

Integration

This topic describes processes related to executing automated services offered by iTEP.

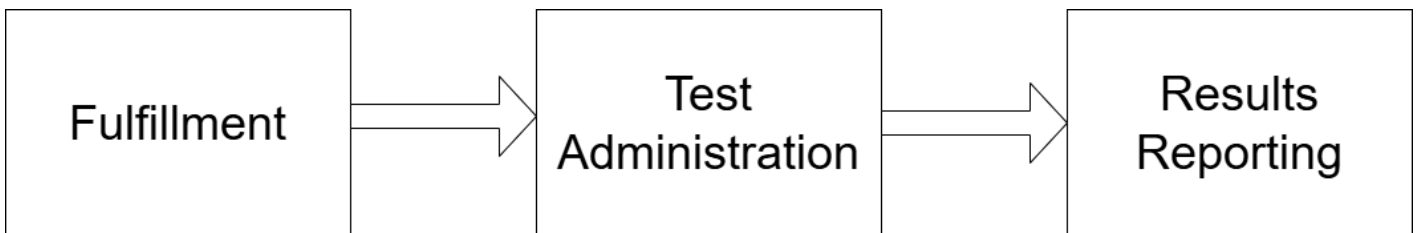
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Integration Overview

Integration refers to the exchange of data between iTEP and external systems. Integration is accomplished by employing APIs and webhooks to make requests to and received data from iTEP.

Overview

The process of administering a test to a candidate consists of three stages.



Fulfillment

Fulfillment refers to the process of delivering a test id to a candidate. There are multiple methods and process for accomplishing this, and it is the area where the most variability between different Distributors and Local Administrators is found.

Test Administration

Test administration encompasses all activities relating to the exam itself. These activities include, but are not limited to, accessing the exam, taking the exam, grading the exam, technical difficulties while taking the exam, and exam integrity. iTEP is the sole authority regarding any and all test administration activities. Other than the case of providing a secure and acceptable environment and in-person proctoring in a test center scenario Distributors and Local Administrators do have any input or authority regarding these activities.

Results Reporting

Once an exam has been graded and there is no additional review required or technical issues encountered the exam results are reported. The entity that paid for the exam owns the results of the exam and is entitled to direct to whom and by what means the results are reported. There are several common methods of results reporting in use.

Each of the test administration stages are discussed in more detail in the following pages.

Integration Fulfillment

Fulfillment

Obtaining a test ID

The first step in the fulfillment process is obtaining a test ID.

There is always a human-initiated action that launches the process. For some Local Administrators this may be a direct purchase of the test ID by the candidate on itepexam.com. For others it may be part of an HR vetting process or school admission process where the user of a system such as an HR or school admissions system is used by a Local Administrator to indicate that a test id needs to be provisioned for a candidate. Perhaps the candidate initiates the process by applying for a position on a corporate web site, at which time the HR system needs to provision a test ID for the candidate without any additional input.

In all these cases once the process has been initiated the provisioning of the test ID is automated.

The source of the test ID must first be considered. There are two possible sources. The first, and most common, is that the Local Administrator has an inventory of test ids. In this case an available test ID must be identified in the Local Administrator's inventory. The second is that a sale is created for the test ID at the time of fulfillment.

It is important to note that iTEP's administration system is the final authority with regards to a Local Administrator's available test IDs. iTEP's definition of an available test ID is one that has a status of "Ready". This leads to the first decision that needs to be made regarding fulfillment - where and how is the Local Administrator going to keep track of test ID inventory? At the very least this is needed so that the Local Administrator can determine when additional test IDs need to be purchased. If a large number of test IDs are maintained in inventory all that may be needed is to occasionally check the iTEP administration system. If the test ID inventory is kept at a low level with regard to the usage rate then the Local Administrator must monitor their inventory of test IDs more closely. Most of iTEP's customers use the iTEP administration system to manage test ID inventory. A few have developed systems where the available test IDs are maintained on their system as well as on iTEP's administration system. iTEP's experience is that maintaining a dual inventory system is more challenging to implement and maintain. iTEP currently does not have any APIs directly related to synchronizing inventory. While there are some APIs that a Local Administrator can use to allocate their existing inventory, there is not an API that can be used to automate the

In iTEP's system an Available test ID can be "Assigned" to a candidate. This is accomplished by populating the test field "Assigned-to". When a test ID has data in this field it will not be considered available for use, even though the status of the test is still "Ready" the screen below shows what this looks like in iTEP's administrative system:

