ESNA OFFICELINX™

Developer's Guide for Administrative REST APIs

Version 10.0.2 | Nov 2014

esna

ESNA OFFICELINX DEVELOPER'S GUIDE FOR ADMINISTRATIVE REST APIS

This document is a guide for using Esna Officelinx's REST APIs. It will help developers gain a high level of understanding with the APIs and their use and deployment.

The functions of the Administrative REST API (UCBusinessRestService) interface are available with Esna Officelinx 10.0 and higher.

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DEVELOPER'S GUIDE FOR ADMINISTRATIVE REST APIS

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1 CONFIGURING OAUTH2 FOR REST APIS

Introduction

This document is a guide for using Esna Officelinx's REST APIs. It will help developers gain a high level of understanding with the APIs and their use and deployment.

The functions of the Administrative REST API (UCBusinessRestService) interface are available with Esna Officelinx 10.0 and higher.

Prerequisites

Esna Officelinx version 10.0 or higher is required to use the REST APIs.

It is recommended that SSL be enabled to ensure a secure connection. Refer to the chapter Client Preparations on page 461 in Esna's Server Configuration guide for additional details on this setup.

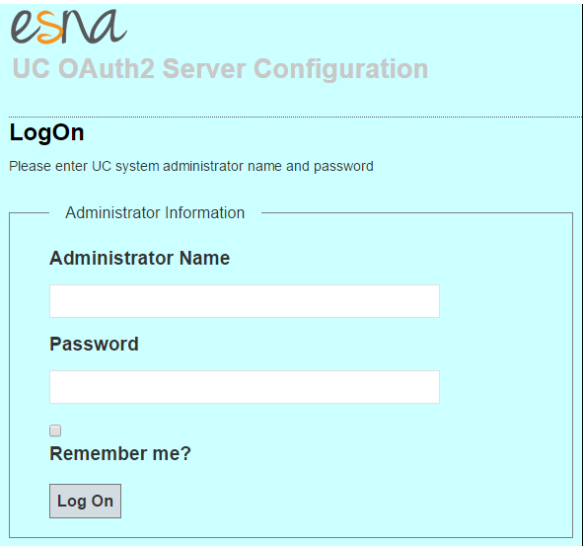
A high level of understanding of **OAuth2** authorization and deployment is expected before proceeding further into this document.

(OAuth2 is based on **IETF RFC 6749:** http://tools.ietf.org/html/rfc6749.)

Configuring OAuth2

The end point on the server needs to be configured before the REST APIs can be called.

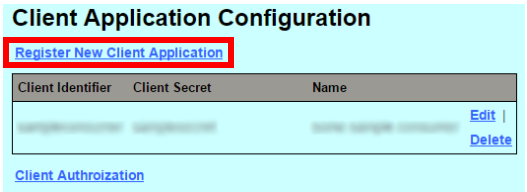
1. Log into the OAuth 2 configuration page (https://yourservername/UCOAuth2) using the Officelinx Administrative credentials.



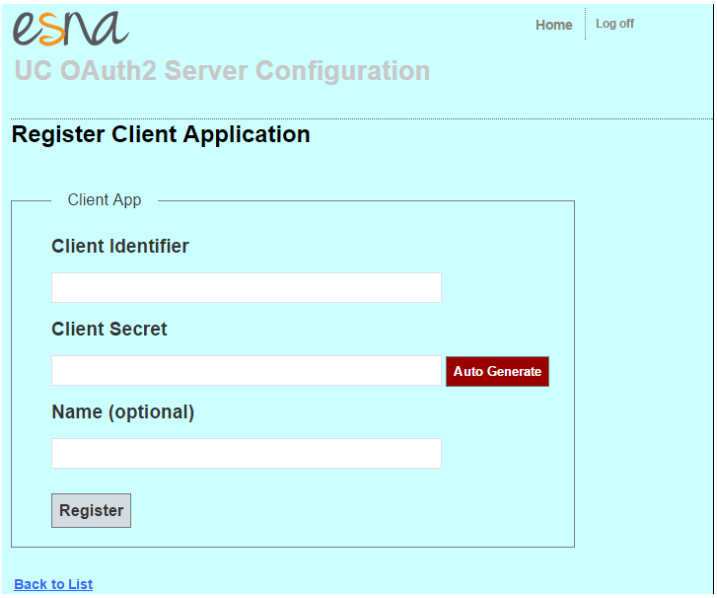
Refer to the Officelinx Server Configuration Guide for details on setting up users.

