SOUTHROCK

API - LMS Enrolment Data Extraction

Technical Specification

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1 Purpose and Scope

The purpose of this document is to describe the RESTful API that allows users to extract LMS enrolment data.

2 Responsibilities and Authorities

All Staff:

- have the authority to recommend modifications to this document if they believe it is deficient or if the change will enhance its quality;
- are responsible for familiarising themselves with the content of this document as required and when directed.

The **Quality Representative** is responsible for:

- managing this document in accordance with the Document and Record Management process.

Senior Management are responsible for:

- certifying that this document conforms to all relevant standards, regulatory requirements and internal requirements;
- approving any change or modification to this document that affects product quality;
- ensuring that all staff have access to an approved copy of this document when required to perform their job.

3 Definitions and References

3.1 Definitions

Term	Definition
RESTful API	REST is an acronym for Representational State Transfer. A RESTful API is an application program interface (API) that uses HTTP requests to GET, PUT, POST, and DELETE data.

Term	Definition
API versioning	API versioning provides the ability to alter behaviour between different clients.
JSON	JSON (JavaScript Object Notation) is a lightweight data-interchange format. It is based on a subset of the JavaScript Programming Language,

Refer to the Nexus6 Glossary for further definitions.

3.2 References

Below is an incomplete list of references that assist in understanding the requirements and interpretations if this procedure.

- 10 Best Practises for Better RESTful API http://blog.mwaysolutions.com/2014/06/05/10-best-practices-for-better-restful-api/
- GitHub API v3 GitHub Developer Guide https://developer.github.com/v3/
- Twitter API https://dev.twitter.com/rest/reference/get/search/tweets

4 API Versioning

The LMS API is a versioned API. Nexus6 reserves the right to add new parameters, properties, or resources to the API without advance notice. These updates are considered non-breaking and the compatibility rules below should be followed to ensure your application does not break. Breaking changes such as removing or renaming an attribute will be released as a new version of the API. Nexus6 will provide a migration path for new versions of APIs and will communicate timelines for end-of-life when deprecating APIs.

5 API Compatibility Rules

5.1 Input Parameters

a) Requests are compatible irrespective of the order in which the query parameters appear.

b) Requests are compatible irrespective of the order in which the properties of the JSON parameters appear

c) New query parameters may be added to future versions of requests.

d) Existing query parameters cannot be removed from future versions of requests.

e) Existing properties cannot be removed from the JSON parameters in future versions of requests.

5.2 JSON Responses

a) Responses are compatible irrespective of the order in which the properties appear.

b) New properties may be added to future versions of the response.

c) Existing properties cannot be removed from future versions of the response.

d) Properties with null values may be omitted by responses.

6 Authentication

The LMS API requires the HTTP basic authentication scheme for authentication. All requests must have a valid API key specified in the HTTP Authorization header with the Basic scheme.

```
Authorization: Basic 00QCjAI4MIV-WPXM...0HmjFx-vbGua
```

The authorisation token value is constructed by concatenating the API Token Public Key and the API Token Private key together separated by a colon character (:), and then encoding the full string using Base64. This is essentially what a browser does when requesting username and password to access a site and allows testing of the API from a browser.

See **Create an API Token** (Section 7) for instructions on how to get an API key for your Work Unit or Business Unit.

7 Create an API Token

API Requests made using the API token generated for a Business or Work Unit, will allow the retrieval of enrolments for any learners who belong to the respective Business or Work Unit. If the Business/Work Unit is the parent of several child Business/Work Units, then the token will provide access to the enrolments of all learners belonging to the child Business/Work Unit.

