTransactionSn	Third party transaction ID (Composed of numbers, letters and underline)		Yes	string	

### Response status:

State code	Description	schema
200	OK	ResultInfo«string»
201	Created	

401	Unauthorized	
403	Forbidden	
404	Not Found	

#### Response parameter:

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		string	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

#### Response example:

```
{
  "code": 0,
  "data": "",
  "errorLogCode": "0",
  "message": "0"
}
```

### DDC Chain Account Management – Query Gas Fee Recharge Result

**API URL:** /ddcoai/sys/v1/opb/account/gas/result/search

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

#### Interface description:

Caller: Platform Owner

Service provider: OpenAPI

Description: Platform Owners can query the gas recharge results of the DDC chain account to which it belongs through OpenAPI.

#### Request example:

```
{
  "opbChainClientAddress": "",
  "reqTransactionSn": ""
}
```

#### Request parameter:

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
inOaiOpbAccountGasResultSearch	InOaiOpbAccountGasResultSearch	body	Yes	InOaiOpbAccountGasResultSearch	InOaiOpbAccountGasResultSearch
opbChainClientAddress	Chain account address		Yes	string	
reqTransactionSn	Third party transaction ID		Yes	string	

#### Response status:

State code	Description	schema
200	OK	ResultInfo«OutOaiOpbAccountGasResultSearch»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

#### Response parameter:

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		OutOaiOpbAccountGasResultSearch	OutOaiOpbAccountGasResultSearch
opbChainClientAddress	Chain account address	string	
rechargeState	Gas recharge status 1 - recharge in progress 5 - recharge failed 10 - recharge successful	integer(int32)	
reqTransactionSn	Third party transaction ID	string	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

#### Response example:

```
{
  "code": 0,
  "data": {
    "opbChainClientAddress": "",
    "rechargeState": 0,
    "reqTransactionSn": ""
  },
}
```

```

    "errorCode": "0",
    "message": "0"
}

```

## DDC Chain Account Management – Recharge BSN-DDC Service Fee

**API URL:** /ddcoai/sys/v1/opb/account/business/save

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: If Platform Owners use the BSN-DDC contract to initiate DDC transactions, they should first recharge BSN-DDC service fees to their chain accounts through OpenAPI.

**Request example:**

```

{
  "businessMoney": 0,
  "opbChainClientAddress": "",
  "opbChainId": 0,
  "proof": "",
  "reqTransactionSn": ""
}

```

**Request parameter:**

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
inOaiOpbAccountBusinessSave	InOaiOpbAccountBusinessSave	body	Yes	InOaiOpbAccountBusinessSave	InOaiOpbAccountBusinessSave
businessMoney	The amount of recharged BSN-DDC service fee (unit: cent)		Yes	integer(int64)	
opbChainClientAddress	DDC chain account address		Yes	string	
opbChainId	OPB chain ID		Yes	integer(int32)	
proof	DDC Service Certificate. The content is a JSON string and needs to be escaped.		Yes	string	
reqTransactionSn	Third party transaction ID (Composed of numbers, letters and underline)		Yes	string	



**Response status:**

State code	Description	schema
200	OK	ResultInfo«string»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

**Response parameter:**

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		string	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

**Response example:**

```
{
  "code": 0,
  "data": "",
  "errorLogCode": "0",
  "message": "0"
}
```

**DDC Chain Account Management – Query BSN-DDC Service Fee Recharge Result**

**API URL:** /ddcoai/sys/v1/opb/account/business/result/search

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: Platform Owners can query the BSN-DDC service fee recharge results of the DDC chain account to which it belongs through OpenAPI.

