IRAS API SERVICES INTERFACE SPECIFICATIONS

CorpPass Authentication

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## Version Control

### Version History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Version Number</th>
<th>Change Log Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>16 Jul 2020</td>
<td>1.1</td>
<td>Updated Specifications to align with new template.</td>
</tr>
<tr>
<td>2 Sep 2020</td>
<td>1.2</td>
<td>Included scope for e-stamping API. Included samples for both Sandbox and Production environments.</td>
</tr>
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</table>
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1. Introduction

The Inland Revenue Authority of Singapore (IRAS) provides application programming interface (API) services to allow application developers to submit and retrieve tax related matters using HTTP requests. Most of the APIs will be in the form of a JSON web service which reduces client/server coupling and thus enabling easier integration between IRAS’ services with external developers.

While some services require a simple GET, others may be secured and require credentials that can be passed via HTTP header parameters which are as follows:

<table>
<thead>
<tr>
<th>Header Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-IBM-Client-Id</td>
<td>String containing the client ID of the application invoking IRAS API. This value will be provided to the application vendor by IRAS. E.g. a1234b5c-1234-abcd-efgh-a1234b5cdef</td>
</tr>
<tr>
<td>X-IBM-Client-Secret</td>
<td>String containing the client secret of the application invoking IRAS API. This value will be provided to the application vendor by IRAS. E.g. a12345bC67e8fG9a12345bC67e8fG9a12345bC67e8fG9</td>
</tr>
</tbody>
</table>

This document serves as a guide for developers to consume IRAS API services.

2. Registration

Developers are required to test APIs in the Sandbox environment first, before using them in Production. Create a developer account at https://apisandbox.iras.gov.sg/ to subscribe to IRAS APIs for Sandbox Testing, and a developer account at https://apiservices.iras.gov.sg/ to subscribe to IRAS APIs for Production use.

Note: In order for IRAS to identify your API subscriptions, please enter your details as follows when creating an account:

- “First name” field: To enter “Name of organisation”;
- “Last name” field: To enter “Tax Reference No. of organisation”

Step 1: Create Account

- Create an account at the IRAS API Marketplace with your personal particulars. An auto-generated notification email will be sent to you.
- After logging into your new account, click on your Username at the top-right corner of the page > My Organization > Edit organization.

Note: Organization name should reflect your actual company / organisation name (followed by the ROC or UEN where applicable), e.g. ABC Pte Ltd_201712345X.

* Take note of the underscore after the company / organisation name
**Step 2: Register App**

- Click on Apps on the Menu Bar > Register New Application
- Ensure that the App Title is recognisable by software users, as they will be asked to give consent for the App to call this API. Refer to Appendix 7.2 for a sample Consent Page.

**Step 3: Subscribe**

- Click on API Products > Select the SingPass Authentication API Product > Click Subscribe
- Select your registered App > Click Subscribe

A computer-generated email will be sent to the subscriber’s email account for account activation of the API Marketplace.

Refer to [https://go.gov.sg/iras-apiuserguide](https://go.gov.sg/iras-apiuserguide) for more details on how to get started.
3. API Services

<table>
<thead>
<tr>
<th>Name of API Service</th>
<th>Description</th>
<th>Endpoint</th>
</tr>
</thead>
</table>
| CorpPassAuth        | This API can be used to retrieve CorpPass' Uniform Resource Locator (URL) in order to obtain the authorisation code from CorpPass. | For Sandbox Testing: https://apisandbox.iras.gov.sg/iras/sb/Authentication/CorpPassAuth  
For Production Usage: https://apiservices.iras.gov.sg/iras/prod/Authentication/CorpPassAuth |
| CorpPassToken       | This API can be used to retrieve the access token. | For Sandbox Testing: https://apisandbox.iras.gov.sg/iras/sb/Authentication/CorpPassToken  
For Production Usage: https://apiservices.iras.gov.sg/iras/prod/Authentication/CorpPassToken |

Refer to Appendix 7.1 for the high-level interaction flow.

3.1 Network Security

The API endpoint has to be triggered from a Server-to-Server connection. Transport Layer Security (TLS) and IP Whitelisting will be used to secure end-to-end communications between the server invoking the API and IRAS API Gateway.