7.1 Creating a Business Unit API token

To create a Business Unit API Token:

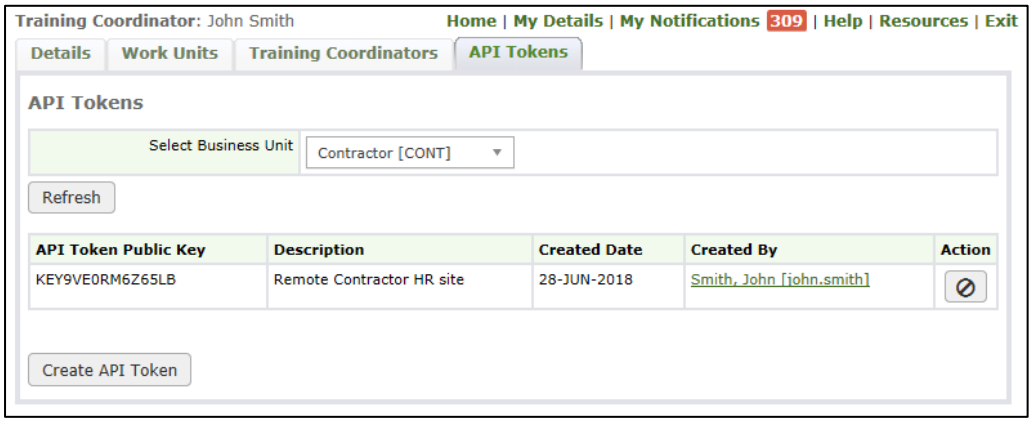
1. Log into **<your_site>.southrock.com** as a user with the Training Coordinator role.
2. Select **Organisation > Business Units** in the left-hand menu.

   The Business Unit Details screen is displayed.
3. Enter the search criteria and click the **Refresh** button.

   A list of Business Units is displayed based on the search criteria.
4. Click on a Business Unit link.

   The Business Unit Details screen is displayed.
5. Select **API Tokens** tab.

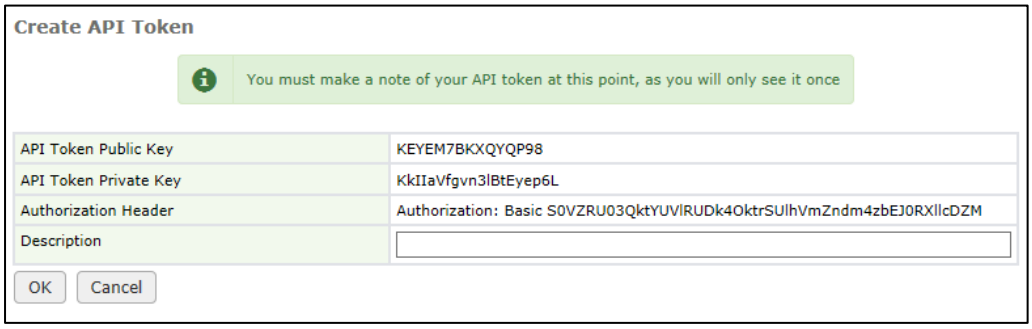
   The API Tokens screen is displayed



6. Use the Select Business Unit drop-down to choose the Business Unit utilising the token and click the **Refresh** button.

7. Click the **Create API Token** button.

   The Create API Token screen is displayed in a new pop-up window.



   The system generates a new token, showing you the Public and Private keys, along with the full Authorization Header to be used with this token.

   IMPORTANT: For security reasons, you will have no future access to your Private Key for a given API Token, therefore you should record that Private Key for your own reference. If the key is lost, a new API token must be created so a new Private Key can be generated.

8. Enter an optional description to describe the intended usage of the API token and click the **OK** button.

   The system displays the new token in the API Tokens screen.

To revoke/delete an API key, click the associated **Revoke** button in the Action column.

7.2 Creating a Work Unit API Token

To create a Work Unit API Token:

1. Log into **<your_site>.southrock.com** as a user with the Manager role.

2. Select **Organisation > Work Units** in the left-hand menu.

   The Find Work Unit screen is displayed.

