Oracle® Hospitality Simphony
Import/Export API Guide

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Oracle Hospitality Simphony Import/Export API Guide, Release 19.2

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Contents

Preface

The Simphony Data Import/Export API is a JSON-based, REST web service that helps you to create and submit data import and export job requests. The web service can be used to integrate with third-party applications and programmatically export menu items from one system and import them to another, among many other features, thereby saving time for administrators and managers. Furthermore, you can efficiently create new software applications by leveraging the web service capabilities of the Import/Export API. The web service allows you to:

- Import and export data programmatically
- Export data automatically using the scheduler
- Review the status of completed import and export jobs

Purpose

This guide describes how to use the programming interfaces of the Import/Export web service in a secure manner. It introduces the REST application programming interface (API), reviews security threats and mitigations that are built into the web service, and reviews secure coding principles.

Audience

This guide is intended for users who are familiar with web services, JSON, and common programming language constructs.

Customer Support

To contact Oracle Customer Support, access My Oracle Support at the following URL:

https://support.oracle.com

When contacting Customer Support, please provide the following:

- Product version and program/module name

- Functional and technical description of the problem (include business impact)

- Detailed step-by-step instructions to re-create

- Exact error message received and any associated log files

- Screenshots of each step you take

Documentation

Oracle Food and Beverage product documentation is available on the Oracle Help Center at http://docs.oracle.com/en/industries/food-beverage/

The following references provide additional background information that are needed for secure usage of the Import/Export web service.

- Simphony 18.2 Security Guide
- WebClient Class
- Introduction to JSON
- XML Tutorial
- JSON Framework for .NET

Revision History

Date	Description of Change
November 2020	Initial publication.

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Simphony Import/Export API

Import/Export API Prerequisites

- Simphony version 2.8 or later is required.

- Obtain EMC credentials to access the web service.

- You must have the privileges to access the database and run the Simphony Import/Export web service.

- In order to use the web service, you must have a web client infrastructure. For example, Microsoft .NET Framework offers the WebClient class that can be used to make web service requests. Other programming languages and libraries can also be used to create a web client to use the Import/Export web service.

Mandatory Columns

Prior to developing your API, review the Import/Export Help for more information regarding mandatory columns for object types. To view the mandatory columns:

1. Log in to Simphony.

2. Click **Import/Export**, and then click **Help**.

3. In the **Object Info** section, expand an object type to view the mandatory columns for that object type.

Security Service API

In order to use the Import/Export web service, you must authenticate using valid EMC credentials. The security service API must be called first to obtain an authentication token. The other APIs of the web service can only be used if you have a valid authentication token.

To view the security service methods, enter the following URL in a web browser:

> https://<*home*>/ImportExportAPI/SecurityService.svc/web/help

You can then view a table of methods, similar to Table 1-1.

Table 1-1 - Security Service Operations

URI	Method	Description
/GetUserAuthenticationToken	POST	Authenticates user and returns a token

URI	Method	Description
`/SignOffToken`	POST	Invalidates the valid token
`/GenerateOneTimeCode`	POST	Generates one time passcode
`/ValidateToken`	POST	Validates token for user at a given org

GetUserAuthenticationToken

Description: Authenticates a user and returns a token.

URL:
https://<*home*>/ImportExportAPI/SecurityService.svc/web/GetUserAuthenticationToken

HTTP Method: POST

Request JSON Body:

```
{
        "orgCode":"String content",
        "password":"String content",
        "userName":"String content"
}
```

When using this web service request, you must replace the **String content** with valid Simphony credentials.

Response JSON Body:

```
"token"
```

With valid Simphony credentials, the web service responds with an authentication token. You need this token to successfully use the methods of the data service API, which are explained in the next section.

SignOffToken

Description: Invalidates the valid token.

URL: https://<*home*>/ImportExportAPI/SecurityService.svc/web/SignOffToken

HTTP Method: POST

Request JSON Body:

```
"String content"
```

When using this web service request, you must replace the **String content** with a valid authentication token that should be signed off.

GenerateOneTimeCode

Description: Generates one time passcode.

