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**NATIONAL COMMODITY CLEARING LIMITED**

Circular to all Members of the Clearing Corporation

Circular No. : NCCL/CLEARING-008/2023

Date : February 06, 2023

Subject : Segregation and Monitoring of collateral at Client Level

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This is with reference to our Circular no. NCCL/CLEARING-041/2021 dated Nov 16, 2021 and NCCL/CLEARING-006/2022 dated February 23, 2022 on Segregation and Monitoring of Collateral at Client Level.

In terms of the above mentioned circulars, NCCL has provided Clearing Members with a file based functionality for upfront allocation of collateral to a Trading Member (TM) / Custodial Participant (CP) / client or TM / CM's own account.

NCCL is in process of providing an additional API based facility for client level collateral allocation. The details of the API specifications are provided in the Annexure 1. The availability date of API facility shall be communicated shortly.

Members willing to avail API facility are requested to take note of the above.

For and on behalf of

**National Commodity Clearing Limited**

Hemant Singhvi

Chief Operating Officer

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For further information / clarifications, please contact

1. Customer Service Group on toll free number: 1800 266 6007
2. Customer Service Group by E-mail to: [contactus@nccl.co.in](mailto:contactus@nccl.co.in)

# API Documentation for Client collateral allocation

Version 1.0

January 2023



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1.0	-	Initial Version

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## 1 Background

This document describes the Web API's to programmatically access and exchange data with NCCL platform for accessing member services. (HOST system).

- This document is to aid members/business to access the Client Collateral Allocation API.
- This document covers the technical specifications for various operations involved at both NCCL as well as member end.
- The document outlines the messaging protocols and structures for developing such interface.

### General Instructions:

1. Following headers need to be provided in all API calls
  - **Content-Type:** This header should be provided in all requests with method as "POST". Header value should be "application/json".
  - **Accept:** This header should be provided in all requests. Header value should be "application/json".
2. Path parameters and query parameters in the URL's must be encoded using percent encoding. (Refer [http://www.w3schools.com/tags/ref\\_urlencode.asp](http://www.w3schools.com/tags/ref_urlencode.asp) for details)
3. All request and response messages are in JSON (JavaScript Object Notation) format. (Refer <http://www.json.org/> for details).
4. Some of the key specifications related to JSON and standards followed for the API's are as follows
  - JSON is built on 2 structures. Map containing key value pairs and an ordered list of values.
  - A value could be Boolean (true / false), number, decimal, String or a structure (List or Object).
  - Object or key value pair structure consists of keys which are strings and values of any of the above types. E.g. {"name": "Amit", "age": 25}
  - List contains list of values. E.g. ["Amit", "Ajay", "Vikas"]
  - A Boolean has only 2 values true or false.
  - String values are enclosed in single quote or double quotes. e.g. "name", "Amit", "Pending"
  - Numbers and decimals are represented without any thousand - separator character. Decimal indicator is dot (".")
  - Numbers have an optional maximum number of digits. If not specified then it is defaulted to 18.

- Decimals have 2 mandatory length parameters. The first length parameter indicates number of digits in the whole part (before decimal place) and the second length parameter indicates number of digits in the decimal part (after decimal place).
  - All dates, times and datetimes are represented as strings and in Indian standard time. By default date values are formatted using format “dd-MMM-yyyy” (E.g. 01-Jan-2018). Time values are formatted as “hh24:mm:ss”. Date time values are formatted as “dd-MMM-yyyy hh24:mm:ss” (E.g. 01-Jan-2016 15:30:00).
- All JSON field names will follow camel-hump style of naming. A field with multiple words would be concatenated without spaces. All characters will be in lower case. First characters of words other than the first word in the field name will be in upper case. For e.g. field for “Order Number” could be represented by field name “orderNumber”. Other examples are “firstName”, “lastName”.
  - In case of JSONs representing an object or a key-value pair, keys with null values could be omitted from the JSON.

### Response:

The host system will respond with an API specific JSON and an HTTP status code of 200. The responses would vary depending upon the API being invoked. See below for API wise response JSON structures. An API could have multiple response structures. For example, upon successful processing the API could respond with one JSON structure and in case of processing failures the response JSON structure could be altogether different. The HTTP status code would still be 200 indicating successful invocation of the API.