Your server, software or application must be able to:

1. Support the following protocols: HTTP/2, TLS 1.2/1.3, and
2. Trigger HTTP/GET and HTTP/POST requests.
3.2  Message Security

The following parameters must be populated in the HTTP header:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X-IBM-Client-Id</td>
<td>String containing the client ID of the application invoking IRAS API. This value will be provided to the application vendor by IRAS.</td>
</tr>
<tr>
<td>X-IBM-Client-Secret</td>
<td>String containing the client secret of the application invoking IRAS API. This value will be provided to the application vendor by IRAS.</td>
</tr>
<tr>
<td>Content-Type</td>
<td>application/json</td>
</tr>
</tbody>
</table>

Sample HTTP GET Request (Sandbox)

```plaintext
GET /iras/sb/Authentication/CorpPassAuth?scope=EmpIncomeSub+CITFormCSSub&callback_url=https%3a%2f%2fwww.yourdomain.com%2fcallback&tax_agent=false&state=390b25fa-4427-4b10-9ae2-34d6e0cd91a1 HTTP/1.1
Host: https://apisandbox.iras.gov.sg
X-IBM-Client-Id: 40e7be2f-0b4f-4985-bcc9-cdfd38c5b5c8
X-IBM-Client-Secret: vD0kR8iT3kR1hB8dPlqS3hC4lJ1aAlfV4pQ0uW0hI3uI5bW4rU
Content-Type: application/json
Accept: application/json
```

Sample HTTP GET Request (Production)

```plaintext
GET /iras/prod/Authentication/CorpPassAuth?scope=EmpIncomeSub+CITFormCSSub&callback_url=https%3a%2f%2fwww.yourdomain.com%2fcallback&tax_agent=false&state=390b25fa-4427-4b10-9ae2-34d6e0cd91a1 HTTP/1.1
Host: https://apiservices.iras.gov.sg
X-IBM-Client-Id: 40e7be2f-0b4f-4985-bcc9-cdfd38c5b5c8
X-IBM-Client-Secret: vD0kR8iT3kR1hB8dPlqS3hC4lJ1aAlfV4pQ0uW0hI3uI5bW4rU
Content-Type: application/json
Accept: application/json
```
3.3 General Usage

A Callback URL is required to redirect users to the Consumer Software App after CorpPass login and consent. Refer to Appendix 7.3 for Callback URL Requirements.

Each API request payload is limited to 2 MB in total data size.

3.4 Sandbox Usage

API services in the Sandbox environment are designed to mimic the Production environment so that developers can perform integration tests on the API before consuming actual data from the Production environment.

After you have registered your App and subscribed to this API, proceed to register your Callback URLs via https://go.gov.sg/apicallback. The turnaround time for this process is 1-2 weeks. IRAS will notify you via email once your Callback URLs have been registered.

Refer to Appendix 7.5 for the list of available test entities for CorpPass Login.
3.5 Production Usage

Upon successful completion of sandbox testing, please inform digital_partnerships@iras.gov.sg. You will also be required to register your Callback URLs via https://go.gov.sg/apicallback for the production environment, if you haven’t done so.

Thereafter, we will inform you to subscribe to the respective APIs in production for IRAS’ approval. The turnaround time for this process is 1-2 weeks. IRAS will notify you via email once your subscription request has been approved and your Callback URLs have been registered.

Approval is required to use this service in the Production environment. Subscribe to the API Plan to request for approval. An email notification will be sent to your registered email when your request has been processed. If approval is granted by IRAS, the client application can successfully consume the API.

Use of IRAS API(s) are governed by the Additional API Terms of Use found at the API Marketplace.

The use of IRAS API(s) in the Production environment is only intended for the purpose as indicated in the API service description. Any other forms of use, including all forms of tests, are strictly prohibited. In the event such activities are found to have occurred in the Production environment, you will be deemed to have breached the API Terms of Use, which may result in the suspension or termination of your account.