**Request example:**

```
{
  "opbChainClientAddress": "",
}
```

```
"reqTransactionSn": ""
}
```

#### Request parameter:

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
inOaiOpbAccountBusinessResultSearch	InOaiOpbAccountBusinessResultSearch	body	Yes	InOaiOpbAccountBusinessResultSearch	InOaiOpbAccountBusinessResultSearch
opbChainClientAddress	Chain account address		Yes	string	
reqTransactionSn	Third party transaction ID		Yes	string	

#### Response status:

State code	Description	schema
200	OK	ResultInfo«OutOaiOpbAccountBusinessResultSearch»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

#### Response parameter:

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		OutOaiOpbAccountBusinessResultSearch	OutOaiOpbAccountBusinessResultSearch
opbChainClientAddress	Chain account address	string	
rechargeState	BSN-DDC service fee recharge status 1 = recharge in progress 5 = recharge failed 10 = recharge successful	integer(int32)	
reqTransactionSn	Third party transaction ID	string	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

#### Response example:

```
{
  "code": 0,
  "data": {
```

```

        "opbChainClientAddress": "",
        "rechargeState": 0,
        "reqTransactionSn": ""
    },
    "errorLogCode": "0",
    "message": "0"
}

```

## 4. DDC Chain Account – Transaction Details

### DDC Chain Account Management – BSN-DDC Service Fee Details

**API URL:** /ddcoai/sys/v1/opb/free/business/cost/searches

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: Calling the BSN-DDC contract will generate BSN-DDC service fees and the BSN-DDC service fee details for each transaction can be checked through OpenAPI.

**Request example:**

```

{
  "data": {
    "opbChainClientAddress": "",
    "opbChainClientName": "",
    "opbChainId": 0,
    "serialNumber": "",
    "tradingEndTime": "",
    "tradingStartTime": "",
    "tradingType": ""
  },
  "page": {
    "pageNum": 1,
    "pageSize": 5
  }
}

```

**Request parameter:**

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
requestPageInfo«InOaiOpbAccountBusinessCostSearches»	RequestPageInfo«InOaiOpbAccountBusinessCostSearches»	body	Yes	RequestPageInfo«InOaiOpbAccountBusinessCostSearches»	RequestPageInfo«InOaiOpbAccountBusinessCostSearches»
data	The request message body cannot be null, but can be an empty object		Yes	InOaiOpbAccountBusinessCostSearches	InOaiOpbAccountBusinessCostSearches
opbChainClientAddress	Chain account address		No	string	
opbChainClientName	Chain account name		No	string	
opbChainId	OPB chain ID		No	integer	
serialNumber	Transaction ID		No	string	
tradingEndTime	End date of transaction yyyy-MM-dd		No	string	
tradingStartTime	Start date of transaction yyyy-MM-dd		No	string	
tradingType	Transaction type 1 = recharge 2 = deduction of BSN-DDC service fee		No	string	
page	Send parameters by page		Yes	InPage	InPage
pageNum	Page: start with 1, example (1)		Yes	integer	
pageSize	The size of each page, controlled by the front end. If not passed then query all pages, example (5)		No	integer	

**Response status:**

State code	Description	schema
200	OK	ResultInfoPage«List«OutOaiOpbAccountBusinessCostSearches»»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

**Response parameter:**

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		array	OutOaiOpbAccount

			BusinessCostSearches
businessMoney	BSN-DDC service fee (cent)	integer(int64)	
opbChainClientAddress	Chain account address	string	
opbChainClientName	Chain account name	string	
opbChainName	OPB framework name	string	
serialNumber	Transaction ID	string	
tradingTime	Transaction time yyyy-MM-dd HH:mm:ss	string	
tradingType	Transaction type 1 = recharge 2 = deduction of BSN-DDC service fee	integer(int32)	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	
resultPageInfo		PageInfo	PageInfo
firstPage		boolean	
lastPage		boolean	
pageNum		integer(int32)	
pageSize		integer(int32)	
pages		integer(int32)	
total		integer(int64)	

#### Response example:

```
{
  "code": 0,
  "data": [
    {
      "businessMoney": 0,
      "opbChainClientAddress": "",
      "opbChainClientName": "",
      "opbChainName": "",
      "serialNumber": "",
      "tradingTime": "",
      "tradingType": 0
    }
  ],
}
```

```

    "errorLogCode": "0",
    "message": "0",
    "resultPageInfo": {
        "firstPage": Yes,
        "lastPage": Yes,
        "pageNum": 0,
        "pageSize": 0,
        "pages": 0,
        "total": 0
    }
}

```

## DDC Chain Account Management – BSN-DDC Gas Fee Details

**API URL:** /ddcoai/sys/v1/opb/free/gas/cost/searches

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: Calling the BSN-DDC contract will generate gas fees and the gas fee details for each transaction can be checked through OpenAPI.