2. The Client Application Configuration Page appears. **Client Application Registration** is completed here.

Click Register New Client Application.



3. For a client application to communicate with the UC server through OAuth2, the client application must be registered on the UC system. Enter the required information.

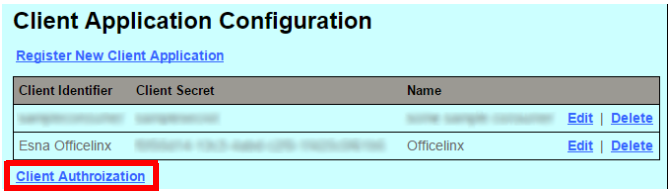


Hint: Use **Auto Generate** to randomly create a strong **Client Secret**.

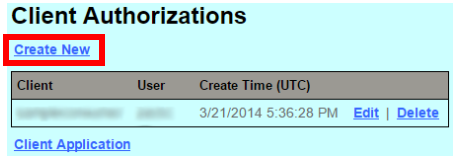
Click **Register** when finished.

4. The application has been registered and the Client Application Configuration page returns.

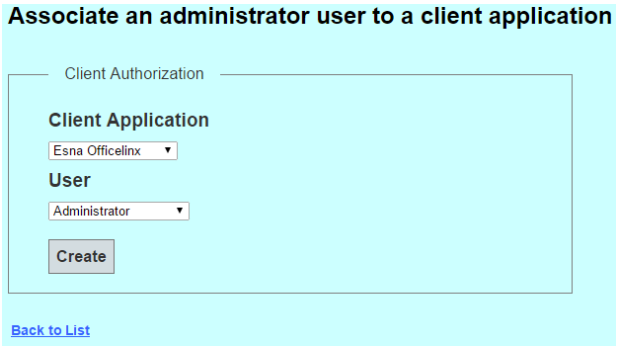
Click Client Authorization.



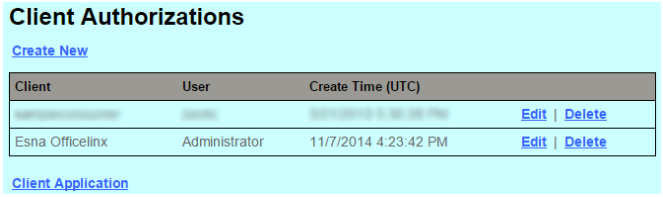
5. From the Client Authorizations page, click Create New.



6. Select an authorized user and an associated client application. This is part of the OAuth2 authorization mechanism that is required for an administrator to be registered under the specific client application.
Choose the Client Application and assign the user to it. Click **Create**.



7. The user has been created for the client application.



2 ESNA OFFICELINX REST APIS

Introduction

REST, an acronym for REpresentational State Transfer, is becoming a powerful Web service design model. **RESTful** services are built around the HTTP protocol, and use basic HTTP commands (i.e. GET, POST, PUT, DELETE) in order to define the action. A REST Web Service uses HTTP methods to access and change resources.

> **Note**: All of the functions listed in this document assume that the OAuth2 token has already been accepted by the server. These functions ONLY work once a valid token is presented to the UC server.

Tests are performed throughout this manual using a debugging tool called **Advanced Rest Client**, which displays its output in the Chrome browser.

HTTP Commands

GET

Retrieves a resource

POST

- **Updates a Resource** when requesting the server to update one or more subordinates of the specified resource.
- **Creates Resource** when sending a command to the server to create a subordinate of the specified resource using a server-side algorithm.