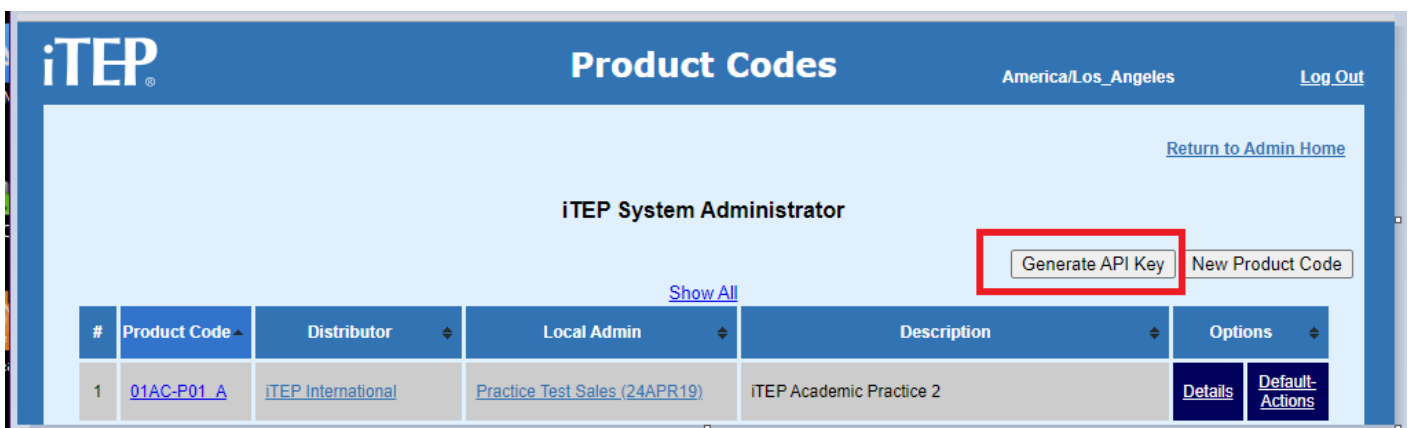
In the above example only the test ID **123982B8AP** is available to be used. Notice also that the Assigned to information is in JSON format. This is not currently a requirement if executing manual procedures in the iTEP administration system, but is required for API use. The information in the Assigned-to field is completely user-definable, however it is strongly recommended that at a minimum the candidate's name, Email, and some identifying information on your system is included in the event that any troubleshooting

needs to be executed.

There are 2 API calls that are commonly used to obtain a test ID. The request body and submission parameters of both calls are the same. The difference between the 2 APIs is one of them assumes you are going to transmit the test ID and instruction to the candidate while the other sends the test ID and test material to the candidate directly from iTEP's administration system.

Generating an API Key

In order to call an iTEP API you must first generate an API key. This task is performed on the PRODUCT CODE screen of the iTEP Administration system.



<https://www.youtube.com/embed/O4BcmZegqHw?si=FNb7rlc0JS1at3Xu>

Construct the API call to obtain a test ID

The next step in obtaining a test ID is to construct an API call to iTEP's administration system. With the lone exception of a header value the calls for the two previously described cases is the same. Below is a description of the fields you either need or can use in the request body.

Field Name	Field Value	
product-code	{product code value defined in itep administration system}	REQUIRED

email	<i>{candidate Email address}</i>	REQUIRED for "STX" API calls
bcc	<i>{bcc Email address}</i>	
track	<i>{tracking code assigned by iTEP}</i>	REQUIRED for results reporting
assigned-to	<i>{JSON - populates test "assigned-to" field}</i>	
registration	<i>{JSON - populates test registration fields}</i>	

product-code

Product codes tell the iTEP administration system what to send and how to send it. iTEP has defined generic product codes that meet the needs of most users, and recommends using them. Customized product codes can be created, but creating product codes is beyond the scope of this document.

Product codes can be seen on the PRODUCT CODES screen in the iTEP administration system.