URL: https://<*home*>/ImportExportAPI/SecurityService.svc/web/GenerateOneTimeCode

HTTP Method: POST

Request JSON Body:

```
{
        "orgCode":"String content",
        "password":"String content",
        "userName":"String content"
}
```

When using this web service request, you must replace the **String content** with valid Simphony credentials.

Response JSON Body:

"String Content"

With valid Simphony credentials, the web service generates OTP and dispatches it to the user's registered email address. This OTP is used for Multi-factor Authentication (MFA). This webservice is used by the Egateway or system in case of MFA.

ValidateToken

Description: Validates token for user at a given org.

URL: https://<home>/ImportExportAPI/SecurityService.svc/web/ValidateToken

HTTP Method: POST

Request JSON Body:

```
{
        "orgCode":"String content",
        "password":"String content",
        "userName":"String content"
}
```

When using this web service request, you must replace the **String content** with valid Simphony credentials.

Response JSON Body:

With valid Simphony credentials, the web service validates OTP available in the headers and returns whether it is True or False.

Data Service API

The data service API provides the core functionality of the Import/Export web service. The methods of the data service are shown in Table 1-2.

To view detailed descriptions of the data service methods, enter the following URL in a web browser:

https://<*home*>/ImportExportAPI/DataService.svc/web/help

The orgCode is needed in a multi-tenant context.

Table 1-2 - Data Service Operations

URI	Method	Description
/AddSchedule	POST	Adds a new schedule. Returns positive schedule Id if successful, otherwise returns -1.
/GetBuildVersion	GET	Returns the Build version of API.
/GetExportableTypes/{userName}/{*orgCode}	GET	Returns the type of objects exportable from this service.
/GetFileData/{requestId}/{userName}/{*orgCode}	GET	Returns the file bytes for a given export request, or an error file if an error occurs.
/GetHierarchyStructure/{userName}/{*orgCode}	GET	Returns all Hierarchy objects (Enterprise, Properties, RVC's, and Zones) available for the current user in a given organization.
/GetImportableTypes/{userName}/{*orgCode}	GET	Returns the type of objects importable from this service.
/GetObjectInfo/{userName}/{*orgCode}	GET	Help Info: returns object information.
/GetPropertiesForType/{fullyQualified TypeName}/{userName}/{*orgCode}	GET	Returns the attributes (Columns) of objects available on a given object.
/GetRequests/{days}/{userName}/{*orgCode}	GET	Returns all requests made by this user's org for specified up to 30 days with latest status. Includes originally scheduled active requests.
/GetRequestStatus/{requestId}/{userName}/{*orgCode}	GET	Returns the request object with latest status.

URI	Method	Description
/GetSchedules/{userName}/{*orgCode}	GET	Returns all schedules available in this organization.
/GetServerTimeWithZone	GET	Returns server current time and time zone.
/GetSnapShotBeforeImport/{requestId}/ {userName}/{*orgCode}	GET	Returns the original snap-shot of backed up data in bytes before the given import is processed.
/GetSupportedLanguages/{userName}/{*o rgCode}	GET	Returns all the Simphony configured languages for a given organization.
/SubmitImportExportRequest	POST	Submit a request for Import or Export.
/UpdateRequestStatus	POST	Updates the status of a request, enabling it to be cancelled.
/UpdateScheduleStatus	POST	Enables or disables a schedule.
/GetEmployeeLanguageId	POST	Returns the LanguageID of a given user.

AddSchedule

Description: Adds a new schedule. Returns positive schedule Id if successful, otherwise returns -1.

URL: https://<*home*>/ImportExportAPI/DataService.svc/web/AddSchedule

HTTP Method: POST

Request JSON Body:
{

      "Active":true,

      "DaysOfMonth":[2147483647],

      "Friday":true,

      "Id":9223372036854775807,

      "Monday":true,

      "Name":"String content",

```
      "OrgCode":"String content",
      "Saturday":true,
      "StartDate":"\/Date(928167600000-0500)\/",
      "Sunday":true,
      "Thursday":true,
      "TimeOfDay":"\/Date(928167600000-0500)\/",
      "Tuesday":true,
      "UserName":"String content",
      "Wednesday":true
}
```

Response JSON Body:

9223372036854775807

GetBuildVersion

Description: Returns the Build version of API.