3.6 Common Interface Information

- JSON is case sensitive by specifications.
- All date strings are to be represented in compliance to the ISO-8601 standard.
- All string fields are subject to validation of the following acceptable characters that is allowed (in red):
  - [a-zA-Z0-9\-@\#()\-,./&+_ ] (Note: whitespace is included)
- All properties follow the camel-case convention.
- Unless stated as optional, all JSON object properties must be specified.
- Unless otherwise specified, all JSON services are invoked using HTTP verb POST.
- All input data format are as specified like the following:

<table>
<thead>
<tr>
<th>Data Type and Size</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>String(12)</td>
<td>A string containing maximum 12 characters</td>
<td>“180084010K”</td>
</tr>
<tr>
<td>Number(4)</td>
<td>A numeric value containing maximum 4 whole numbers.</td>
<td>1990</td>
</tr>
</tbody>
</table>
3.7 Common Response Payload

All response payloads share the following common fields:

<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>data</td>
<td>Object</td>
<td>The data property will be populated differently based on the API that is being invoked.</td>
</tr>
</tbody>
</table>
| returnCode     | Integer   | 10: Success - The request was successfully processed.  
20: Warning - The request was successfully processed. However, there are non-fatal issues. Please refer to the "info" object for diagnostic information.  
30: Failure – The request was not processed. Refer to "info" object for error information. |
| info           | Object    | This complex object holds any diagnostic information that will allow developers to debug their failed requests. |
| info.message   | String    | Diagnostic message in the event of warning or error. |
| Info.messageCode | Integer | Integer code signifying the type of error or warning.  
850300: Request object is null – The incoming JSON request is null.  
850301: Arguments error – There is an error with one of the arguments provided.  
850302: Generic error – There is an exception within the service.  
850303: Service is inactive.  
850304: Service is not authorized for usage based on the provided credentials.  
850305: Invalid test user – The input fields provided are not valid for sandbox testing. |
| info.fieldInfoList | Array    | An array for FieldInfo objects. |
| info.fieldInfoList.field | String    | Name of the field that resulted in a warning / error. |
| Info.fieldInfoList.message | String | Diagnostic message provided to aid consumer’s developers. Refer to Section 6 for a list of diagnostic messages. |
4. CorpPassAuth API Service

The CorpPassAuth endpoint has to be triggered from a Server-to-Server connection using **HTTP GET request**. The response will be a URL which should be returned to the client for redirection to CorpPass Login Page. The intended result after CorpPass Login is to obtain the authorisation code to invoke the CorpPassToken API service to retrieve the access token.

The following are the 5 steps involved to obtain the authorisation code from the Consent Platform:

1. Invocation of the CorpPassAuth API service from IRAS (using HTTP GET request)
2. IRAS returns the CorpPass Login Page’s URL as part of the response message
3. Software redirects software user to the CorpPass Login Page
4. Software user enters his/ her CorpPass credential
5. Software is redirected to CorpPass Consent Page for software user to accept the agreement

### 4.1 API Endpoint

<table>
<thead>
<tr>
<th>Method</th>
<th>Endpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>GET</td>
<td>/Authentication/CorpPassAuth</td>
</tr>
</tbody>
</table>

### 4.2 Request Payload

<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>scope</td>
<td>String</td>
<td>The list of functions that the external application is requesting for. Refer to Appendix 7.4 for the list of Scopes.</td>
</tr>
<tr>
<td>callback_url</td>
<td>String</td>
<td>The callback url is required to redirect the authorisation code to the consumer software, after the user has completed login and consent. The callback url must be registered with IRAS prior to usage. Refer to Appendix 7.3 for Callback URL Requirements.</td>
</tr>
<tr>
<td>tax_agent</td>
<td>Boolean</td>
<td>Boolean Indicator to indicate type of transaction. If tax_agent = true, user is transacting as a tax agent for its business client. If tax_agent = false, user is transacting for its own business tax matters.</td>
</tr>
</tbody>
</table>
state | String | **Identifier to reconcile request and response. This will be sent back via the callback url. The identifier should be unique.**

Consumer Software Server must use this value to validate the state returned by consent platform via callback_url.