**Request example:**

```

{
    "data": {
        "opbChainClientAddress": "",
        "opbChainClientName": "",
        "opbChainId": 0,
        "serialNumber": "",
        "tradingEndTime": "",
        "tradingStartTime": "",
        "tradingType": ""
    },
    "page": {
        "pageNum": 1,
        "pageSize": 5
    }
}

```

```

    }
}

```

#### Request parameter:

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
requestPageInfo«InOaiOpbAccountGasCostSearches»	RequestPageInfo«InOaiOpbAccountGasCostSearches»	body	Yes	RequestPageInfo«InOaiOpbAccountGasCostSearches»	RequestPageInfo«InOaiOpbAccountGasCostSearches»
data	The request message body cannot be null, but can be an empty object		Yes	InOaiOpbAccountGasCostSearches	InOaiOpbAccountGasCostSearches
opbChainClientAddress	Chain account address		No	string	
opbChainClientName	Chain account name		No	string	
opbChainId	OPB chain ID		No	integer	
serialNumber	Transaction ID		No	string	
tradingEndTime	End date of Transaction yyyy-MM-dd		No	string	
tradingStartTime	Start date of transaction yyyy-MM-dd		No	string	
tradingType	Transaction type 1 = recharge 2 = deduction		No	string	
page	Send parameters by page		Yes	InPage	InPage
pageNum	Page: start with 1, example (1)		Yes	integer	
pageSize	The size of each page, controlled by the front end. If not passed then query all pages, example (5)		No	integer	

#### Response status:

State code	Description	schema
200	OK	ResultInfoPage«List«OutOaiOpbAccountGasCostSearches»»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

#### Response parameter:

Name	Description	Type	schema
------	-------------	------	--------

code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		array	OutOaiOpbAccount GasCostSearches
gasNum	Gas (50 length 8 decimal points: 50,8)	string	
opbChainClientAddress	Chain account address	string	
opbChainClientName	Chain account name	string	
opbChainId	OPB chain ID	integer(int32)	
opbChainName	OPB framework name	string	
serialNumber	Transaction ID	string	
tradingTime	Transaction time yyyy-MM-dd HH:mm:ss	string	
tradingType	Transaction type (1= recharge 2 = deduction)	integer(int32)	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	
resultPageInfo		PageInfo	PageInfo
firstPage		boolean	
lastPage		boolean	
pageNum		integer(int32)	
pageSize		integer(int32)	
pages		integer(int32)	
total		integer(int64)	

#### Response example:

```
{
  "code": 0,
  "data": [
    {
      "gasNum": "",
      "opbChainClientAddress": "",
      "opbChainClientName": "",
      "opbChainId": 0,
      "opbChainName": "",
      "serialNumber": "",
      "tradingTime": ""
    }
  ]
}
```



```

        "tradingType": 0
    }
],
    "errorLogCode": "0",
    "message": "0",
    "resultPageInfo": {
        "firstPage": Yes,
        "lastPage": Yes,
        "pageNum": 0,
        "pageSize": 0,
        "pages": 0,
        "total": 0
    }
}

```

## 5. Query BSN-DDCs

### Query BSN-DDC List

**API URL:** /ddcoai/sys/v1/ddcsearch/ddc/searches

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

**Interface description:**

Query BSN-DDC lists.

Note that OpenAPI does not support the function of querying the DDCs generated by the contracts deployed by Platform Owners themselves.