URL: https://<*home*>/ImportExportAPI/DataService.svc/web/GetBuildVersion

HTTP Method: GET

Response JSON Body:

```
["String content"]
```

GetExportableTypes

Description: Returns the type of objects exportable from this service.

URL:
https://<*home*>/ImportExportAPI/DataService.svc/web/GetExportableTypes/{USERNAME}/{ORGCODE}

HTTP Method: GET

Response JSON Body:

```
["String content"]
```

GetFileData

Description: Returns the file bytes for a given export request, or an error file if an error occurs.

URL:
https://<*home*>/ImportExportAPI/DataService.svc/web/GetFileData/{REQUESTID}/{USERNAME}/{ORGCODE}

HTTP Method: GET

Response JSON Body:

```
[81,
```

```
109,

70,

122,

90,

83,

65,

50,

78,

67,

66,

84,

100,

72,

74,

108,

89,

87,

48,

61]
```

GetHierarchyStructure

Description: Returns all Hierarchy objects (Enterprise, Properties, RVC's, and Zones) available for the current user in a given organization.

URL:
https://<*home*>/ImportExportAPI/DataService.svc/web/GetHierarchyStructure/{USERNAME}/{ORGCODE}

HTTP Method: GET

Response JSON Body:

```
[{

        "HierarchyId": 9223372036854775807,

        "Id": 9223372036854775807,

        "ObjectNumber": 2147483647,

        "HierarchyName": [{

                "LangId": 2147483647,

                "Text": "String content"

        }],

        "OrganizationId": 2147483647,

        "ParentHierarchyId": 9223372036854775807,

        "UnitType": 0
```

```
}]
```

GetImportableTypes

Description: Returns the type of objects importable from this service.

URL:
https://<*home*>/ImportExportAPI/DataService.svc/web/GetImportableTypes/{USERNAME}/{ORGCODE}

HTTP Method: GET

Response JSON Body:

```
["String content"]
```

GetObjectInfo

Description: Returns Object Information.

URL: https://<*home*>
/ImportExportAPI/DataService.svc/web/GetObjectInfo/{USERNAME}/{ORGCODE}

HTTP Method: GET

Response JSON Body:

```
[{
        "ColumnInfo":[{
                "AllowNullsOnImport":"String content",
                "AlternateColumnType":"String content",
                "ColumnName":"String content",
                "ColumnType":"String content",
                "DefaultValue":"String content",
                "ExportOnly":true,
                "KeyColumn":true
        }],
        "Exportable":true,
        "FullTypeName":"String content",
        "Importable":true,
        "ShortName":"String content"
}]
```

GetPropertiesForType

Description: Returns the attributes (Columns) of objects available on a given object.

URL:
https://<*home*>/ImportExportAPI/DataService.svc/web/GetPropertiesForType/{FULLYQUALIFIEDTYPENAME}/{USERNAME}/{ORGCODE}

HTTP Method: GET

Response JSON Body:

```
["String content"]
```

GetRequests

Description: Returns all requests made by this user's org for specified up to 30 days with latest status. Includes originally scheduled active requests.

URL:
https://<*home*>/ImportExportAPI/DataService.svc/web/GetRequests/{DAYS}/{USERNAME}/{ORGCODE}

HTTP Method: GET

Response JSON Body:

```
[{

    "DataForImport":[81,

    109,

    70,

    122,

    90,

    83,

    65,

    50,

    78,

    67,

    66,

    84,

    100,

    72,

    74,

    108,

    89,

    87,

    48,

    61],

    "DataSince":"\/Date(928167600000-0500)\/",

    "HierStrucId":9223372036854775807,

    "HierStrucIds":"String content",

    "LanguageId":2147483647,

    "Level":0,

    "ObjectNumberFilter":"String content",
```

```
        "ObjectType":"String content",

        "OrgCode":"String content",

        "Origin":0,

        "OriginalRequestId":9223372036854775807,

        "RequestDate":"\/Date(928167600000-0500)\/",

        "RequestId":9223372036854775807,

        "RequestName":"String content",

        "ScheduleId":9223372036854775807,

        "SelectedFormat":0,

        "SelectedObjectMembers":["String content"],

        "SelectedOperation":0,

        "SortExpressions":[{

                "m_Item1":"String content",

                "m_Item2":"String content"

        }],

        "Status":0,

        "UserName":"String content"

}]
```

GetRequestStatus

Description: Returns the request object with latest status.