However, the API’s can also throw errors with HTTP status code other than 200. The response JSON structure in such cases will be common. The structure of the common error response JSON will be as follows.

Common Error Response JSON.

Field	Type	Description
code	Number	Http Status Code. See above
messages	List of String(100)	One or more error messages

### Sample Response:

```
{
  "code":400,
  "messages":["Access Denied"]
}
```

---

 }

HTTP Status codes for common error response will be as follows

### API Security:

The API-gateway is enabled for two-way TLS. In a two-way TLS (or 2-way SSL) both client and server are required to authenticate each other by the way of certificates.

The APIs of the server are accessible only over HTTPS protocol. As part of the SSL protocol the server presents a certificate signed by CA (Certificate Authorities) which can be trusted by the client. The certificate contains information about the server and public key signed by CA.

In case of 2-way TLS, the server is configured to authenticate the client also. Client authentication requires client to present its certificate which contains clients identity and public key signed by CA.

Members would be required to register one time their certificates with NCCL for each “userID”. The certificates should be signed by a CA.

### Following operations aspects are covered in this document:

Sr. No.	Operation	Purpose
1	Registration	For Members to register for using the API service
2	Login	To authenticate the user id, password and secret key and generate token to access the API.
3	Allocation	Allocation if clients collateral
4	Allocation Inquiry	Status inquiry of requested allocation of collateral

- Technical Specifications
- Registration flow
- Log-in Workflow
- Message Structures
- Response Codes

## 2 Technology Specifications

- Communication Protocol: HTTPS over Internet.
- Request/Response Exchange Format: JSON (JavaScript Object Notation).

### 3 API Registration through Email

- Members need to register for availing the API facility by sending an email to [contactus@nccl.co.in](mailto:contactus@nccl.co.in)
- Member will need to provide information as described below:
  - Primary Member Code
  - Member Name
  - Email Id
  - Mobile No
  - IP Address: IP Address from which the member will communicate with API
  - Certificates
- Once this information is provided, NCCL will verify and generate the Secret Key.
- After receiving the Secret Key and Password through email, the members can start using the API for Client Collateral Allocation.

### 4 API registration through NCFE

- Member needs to first login through NCFE and then click on the API Registration option on the dashboard.
- On clicking the API Registration option, the member will be taken to the API Registration page.
- Here the members have to enter the following details

Sr No	Field	Description
01	User ID	Non-editable field. It shall show the Primary Member ID of the Clearing Member
02	Service	Members have to select the API service for which they want to generate the secret key.
03	IP Address 1-10	IP addresses to be used for allocation API. Maximum of 10 IP addresses can be added using Add IP button.
04	Email ID	Email address to be added on which API details will be sent Mandatory Field
05	Mobile Number	10 Digit Mobile number for Mobile verification Mandatory Field
06	Password for API Login	Member has to enter an API Password. This password will be used along with NCFE User ID to authorize API access.  Password should contain: At least 1 Upper case letter At least 1 Lower case letter At least 1 Special Character

Sr No	Field	Description
		Password should be at least 8 characters' long
07	Re-enter password	Confirm password field.

- On entering the details, the member should click on the Generate Secret Key option to acquire the Secret key which will be used for acquiring the token during API login.
- When member registers successfully, an email containing the registration information along with the Secret key is sent to user on the entered email ID.
- Following are the details that the members will receive through email.
  - User ID – Primary member code of the Clearing Member
  - IP Address – IP Address entered in the API registration from.
  - Secret Key – Secret key generated on successful API registration.

## 5 Log-In Workflow

Login Handshake (MEMBER --> NCCL)

- Requesting a "Token"

A consumer application needs to send a HTTPS **POST** request to the following URLs:

**Production/LIVE:** <https://api.nccl.co.in/ncclapi/v1/LoginApi>

The following is the sample request structure in which the member should send the request for acquiring the token.