**Request example:**

```

{
    "data": {
        "ddcIdOrDdcOwner": "0x1eb54d19fc9ef9f7494cbb24546ffe3dd417b08a",
        "ddcType": 1155,
        "opcChainId": 3
    },
    "page": {
        "pageNum": 1,
        "pageSize": 5
    }
}

```

```

}
}

```

#### Request parameter:

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
requestPageInfo«InOaiDdcSearchSearchesDdc»	RequestPageInfo«InOaiDdcSearchSearchesDdc»	body	Yes	RequestPageInfo«InOaiDdcSearchSearchesDdc»	RequestPageInfo«InOaiDdcSearchSearchesDdc»
data	The request message body cannot be null, but can be an empty object		Yes	InOaiDdcSearchSearchesDdc	InOaiDdcSearchSearchesDdc
ddcIdOrDdcOwner	DDC ID or DDC owner's address, example (0x1eb54d19fc9ef9f7494cbb24546ffe3dd417b08a)		Yes	string	
ddcType	DDC type: ERC-1155/ERC-721, example (1155)		No	integer	
opcChainId	OPB chain ID, example (3)		No	integer	
page	Send parameters by page		Yes	InPage	InPage
pageNum	Page: start with 1, example (1)		Yes	integer	

#### Response status:

State code	Description	schema
200	OK	ResultInfoPage«List«OutOaiDdcSearchSearchesDdc»»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

#### Response parameter:

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		array	OutOaiDdcSearchSearchesDdc
ddcId	DDC ID	string	
ddcName	DDC name	string	
ddcOwner	DDC owner	string	
ddcPubTotal	Total number of issued DDCs: number of DDC 1155, DDC 721 is 1	integer(int64)	

ddcState	DDC status: 1 = normal; 2 = destroyed; 0 = default	integer(int32)	
ddcSymbol	DDC symbol	string	
ddcType	DDC type: 721 = 721 contract; 1155 = 1155 contract; 0 = default	integer(int32)	
ddcUri	DDC URI	string	
opsMgrState	DDC operation management status: 1 = frozen; 2 = normal (unfrozen); 0 = default	integer(int32)	
platformDdcId	DDC ID issued by the platform	string	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	
resultPageInfo		PageInfo	PageInfo
firstPage		boolean	
lastPage		boolean	
pageNum		integer(int32)	
pageSize		integer(int32)	
pages		integer(int32)	
total		integer(int64)	

#### Response example:

```
{
  "code": 0,
  "data": [
    {
      "ddcId": "22",
      "ddcName": "DDC1",
      "ddcOwner": "0x1eb54d19fc9ef9f7494cbb24546ffe3dd417b08a",
      "ddcPubTotal": 0,
      "ddcState": 0,
      "ddcSymbol": "DDC-A",
      "ddcType": 0,
      "ddcUri": "https://ddc.reddate.com/{id}.json",
      "opsMgrState": 0,
      "platformDdcId": "22"
    }
  ]
}
```

```

    ],
    "errorLogCode": "0",
    "message": "0",
    "resultPageInfo": {
        "firstPage": Yes,
        "lastPage": Yes,
        "pageNum": 0,
        "pageSize": 0,
        "pages": 0,
        "total": 0
    }
}

```

## Query BSN-DDC Transfer Records

**API URL:** /ddcoai/sys/v1/ddcsearch/transfer/searches

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded, application/json

**Response data type:** \*/\*

**Interface description:**

Query BSN-DDC transfer records.

Note that OpenAPI does not support the function of querying the DDCs generated by the contracts deployed by Platform Owners themselves.

**Request example:**

```

{
  "data": {
    "ddcId": "22"
  },
  "page": {
    "pageNum": 1,
    "pageSize": 5
  }
}

```

**Request parameter:**

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	string	
requestPageInfo«InOaiDdcSearchSearch	RequestPageInfo«InOaiDdcSearch	body	Yes	RequestPageInfo«InOaiDdcSearchSea	RequestPageInfo«InOaiDdcSearchSe

sTransfer»	SearchesTransfer»			rchesTransfer»	archesTransfer»
data	The request message body cannot be null, but can be an empty object		Yes	InOaiDdcSearchSe archesTransfer	InOaiDdcSearchSe archesTransfer
ddcId	DDC ID, example (22)		Yes	string	
page	Send parameters by page		Yes	InPage	InPage
pageNum	Page: start with 1, example (1)		Yes	integer	
pageSize	The size of each page, controlled by the front end. If not passed then query all pages, example (5)		No	integer	

#### Response status:

State code	Description	schema
200	OK	ResultInfoPage«List«OutOaiDdcSearchSearchesTransfer»»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