PUT

- **Creates a Resource** if sending the full content of the specified resource (URL).
- **Update a Resource** when updating the full content of the specified resource.

DELETE

Deletes a resource.

Feature Group Functions

GetFeatureGroup

Parameters:

FGroupID

Logic:

The **Get()** method returns a single FeatureGroup when FGID is passed to this function.

For example in our case:

https://localhost/UCBusinessRest/api/EEAMFGroups/1

This function retrieves FeatureGroup information from the provided FGroupID. The caller should ensure the correct value for FGroup.ID prior to calling this function.

Return values:

<Response [200]> shows that the request has been accepted and will be returned with a string including the feature group name, ID, etc.

GetListOfGroupsInCompany

Parameters:

CompanyID

Logic:

The **Get()** method returns a list of FeatureGroups in a company, filtered by **CompanyID**.

For getting the ListOfFGroupsInCompany, use the browser. Navigate to the page

http://localhost:34133/api/EEAMFGroups?companyid=1

This will return the list of FGroups.

Return values:

<Response [200]> shows that the request has been accepted and a string with the feature group names and information will be attached. If the CompanyID does not exist, a **404** error will be returned.

DeleteFeatureGroup

Parameters:

FGroupID

Logic:

To delete an already existing feature group, pass only the actual ID as defined below:

https://localhost/UCBusinessRest/api/EEAMFGroups/3

Select **DELETE** in the Advanced Rest Client tool.

Return values:

When trying to delete a non-existent resource, status **404 Not Found** is returned.

If there is an exception, **Bad Request** is returned.

FeatureGroupAdd

Parameters:

INPUT (for all elements except FGroupID)

Logic:

To create new content, use **POST** to send the data to the server. This function adds a Feature Group to the system database.

Creating a new resource requires the following:

1. The client should send a **POST** request to the API to create the resource.
2. The API call must contain the necessary fields for creating a feature group.

The function automatically generates a unique FGroupID, which is the last in the database, and adds it to the FGroup Structure for **OUTPUT**.

FGroupID is a system generated unique identifier (primary key) for a mailbox. A caller can use this unique FGroupID to access a feature group.

Return values:

REST Service should return a **201 Created HTTP** response, with the URI of the newly created resource in the Location header. **Bad Request** will be returned to the client if there was an error.

FeatureGroupUpdate

Parameters:

FGroupID, Object(tFGroup)

Logic:

To update an existing Feature Group, use the **PUT** method. This function updates the elements of the specified FGroupID with the objects defined and passed through the API call. Update the feature group, and then change the element and update the required entities.

Return values:

1. Normal execution returns status **200 OK**.
2. If updating a non-existent object, the HTTP code **Not Found** will be returned to the client.
3. If there is an error, a **Bad Request** message will be returned.
4. With the return parameter of **HttpResponseMessage**, the status only is returned, not the content.
5. The Location and Feature Group are not included since they are already known (see above).

Mailbox Commands

MailboxAdd

Parameters:

tMailbox (INPUT for all elements except MailboxIDID)

(OUTPUT for MailboxID)

Logic:

To create new content, use **POST** to send the data to the server. This function adds a Mailbox to the system database.

Creating a new resource requires the following:

1. The client should send a **POST** request to the API / product to create the resource.
2. The API call must contain the necessary fields for creating a mailbox
3. When successful, the REST Service will return a **201 Created** HTTP response, with the URI of the newly created resource in the Location header.
4. If there are errors, a **Bad Request** message will be returned to the client.

The function automatically generates a unique MailboxID, which is the highest in the database, and adds it to the Mailbox Structure for **OUTPUT**.

MailboxID is a system generated unique identifier (primary key) for a mailbox. The caller can use it to access a mailbox, or use CompanyID + MailboxNumber to access a mailbox.

Note that **UserName**, **MailboxNo**, **CompanyIF**, **FirstName**, **LastName**, **FGroupID** are the necessary entities for creating a mailbox.