[Return to Home](#)

TEI - ESKİŞEHİR

[Generate API Key](#) [New Product Code](#)[Show All](#)

#	Product Code ▲	Distributor ◆	Local Admin ◆	Description ◆	Options ◆	
1	GTX-Academic-Plus	For all	For All	GetTestID API Generic Academic-Plus	Details	Default-Actions
2	GTX-Academic-Plus-Unsupervised	For all	For All	GetTestID API Generic Academic-Plus-Unsupervised	Details	Default-Actions
3	GTX-Business-Core	For all	For All	GetTestID API Generic Business-Core	Details	Default-Actions
4	GTX-Business-Plus	For all	For All	GetTestID API Generic Business-Plus	Details	Default-Actions
5	QSG-Academic-Plus	For all	For All	QuickSend Generic Academic-Plus	Details	Default-Actions
6	QSG-Slate-Plus	For all	For All	QuickSend Generic Slate-Plus	Details	Default-Actions
7	QSG-Snapshot-Plus	For all	For All	QuickSend Generic Snapshot-Plus	Details	Default-Actions
8	STX-Academic-Plus	For all	For All	SendTestID API Generic Academic-Plus	Details	Default-Actions
9	STX-Advanced-C1	For all	For All	SendTestID API Generic Advanced C1	Details	Default-Actions
10	STX-Advanced-Core-C1	For all	For All	SendTestID API Generic Advanced-Core C1	Details	Default-Actions
11	STX-Advanced-Speaking-Only	For all	For All	SendTestID API Generic Advanced-Core Speaking Only	Details	Default-Actions
12	STX-Advanced-WS	For all	For All	SendTestID API Generic Advanced-WS	Details	Default-Actions
13	STX-Business-Core	For all	For All	SendTestID API Generic Business-Core	Details	Default-Actions
14	STX-Business-Plus	For all	For All	SendTestID API Generic Business-Plus	Details	Default-Actions
15	STX-Essential-B2	For all	For All	SendTestID API Generic Essential-B2	Details	Default-Actions
16	STX-Essential-Plus	For all	For All	SendTestID API Generic Essential-Plus	Details	Default-Actions
17	STX-Placement-Core-Timed	For all	For All	SendTestID API Generic Placement-Core-Timed	Details	Default-Actions
18	STX-Placement-Timed	For all	For All	SendTestID API Generic Placement Timed	Details	Default-Actions
19	STX-Promo-Advanced-C1	For all	For All	SendTestID API Generic Promo Advanced C1	Details	Default-Actions
20	STX-Promo-Business-Core	For all	For All	SendTestID API Generic Promo Business-Core	Details	Default-Actions
21	STX-Promo-Business-Plus	For all	For All	SendTestID API Generic Promo Business-Plus	Details	Default-Actions
22	STX-Promo-Conversation	For all	For All	SendTestID API Generic Promo Conversation	Details	Default-Actions
23	STX-Promo-Hospitality	For all	For All	SendTestID API Generic Promo Hospitality	Details	Default-Actions
24	STX-Promo-Intern	For all	For All	SendTestID API Generic Promo Intern	Details	Default-Actions
25	STX-Promo-Placement-Timed	For all	For All	SendTestID API Generic Promo Placement Timed	Details	Default-Actions

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With regards to API calls there are two groups of product codes. One group starts with "GTX" and defines the process where an available test id is obtained and returned to the caller. The other group start with "STX" and defines the process where an available test id is obtained, **SENT TO THE CANDIDATE**, and returned to the caller. The different product codes in each groups are for different test types.

So, for example, the product code GTX-Academic-Plus will find an available test ID for Academic-Plus and return it to the caller whereas STX-Academic-Plus will find an available test ID for Academic-Plus, **SEND AN EMAIL WITH**

THE TEST ID FROM ITEP TO THE CANDIDATE, and return the test ID to the caller.

email

For STX calls this is the Email address to send the test ID and related materials to

bcc

For STX calls a copy of the Email sent to the candidate is also sent to this address. iTEP automatically sends a copy to its own archive. This is not required, but highly recommended, especially if you are planning on providing tier 1 support for your candidates.

track

This is a code that is assigned by iTEP. It tells the iTEP system to make a webhook call to your endpoint when the test has been graded and optionally when the test taker has finished the exam. The optional call gives the user the ability to track exams that have been finished, but still need to be graded. Note that the customer must supply iTEP with the URL of their endpoint, as it is not user configurable.

assigned-to

The assigned-to field is a JSON string that is assigned to the assigned-to field of the selected test ID. A test ID is considered available to use if its status is "Ready" and the assigned-to field is not populated. It is recommended to provide at a minimum the candidate's name, Email address, and a unique identifier from your system. Additional information may included as needed. An example would be an expiration date. Several customers assign an expiration date after which it is assumed the candidate is not going to take the test. The test can then have a new passwords assigned and made available again for a different candidate. There are plans to automate this process in the future.

registration

the registration field is also a JSON string. These fields are used to pre-populate fields on the registration form that is associated with the test. The registration forms are semi-parametric, which allows names of fields on the screen to be different than the name of the database column it is stored in. Constructing registration forms is beyond the scope of this document, but must be considered when setting these fields. There are specific fields that can be set. Any field defined in the call

The valid field names are listed below. Most are intuitive. More details will be added at a later date.