### Request (JSON Format)

```
{
  "userID": "00012",
  "password": "xxxx",
  "secretKey": "fgdgdgdfgdf"
}
```



### API AUTHENTICATION REQUEST STRUCTURE (GET TOKEN)

Sr. No.	Parameter Name	Data Type	Description	Sample Value
1	User id	VarChar (5)	User Id registered at NCFE API registration portal	00012
2	Password	VarChar(25)	Password registered at NCFE API registration portal	#####
3	Secret key	VarChar (25)	Secret key received through email after	

#### Response (JSON Format) - success

```
{
  "errCode": "0700",
  "token": "Q01BeHh4eGZnZGdmZGdkZmdkZg==",
  (This token received in response to the login request)
  "expires_in": "32400"
}
```

#### Response (JSON Format) - failure

```
{
  "errCode": "0701",
  "errMessage": "Invalid user credentials",
  "token": "",
  "expires_in": ""
}
```

### API AUTHENTICATION RESPONSE STRUCTURE (GET TOKEN)

Sr. No.	Parameter Name	Data Type	Description	Sample Value
1	Error Code	Varchar (4)	Error code	0700 (For response codes of Login API kindly refer Section 8)
2	Token	Varchar (20)	(Userid+DDMMYYYYHH24MISS+random 5digitno) encoded with base64	3f64e567-04f9-43b8-9d24e99856b24151

3	expires_in	Integer	The lifetime in seconds of the access token. For example, the value "3600" denotes that the access token will expire in one hour from the time the response was generated.	900 seconds
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## 6 Allocation request and response

A consumer application needs to send a HTTPS **POST** request to the following URLs:

**Production/LIVE:** <https://api.nccl.co.in/ncclapi/v1/AllocApi>

**NOTE:** The member will be allowed to submit the request for a maximum of 1000 records per request.

### Sample Request Call

```
{
  "version": "1.0",
  "userId": "00012",
  "token": "3f64e567-04f9-43b8-9d24-e99856b24151",
  "ipAddress": "1.38.148.88",
  "msgId": "00012202301020000001",
  "totalRecordsCount": 4,
  "allocationRequest": [
    {
      "curDate": "02-JAN-2023",
      "segment": "CO",
      "cmCode": "M50011",
      "tmCode": "00012",
      "cpCode": "",
      "cliCode": "",
      "accType": "P",
      "amt": 600000,
      "filler1": "",
      "filler2": "",
      "filler3": "",
      "filler4": "",
      "filler5": "",
      "filler6": "",
      "filler7": ""
    },
    {
      "curDate": "02-JAN-2023",
      "segment": "CO",
      "cmCode": "M50011",
      "tmCode": "00980",
      "cpCode": "",
      "cliCode": "",
      "accType": "P",

```

```
    "amt":450000,
    "filler1":"",
    "filler2":"",
    "filler3":"",
    "filler4":"",
    "filler5":"",
    "filler6":"",
    "filler7":""
  },
  {
    "curDate":"02-JAN-2023",
    "segment":"CO",
    "cmCode":"M50011",
    "tmCode":"00012",
    "cpCode":"",
    "cliCode":"CInt2",
    "accType":"C",
    "amt":200000,
    "filler1":"",
    "filler2":"",
    "filler3":"",
    "filler4":"",
    "filler5":"",
    "filler6":"",
    "filler7":""
  },
  {
    "curDate":"02-JAN-2023",
    "segment":"CO",
    "cmCode":"M50011",
    "tmCode":"",
    "cpCode":"NCDXADA01",
    "cliCode":"",
    "accType":"C",
    "amt":400000,
    "filler1":"",
    "filler2":"",
    "filler3":"",
    "filler4":"",
    "filler5":"",
    "filler6":"",
    "filler7":""
  }
}
```

---

**REQUEST DATA PAYLOAD (JSON)  
CONTROL LEVEL**

Sr. No.	Parameter Name	Data Type	Description
1	Version	Varchar (5)	Version no.
2	User id	VarChar (5)	User Id registered at NCFE API registration portal
3	Token	Varchar (26)	Token generated during Login
4	IP Address	Varchar (15)	Members IP Address (Entered via NCFE API registration portal)
5	Message ID	VarChar (20)	Unique ID for every request Sample - 00012202301020000001 (Prim-memcode+YYYYMMDD+sevendigit batch no)
6	Total records count	Numeric	Maximum 1000 records allowed