The function also creates following default system folders for the new Mailbox: TOP, DRAFT, INBOX, OUTBOX, SENT, TRASH.

Return values:

<Response [201]> will be returned if the mailbox is created. The content of the response shows all of the entities created with the mailbox.

MailboxUpdate

Parameters:

There are two parameters: the ID of the Mailbox to be updated, and the object(tMailbox) itself.

Logic:

To update an existing Mailbox, use the **PUT** method. This function updates the elements that are different between the two structures **prevMailbox** and **newMailbox**.

One approach is to make **newMailbox** equal to **prevMailbox**, and then modify the elements in newMailbox.

Note the following:

1. There are two parameters: the mailbox to be updated, and the object itself.
2. Normal execution of the command returns the code **200 OK**.
3. When updating a non existing object, the HTTP code **Not Found** is returned to the client.
4. A **Bad Request** message is returned if there is an error.
5. The returned parameter is of the type **HttpResponseMessage**. Only the status is returned, not the content.
6. The Location and Feature Group are not included since they are already known (see above).
7. The entities that are being updated must match the mailbox entities. Therefore, the mailbox information should be acquired before attempting any updates.

Return values:

1. Normal execution returns the status message **200 OK**.
2. When updating a non existing object, the HTTP code **Not Found** is returned to the client.
3. A **Bad Request** message is returned if there is an error.
4. The returned parameter is of the type **HttpResponseMessage**. Only the status is returned, not the content.

MailboxDelete

Parameters:

MailboxID

Logic:

To delete an existing mailbox, pass the ID as defined in the database and shown in code below:

http://localhost:34133/UCBusinessRest/api/EEAMMailboxes/1

Select DELETE in the Advanced Rest Client tool.

Return values:

<Response [200]> shows that the mailbox has been successfully deleted.

When trying to delete a non-existent resource, the status message **404 Not Found** is returned.

GetMailbox

Parameters:

MailboxID

Logic:

The **Get()** method returns a single Mailbox when Mailbox ID is passed to this function.

as shown here:

https://localhost:34133/api/EEAMMailboxes/1)

This function retrieves Mailbox information from the provided MailboxID. Ensure that the correct MailboxID is included before calling this function.

Return values:

<Response [200]> means that the request has been processed and a string with the mailbox information will be returned as well.

If the MAILBOXID is not found, an error of type **HttpResponseException** is returned. The HTTP response in this case will be a **Not Found** message.

GetListOfMailboxesByPage

Parameters:

CompanyID, PageNumber

Logic:

The **Get()** method returns a list of Mailboxes filtered by page number. To return the ListOfMailboxesFilteredByPage, call the following:

https://localhost/UCBusinessRest/api/EEAMMailboxes?companyid=1,page=1)

Return Values:

If the CompanyID is not found, an **HttpResponseException** error is returned. The HTTP response in this case will be a **Not Found** message. If PageNumber is included, the function will return the first page of mailboxes for the company.

Address Section

GetMailboxAddresses

Parameters:

MailboxID

Logic:

The **Get()** Method returns all eligible extensions for a mailbox based upon the **MailboxID**. The following URL returns the addresses associated with mailboxid = 2:

http://localhost:34133/UCBusinessRest/api/EEAMMailboxAddresses?mailboxid=2&addresstype=0

Return Values:

If the MailboxID is not found, an **HttpResponseException** error is returned. The HTTP response will be **Not Found**.

<Response [200]> will be returned along with the addresses associated with the specified mailbox when the request has been accepted and processed.

MailboxAddrAdd

Parameters:

tAddress (INPUT for all elements except AddressID)

Logic:

This function adds an address for a mailbox. In order to create new content, we are going to use the **POST** mechanism to send the data to the server. This function adds an Address into the system database associated with the specified mailbox.

Creating a new resource requires the following:

1. The client should send a **POST** request to API / product to create the resource.
2. The entities need to match the entities defined in the database
3. The function automatically generates unique AddressID, which is the maximum in the database, and adds it to the Address Structure for **OUTPUT**.