3. Enter the search criteria and click the **Refresh** button.

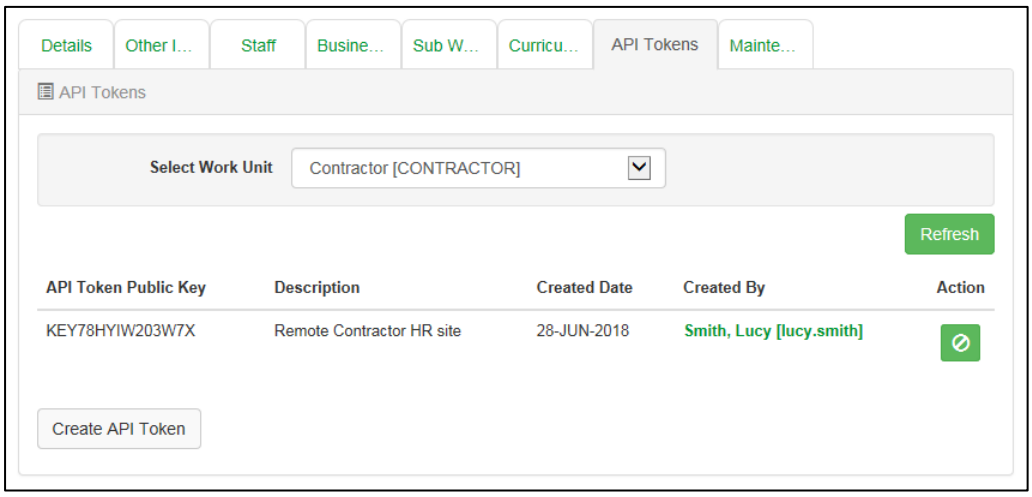
A list of Work Units is displayed based on the search criteria.

4. Click on a Work Unit link.

   The Work Unit Details screen is displayed.

5. Select the **API Tokens** tab.

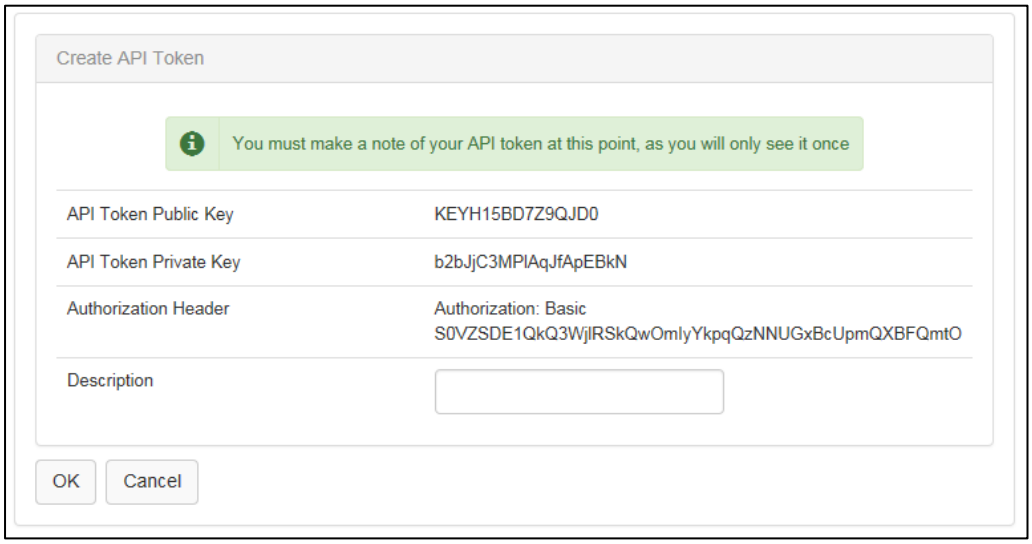
   The API Tokens screen is displayed.



6. Use the Select Work Unit drop-down to choose the Work Unit utilising the token and click the **Refresh** button.

7. Click the **Create API Token** button.

   The Create a New API Token screen is displayed in a new pop-up window.



The system generates a new token, showing you the Public and Private keys, along with the full Authorization Header to be used with this token.

IMPORTANT: For security reasons, you will have no future access to your Private Key for a given API Token, therefore you should record that Private Key for your own reference. If the key is lost, a new API token must be created so a new Private Key can be generated.

8. Enter an optional description to describe the intended usage of the API token and click the **OK** button.

   The system displays the new token in the API Tokens screen.

To revoke/delete an API key, click the associated **Revoke** button in the Action column.