URL:
https://<*home*>/ImportExportAPI/DataService.svc/web/GetRequestStatus/{REQUESTID}/
{USERNAME}/{ORGCODE}

HTTP Method: GET

Response JSON Body:

```
{

        "DataForImport":[81,

        109,

        70,

        122,

        90,

        83,

        65,

        50,

        78,

        67,

        66,
```

        84,

        100,

        72,

        74,

        108,

        89,

        87,

        48,

        61],

    "DataSince": "\/Date(928167600000-0500)\/",

    "HierStrucId": 9223372036854775807,

    "HierStrucIds":"String content",

    "LanguageId": 2147483647,

    "Level": 0,

    "ObjectNumberFilter": "String content",

    "ObjectType": "String content",

    "OrgCode": "String content",

    "Origin": 0,

    "OriginalRequestId": 9223372036854775807,

    "RequestDate": "\/Date(928167600000-0500)\/",

    "RequestId": 9223372036854775807,

    "RequestName": "String content",

    "ScheduleId": 9223372036854775807,

    "SelectedFormat": 0,

    "SelectedObjectMembers": ["String content"],

    "SelectedOperation": 0,

    "SortExpressions": [{

            "m_Item1": "String content",

            "m_Item2": "String content"

    }],

    "Status": 0,

    "UserName": "String content"

}

GetSchedules

Description: Returns all schedules available in this organization.

URL:
https://<*home*>/ImportExportAPI/DataService.svc/web/GetSchedules/{USERNAME}/{ORGCODE}

HTTP Method: GET

Response JSON Body:

```
[{
        "Active": true,
        "DaysOfMonth": [2147483647],
        "Friday": true,
        "Id": 9223372036854775807,
        "Monday": true,
        "Name": "String content",
        "OrgCode": "String content",
        "Saturday": true,
        "StartDate": "\/Date(928167600000-0500)\/",
        "Sunday": true,
        "Thursday": true,
        "TimeOfDay": "\/Date(928167600000-0500)\/",
        "Tuesday": true,
        "UserName": "String content",
        "Wednesday": true
}]
```

GetServerTimeWithZone

Description: Returns server current time and time zone.

URL: https://<*home*>/ImportExportAPI/DataService.svc/web/GetServerTimeWithZone

HTTP Method: GET

Response JSON Body:

```
["String content"]
```

GetSnapShotBeforeImport

Description: Returns the original snap-shot of backed up data in bytes before the given import is processed.

URL:
https://<*home*>/ImportExportAPI/DataService.svc/web/GetSnapShotBeforeImport/{REQUESTID}/{USERNAME}/{ORGCODE}

HTTP Method: GET

Response JSON Body:

```
[81,
```

```
        109,

        70,

        122,

        90,

        83,

        65,

        50,

        78,

        67,

        66,

        84,

        100,

        72,

        74,

        108,

        89,

        87,

        48,

        61]
```

GetSupportedLanguages

Description: Returns all Simphony configured languages for a given organization.

URL:
https://<*home*>/ImportExportAPI/DataService.svc/web/GetSupportedLanguages/{USERN AME}/{ORGCODE}

HTTP Method: GET

Response JSON Body:

```
[{

        "HierarchyId": 9223372036854775807,

        "Id": 9223372036854775807,

        "ObjectNumber": 2147483647,

        "LanguageName": [{

                "LangId": 2147483647,

                "Text": "String content"

        }]

}]
```

SubmitImportExportRequest

Description: Submit a request for Import or Export.

URL: https://<*home*>/ImportExportAPI/DataService.svc/web/SubmitImportExportRequest

HTTP Method: POST

ObjectNumberFilter is an optional parameter you can specify to export a specific range of objects. The ObjectNumberFilter parameter is a string in the format 1-200,230,300-350,..