**RECORD LEVEL**

Sr. No.	Parameter Name	Data Type	Description
1	Current Date	DATE	DD-MON-YYYY. Date shall be the system date for which uploading is done. It should match with the date mentioned in msgID nomenclature.
2	Segment Indicator	Char (03)	Values shall be CO
3	Clearing Member Code	VarChar (6)	CM Code
4	Trading Member Code	VarChar (5)	TM Code. Value should be Blank when CP code is populated.
5	CP Code	VarChar (12)	CP Code. Value should be Blank when UCC code is populated, or Account type is 'P'
6	Client Code	VarChar (10)	UCC Code. Value should be Blank when CP code is populated, or Account type is 'P'
7	Account Type	Char (1)	P-prop, C-Client
8	Amount	Number (15,2))	Value in Rs. (Cash + Bank Guarantee + Fixed Deposit Receipts)
9	Filler 1		Reserved for future
10	Filler 2		Reserved for future
11	Filler 3		Reserved for future
12	Filler 4		Reserved for future
13	Filler 5		Reserved for future
14	Filler 6		Reserved for future
15	Filler 7		Reserved for future

### Sample Response

**NOTE:** Common level and API validations response codes

#### Failure

```
{
  "status": "error",
  "messages": "0101|0103",
  "data": {
    "response": "Request rejected for Message ID: 00012202301020000001"
  }
}
```

#### Success

```
{
  "status": "success",
  "messages": "0100",
  "data": {
```

```

    "response": "Request received for Message ID: 00012202301020000001"
  }
}

```

#### RESPONSE DATA PAYLOAD (JSON) - ACKNOWLEDGEMENT CONTROL LEVEL

Sr. No.	Parameter Name	Data Type	Description	Sample Value
1	Status	Varchar (08)	success	success/error
2	Messages	VarChar (100)	Error Code	0100/0103/0111 (For response codes of Allocation Request API, kindly refer Section 8)
3	response	VarChar (60)	Request status	Request received for Message ID: 00012202301020000001 (for success)

## 7 Allocation inquiry request and response.

**Production/LIVE:** <https://api.nccl.co.in/ncclapi/v1/AllocInqry>

Inquiry Request shall be sent at message level.

#### Sample request call

```

{
  "version": "1.0",
  "userId": "00012",
  "token": "3f64e567-04f9-43b8-9d24-e99856b24151",
  "ipAddress": "1.38.148.88",
  "msgId": "00012202301020000001"
}

```

#### REQUEST DATA PAYLOAD (JSON) - ACKNOWLEDGEMENT CONTROL LEVEL

Sr. No.	Parameter Name	Data Type	Description
1	version	Varchar (5)	Version no.
2	User id	VarChar (5)	User Id registered at NCFE API registration portal
3	Token	VarChar(26)	Token generated during LOGIN

4	IP Address	Varchar (15)	Members IP address during registration at NCFE API registration portal
5	Message ID	VarChar (20)	Unique ID for every request Sample - 00012202301020000001

Inquiry Response shall be provided for individual records within a message after processing of all records in the message. If any of the records are in processing state within a message, then the response shall be provided at message level.

### **Sample Response (JSON)**

#### **Failure**

```
{
  "status": "error",
  "messages": "0111|0112",
  "data": {
    "response": "Request rejected for Message ID: 00012202301020000001"
  }
}
```

#### **Success**

```
{
  "status": "success",
  "version": "1.0",
  "userId": "00012",
  "msgId": "00012202301020000001",
  "enquiryresponse": [
    {
      "curDate": "02-JAN-2023",
      "segment": "CO",
      "cmCode": "M50011",
      "tmCode": "00012",
      "cpCode": "",
      "cliCode": "",
      "accType": "P",
      "amt": 600000,
      "filler1": "",
      "filler2": "",
      "filler3": "",
      "filler4": "",
      "filler5": "",
      "filler6": "",
      "filler7": "",
      "errCd": "0200"
    },
    {
      "curDate": "03-JAN-2023",