8 URL Namespace

a) All URLs listed in the documentation should be preceded with your organisation's subdomain and API version:

   https://<your_site>.southrock.com/api/{apiversion}

b) The API version is currently v1

c) All API requests must use the HTTPS scheme.

9 Media Types

a) The API currently only supports JSON as an exchange format. Be sure to set both the Content-Type and Accept headers for every request as application/json.

b) JSON responses, including errors, may contain user input. To help prevent potential cross-site scripting attacks, make sure to properly escape all values before use in a browser or any HTML context.

c) All Date objects are in ISO 8601 format: `YYYY-MM-DD`

10 Character Sets

Nexus6 supports a subset of the UTF-8 specification. Specifically, any character that can be encoded in three bytes or less is supported. BMP characters and supplementary characters that must be encoded using four bytes, are not supported at this time.

11 HTTP Request Method

Where possible, the LMS API strives to use appropriate HTTP request methods for each action.

11.1 GET

GET is used for retrieving resources.

12 Pagination

Requests that return a list of resources support paging. Pagination is based on absolute row number and is specified in the start query parameter. You can also set a custom page size with the limit parameter.

Parameter	Description
start	This is the starting row number of individual objects that are returned in each page.
limit	This is the maximum number of individual objects that are returned in each page (defaults to 200).

The Link header introduced by RFC 5988 includes pagination details as follows:

```
Link: <https://<your_site>.southrock.com/api/v1/enrolments?start=401&limit=200>; rel="next",

<https:// <your_site>.southrock.com/api/v1/enrolments?start=10801&limit=200>; rel="last",

<https:// <your_site>.southrock.com/api/v1/enrolments?start=1&limit=200>; rel="first",

<https:// <your_site>.southrock.com/api/v1/enrolments?start=201&limit=200>; rel="prev"
```

When the **Link header doesn't include a link to the next page of results**, it means that the end has been reached.

The **X-Total-Count** header returns the total number of individual objects that can be returned for the request.

13 Error Response

All requests that result in an error will return the appropriate 4xx or 5xx error code with a custom JSON error object containing a message attribute with a natural language explanation of the error.

```
{
 "error": {
   "message": "Invalid parameter found: limit, expected Positive Integer",
   "code": "E3010",
 }
}
```

A full list of error codes can be found in the Error Codes specification.

14 Success Response

All requests on success will return a 200 status.

15 Rate Limiting

The number of API requests is limited for all APIs.

The following three headers are set in each response:

a) X-Rate-Limit-Limit - the rate limit ceiling that is applicable for the current request.

b) X-Rate-Limit-Remaining - the number of requests left for the current rate-limit window.

```
HTTP/1.1 200 OK

X-Rate-Limit-Limit: 60

X-Rate-Limit-Remaining: 15
```

If the rate limit is exceeded, an HTTP 429 Status Code is returned. The current Rate Limit is on a per-site basis.

Rate limits are enforced as 60 requests per minute.

16 Validating Credentials

GET /api/v1 validates the authorization credentials and fetches some basic information about the Business or Work Unit depending on the API Token type.

Request Example

```
curl -v -X GET \

-H "Authorization: Basic {api_token}" \

"https://<your_site>.southrock.com/api/v1"
```

16.1 Response Example

Response when a Business Unit API Token is used to authorize the request:

```
{
 "ORGGRP_CODE": "EDU",
 "ORGGRP_NAME": "Education"
}
```

Response when a Work Unit API Token is used to authorize the request:

```
{
 "ORG_CODE": "UNIV-STUD",
 "ORG_NAME": "University - Students"
}
```

17 Enrolments API

The LMS Enrolments API provides operations to manage enrolments in your business/work unit.

17.1 List Users

GET /api/v1/enrolments

Lists completed enrolments by date range. This request duplicates the LMS Completed Training Summary report Work Unit/Course/Learner Results logic and provides the results as a JSON result set.

17.1.1 Enrolment Visibility

Depending on whether a Business Unit or Work Unit API Token is used to authorize the request, enrolments returned by this request are those for learners belonging to the same Business/Work unit, or any Business/Work unit lower in the hierarchy, as the API token used to authorise the request is associated with.

