

TWO FACTOR AUTHENTICATION

API Documentation

V1.00

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CONTENTS

1.Introduction	3
2.Authentication	4
2.1.HTTP Headers	4
3.Endpoints	4
3.1.Request SMS Code	4
3.1.1.Request	4
3.1.2.Response	6
3.1.3.Example	7
3.2.Validate Code	10
3.2.1.Request	10
3.2.2.Response	10
3.2.3.Example	12
4.Callbacks	14
4.1.Whitelist callback server	14
4.2.SSL Support	14
4.3.Response HTTP Status Code	14
4.4.Server Example	16

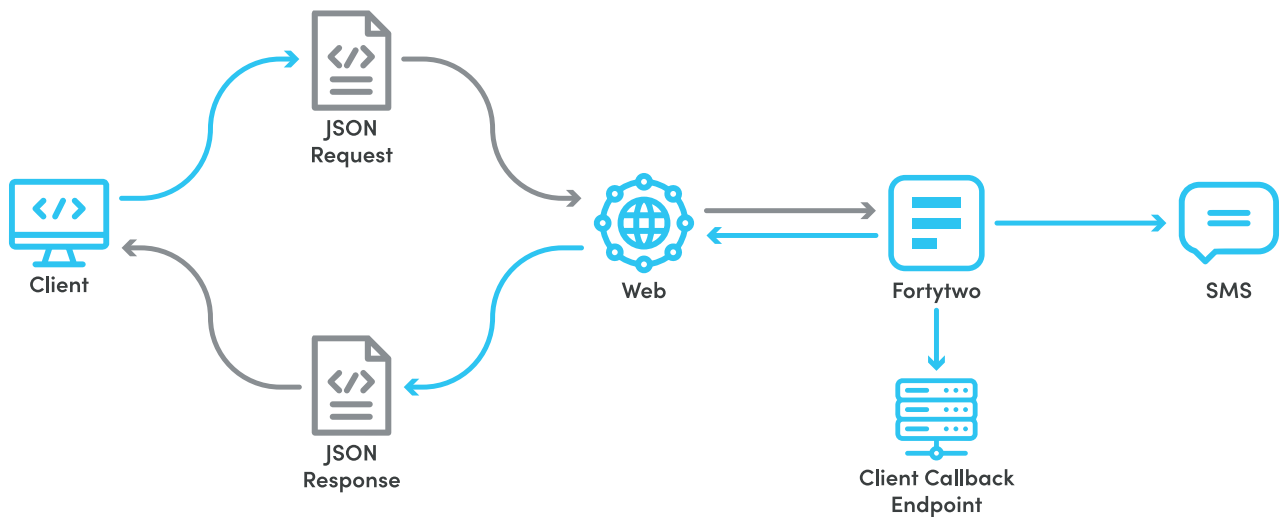
1. INTRODUCTION

Fortytwo's Two-Factor Authentication (2FA) API allows you to add an additional layer of security to your users' login credentials and limits the risk of fraudulent access to your website.

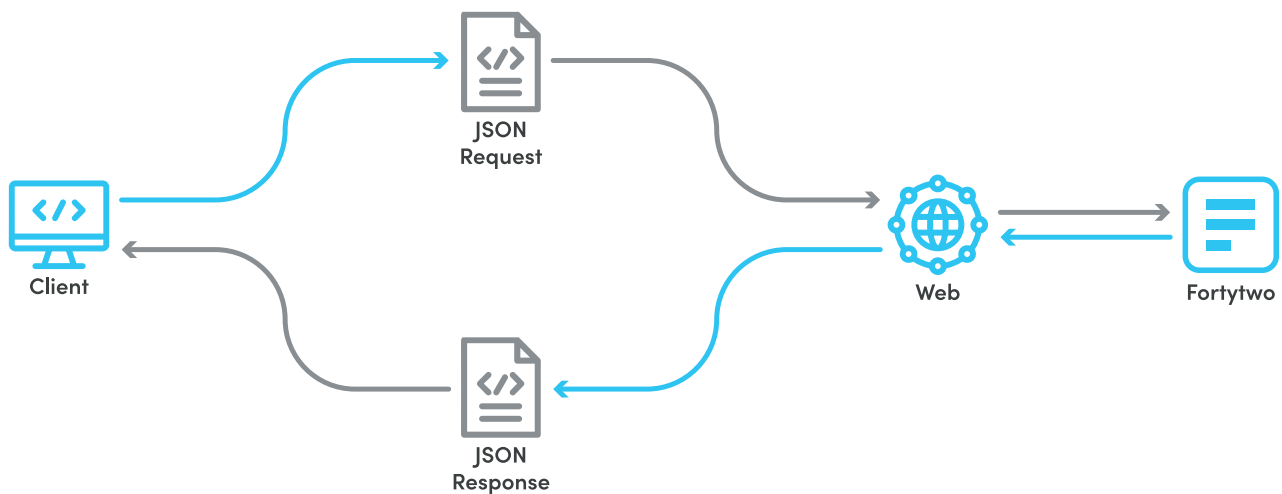
Using our API, you can verify the identity of your users by sending them a one-time password (OTP) via SMS, and asking the user to confirm back the code received, ensuring that the user is the true holder of an account.