The following sample JSON request shows the ObjectNumberFilter parameter.

Request JSON Body:

```
{
        "DataForImport":[81,
        109,
        70,
        122,
        90,
        83,
        65,
        50,
        78,
        67,
        66,
        84,
        100,
        72,
        74,
        108,
        89,
        87,
        48,
        61],
        "DataSince":"\/Date(928167600000-0500)\/",
        "HierStrucId":9223372036854775807,
        "HierStrucIds":"String content",
        "LanguageId":2147483647,
        "Level":0,
        "ObjectNumberFilter":"String content",
        "ObjectType":"String content",
        "OrgCode":"String content",
```

```
        "Origin": 0,
        "OriginalRequestId": 9223372036854775807,
        "RequestDate": "\/Date(928167600000-0500)\/",
        "RequestId": 9223372036854775807,
        "RequestName": "String content",
        "ScheduleId": 9223372036854775807,
        "SelectedFormat": 0,
        "SelectedObjectMembers": ["String content"],
        "SelectedOperation": 0,
        "SortExpressions": [{
                "m_Item1": "String content",
                "m_Item2": "String content"
        }],
        "Status": 0,
        "UserName": "String content"
}
```

Response JSON Body:

```
{
        "RequestId": 9223372036854775807,
        "Status": 0
}
```

UpdateRequestStatus

Description: Updates the status of a request enabling it to be cancelled.

URL: https://<*home*>/ImportExportAPI/DataService.svc/web/UpdateRequestStatus

HTTP Method: POST

Request JSON Body:

```
{
        "OrgCode": "String content",
        "RequestId": 2147483647,
        "RequestStatus": 0,
        "UserName": "String content"
}
```

Response JSON Body:

```
["String content"]
```

UpdateScheduleStatus

Description: Enables or disables a schedule.

URL: https://<*home*>/ImportExportAPI/DataService.svc/web/UpdateScheduleStatus

HTTP Method: POST

Request JSON Body:

```
{
        "Active": true,
        "DaysOfMonth": [2147483647],
        "Friday": true,
        "Id": 9223372036854775807,
        "Monday": true,
        "Name": "String content",
        "OrgCode": "String content",
        "Saturday": true,
        "StartDate": "\/Date(928167600000-0500)\/",
        "Sunday": true,
        "Thursday": true,
        "TimeOfDay": "\/Date(928167600000-0500)\/",
        "Tuesday": true,
        "UserName": "String content",
        "Wednesday": true
}
```

GetEmployeeLanguageId

Description: Returns the LanguageID of a given user.

URL: https://<*home*>/ImportExportAPI/DataService.svc/web/
GetEmployeeLanguageId/{USERNAME}/{ORGCODE}

HTTP Method: GET

Response JSON Body:

```
The language id is returned
        9223372036
```

Download Service API

DownloadService API enables the user to download the following binaries:

- CAL client for Windows

- CAL client for Android

- Enterprise Management Console (EMC)

It also provides API methods used by EMC for the self-updates.

To view the Download Service methods, enter the following URL in a web browser:

> https://<*home*>/ImportExportAPI/DownloadService.svc/web/help, in order

You can then view a table of methods, similar to Table 1-3.

Table 1-3 - Download Service Operations

URI	Method	Description
/GetZipEMCClientFiles	POST	Accepts EMC file names in the request body and returns a Stream containing a zip of all requested EMC files.
/GetEMCManifest	GET	Returns a Stream containing contents of EMC Manifest file.
/GetBinaries	GET	Accepts the type of download to be performed and returns bytes containing contents of the downloaded file.
/GetSelfUpdateVersion	GET	Returns the current version of the self-update download mechanism.

GetZipEMCClientFiles

Description: Accepts EMC file names in the request body and returns a Stream containing a zip of all requested EMC files.

URL: https://<*home*>/ImportExportAPI/ DownloadService.svc/web/GetZipEMCClientFiles/{USERNAME}/{ORGCODE}

HTTP Method: POST

Request JSON Body:

The Request body is empty.