### Request Payload Sample (Sandbox)

```plaintext
GET /iras/sb/Authentication/CorpPassAuth?scope=EmpIncomeSub+CITFormCSSub&callback_url=https%3a%2f%2fwww.yourdomain.com%2fcallback&tax_agent=false&state=390b25fa-4427-4b10-9ae2-34d6e0cd91a1
HTTP/1.1
Host: https://apisandbox.iras.gov.sg
X-IBM-Client-Id: 40e7be2f-0b4f-4985-bcc9-cdfd38c5b5c8
X-IBM-Client-Secret: vD0kR8iT3kR1hB8dP1qS3hC4lJ1aA1fV4pQ0uW0hI3uI5bW4rU
Content-Type: application/json
Accept: application/json
```

### Request Payload Sample (Production)

```plaintext
GET /iras/prod/Authentication/CorpPassAuth?scope=EmpIncomeSub+CITFormCSSub&callback_url=https%3a%2f%2fwww.yourdomain.com%2fcallback&tax_agent=false&state=390b25fa-4427-4b10-9ae2-34d6e0cd91a1
HTTP/1.1
Host: https://apiservices.iras.gov.sg
X-IBM-Client-Id: 40e7be2f-0b4f-4985-bcc9-cdfd38c5b5c8
X-IBM-Client-Secret: vD0kR8iT3kR1hB8dP1qS3hC4lJ1aA1fV4pQ0uW0hI3uI5bW4rU
Content-Type: application/json
Accept: application/json
```
# 4.3 Response Payload

<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>data</td>
<td>Object</td>
<td>The object payload containing the information after successful invocation</td>
</tr>
<tr>
<td>data.url</td>
<td>String</td>
<td>CorpPass Login Page’s url</td>
</tr>
<tr>
<td>returnCode</td>
<td>As per Section 3.7</td>
<td></td>
</tr>
<tr>
<td>info.message</td>
<td></td>
<td></td>
</tr>
<tr>
<td>info.messageCode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>info.fieldInfoList</td>
<td></td>
<td></td>
</tr>
<tr>
<td>info.fieldInfoList.field</td>
<td></td>
<td></td>
</tr>
<tr>
<td>info.fieldInfoList.message</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Successful response payload sample

```json
{
  "returnCode":"10",
  "data":{
  },
  "info":{
    "fieldInfoList":[]
  }
}
```

Error response payload sample

```json
{
  "returnCode":"30",
  "info":{
    "messageCode":"850301",
    "message":"Arguments Error",
    "fieldInfoList":[
      {
        "field":"callback_url",
        "message":"Callback_url mismatch with client registered callback url"
      }
    ]
  }
}
```
4.4 Response (CorpPass Login Page)

The response given by CorpPass will be a **HTTP temporary redirect (302)** response with the CorpPass Consent Page URL and the following parameters in the redirection url.

<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>client_id</td>
<td>String</td>
<td>Unique identifier for external application</td>
</tr>
<tr>
<td>scope</td>
<td>String</td>
<td>The list of functions that the external application is requesting for. Refer to Appendix 7.4 for the list of Scopes.</td>
</tr>
<tr>
<td>callback_url</td>
<td>String</td>
<td>The callback url is required to redirect the authorisation code to the consumer software, after the user has completed login and consent. The callback url must be registered with IRAS prior to usage. Refer to Appendix 7.3 for Callback URL Requirements.</td>
</tr>
<tr>
<td>state</td>
<td>String</td>
<td>Identifier to reconcile request and response. This will be sent back via the callback url. The identifier should be unique.</td>
</tr>
</tbody>
</table>
4.5 Response (CorpPass Consent Page)

The response given by CorpPass will be a HTTP temporary redirect (302) response with the given callback URL and the following parameters. The authorisation code has to be received by a server for the subsequent token API service invocation.

<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>code</td>
<td>String</td>
<td>Authorisation Code</td>
</tr>
<tr>
<td>state</td>
<td>String</td>
<td>Identifier to reconcile request and response. Consumer Software Server are to ensure that the value is the same as the one originally requested in Section 4.2</td>
</tr>
</tbody>
</table>
5. CorpPassToken API Service

The CorpPassToken endpoint has to be triggered from a Server-to-Server connection using HTTP POST request. The response will be the access token that is necessary for authorised functional API service invocation.