Return Values:

REST Service should return a **201 Created HTTP** response, with the URI of the newly created resource in the Location header. If there are errors, a **Bad Request** will be returned.

MailboxAddrUpdate

Parameters:

AddressID, New address(data)

Logic:

To update an existing Address, use the **PUT** method. This function updates the elements that are different between the structures **prevAddress** and **newAddress**.

First make **newAddress** equal to **prevAddress**, then modify the appropriate elements in **newAddress**.

Return Values:

Normal execution returns the status message **200 OK**.

If the object does not exist, the HTTP code **Not Found** will be returned.

If there are any errors, a **Bad Request** message is returned.

The returned parameter is of the type **HttpResponseMessage**. Only the status is returned, not the content.

The Location is not included since it is already known (see above).

MailboxAddrDelete

Parameters:

AddressID

Logic:

To delete an already existing Address we need to pass only the actual ID, as defined in the code below:

http://localhost/UCBusinessRest/api/EEAMMailboxAddresses/1

Select the **DELETE** option in **Advanced Rest Client** tool.

Return Values:

If the **ADDRESSID** is not found, an error of type **HttResponseException** is returned. The HTTP response in this case will be a **Not Found** message

Company Section

GetCompany

Parameters:

CompanyID

Logic:

The **Get()** method returns company based on provided **CompanyID**. The following URL sends back the addresses associated with companyid= 1:

http://localhost:34133/UCBusinessRest/api/EEAMCompanies/1

Return Values:

If the COMPANYID is not found, an error of type **HttpResponseException** is returned. The HTTP response in this case will be the **Not Found** message.

GetListOfCompanies

Parameters:

PBXID

Logic:

The **Get()** method returns a list of Companies. The following URL returns the companies associated with PBXID= 1.

http://localhost/UCBusinessRest/api/EEAMCompanies?pbxid=1

Return Values:

In the products do not exist, the **404 Not found** status message is returned with no content.

CompanyAdd

Parameters:

tCompany (INPUT for all elements except CompanyID)

Logic:

To create new content, use the **POST** mechanism to send data to the server. This function adds a Company to the system database.

Creating a new resource requires the following:

1. The client should send a **POST** request to API / product to create the resource.
2. The entities need to match the entities defined in the database.
3. The function automatically generates unique **CompanyID**, which is the maximum in the database, and adds it to the Company Structure for **OUTPUT**.

Return Values:

The REST Service should return a **201 Created HTTP** response, with the URI of the newly created resource in the Location header.

If there are errors, a **Bad Request** message will be returned.

If there is already a record with the same CompanyID, the function does not add the item to the database and returns **RET_RECEXISTS**.

CompanyUpdate

Parameters:

CompanyID, Data (new object)

Logic:

To update an existing Company, use the **PUT** method. This function updates the elements that are different between the structures **prevComapny** and **newCompany**.

Make **newCompany** equal to **prevCompany**, and then modify the elements in **newCompany** as required.

Return Values:

Normal execution returns the HTTP status message **200 OK**.

If the object does not exist, the HTTP code **Not Found** will be returned.

If there are any errors, a **Bad Request** message is returned.

The returned parameter is of the type **HttpResponseMessage**. Only the status is returned, not the content.

CompanyDelete

Parameters:

CompanyID

Logic:

To delete an already existing Address, pass only the actual ID as shown in the code below.

http://localhost/UCBusinessRest/api/EEAMCompanies/3

Select **DELETE** in Advanced Rest Client tool.

Note: If user passes ComapnyID=1, the company will not be deleted.

Return Values:

If the **COMPANYID** is not found, an error of type **HttpResponseException** is returned. The HTTP response in this case will be the **Not Found** message.

Department Section

GetDepartment

Parameters:

DepartmentID

Logic:

The **Get()** method returns a single department when **departmentID** is passed to this function as shown below.

https://localhost/UCBusinessRest/api/EEAMDepartments/1

Return Values:

If the ID does exist, the department name and infomation will be returned (**Response 200**).