2FA is a deceptively simple security process which is used to confirm the identity of an authorised user, involving a combination of any two of the following identifiers:

Send SMS Code



Validate Code



2. AUTHENTICATION

Passing Authentication Token with every request

To make use of the REST API, you must supply an authorisation token in the HTTP header, with each request. The token is generated through the Client Control Panel (<https://controlpanel.fortytwo.com/>), in the tokens section, under the IM tab.

- Each token generated maps directly to your account, message route, sender IDs and IP restrictions. Each token can also have a custom name to make it easier for you to remember what each token is for.
- A set of IPs can be associated to a token, which restricts requests using that token to be sent exclusively from those IP's. If no IP's are specified, your token can be used from anywhere on the Internet.
- Your account can have multiple tokens.
- Tokens do not expire, and can be edited at any time.
- Make sure not to disclose any of your tokens to any unauthorised entity. If this happens, tokens can be invalidated (deleted) from the same user interface. Once a token is invalidated, it cannot be re-used again, instead a new one has to be generated.

2.1.HTTP Headers

Key	Value
Authorization	Token bcdd900c-79f3-4b8d-8bbc-6efXXXXXXXXXX
Content-Type	application/json; charset=utf-8

3. ENDPOINTS

3.1.Request SMS Code

A unique one-time code is sent to the users mobile phone which is either numeric, alpha or alphanumeric. As a client you can choose the character length and case sensitivity of the code as required. The code will automatically default to 6 digits if particular requirements are not defined. As an additional level of security, codes automatically expire within 5 minutes if they are not validated.

3.1.1.Request

POST	https://rest.fortytwo.com/1/2fa
------	---

Request Body

Key	Type	Required	Description
client_ref	String	Y	No default value. It is used to serve as a unique identification for you. This will be echoed back via the request sent to the callback_url. Has to be URL safe. Maximum 255 characters.
phone_number	String	Y	No default value. The destination number to where the SMS holding the code should be sent. The number should consist of the prefix & phone number (no spaces).
code_length	Integer	N	Defaults to 6. Maximum 20. The length of the code to be generated
code_type	String	N	Defaults to numeric. The type of code to be generated. It accepts "numeric", "alpha" & "alphanumeric". If incorrect format is entered, the default value will be used.
case_sensitive	Boolean	N	Defaults to false. Whether the code should be case sensitive or not. If false, the case sensitivity would not be noted when validating, if true, code for validation needs to be entered case sensitive.
callback_url	String	N	Defaults to empty. The URL to which the API should send an extra response status to.
sender_id	String	N	The sender id to be shown when the message is sent to the client. If provided this will override the default sender id found in the authorization token. Max characters for numeric is 15 & alphanumeric is 11.
message_template	String	N	Default value 'Your authentication code is: {#TFA_CODE}'. The text that should appear in the message the client receives. It is mandatory that '{#TFA_CODE}' is included in this string. This placeholder will then be replaced with the generated code. Total length of the message cannot exceed 1 SMS.

```
{
  "client_ref" : "my-custom-ref",
  "phone_number": "35688000000",
  "code_length": 6,
  "code_type": "alpha",
  "case_sensitive": true,
  "callback_url": "http://example.com/callback",
  "sender_id" : "MySenderId"
}
```

3.1.2. Response

Outer Response (OUTER_RESPONSE)

Key	Type	Required	Description
api_job_id	String	Y	A unique identifier generated per request. This can be used to track a specific request.
result_info	RESULT_INFO	Y	Holds details about the resolution of the request. Always available. See RESULT_INFO
result	RESULT_ITEM	N	If available, holds the result to the request. See RESULT_ITEM

```
{
  "api_job_id": "58657e36-95d5-4352-ab75-6b3a6f16c57b",
  "result_info": {
    "status_code": 0,
    "description": "Success"
  },
  "result": {
    "message_id": "1490005496726001XXXX"
  }
}
```

Result Info (RESULT_INFO)