5.1 API Endpoint

<table>
<thead>
<tr>
<th>Method</th>
<th>Endpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>POST</td>
<td>/Authentication/CorpPassToken</td>
</tr>
</tbody>
</table>

5.2 Request Payload

<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>scope</td>
<td>String</td>
<td>The list of functions that the external application is requesting for.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Refer to Appendix 7.4 for the list of Scopes.</td>
</tr>
<tr>
<td>callback_url</td>
<td>String</td>
<td>The callback url must be registered with IRAS prior to usage.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Refer to Appendix 7.3 for Callback URL Requirements.</td>
</tr>
<tr>
<td>code</td>
<td>String</td>
<td>Authorisation Code</td>
</tr>
<tr>
<td>state</td>
<td>String</td>
<td>Identifier to reconcile request and response. This value must be the same as the state requested in 3.2.1.</td>
</tr>
</tbody>
</table>
Request Header Sample (Sandbox)

```
POST /iras/sb/Authentication/CorpPassToken
HTTP/1.1
Host: https://apisandbox.iras.gov.sg
X-IBM-Client-Id: 40e7be2f-0b4f-4985-bcc9-cdfd38c5b5c8
X-IBM-Client-Secret: vD0kR8iT3kR1hB8dPlqS3hC4lJ1aAlfV4pQ0uW0hI3uI5bW4rU
Content-Type: application/json
Accept: application/json
```

Request Header Sample (Production)

```
POST /iras/prod/Authentication/CorpPassToken
HTTP/1.1
Host: https://apiservices.iras.gov.sg
X-IBM-Client-Id: 40e7be2f-0b4f-4985-bcc9-cdfd38c5b5c8
X-IBM-Client-Secret: vD0kR8iT3kR1hB8dPlqS3hC4lJ1aAlfV4pQ0uW0hI3uI5bW4rU
Content-Type: application/json
Accept: application/json
```

Request JSON payload sample

```
{
  "scope": "EmpIncomeSub+CITFormCSSub",
  "callback_url": "https://apisandbox.iras.gov.sg",
  "code": "322c89af-3921-9f8e-1ab3-87f8de0bc8ce",
  "state": "390b25fa-4427-4b10-9ae2-34d6e0cd91a1"
}
```
5.3 Response Payload

The response will be returned with the access token. This token has to be passed as additional parameters for functional API service invocation that requires this access token.

Note: The CorpPass token is valid for 30 mins only.