If the **DepartmentID** is not found, an error of type **HttpResponseException** is returned. The HTTP response in this case will be the **Not Found** message.

GetListOfDepartmentsInCompany

Parameters:

CompanyID

Logic:

The **Get()** method returns a list of Departments. The following example will return all of the departments under companyid=1.

http://localhost/UCBusinessRest/api/EEAMDepartments?companyid=1

Return Values:

Normal execution returns the status message **Response200** with the list of departments in the specified company.

If the products do not exist, a **404 Not found** status message is returned with no content.

DeleteDepartment

Parameters:

DepartmentID

Logic:

To delete an existing Department, pass only the ID as shown in the code below.

http://localhost:34133/api/EEAMDepartments/1

Select **DELETE** in the Advanced Rest Client tool.

DepartmentAdd

Parameters:

tDepartment (INPUT for all elements except DepartmentID)

Logic:

To create new content, use the **POST** mechanism to send the data to the server. This function adds a Department to the system database.

Creating a new resource requires the following:

1. The client should send a POST request to API / product to create the resource.
2. The entities need to match the entities defined in the database.
3. The function automatically generates a unique **DepartmentID**, which is the last in the database, and adds it to the Department Structure for **OUTPUT**.
4. **DepartmentID** is a system generated unique identifier (primary key) for a Department. The caller can use this unique DepartmentID to access a Department.

Return Values:

The REST Service returns a **201 Created HTTP** response, with the URI of the newly created resource in the Location header. If there are any errors, a **Bad Request** message is returned.

DepartmentUpdate

Parameters:

DepartmentID, new data(Object)

Logic:

To update an existing Department, use the **PUT** method. This function updates the elements that are different between the structures **prevDepartment** and **newDepartment**.

Make **newDepartment** equal to **prevDepartment**, and then modify the elements in **newDepartment** where required.

Return Values:

Normal execution returns the status message **200 OK**.

If the object does not exist, the HTTP code **Not Found** will be returned.

If there are any errors, a **Bad Request** message is returned.

The returned parameter is of the type **HttpResponseMessage**. Only the status is returned, not the content.

3 REST APIS SAMPLE CODE

Introduction

The following sample code shows the implementation of all the functions related to feature groups and the mailbox. These examples were created using Python, but developers may use any language.

Samples

The IP addresses shown in these examples is generic (**111.111.111.111**). Replace the sample code address with the IP address of your Officelinx voice server. In a High Availability installation, this will be the IP address of the Consolidated server.

```
######## Feature Group Functions ########

# GetFeatureGroup
    r = s.get('https://111.111.111.111:443/UCBusinessRest/api/EEAMFGroups/1')

# GetListOfFGroupsInCompany
    r = s.get('https://111.111.111.111:443/UCBusinessRest/api/EEAMFGroups?companyid=1'

# DeleteFeatureGroup
    r = s.delete('https://111.111.111.111:443/UCBusinessRest/api/EEAMFGroups/3')

# FeatureGroupAdd
    payload = {
        "COMPANYID": 1,
        "FGNUMBER": 56,
        "NAME": "TestFG"
    }
    headers = {'content-type': 'application/json'}   #important, otherwise content-type is form encoded
    r = s.post('http://111.111.111.111/UCBusinessRest/api/EEAMFGroups/', data = json.dumps(payload), headers =
      headers)

# FeatureGroupUpdate
    r = s.get('https://111.111.111.111:443/UCBusinessRest/api/EEAMFGroups/2')
    headers = {'content-type': 'application/json'}
    payload = r.json()
    payload['Name'] = 'New ' + payload['Name']
    r = s.put('https://111.111.111.111:443/UCBusinessRest/api/EEAMFGroups/2', data = json.dumps(payload), headers =
      headers)
```