Key	Type	Required	Description
status_code	Integer	Y	Holds a an integer value of the response status. i.e.:0 = success, -50 = not authorized (Described in Section Error/ Success Messages)
description	String	Y	Holds a text description of the response status.

```
{
  "api_job_id": "58657e36-95d5-4352-ab75-6b3a6f16c57b",
  "result_info": {
    "status_code": 0,
    "description": "Success"
  },
  "result": {
    "message_id": "1490005496726001XXXX"
  }
}
```

Result Item (RESULT_ITEM)

Key	Type	Required	Description
message_id	String	Y	The unique ID for the SMS message sent.

```
{
  "api_job_id": "58657e36-95d5-4352-ab75-6b3a6f16c57b",
  "result_info": {
    "status_code": 0,
    "description": "Success"
  },
  "result": {
    "message_id": "1490005496726001XXXX"
  }
}
```

3.1.3. Example

HTTP

```
POST /1/2fa HTTP/1.1
Host: https://rest.fortytwo.com
Content-Type: application/json
Authorization: Token 5XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Cache-Control: no-cache
{
  "client_ref" : "refnum_1598195",
  "phone_number": "35688000000",
  "code_length": 6,
  "code_type": "alpha",
  "case_sensitive": true,
  "callback_url": "http://example.com/callback",
  "sender_id" : "FortyTwo2FA"
}
```

PHP

```
$curl = curl_init();

curl_setopt_array($curl, array(
    CURLOPT_URL => "https://rest.fortytwo.com/1/2fa",
    CURLOPT_RETURNTRANSFER => true,
    CURLOPT_ENCODING => "",
    CURLOPT_MAXREDIRS => 10,
    CURLOPT_TIMEOUT => 30,
    CURLOPT_HTTP_VERSION => CURL_HTTP_VERSION_1_1,
    CURLOPT_CUSTOMREQUEST => "POST",
    CURLOPT_POSTFIELDS => "{\n\n  \"client_ref\" : \"refnum_1598195\",\n  \"phone_
number\" : \"35688000000\",\n  \"code_length\" : 6,\n  \"code_type\" : \"alpha\",\n
\"case_sensitive\" : true,\n  \"callback_url\" : \"http://example.com/callback\",\n
\"sender_id\" : \"FortyTwo2FA\"\n}\n",
    CURLOPT_HTTPHEADER => array(
        "authorization: Token 5XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX",
        "cache-control: no-cache",
        "content-type: application/json"
    ),
));

$response = curl_exec($curl);
$err = curl_error($curl);

curl_close($curl);

if ($err) {
    echo "cURL Error #:" . $err;
} else {
    echo $response;
}
```

CURL

```
curl -X POST -H "Content-Type: application/json" -H "Authorization: Token 5XXXXXX
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX" -H "Cache-Control: no-cache" -d '{
  "client_ref" : "refnum_1598195",
  "phone_number": "35688000000",
  "code_length": 6,
  "code_type": "alpha",
  "case_sensitive": true,
  "callback_url": "http://example.com/callback",
  "sender_id" : "FortyTwo2FA"
}' "https://rest.fortytwo.com/1/2fa"
```


PHYTHON

```
import requests

url = "https://rest.fortytwo.com/1/2fa"

payload = "{\n\n  \"client_ref\" : \"refnum_1598195\",\n  \"phone_number\":\n  \"3568800000\",\n  \"code_length\": 6,\n  \"code_type\": \"alpha\",\n  \"case_sensitive\": true,\n  \"callback_url\": \"http://example.com/callback\",\n  \"sender_id\" : \"FortyTwo2FA\"\n}\n"

headers = {
    'content-type': "application/json",
    'authorization': "Token 5XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX",
    'cache-control': "no-cache",
    'postman-token': "2c7623ae-09ff-ea0d-092d-d930319b90ce"
}

response = requests.request("POST", url, data=payload, headers=headers)

print(response.text)
```

3.2. Validate Code

3.2.1. Request

POST

https://rest.fortytwo.com/1/2fa/{client_ref}/{sms_code}

3.2.2. Response

Outer Response (OUTER_RESPONSE)

Key	Type	Required	Description
api_job_id	String	Y	A unique identifier generated per request. This can be used to track a specific request.
result_info	RESULT_INFO	Y	Holds details about the resolution of the request. Always available. See RESULT_INFO

```
{
  "api_job_id": "b828d4bc-2467-4e19-acbc-059a67168f62",
  "result_info": {
    "status_code": 0,
    "description": "Valid"
  }
}
```

Result Info (RESULT_INFO)

Key	Type	Required	Description
status_code	Integer	Y	Holds a an integer value of the response status. i.e.:0 = success, -50 = not authorized. See STATUS_CODES
description	String	Y	Holds a text description of the response status.

```
{
  "api_job_id": "b828d4bc-2467-4e19-acbc-059a67168f62",
  "result_info": {
    "status_code": 0,
    "description": "Valid"
  }
}
```

Status Codes (STATUS_CODES)

When responding, the REST API will reply with an HTTP status, response code and a self explanatory message.