<table>
<thead>
<tr>
<th>Parameter Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>data</td>
<td>Object</td>
<td>The object payload containing the information after successful invocation</td>
</tr>
<tr>
<td>data.token</td>
<td>String</td>
<td>Access Token</td>
</tr>
<tr>
<td>data.scope</td>
<td>String</td>
<td>List of scope(s) granted access delimited by ‘+’</td>
</tr>
<tr>
<td>returnCode</td>
<td></td>
<td>As per Section 3.7</td>
</tr>
<tr>
<td>Info</td>
<td></td>
<td></td>
</tr>
<tr>
<td>info.message</td>
<td></td>
<td></td>
</tr>
<tr>
<td>info.messageCode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>info.fieldInfoList</td>
<td></td>
<td></td>
</tr>
<tr>
<td>info.fieldInfoList.field</td>
<td></td>
<td></td>
</tr>
<tr>
<td>info.fieldInfoList.message</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Successful response payload sample

```json
{
  "returnCode": "10",
  "data": {
    "token": "eyJhbGciOiJSU0EtT0FFUCIsImVuYyI6IkJ1cG5tYXQ6ZGIyQ2FibWwiLCJpZCI6IjhhZDUyNjI3YWQzYjNiYjNjMDkiLCJpYyI6e1wibmFtZSI6IjI2NzY3NjQyMzkyMzE0NzE0MCIsImF1ZCI6IjNhZGIyNzYyODU0MzY0N2IyMiwiZXhwIjoxNjQ2NTk0OTc3LCJlbWFpbCI6InhvbWluZy50b24iLCJ0eXAiOiJKV1QiLCJodHRwczovL3VpZC5pby8zNDM3NzgyOC8iLCJpcCI6IjEyMDUyMzA0OTY2MjUyOTg1IiwiaWF0IjoxNjQ2NTk0OTc3LCJleHAiOjE0MzM4NjQ0MjJ9",
    "scope": "EmpIncomeSub+CITFormCSSub",
  }
}
```
Successful response payload sample with warning

```json
{
    "returnCode": "20",
    "data": {
        "token": "eyJhbGciOiJSU0EtT0FFUCIsImVuYyI6IkEyNTZHQ00ifQ.OKOawDo13gRp2ojaHV7LFpZcgvV76DVZKYOMcYUmoTcVJRgckC19k1MT03JGeipsEdY3mx_etLbbWSrFr05kLzcSr4qKAg7YN7e9jwQRb23bfa6c9d-StnImGyFDbSv04uVuxIp52ms1gNxKKK2Da14B8S4rzVR1tdYwam_1Dp5XnZAYpQdb76FdIKLaVmqgfwX7XWRxv2322i-vDXRfqNzotETKzpVLzfjwQyeypGLBIO56YJ7e0bdv0je81860ppamavo35UgRdbYaBcoh9QcfylQR66oc6vFWXrcZ_2T2LawVCWTIy3brGPi6UklfCpIMfj7iGdXHzg.48V1 ALb6US04U3b.5eym8TW_c8SuK0ltJ3rpYIeDQz7TALvru6UGo4vps9tX_EFSbS8iB7j6jiSdiwkIr3ajwQzaBtQD_A.XFBoMYUZodetZdvTiFvSkQ",
        "scope": "EmpIncomeSub"
    }
},
```

```
info": {
    "messageCode": "850301",
    "message": "Arguments Error",
    "fieldInfoList": [
        {
            "field": "scope",
            "message": "One or more scopes unauthorised"
        }
    ]
}
```

Error response payload sample

```json
{
    "returnCode": "30",
    "info": {
        "messageCode": "850301",
        "message": "Arguments Error",
        "fieldInfoList": [
            {
                "field": "code",
                "message": "Authentication code verification failed"
            }
        ]
    }
}
```
6. List of Diagnostic Messages

The table below contains the list of diagnostic messages that would be returned as a response in case of failure during the processing of the CorpPass Authentication Request. These diagnostic messages will be part of the information within the `info.fieldInfoList` array (found in Section 3.7).

<table>
<thead>
<tr>
<th>Field</th>
<th>Message</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>callback_url</td>
<td>Value cannot be null, empty, or white space</td>
<td>The callback_url entered is empty or invalid.</td>
</tr>
<tr>
<td></td>
<td>Callback_url mismatch with client registered callback url</td>
<td>The callback_url must be registered with IRAS. It is case-sensitive and must be url-encoded.</td>
</tr>
<tr>
<td>scope</td>
<td>Value cannot be null, empty, or white space</td>
<td>The scope entered is empty or invalid.</td>
</tr>
<tr>
<td></td>
<td>Scope mismatch with client registered scope</td>
<td>The scope entered is either incorrect or have not been granted access by IRAS.</td>
</tr>
<tr>
<td></td>
<td>One or more scopes unauthorised</td>
<td>The user is not authorised for one or more scopes. The scopes that are authorised is given in the ‘scope’ parameter.</td>
</tr>
<tr>
<td>code</td>
<td>Value cannot be null, empty, or white space</td>
<td>The code entered is empty or invalid.</td>
</tr>
<tr>
<td></td>
<td>Authentication code verification failed</td>
<td>The authentication code failed verification. Note that it has a validity of 2 minutes from the time of issuance.</td>
</tr>
</tbody>
</table>
7. Appendix

7.1 Interaction Flow

The flow generally consists of two (2) APIs:

1. **Auth**
   This API will provide redirection URLs to the CorpPass Login and Consent pages. If login is successful, your application (Consumer Software App) will receive the authorisation code via your callback url.

2. **Token**
   This API will provide an access token if a valid authorisation code is supplied.

The application can proceed to use the access token to call an IRAS Resource API securely.