Field Name	Notes
Last_Name	
First_Name	
Middle_Name	
DOB_Month	number between 1 and 12 Providing an invalid Month will result in an error: Out of range Birth Month [value].
DOB_Day	number between 1 and 31 Providing an invalid Day will result in an error: Out of range Birth Day [value].
DOB_Year	number greater than 1900 Providing an invalid Year will result in an error: Out of range Birth Year [value].
Email	
Contact_Phone	
Address	
City	
Birthday	M/D/YYYY or D-M-YYYY M should be a number between 1 and 12 D should be a number between 1 and 31 YYYY should be a number greater than 1900 Not providing 3 numbers will result in an error: Unable to parse Birth Date [value]. Providing an invalid Day will result in an error: Out of range Birth Day [value]. Providing an invalid Month will result in an error: Out of range Birth Month [value]. Providing an invalid Year will result in an error: Out of range Birth Year [value].
Country	

Nationality	
OIN	Official Identification Number This is usually a government issued id such as a driver's license or passport.
OIN_Country	
OIN_Type	
Language	
Center	
Gender	<p>Valid values (case insensitive):</p> <div><div>Male</div><div>Female</div></div> <p>Providing an invalid Gender will result in an error: Invalid Gender [value].</p>
Education	<p>Highest education level completed</p> <p>Valid values (case insensitive):</p> <div><div>Middle School</div><div>High School</div><div>Vocational School</div><div>Bachelor's Degree</div><div>Master's Degree</div><div>Doctorate</div></div> <p>Providing an invalid Education will result in an error: Invalid Education [value].</p>
Taken_Test	
DOT_Month	
DOT_Day	

DOT_Year	
Location	
Admin_Test_Location	
Agree	
Honest	
Applying_To_School	
Apply_School_Type_1	
Apply_School_Name_1	
Apply_School_Other_1	
Apply_School_Type_2	
Apply_School_Name_2	
Apply_School_Other_2	
Apply_School_Type_3	
Apply_School_Name_3	
Apply_School_Other_3	

Field_Of_Study	<div>education field of study</div> <div>Valid values (case insensitive):</div> <table><tr><td>Other</td></tr><tr><td>Business Communication</td></tr><tr><td>Education</td></tr><tr><td>English</td></tr><tr><td>Engineering</td></tr><tr><td>History</td></tr><tr><td>Hospitality</td></tr><tr><td>Other Languages</td></tr><tr><td>Mathematics</td></tr><tr><td>Medical</td></tr><tr><td>Music</td></tr><tr><td>Politics</td></tr><tr><td>Recreation</td></tr><tr><td>Science</td></tr></table> <div>Providing an invalid Study Field will result in an error: Invalid Study Field [value].</div>	Other	Business Communication	Education	English	Engineering	History	Hospitality	Other Languages	Mathematics	Medical	Music	Politics	Recreation	Science
Other															
Business Communication															
Education															
English															
Engineering															
History															
Hospitality															
Other Languages															
Mathematics															
Medical															
Music															
Politics															
Recreation															
Science															
Location_Country															
Location_Region															
Location_Name															
trSchoolLevel															
trReferral															

trExternal_ID	The value of this field is returned in the results field OID
trCampus	
trCollege	
trDepartment	
trDegree	
trStatus	
trAttribute	
trStudent_Number	
trBatch_Number	

Putting it all together

Here is an example of the request body:

```
{
  "product-code": "STX-Academic-Plus",
  "email": "tfatout2@proton.me",
  "bcc": "twif_bam@yahoo.com",
  "track": "RC",
  "sequence": 3,
  "assigned-to": {
    "expire": "2024-09-01",
    "student-name": "Mary Poppins",
    "customer-candidate-id": 9810283,
    "sequence": 3
  },
  "registration": {
    "Last_Name": "Poppins",
    "First_Name": "Mary",
    "Email": "m.poppins@disney.com",
    "Birthday": "1955-07-08",
    "OIN": "123-456-7890",
    "OIN_Country": "US",
    "OIN_Type": "1",
    "Address": "10119 Popular Lane",
    "City": "Los Angeles",
    "Field_Of_Study": "Biology"
  }
}
```