######## Mailbox Functions ########

 # MailboxAdd

```
payload = {
    "UserName": "test@esna.com",
    "MailboxNo": "55",
    "CompanyID": 1,
    "FirstName": "TestFirstNAme",
    "LastName": "TestLastName",
    "FGroupID": 1
}
headers = {'content-type': 'application/json'}   #important, otherwise content-type is form encoded
r = s.post('http://111.111.111.111/UCBusinessRest/api/EEAMMailboxes/', data = json.dumps(payload), headers =
  headers)
```

 # MailboxDelete

```
r = s.delete('https://111.111.111.111:443/UCBusinessRest/api/EEAMMailboxes/3')
```

 # MailboxUpdate

```
r = s.get('http://localhost:10784/api/EEAMMailboxes/4');
payload = r.json()
payload['FirstName'] = 'New ' + payload['FirstName']
r = s.put('http://localhost:10784/api/EEAMMailboxes/4', data = json.dumps(payload), headers = headers)
```

 # GetMailbox

```
r = s.get('https://111.111.111.111:443/UCBusinessRest/api/EEAMMailboxes/4')
logger.debug('response after REST api call: %r' % r.__dict__)
jsonObject = r.json()
```

 # GetListOfMailboxesByPage

```
r = s.get('https://111.111.111.111:443/UCBusinessRest/api/EEAMMailboxes?companyid=1,page=1')
logger.debug('response after REST api call: %r' % r.__dict__)
```

 # GetDepartment

```
# r = s.get('https://111.111.111.111:443/UCBusinessRest/api/EEAMDepartments/1', verify = False)
```

######## Department Functions ########

 # GetListOfDepartmentsInCompany

```
# r = s.get('https://111.111.111.111:443/UCBusinessRest/api/EEAMDepartments?companyid=1', verify = False)
```

 # DeleteDepartment

```
# r = s.delete('https://111.111.111.111:443/UCBusinessRest/api/EEAMDepartments?id=1&parentid=0', verify = False)
```

 # DepartmentAdd

```
payload = {
    "CompanyID": 1,
    "DepartmentName": 'APITEST'
}
headers = {'content-type': 'application/json'}   #important, otherwise content-type is form encoded
r = s.post('https://111.111.111.111:443/UCBusinessRest/api/EEAMDepartments', data = json.dumps(payload),
  headers = headers, verify = False)
```