The following are the currently available messages.

Response Message	Response Code	HTTP Status	Description
Your authorization token is invalid.	-50	401	When the Authorization token found in the header is not valid.
Authorization token not provided.	-51	401	When the Authorization token is missing from the header.
Client ref provided already exists. Please provide a different one.	-52	422	When requesting a new code and the client ref provided has already been used with the Authorization token provided.
Invalid	-53	200	When the code being validated has expired.
Declined	-54	422	When the code being validated cannot be found. i.e. it was incorrectly entered by the client.
The code for the provided client ref. and authorization token, was not found.	-55	422	The code provided does not match the authorization token and client_ref
No code was provided.	-56	422	The code was not provided in request.
Code length too short.	-57	422	When the code_length provided is smaller than the minimum.
Code length too long.	-58	422	When the code_length provided is bigger than the maximum.
Phone number format is incorrect.	-59	422	When format of the phone_number is not a valid mobile number.
No phone number provided in request	-60	422	When phone number is missing in the request body.
Callback URL is invalid	-61	422	When a non valid URL is provided as callback_url.
No client ref provided in request	-62	422	When no client_ref is provided in the request body.
Sender ID is too long. Maximum numeric is 15 & maximum alphanumeric is 11.	-63	422	When the sender_id provided in request body is bigger than 15 characters if numeric or is bigger than 11 characters if alphanumeric.
System error – Request data provided was invalid.	-64	400	When the request data is in a malformed manner or is not recognizable by the endpoint.
Something went wrong. Make sure data provided is valid and please try again.	-65	400	When an error occurred in the system's back end due to system failure or due to some incorrect data provided.
List of allowed IPs contains one or more invalid IP addresses.	-66	400	When the list of IPs available with the authorization token has one or more IPs malformed.
The request IP is not in your list of allowed IP addresses.	-67	400	When request IP does not match any one form the list of allowed IP addresses available for the authorization token.

Response Message	Response Code	HTTP Status	Description
Message template must contain placeholder {#TFA_CODE}.	-68	422	When the message template is specified however it does not contain the required placeholder.
Message template exceeds the length of one SMS.	-69	422	When the total length of the message (message template + code) is longer than 1 SMS.
Success	0	201	When the request for a new code has been completed successfully.
Valid	0	200	When the code is valid.

3.2.3. Example

Replace the `{client_ref}` with the `client_ref` provided in the request. The `{code_from_sms}` should also be replaced with the code received via SMS

HTTP

```
POST /1/2fa/{client_ref}/{code_from_sms} HTTP/1.1
Host: https://rest.fortytwo.com
Content-Type: application/json
Authorization: Token 56a59be7-38da-437f-96c1-634dddXXXXXX
Cache-Control: no-cache
```

PHP

```
$curl = curl_init();

curl_setopt_array($curl, array(
    CURLOPT_URL => "https://rest.fortytwo.com/1/2fa/{client_ref}/{code_from_sms}",
    CURLOPT_RETURNTRANSFER => true,
    CURLOPT_ENCODING => "",
    CURLOPT_MAXREDIRS => 10,
    CURLOPT_TIMEOUT => 30,
    CURLOPT_HTTP_VERSION => CURL_HTTP_VERSION_1_1,
    CURLOPT_CUSTOMREQUEST => "POST",
    CURLOPT_POSTFIELDS => "",
    CURLOPT_HTTPHEADER => array(
        "authorization: Token 56a59be7-38da-437f-96c1-634dddXXXXXX",
        "cache-control: no-cache",
        "content-type: application/json"
    ),
));

$response = curl_exec($curl);
$error = curl_error($curl);

curl_close($curl);

if ($error) {
    echo "CURL Error #:" . $error;
} else {
    echo $response;
}
```

CURL

```
curl -X POST -H "Content-Type: application/json" -H "Authorization: Token 56a59be7-38da-437f-96c1-634dddXXXXXX" -H "Cache-Control: no-cache" -d '' "https://rest.fortytwo.com/1/2fa/{client_ref}/{code_from_sms}"
```

PYTHON

```
import requests

url = "https://rest.fortytwo.com/1/2fa/{client_ref}/{code_from_sms}"

payload = ""
headers = {
    'content-type': "application/json",
    'authorization': "Token 56a59be7-38da-437f-96c1-634dddXXXXXX",
    'cache-control': "no-cache",
}

response = requests.request("POST", url, data=payload, headers=headers)

print(response.text)
```

4. CALLBACKS

Delivery Reports and any other relevant intermediary status are signalled back to the client using an HTTP callback. The URL invoked is obtained from the “callback_url” field in the original message request.