Notes:

- Do not send "pretty" JSON with line feeds, carriage returns and other whitespace.
- Assume everything is case-sensitive

In addition to the request body a special HTTP header is required. This header serves several purposes:

1. The header key directs processing on iTEP's server
2. The header value contains a HMAC-SHA256 digital signature
3. The digital signature confirms the integrity of the request body
4. The digital signature identifies the sender
5. The digital signature prevents replay attacks

For those that would like to understand the math involved in the calculation see the video below. Note that most languages and software development infrastructures have libraries that perform the calculations for you.

https://www.youtube.com/embed/orlgy2MjqrA?si=dFCO_k168s4KKfE5

It is unlikely you will need to do the math yourself. However, during development you may, want to check the signatures you generate. To do this iTEP suggests using an online tool to generate signatures to check against your integration process. Here is a video of using an online tool to create a HMAC-SHA256 signature:

<https://www.youtube.com/embed/sR1BD0gZcjs?si=NamCPsorBjjMPXsD>

This tool demonstrated in the video is located [HERE](#)

Now you have all the required components to make the API call to get a test ID. Currently we do not provide examples for specific development environments, however the video below demonstrates execution of all the steps of a fulfillment API call using the Postman utility.

https://www.youtube.com/embed/vNFEPanau_c?si=5oGGZXi3pqngePUA

Integration Results Webhook

Process

It is worth noting that an exam undergoes a number of state changes during its life:

1. Ready
2. Started
3. Finished
4. Review
5. Technical Difficulty
6. Invalidated
7. Completed
8. Disabled

Currently webhook calls are executed at the following processing points:

- When The status of the exam changes to Finished (Optional)
- When the status of the exam changes to Completed
- If any type of reset is executed for the exam
- If the exam is invalidated
- If the exam encountered a technical issue

When any of the above described events occur, a check is made to determine if the test has a tracking code assigned to it. Tracking codes are created and maintained by iTEP staff. These codes are used to identify the endpoint, authorization methods and parameters, and if a call is to be executed when the test is finished.

The call is a post call. The data in the call is a single form-encoded field named data, and the data is a JSON string that contains the results.

See [Webhook Output Sample](#) for an example.

Headers sent:

Headers

content-type	multipart/form-data; boundary=-----b27a39e6e6aef697
content-length	3378
accept	/*/*
host	webhook.site

Data sent:

Form values

data	{"OID":"","TestID":"3279B035APR","Duration":"67.5","TestDate":"6\10\2024","TestMon..."}
------	---

IMPORTANT!

Note that there is **ONE** form encoded field named **data**.

The field **data** contains a JSON encoded string that, in turn, contains all of the fields sent by the result webhook.

Specific Field Detail:

General Fields Always included:

OID	the remote system unique ID for this test
TestID	the iTEP Test ID
Duration	Number of minutes candidate spent taking the exam

TestDate	M/D/YYYY the date the test was finished M will be a number between 1 and 12 D will be a number between 1 and 31 YYYY will be a number greater than 1900
TestMonth	the month the test was finished Valid values: a number between 1 and 12
TestDay	the day of the month the test was finished Valid values: a number between 1 and 31
TestYear	the year the test was finished Valid values: a number greater than 1900
score_report_url	URL that will generate a formatted score report with skill breakdowns and explanations
Overall_Level	the iTEP level assigned to the test as a whole Valid values: 0.0 - 6.0
Overall_cefr	Overall CEFR level See CEFR Levels for definition
Status	Exam status, as described in the previous section

Grammar Section Fields:

Grammar_Level	the iTEP level assigned to the grammar section Valid values: 0.0 - 6.0
Grammar_Score	the iTEP Test ID
Grammar_Percent	the percent of correct answers for the grammar section Valid values: 0 - 100
Grammar_cefr	Grammar CEFR level See CEFR Levels for definition

Listening Section Fields:

Listening_Level	the iTEP level assigned to the Listening section Valid values: 0.0 - 6.0
Listening_Score	the iTEP Test ID
Listening_Percent	the percent of correct answers for the Listening section Valid values: 0 - 100