17.1.2 Request Parameters

- List All Visible Enrolments (no parameters)
- List Visible Enrolments with a Filter (ORGCODES/SDATE/EDATE)

Parameter	Description	Parameter Type	Data Type	Required	Default
ORGCODES	Select enrolments for learners belonging to the Work Unit code (can be repeated to allow selection of multiple Work Units) N.B. ORGCODES values not visible to the authorization API Token will be ignored	URL	String	FALSE	ALL
SDATE	Select enrolments with actual ending date greater than or equal to this date	URL	Date	FALSE	ALL
EDATE	Select enrolments with actual ending date less than or equal to this date	URL	Date	FALSE	ALL
start	Specifies the starting row of the results returned	URL	Number	FALSE	1
limit	Specifies the number of results returned	URL	Number	FALSE	200

- If you don't specify a value for limit only 200 results will be returned. The maximum value for limit is 500.

17.1.3 Request Example

```
curl -v -X GET \
-H "Authorization: Basic {api_token}" \
"https://<your_site>.southrock.com/api/v1/enrolments?SDATE=2017-01-
01&ORGCODES=ORG1&ORGCODES=ORG2"
```

17.1.4 Response Example


```
[
 {
  "LR_FNAME": "John",
  "SCH_AEDATE": "2017-01-19",
  "ORG_CODE": "UNIV-STUD",
  "RNUM": "10",
  "LR_SNAME": "Student",
  "ORG_NAME": "University Students",
  "CRS_DESC": "Robotic Control",
  "SCH_SCORE": "100.00",
  "LR_EMAIL": "john.student@test.southrock.com",
  "CRS_CODE": "INFCRTL_GRP3",
  "LR_ID": "john.student"
 },
 {
  "LR_FNAME": "Betty",
  "SCH_AEDATE": "2017-01-03",
  "ORG_CODE": "UNIV-STUD",
  "RNUM": "11",
  "LR_SNAME": "Student",
  "ORG_NAME": “University - Students",
  "CRS_DESC": "Robotic Interface",
  "SCH_SCORE": "100.00",
  "LR_EMAIL": "betty.student@test.southrock.com",
  "CRS_CODE": "STUDENTS_UNI",
  "LR_ID": "betty.student"
 },
]
```


17.1.5 Enrolment Properties

Parameter	Description	DataType
ORG_CODE	The Work Unit code for the enrolment	String
ORG_NAME	The Work Unit name for the enrolment	String
CRS_CODE	The course code for the enrolment	String
CRS_DESC	The course description for the enrolment	String
LR_ID	The learner id for the enrolment	String
LR_SNAME	The learner last name for the enrolment	String
LR_FNAME	The learner first name for the enrolment	String
LR_EMAIL	The learner email for the enrolment	String
SCH_AEDATE	The completion date of the enrolment	Date
SCH_SCORE	The learner score for the enrolment	Number

18 Error Codes

HTTP Status	ErrorCode	Description
401	E1010	Authentication failed
400	E1020	Bad API token type
429	E1030	API call exceeded rate limit due to too many requests
404	E2010	API Version not supported
404	E2020	Endpoint not supported
404	E2030	HTTP request method not supported
400	E3010	Bad request parameter
500	E9010	Internal Server Error

19 Related Documents

None

20 Comment

Comment	Author	Date

21 Change History

Version No.	Description of Change	Author	Date
1	First Edition	Stephen Tucker	30/01/2017
1.2	Minor changes to reflect actual API implemented	Stephen Tucker	23/02/2017
1.3	Added details on Work Unit enrolment visibility & added details on Business Unit API Tokens	Stephen Tucker	28/02/2017
1.4	Revised details on Rate Limiting & Error Handling, updated CreateAPIToken screenshots	Stephen Tucker	6/03/2017
1.5	Update to Section 7 screenshots and processes.	Carl Chapman	28/06/2018
1.6	Update to new template. Minor Text corrections.	Carl Chapman	01/10/2019