Response JSON Body:

The Response body is a byte stream.

GetEMCManifest

Description: Returns a Stream containing contents of EMC Manifest file.

URL: https://<*home*>/ImportExportAPI/
DownloadService.svc/web/GetEMCManifest/{USERNAME}/{ORGCODE}

HTTP Method: GET

Request JSON Body:

The Request body is empty.

Response JSON Body:

The Response body is a byte stream.

GetBinaries

Description: Accepts the type of download to be performed and returns bytes containing contents of the downloaded file.

URL: https://<*home*>/ImportExportAPI/
DownloadService.svc/web/GetBinaries/{USERNAME}/{DOWNLOADTYPE}/{ORGCODE}

HTTP Method: GET

Request JSON Body:

The Request body is empty.

Response JSON Body:

[81,

109,

70,

122,

74,

108,

89,

87,

48,

61]

GetSelfUpdateVersion

Description: Returns the current version of the self-update download mechanism.

URL: https://*<home>*/ImportExportAPI/
DownloadService.svc/web/GetSelfUpdateVersion/{USERNAME}/{ORGCODE}

HTTP Method: GET

Request JSON Body:

The Request body is empty.

**Response JSON Body**:

The Response body is a byte stream.

2
HTTP Headers

In order to use the web service, the web client sends the necessary HTTP headers as part of the request.

Content-type: Application/JSON

The MIME media type for JSON text is application/json. The default encoding is UTF-8. The web service client will send the content-type as application/json. Figure 2-1 shows a content-type header example to obtain the authentication token using the Telerik Fiddler Web Debugger.
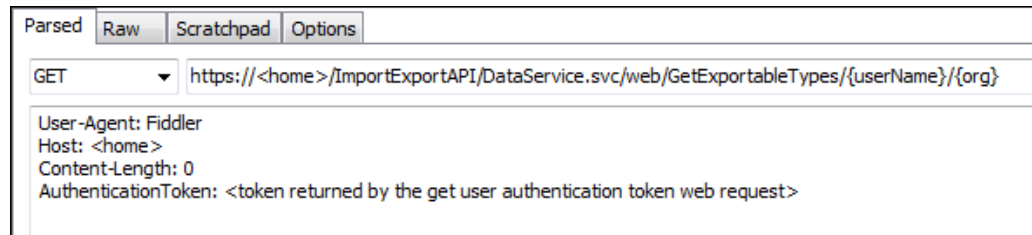
Figure 2-1 - Content-type Header Example
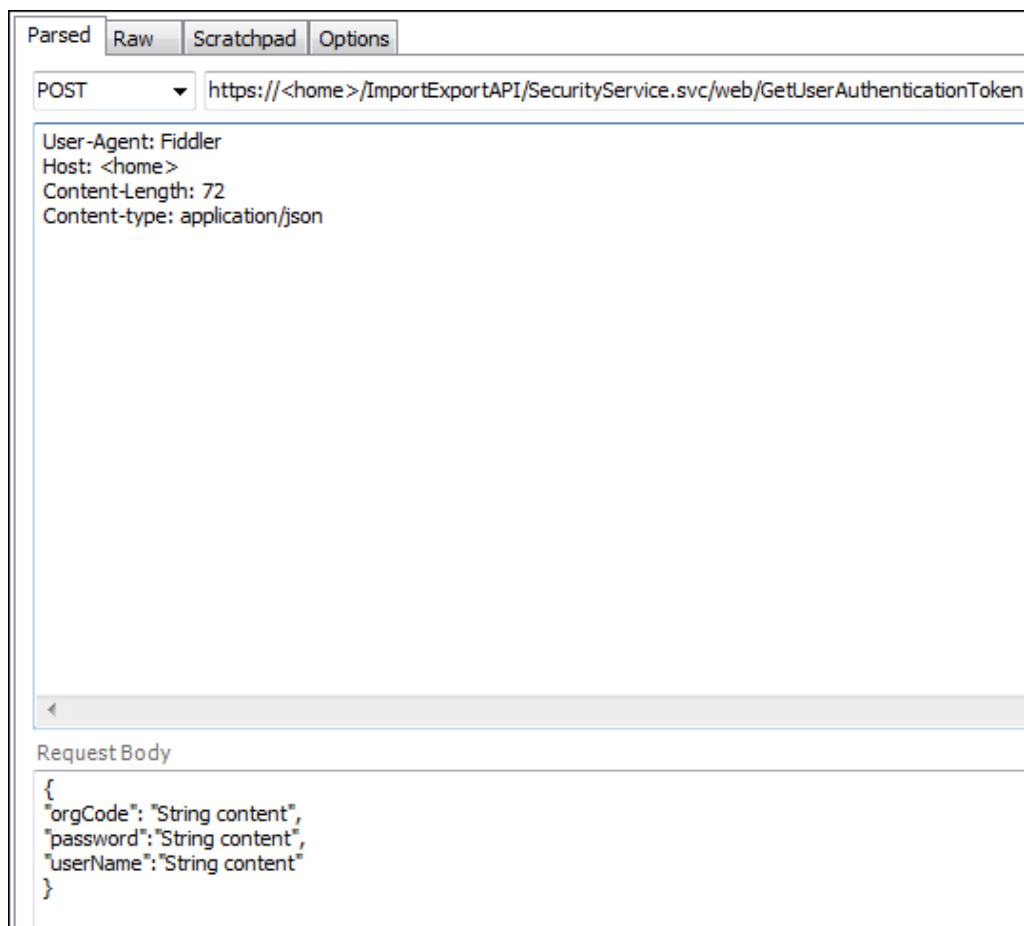
Authentication Token Header