Listening_cefr	Listening CEFR level See CEFR Levels for definition
-----------------------	--

Reading Section Fields:

Reading_Level	the iTEP level assigned to the Reading section Valid values: 0.0 - 6.0
Reading_Score	the iTEP Test ID
Reading_Percent	the percent of correct answers for the Reading section Valid values: 0 - 100
Reading_cefr	Reading CEFR level See CEFR Levels for definition

Writing Section Fields:

Writing_Level	the iTEP level assigned to the Writing section Valid values: 0.0 - 6.0
Writing_Score	the iTEP Test ID
Writing_Percent	the percent of correct answers for the Writing section Valid values: 0 - 100
Writing_cefr	Writing CEFR level See CEFR Levels for definition
Writing_Question_Count	Number of questions in the writing section NOTE: This is a numeric field
Writing_Question_1	As of 10/16/2024 this field will always contain a empty string
Writing_Answer_1	As of 10/16/2024 this field will always contain a empty string
Writing_Question_2	As of 10/16/2024 this field will always contain a empty string
Writing_Answer_2	As of 10/16/2024 this field will always contain a empty string

Speaking Section Fields:

Speaking_Level	the iTEP level assigned to the Speaking section Valid values: 0.0 - 6.0
Speaking_Score	the iTEP Test ID
Speaking_Percent	the percent of correct answers for the Speaking section Valid values: 0 - 100
Speaking_cefr	Speaking CEFR level See CEFR Levels for definition

Webhook Output Sample

Note: As of 10/16/2024 Writing questions and answers are no longer included in the results webhook.

Raw:

```
{ "OID": "", "TestID": "3279B035APR", "Duration": "67.5", "TestDate": "6/10/2024", "TestMonth": "6", "TestDay": "10", "TestYear": "2024", "score_report_url": "https://www.iteptest.com/reports/ScoreReport.php?p=8bee14e7f73fc44d9db69ff8bccfe36aAfcvq", "Overall_Level": "4.5", "Overall_cefr": "C1", "Grammar_Level": "3.5", "Grammar_Score": "68", "Grammar_Percent": "72", "Grammar_cefr": "B2", "Listening_Level": "5.0", "Listening_Score": "87", "Listening_Percent": "86", "Listening_cefr": "C1", "Reading_Level": "6.0", "Reading_Score": "100", "Reading_Percent": "100", "Reading_cefr": "C2", "Writing_Level": "4.0", "Writing_Score": "77", "Writing_Percent": "67", "Writing_cefr": "B2", "Writing_Question_Count": 2, "Writing_Question_1": "", "Writing_Answer_1": "", "Writing_Question_2": "", "Writing_Answer_2": "", "Speaking_Level": "4.0", "Speaking_Score": "77", "Speaking_Percent": "67", "Speaking_cefr": "B2", "Status": "Complete" }
```

Formatted:

```
{
  "OID": "",
  "TestID": "3279B035APR",
  "Duration": "67.5",
  "TestDate": "6/10/2024",
  "TestMonth": "6",
  "TestDay": "10",
  "TestYear": "2024",
  "score_report_url":
  "https://www.iteptest.com/reports/ScoreReport.php?p=8bee14e7f73fc44d9db69ff8bccfe36aAfcvq",
  "Overall_Level": "4.5",
  "Overall_cefr": "C1",
  "Grammar_Level": "3.5",
  "Grammar_Score": "68",
  "Grammar_Percent": "72",
  "Grammar_cefr": "B2",
```

```
"Listening_Level": "5.0",  
"Listening_Score": "87",  
"Listening_Percent": "86",  
"Listening_cefr": "C1",  
"Reading_Level": "6.0",  
"Reading_Score": "100",  
"Reading_Percent": "100",  
"Reading_cefr": "C2",  
"Writing_Level": "4.0",  
"Writing_Score": "77",  
"Writing_Percent": "67",  
"Writing_cefr": "B2",  
"Writing_Question_Count": 2,  
"Writing_Question_1": "",  
"Writing_Answer_1": "",  
"Writing_Question_2": "",  
"Writing_Answer_2": "",  
"Speaking_Level": "4.0",  
"Speaking_Score": "77",  
"Speaking_Percent": "67",  
"Speaking_cefr": "B2",  
"Status": "Complete"  
}
```

Note: To comply with privacy laws the score report URL has been replaced with a report that displays fabricated information.