```

```

    "segment": "BX",
    "cmCode": "M50011",
    "tmCode": "00980",
    "cpCode": "",
    "cliCode": "",
    "accType": "P",
    "amt": 450000,
    "filler1": "",
    "filler2": "",
    "filler3": "",
    "filler4": "",
    "filler5": "",
    "filler6": "",
    "filler7": "",
    "errCd": "0205|0206"
  },
  {
    "curDate": "02-JAN-2023",
    "segment": "CO",
    "cmCode": "M50011",
    "tmCode": "00012",
    "cpCode": "",
    "cliCode": "CInt2",
    "accType": "C",
    "amt": 200000,
    "filler1": "",
    "filler2": "",
    "filler3": "",
    "filler4": "",
    "filler5": "",
    "filler6": "",
    "filler7": "",
    "errCd": "0200"
  },
  {
    "curDate": "02-JAN-2023",
    "segment": "CO",
    "cmCode": "M50011",
    "tmCode": "",
    "cpCode": "NCDXADA01",
    "cliCode": "",
    "accType": "C",
    "amt": 300000,
    "filler1": "",
    "filler2": "",
    "filler3": "",
    "filler4": "",
    "filler5": "",
    "filler6": "",
    "filler7": "",
    "errCd": "0204"
  }
}

```



```

    ]
  }

```

**RESPONSE DATA PAYLOAD (JSON) - ACKNOWLEDGEMENT  
FOR FAILURE**

Sr. No.	Parameter Name	Data Type	Description	Sample Value
1	Status	Varchar (7)	failure	error
2	Messages	VarChar (100)	Error Code	0111 0112 (For response codes of Allocation inquiry API, kindly refer Section 8)
3	response	VarChar (60)	Request status	Request rejected for Message ID: 00012202301020000001 (for failure)

**RESPONSE DATA PAYLOAD (JSON) - ACKNOWLEDGEMENT FOR SUCCESS  
CONTROL LEVEL**

Sr. No.	Parameter Name	Data Type	Description
1	Status	Varchar (7)	Success
2	version	Varchar (5)	Version no.
3	User id	VarChar	User Id registered at NCFE API registration portal
4	Message ID	VarChar (20)	Unique ID for every request Sample - 00012202301020000001

**RESPONSE DATA PAYLOAD (JSON) - ACKNOWLEDGEMENT FOR SUCCESS  
RECORD LEVEL**

Sr. No.	Field Name	Data Type	Remarks
1	Current Date	Char (11)	DD-MON-YYYY. Date shall be the trade date for which uploading is done. It should match with the date mentioned in file nomenclature.
2	Segment Indicator	Char (03)	Values shall be CO
3	Clearing Member Code	VarChar (6)	CM Code
4	Trading Member Code	VarChar (5)	TM Code. Value should be Blank when CP code is populated.
5	CP Code	VarChar (12)	CP Code. Value should be Blank when UCC code is populated, or Account type is 'P'
6	Client Code	VarChar (10)	UCC Code. Value should be Blank when CP code is populated, or Account type is 'P'

7	Account Type	Char (1)	P-prop, C-Client
8	Amount	Number (15,2)	Value in Rs. (Cash + Bank Guarantee + Fixed Deposit Receipts)
9	Filler 1		Reserved for future
10	Filler 2		Reserved for future
11	Filler 3		Reserved for future
12	Filler 4		Reserved for future
13	Filler 5		Reserved for future
14	Filler 6		Reserved for future
15	Filler 7		Reserved for future
16	Response Code	VarChar (100)	Appropriate code for success or error will be displayed. In case of multiple error codes for a single record, all codes will be shown pipe separated Example 1 : If a record has failed due to Invalid CM Code, the reason code will be populated as 0207 Example 2 : If a record has failed due to Invalid CM Code, Invalid TM Code and Invalid Account type the reason code will be populated as 0207 0208 0212 (For response codes of Allocation Inquiry API, kindly refer Section 6)