All web requests include the authentication token header, which is the latest token that was returned by the get user authentication method. See Figure 2-2 for an example usage.

Figure 2-2 - Authentication Token Header Example

3

Security Usage of Import/Export Web Service API

This chapter recommends important secure coding practices for developers of the web service client to securely use the Import/Export Web Service.

- Do not log your Simphony password or authentication tokens returned by the Import/Export web service. Although the authentication tokens are short-lived, if attackers (including insiders) can access the log file, they will be able to impersonate you and run other important API methods.

- Ensure that your web service client catches exceptions and logs them securely, instead of showing the stack trace to users of your web service client. Attackers can leverage the leaked information to construct further attacks.

- Check the input length and type of all data received from the users of third-parties of your web service client. For example, before exporting a CSV file to the web service, it is recommended that the size of the uploaded file is in an acceptable range, to avoid denial of service.

- If your web service client saves the CSV files that are uploaded by your users, you must run virus/malware scanners in order to detect whether malicious files are uploaded.

- If your web service client is publicly accessible, ensure that only authenticated users can use your service.

- Check the return code (a.k.a. error code) of the web service methods. Ensure that the actual return code matches the expected return code. For example, if a web service method returns 200, then it denotes the operation was successful. It is a good practice to log failures, for example when the return code is 404 (a.k.a. page not found).

- The web service client should disable Document Type Definition processing as well as External Entity Expansion to avoid exploits such as remote code execution, server-side forgery attacks, denial-of-service, to name a few attacks.

- The web service client should check the digital certificate presented by the Import/Export web service to ensure that the client is interacting with the trusted web service.

4

Sample API Usage Application

A sample application, written in the C# language, is available to help you use the Import/Export Web Service. You can download the sample application from the Import/Export web site if you have valid Simphony credentials.

Resources Available for Download

The following table lists websites with sample applications available for downloading.

Table 4-1 - Website Descriptions

Website	Description
https://<*home*>/SimphonyApp/Help	Contains the link to download the sample application archive, in the Web API Downloads section.
http://<*home*>/ImportExportAPI/html/index.html	Contains the Data Contract specification for each API method of the Import/Export web service.

Summary of Sample Application

The main entry point to the sample application is the WebAPIExample.cs, which contains demo usages of different APIs of the Import/Export web service. In order to compile the sample app, you need to install the Newtonsoft JSON C# library (10.0.3 is the recommended version). Json.NET is a high-performance JSON framework for .NET. We refer the reader to download the same application to understand how to use the web service programmatically from a client.