#### Response parameter:

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		array	OutOaiDdcSearchS earchesTransfer
ddcId	DDC ID	string	
ddcTransferId	DDC transfer ID	string	
ddcType	DDC type 721 = 721 contract; 1155 = 1155 contract; 0 = default	integer(int32)	
fromOptChainClientAddress	Source chain account address	string	
platformDdcId	DDC ID issued by the platform	string	
toOptChainClientAddress	Destination chain account address	string	
tradeHash	Transaction hash	string	
tradeTime	Transaction time	object	
tradeType	Transaction type: 1 = generation; 2 = transfer; 10 = destruction	integer(int32)	

transQuantity	Number of transferred DDCs	integer(int64)	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	
resultPageInfo		PageInfo	PageInfo
firstPage		boolean	
lastPage		boolean	
pageNum		integer(int32)	
pageSize		integer(int32)	
pages		integer(int32)	
total		integer(int64)	

#### Response example:

```
{
  "code": 0,
  "data": [
    {
      "ddcId": "22",
      "ddcTransferId": "22",
      "ddcType": 0,
      "fromOptChainClientAddress":
"0x1eb54d19fc9ef9f7494cbb24546ffe3dd417b08a",
      "platformDdcId": "22",
      "toOptChainClientAddress": "0x1eb54d19fc9ef9f7494cbb24546ffe3dd417b08a",
      "tradeHash": "e3dd417b08a1eb54d19fc9ef9f7494cbb24546ffe3dd417b08a",
      "tradeTime": "2021-12-07 15:08:01",
      "tradeType": 1,
      "transQuantity": 1
    }
  ],
  "errorLogCode": "0",
  "message": "0",
  "resultPageInfo": {
    "firstPage": Yes,
    "lastPage": Yes,
    "pageNum": 0,
    "pageSize": 0,

```

```
        "pages": 0,  
        "total": 0  
    }  
}
```

## 6. Platform Owner Information

### Query Chain Account Information of Platform Owners

**API URL:** /ddcoai/sys/v1/user/information

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded

**Response data type:** \*/\*

**Interface description:**

Caller: Platform Owner

Service provider: OpenAPI

Description: Query Platform Owners information.

**Request parameter:**

Name	Description	Request type	Required	Data type	schema
apitoken	apitoken	header	Yes	String	

**Response status:**

State code	Description	schema
200	OK	ResultInfo«OutOaiLoginUserInfo»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

**Response parameter:**

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		OutOaiLoginUserInfo	OutOaiLoginUserInfo
accountBalance	Account balance (unit: cent)	integer(int64)	
clientEmail	Platform Owner's registered email	string	
entName	Enterprise name	string	
loginName	Username	string	

opsAccessMgrState	The operator controls the service status of the Platform Owner; it can only be controlled after the DDC service is activated. If this field is not enabled, it does not participate in any business logic: 1 = frozen (Frozen, freezing and unfreezing means frozen) 2 = unfrozen (Unfrozen has no intermediate state judgment)	integer(int32)	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

#### Response example:

```
{
  "code": 0,
  "data": {
    "accountBalance": 100,
    "clientEmail": "1865544788",
    "entName": "Red Date Tech",
    "loginName": "test",
    "opsAccessMgrState": 1
  },
  "errorLogCode": "0",
  "message": "0"
}
```

#### Query Offline Remittance Information

**API URL:** /ddcoai/sys/v1/account/search

**Request method:** POST

**Request data type:** application/x-www-form-urlencoded

**Response data type:** \*/\*

#### Interface description:

Query offline remittance information.

#### Request parameter:

Name	Description	Request type	Required	Data type	schema
------	-------------	--------------	----------	-----------	--------



apitoken	apitoken	header	Yes	String	
----------	----------	--------	-----	--------	--

#### Response status:

State code	Description	schema
200	OK	ResultInfo«OutCompRecvAccountInfo»
201	Created	
401	Unauthorized	
403	Forbidden	
404	Not Found	

#### Response parameter:

Name	Description	Type	schema
code	Success: 0, Failure: -1	integer(int32)	integer(int32)
data		OutCompRecvAccountInfo	OutCompRecvAccountInfo
accountUserCode	Account number	string	
accountUserName	Account name	string	
recvBank	Bank name	string	
remittanceUserCiode	Remittance ID	string	
errorLogCode	This marker is also written to the log file to make it easier to find	string	
message	Message encoding, front-end internationalizes itself	string	