## 8 Response codes

### Response code for TOKEN API

Response Code	Response Description
0700	Response code for Login API success
0701	Invalid login credentials
0702	User expired
0703	Internal Service Error

### Control level response code

The entire file will be rejected in following cases: -

Response Code	Response Description
0100	Data received successfully
0101	MsgID length invalid
0102	Invalid JSON format
0103	Incorrect date in MsgID
0104	Incorrect Primary Member Code in MsgID
0105	Incorrect Batch Number in MsgID

0106	Batch No repeated. For eg. If the user has uploaded with Batch number '0000001' and subsequently uploads File with Batch Number '0000001'. The entire request with Batch Number '0000001' will be rejected
0107	Total no of records does not match with the detail records.
0108	Record limit exceeded (Maximum records allowed - 1000)
0109	Invalid User id
0110	Incorrect user id and token no combination
0111	Incorrect IP address
0112	Token has expired
0113	Internal Service Error
0114	Data is under process
0115	Server not available after end time

In case of rejection of entire file, the response file will contain only the Response Code without any records.

### Record Level Response

Response code will be populated in the field of "Response Code". The types of codes are as follows:

Response Code	Response Description
0200	Processed Successfully
0201	Allocation Unsuccessful - Non availability of unallocated collateral
0202	Allocation Partially Successful - Non availability of sufficient unallocated collateral Note : Partially Accepted amount will be shown in the amount field
0203	Allocation Unsuccessful - Insufficient Collateral to cover Margin Utilization
0204	Allocation Partially Successful - Insufficient Collateral to cover Margin Utilization Note : Partially Accepted amount will be shown in the amount field
0205	Date in record does not match with Msg ID date
0206	Invalid Segment Indicator Value Other than "CO"
0207	Invalid CM Code CM Code not matching with the Linked Primary Member Code in the Msg ID
0208	Invalid TM Code TM Code not linked with the CM Code
0209	Invalid CP Code CP Code not linked with the CM Code
0210	In Case of Value in CP Code, TMID or/and Client Code should be blank
0211	Invalid Account Type 1. Value Other than "P" or "C" 2. "P" Populated in case where UCC and CP Code should be blank 3. "C" Populated in case where UCC/CP Code should be available
0212	Negative Value in Amount Field, or

	Incorrect Amount Format
0213	Duplicate Record
0214	Incorrect Record format

### HTTP response codes

- HTTP responses shall be generated during login with success or failure status
- HTTP response shall also be generated in case of any authentication/input validation failure of the message
- HTTP response codes are as follows:

HTTP Response Codes			
Sr. No.	Reason	Meaning	HTTP Response Codes
1	SUCCESS	Request was handled successfully	200
2	UNKNOWN_ERROR	Internal Server Error: Internal server error has occurred in our platform.	500
3	SVC_UNAVAILABLE	The server is currently unable to handle the request due to a temporary overloading or maintenance of the server.	503
4	METHOD_NOT_ALLOWED	Unsupported HTTP Method: A request was made for a resource using a request method not supported by that resource (e.g. using POST instead of GET).	405
5	BAD REQUEST	PARAMETER_ABSENT - There's a required parameter which is not present in the request.	400
6	BAD REQUEST	DATA_INVALID - The data is not in correct format and not recognized by our system.	400
7	BAD REQUEST	DATA_FORMAT_REJECTED - Unsupported Data format parameter value	400
8	UNAUTHORIZED: Failed to authenticate the request	CONSUMER_KEY_UNKNOWN - The provided Consumer Key (API key) is not registered in our system or service is not registered.	401
9	UNAUTHORIZED: Failed to authenticate the request	TOKEN_INVALID - The provided token is not registered in our system	401

10	UNAUTHORIZED: Failed to authenticate the request	UNAUTHORIZED: *Unauthorized requestor IP address. *API access disabled	401
11	TOKEN_EXPIRED	The TEMPORARY access token generated by the platform has expired and can no longer be used.	572
12	PERMISSION_DENIED	Subscriber has temporarily disallowed access to his private data.	403
13	REQUEST_NOT_FOUND	Registration request not found	570