 # DepartmentUpdate

```
r = s.get('https://111.111.111.111:443/UCBusinessRest/api/EEAMDepartments/1', verify = False);
headers = {'content-type': 'application/json'}   #important, otherwise content-type is form encoded
payload = r.json()
payload['DepartmentName'] = 'New' + payload['DepartmentName']
r = s.put('https://111.111.111.111:443/UCBusinessRest/api/EEAMDepartments/1', data = json.dumps(payload),
  headers = headers, verify = False)
```

```
######## Authorization#######
######## Note that this is sample code and must be modified for each system #######

import config
import logging
from datetime import timedelta, datetime
from requests_oauth2 import OAuth2
import requests, json
import inspect

class OAuth2Token(object):
    def __init__(self, access_token, expires_in, refresh_token, scope, token_type = u'bearer'):
        self.access_token = access_token
        self.expirationUtc = datetime.utcnow() + timedelta(seconds=expires_in-5)
        self.refresh_token = refresh_token
        self.scope = scope
        self.token_type = token_type

def fetch_UC_oauth2token():
    # get OAuth2 token from remote url
    func = '[' + inspect.currentframe().f_code.co_name + ']'

    url = "https://111.111.111.111/UCOAuth2/"

    client_id = "SampleConsumer"
    client_secret = "SampleSecret"
    username = "SampleUserName"
    pwd = "SamplePassword"

    oauth2_handler = OAuth2(client_id, client_secret,
        url,  '', 'oauth2/authorize', 'oauth2/token' )
    response = oauth2_handler.get_token('', verify=True, grant_type='password', username=username, password=pwd,
      scope='http://localhost/')
# scope should be hardcode to 'http://localhost/' for tolee rest api
token = None
if response.get('access_token') is None:
    logger.debug('{0} did not get access_token'.format(func))
else:
    token = OAuth2Token(response['access_token'], response['expires_in'], response['refresh_token'],
      response['scope'],response.get('token_type'))
    logger.info('{0} created token object: {1}'.format(func, token.__dict__))

return token;

def refresh_UC_oauth2token(refresh_token):
    # refresh OAuth2 token from remote url
    func = '[' + inspect.currentframe().f_code.co_name + ']'
```

```
    url = "https://111.111.111.111/UCOAuth2/"

    client_id = "SampleConsumer"
    client_secret = "SampleSecret"
    username = "SampleUserName"
    pwd = "SamplePassword"

    oauth2_handler = OAuth2(client_id, client_secret,
        url,  '', 'oauth2/authorize', 'oauth2/token' )

response = oauth2_handler.get_token('', verify=True, grant_type='refresh_token', refresh_token = refresh_token)
logger.debug('{0} after refreshToken: {1}'.format(func, response))
token = None
if response.get('access_token') is None:
    logger.debug('{0} refreshing did not get access_token'.format(func))
else:
    token = OAuth2Token(response['access_token'], response['expires_in'], response['refresh_token'],
      response['scope'],response.get('token_type'))
    logger.info('{0} refreshing created token object: {1}'.format(func,token.__dict__))

return token;

def get_UC_oauth2token():
    func = '[' + inspect.currentframe().f_code.co_name + ']'
    save_token = False
    token = read_UC_oauth2token()

    if token is None or \
        token.access_token is None or \
        token.access_token == '' or \
        token.refresh_token is None or \
        token.refresh_token == '' :
        logger.debug("{0} token is not valid, fetching token".format(func))
        token = fetch_UC_oauth2token()
        logger.debug("{0} fetched token: {1}".format(func, token))
        save_token = True
    else:
    if token.expirationUtc < datetime.utcnow():
        logger.debug("{0} token expired, refreshing token".format(func))
        token = refresh_UC_oauth2token(token.refresh_token)
        save_token = True
        logger.debug("{0} after refreshing token".format(func))
        if token is None:
          logger.debug("{0} refreshing token failed, getting new token".format(func))
          token = fetch_UC_oauth2token()
          save_token = True
```

```
        if token is not None and save_token:
            logger.debug("{0} save token to configuration file: {1}".format(func, token.__dict__))
    return token

if __name__ == "__main__":
        for i in range(1, 76458):
            logger.debug('loop {0}'.format(i))
            get_UC_oauth2token()
```

OAuth2####

```
import requests
from urllib import quote, urlencode
from urlparse import parse_qs
try:
    import simplejson as json
except ImportError:
    import json

class OAuth2(object):
    authorization_url = '/oauth/authorize'
    token_url = '/oauth/token'

    def __init__(self, client_id, client_secret, site, redirect_uri, authorization_url=None, token_url=None):
        """
        Initializes the hook with OAuth2 parameters
        """
        self.client_id = client_id
        self.client_secret = client_secret
        self.site = site
        self.redirect_uri = redirect_uri
        if authorization_url is not None:
          self.authorization_url = authorization_url
        if token_url is not None:
          self.token_url = token_url

    def authorize_url(self, scope='', **kwargs):
        """
        Returns the url to redirect the user to for user consent
        """
        oauth_params = {'redirect_uri': self.redirect_uri, 'client_id': self.client_id, 'scope': scope}
        oauth_params.update(kwargs)
        return "%s%s?%s" % (self.site, quote(self.authorization_url), urlencode(oauth_params))

    def get_token(self, code, verify=True, **kwargs):
        """
        Requests an access token
        """
        url = "%s%s" % (self.site, quote(self.token_url))
        data = {'redirect_uri': self.redirect_uri, 'client_id': self.client_id, 'client_secret': self.client_secret, 'code': code}
        data.update(kwargs)
        response = requests.post(url, data=data, verify=verify)

    if isinstance(response.content, basestring):
        try:
          content = json.loads(response.content)
        except ValueError:
```

```
            content = parse_qs(response.content)
        else:
            content = response.content

    return content
```