#### Response example:

```
{
  "code": 0,
  "data": {
    "accountUserCode": "1111 3333 5555 6666 4562",
    "accountUserName": "XXX company",
    "recvBank": " China Construction Bank Wangjing Sub-branch",
    "remittanceUserCiode": "xxxxxxxxxxxxxx"
  },
  "errorLogCode": "0",
  "message": "0"
}
```

## Appendix

**Response exception message code**

Code	Description
MSG_20010005	Failed to authorize apitoken
MSG_200BALANCE_SHORT	Insufficient funds in the billing account
MSG_10021000	The private key password in key trust mode cannot be blank
MSG_10021001	The private key password in key trust mode cannot be less than 8 digits
MSG_10021002	Uploaded public key cannot be empty
MSG_10021003	Uploaded chain account address cannot be empty
MSG_10021004	The amount of funds is not correct, please enter the amount with the unit of cents
MSG_10021005	Chain account does not exist
MSG_10021006	Incorrect framework information
MSG_10021007	BSN-DDC service has not been activated yet
MSG_10021008	BSN-DDC service activation is not approved
MSG_10021009	The user has not created a platform chain account
MSG_10021010	Duplicate chain account name
MSG_10021011	Duplicate chain account address
MSG_10021012	Failed to create BSN-DDC chain account
MSG_10021013	Cannot operate the platform chain account
MSG_10021014	The chain account has been frozen by the Platform Owner
MSG_10021015	This chain account is being unfrozen by the Platform Owner
MSG_10021016	The chain account is frozen
MSG_10021017	The chain account is enabled
MSG_10021018	Failed to operate the chain account
MSG_10021019	Project does not exist
MSG_10021020	Project key is disabled
MSG_10021038	Project key is enabled
MSG_10021039	Invalid project key operation type
MSG_10021021	Insufficient chain account gas
MSG_10021024	Access to BSN-DDC contract not allowed
MSG_10021025	Access to BSN-DDC contract allowed
MSG_10021026	Wrong type of BSN-DDC contract user
MSG_10021027	Chain account not found
MSG_10021028	The chain account is not enabled

MSG_10021029	Duplicate transaction ID
MSG_10021030	The BSN-DDC chain account has been created
MSG_10021031	The length of uploaded public key exceeds 128 bits
MSG_10021032	Chain account name already exists
MSG_10021033	Failed to generate an account address based on the public key
MSG_10021034	User's chain address already exists
MSG_10022901	Platform Owner's service has been deactivated
MSG_10022014	Platform Owner's service certificate verification failed - not current Platform Owner's certificate
MSG_20022002	DDC service is not activated yet
MSG_10022013	Cannot find the platform's DID
MSG_10022905	Invalid certificate, cannot be verified
MSG_10021035	Incorrect third party's transaction ID
MSG_10021036	Incorrect framework ID
MSG_10021043	China Mobile Chain is currently in beta test, if you wish to use it, please contact customer service to activate the service. Tel: 400-071-8215
MSG_10027000	Chain ID cannot be empty
MSG_10027001	Failed to generate the chain account online
MSG_10027002	Chain account name cannot be empty
MSG_10027003	Wrong price information
MSG_10027004	The framework does not support online generation of a chain account
MSG_10027005	Incorrect chain account format
MSG_10027006	Chain account already exists
MSG_10027007	The purchased resource must be valid for more than 30 days
MSG_10027008	Incorrect purchased resources size
MSG_10021044	Failed to search gas fee recharge result
MSG_10021045	Failed to search service fee recharge result
MSG_10021047	Failed to recharge service fee
MSG_10021048	BSN-DDC has been enabled, please wait for the result pushed by the system
MSG_10021037	Failed to verify the data
MSG_10021046	The framework does not support this chain account type
MSG_10021056	The project does not belong to the user
MSG_10021040	Incorrect chain account address
MSG_10021057	Incorrect BSN-DDC type

MSG\_10021058

The queried data is null