The request generated to this URL is described below. The endpoint, on the client side, must therefore fully support this kind of request and respond accordingly.

If no callback_url was specified in the request, no callback is generated.

4.1. Whitelist callback server

You may need to configure your firewall to whitelist traffic from these IP addresses:

IPv4: **80.252.167.60**

Note that these IPs can change in the future.

4.2. SSL Support

The use of SSL on the client’s callback server is optional, i.e. both HTTP and HTTPS schemes are supported. However, if HTTPS validation fails, the callback is treated as failed. For information on how failures are handled, see Callback failure below.

4.3. Response HTTP Status Code

The HTTP Callback on your server should return the correct HTTP Headers containing 200 OK. If the client’s server is unreachable or does not return a 200 OK, the callback is queued to be retried again. After three failed attempts, with an interval of 5 minutes between them, the callback is discarded.

Outer Response (OUTER_RESPONSE)

Key	Type	Required	Description
api_job_id	String	Y	The Job ID generated by the API. This is the same ID that was returned in the response for the request sent in Section Request code – Response Description.
client_job_id	String	N	The Job ID supplied by the client during the original request in Section Request Body. If this field was not supplied, it will not be returned here either.
data	CALLBACK_INFO[]	Y	This contains at least 1 record. See CALLBACK_INFO

```

{
  "api_job_id": "0c6ccf37-dd15-49ff-a12f-ffad8f2655a6",
  "client_job_id": "",
  "data": [
    . . .
  ]
}

```

Callback Info (CALLBACK_INFO)

Key	Type	Required	Description	
type	Enum	N	The type of network through which the delivery report originated from.	
			Enum	Description
			INTERNAL	Initial phase of the request
			SMS	SMS Network
			VIBER	IM Service on Viber Network
message_id	String	N	The message ID for this message. This should match the message_id returned in the response detailed in Section Request code – Response Description	
status	Enum	N	Enumeration indicating the message's state at the moment of the callback generation. In case of SMS reports, these match the worldwide SMPP v3.4 standard. As for IM networks, extra custom statuses were added to support these new networks. Statuses for IM extend, not replace, the SMPP standard. Currently, the following statuses can be returned:	
			Enum	Description
			ACCEPTD	Message has been accepted.
			DELIVRD	Message is delivered to destination.
			EXPIRED	Message validity period has expired.
			DELETED	Message has been deleted.
			UNDELIV	Message undeliverable.
			REJECTD	Message rejected.
			UNKNOWN	Message is in an invalid state.
			SEEN	Message seen by the user on device
timestamp	long	N	UNIX timestamp (i.e. number of seconds from 1-Jan-1970 in UTC) when the delivery was completed.	
micro_timestamp	long	N	UNIX micro-timestamp (i.e. number of milliseconds from 1-Jan-1970 in UTC) when the delivery was completed.	
to	String	N	Mobile number the SMS was sent to. <i>Number is in international format and can only be digits between 7-15 digits long. The first digit cannot be a 0.</i>	

Key	Type	Required	Description
from	String	N	The sender of the SMS. If numerical: Contains only digits, between 1-15 digits long. If alphanumerical: A maximum of 11 characters and minimum of 1 character.
client_message_id	String	Y	The ID originally generated by the client. Maps the original request by the client with the callback, using the client's own ID. Minimum length of 1 characters.
error_code	String	N	Error code, else 0. For a full list of these codes, http://files.fortytwotele.com/api/Fortytwo_Telecom_error_codes.pdf

```
{
  "api_job_id": "0c6ccf37-dd15-49ff-a12f-ffad8f2655a6",
  "client_job_id": "",
  "data": [
    {
      "type": "SMS",
      "message_id": "1446644528730001XXXX",
      "status": "DELIVRD",
      "timestamp": 1443165174145,
      "micro_timestamp": 1443165174145000,
      "to": "35688000000",
      "sms_from": "Fortytwo",
      "viber_from": "",
      "client_message_id": "reference1",
      "error_code": 943
    }
  ]
}
```

4.4. Server Example

Examples for Servers that accept HTTP POST Callbacks

```
$postRawData = file_get_contents("php://input");
$json = json_decode($postRawData, true);
var_dump($json);
```


THANK YOU

Send us a message on
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42 Telecom Ltd.

 **fortytwo**