**Note:** The access token is valid for 30 minutes only.

The following interaction flow depicts the flow of events on the usage of the APIs.
IRAS API Services Interface Specifications

1. **Client** clicks “Submit to IRAS” from **Consumer Software App**.

2. **Consumer Software App** to trigger **Consumer Software Server** to perform IRAS API CorpPassAuth call.

3. The **IRAS API Gateway** will return a URL string of the CorpPass Login Page with the callback URL and other parameters.

4. **Consumer Software Server** to send the CorpPass URL string to **Consumer Software App** to redirect to CorpPass Login Page for entry of credential.

5. **Client** clicks “Submit” at the **Consumer Software App** with CorpPass Login Page.

6. Upon successful login to CorpPass, **CorpPass** will trigger a HTTP Temporary Redirection (302) to Consent Platform.

7. **Consumer Software App** is redirected to **Consent Platform** Page for agreement of the term of use. Refer to Appendix 7.1 for a sample Consent Page.

8. **Client** clicks “Yes” at the **Consumer Software App** with Consent Platform Page.

9. **Consent Platform** will trigger a HTTP Temporary Redirection (302) with the callback URL with the Authorisation Code with other parameters.

10. The callback URL should be the **Consumer Software Server**’s domain so that the Authorisation Code and other parameters are sent to the server for further processing.

11. Using the Authorisation Code, **Consumer Software Server** will perform IRAS API CorpPassToken call to **IRAS API Gateway** to request for an Access Token.

12. **Consumer Software Server** can proceed to perform functional IRAS API calls to **IRAS API Gateway** with the Access Token.
7.2 Consent Page

The name of the App that is subscribed to the service on the IRAS API Marketplace will be reflected on the Consent Page. **Please ensure that you define the correct App name when you first register the App during the registration process** as described in Section 2 Registration > Step 2: Register App.

The sample consent page below shows an App named “My Consumer App” requesting for permission to proceed.

**Note:** Users must make a selection within 2 minutes, otherwise the page will expire.
7.3 Callback URL Requirements

Callback URLs must use Fully Qualified Domain Name (FQDN) and meet the following requirements:

- Must be different for Sandbox and Production environments,
- Must not contain IP address, port number, Hash (#) or Wildcard (*) characters,
- Must be able to accept parameters, and
- Must be hosted on a server with a Secure Sockets Layer (SSL) certificate (e.g. https://yourdomain.com/callback).

Callback URLs must be registered with IRAS via FormSG at https://go.gov.sg/apicallback prior to usage.
7.4 List of Scopes

The use of Scope allows proper permissioning of the functional API via the Authorisation Token. For requests containing multiple Scopes, concatenate them with ‘+’ char.

<table>
<thead>
<tr>
<th>S/N</th>
<th>API</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Submission of Employment Income Records</td>
<td>EmpIncomeSub</td>
</tr>
<tr>
<td>2</td>
<td>Retrieval of Corporate Tax Data</td>
<td>CITPrefillCS</td>
</tr>
<tr>
<td>3</td>
<td>Submission of Corporate Tax Return (Form C-S)</td>
<td>CITFormCSSub</td>
</tr>
<tr>
<td>4</td>
<td>Submission of Tax Clearance for Foreign Employees (Form IR21)</td>
<td>IITFormIR21Sub</td>
</tr>
<tr>
<td>5</td>
<td>Submission of GST F5 Return and F8 Final Return</td>
<td>GSTF5F8SubCP</td>
</tr>
<tr>
<td>6</td>
<td>Submission of Transaction Listings</td>
<td>GSTTxnLstgSubCP</td>
</tr>
<tr>
<td>7</td>
<td>Submission of GST F7 Disclosure of Errors on GST Return</td>
<td>GSTF7SubCP</td>
</tr>
<tr>
<td>8</td>
<td>e-Stamping</td>
<td>e-Stamping</td>
</tr>
</tbody>
</table>

7.5 Test Entities for CorpPass

To test CorpPass with a specific Business API (e.g. Submission of Employment Income Records), refer to the test scenarios located in the Business API Product page at the API Marketplace [Sandbox Environment].

Alternatively, contact digital_partnerships@iras.gov.sg to retrieve the latest set of test entities and test scenarios.