# Hands-on Lab:
# Promote APIs, Applications, Global Policies, Users, Scopes, Scope Mappings and Extended Settings

## Objectives

In this hands-on lab, you will promote two APIs with **Basic Authentication** and **OAuth2** policies from the **API Gateway Dev Stage** to the **API Gateway Prod Stage** using the **API Gateway Promotion Management** – including their applications, and the global policies, user accounts, OAuth2 scopes, scope mappings and extended settings needed to run the APIs.

## Steps

1.  Open Windows Services UI to double check that the following services, needed for API Gateway and the native services, are up and running. If service is not running, start the service.

    a)  **Software AG Dev Stage Integration Server 10.5**

    b)  **Software AG Prod Stage Integration Server 10.5**

    c)  **Software AG Internal Integration Server 10.5**

2.  Logon to **API Gateway Dev** as user **Administrator**/**manage**.

3.  Navigate to **Policies** > **Global policies**. Click on **Create global policy**. Provide the following properties:

    a)  **Name**:          Throttling

    b)  **Description**:        Throttle all APIs for all applications after 3 requests per minute



4.  Navigate to **Policy configuration** > **Traffic Monitoring** and add a **Throttling Traffic Optimization** policy. In the Add dependent policy pop-up, click **No**. Click Open in full-screen and provide the following properties:

    a)  **Rule Name**:          Total Request Count

    b)  **Operator**:          Greater Than

    c)  **Value**:          3

    d)  **Destination**:          API Gateway

    e)  **Alert Interval**:          1

    f)  **Unit**:          Minutes

g) **Alert Frequency**: Only once

h) **Alert Message**: Too many requests!

i) **Consumer Applications**: Any consumer



Click **OK**. Click **Save**. Click **Activate**.

5. Navigate to **APIs**. From the list of APIs select **Bookstore_BasicAuth** and switch to **Edit** mode.

6. Navigate to **Policies > Identify & Access**. Select **Identify & Authorize Application** to be added to the API. Provide the following properties:

   a) **Identification Type**: HTTP Basic Authentication

   b) **Application Lookup condition**: Global applications and defaultApplication

7. In addition, select Policy **Policies > Authorize User** to be added to the API. Provide the following properties:

   a) **List of Users**: Sumala

8. Click **Save**.

9. Open **Postman REST client** and configure a GET request against the **Bookstore_BasicAuth** API.

   a) **Method:** GET

   b) **URL:** http://localhost:5555/gateway/Bookstore_BasicAuth/1.0/books

   c) **Authorization Type**: Basic Auth

   d) **Username:** Sumala

   e) **Password:** manage

10. Run the request pressing the **Send** button.
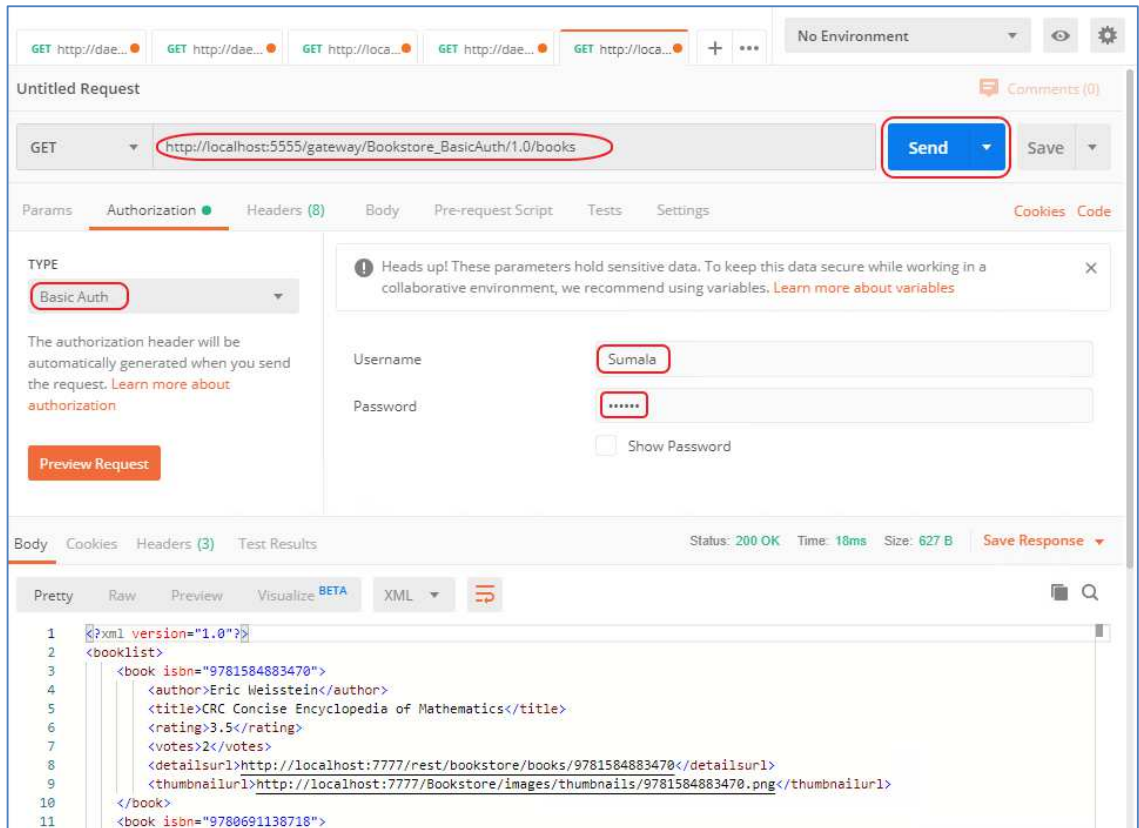


11. Repeat the request several times to trigger the **Throttling** global policy.

12. Back in **API Gateway Dev**, navigate to **APIs**. From the list of APIs select **Bookstore_OAuth2** and switch to **Edit** mode. Confirm with **Yes**.

13. Navigate to **Policies > Identify & Access**. Select **Identify & Authorize Application** to be added to the API. Provide the following property:

    a) **Identification Type**:     OAuth2 Token

    Click **Save.**

14. Now you must create an OAuth2 scope for the API. Navigate to **Administration** > **Security** > **JWT/OAuth/OpenID**. Under Internal authorization servers, click on **local**.

15. Open the **OAuth scopes** section and enter the name of the new scope:

    a) **Scope:**                      bookstore

    b) **Scope description:**          Bookstore full access

    Click on **Add.**

    Click on **Update.**

16. Now you must map the new scope with the **Bookstore_OAuth2** API. In the User Menu, navigate to **OAuth/OpenID scopes.**

17. Click on **Map scope** and select the **local:bookstore** scope.

18. Enter the following properties:

    a) **Description:**      Read and update the list of books in the bookstore.

    b) **Audience:**      Classroom

Click on **API scopes** and select the **Bookstore_OAuth2** API scope. Click on **Save.**

19. Navigate to **Applications** and create a new application with the name **BookstoreApp_OAuth2.**

20. Click on **APIs** and add the **Bookstore_OAuth2** API.

21. Click on **Authentication** and create a new **strategy.**

22. Enter/select the following properties:

    a) **Authentication scheme:** OAuth2

    b) **Name:**      Bookstore OAuth2 Strategy

    c) **Description:**      OAuth2 Authentication Strategy for Bookstore Application

    d) **Authentication server:** local

    e) **Audience:**      Classroom

    f) **Generate credentials:** Turn slider into "on" position

    g) **Application type:**      Confidential

    h) **Application profile:**      web

    i) **Token lifetime:**      3600

    j) **Token refresh limit:**      0

    k) **Redirect URIs:**      Enter "http://redirect.dummy.org", click on **Add**

    l) **Grant type:**      Select authorization_code, password, client_credentials, implicit

    m) **Scopes:**      Enter "bookstore", select bookstore scope

Click **Add** and **Save. API Gateway** will create an application with an OAuth2 client (with client id and secret) as authentication strategy.

23. Open **Postman REST client** and configure a GET request:

    a) **Method:**      GET

    b) **URL:**
         http://localhost:5555/gateway/Bookstore_OAuth2/1.0/books

    c) **Authorization Type**:      OAuth 2.0

24. Expand the **Configure New Token** section and enter/select the following values:

   a) **Token Name:**             CC_Token

   b) **Grant Type:**             Client Credentials

   c) **Access Token URL:**
      http://localhost:5555/invoke/pub.apigateway.oauth2/getAccessToken

   d) **Client ID:**              <value of client id from authentication strategy>

   e) **Client Secret:**          <value of client secret from authentication strategy>

   f) **Scope:**                  bookstore

   g) **Client Authentication:**  Send as Basic Auth header

25. Click **Get New Access Token.**

26. Click **Use Token.**

27. The **Postman REST Client** will automatically populate the Authorization HTTP header with the OAuth2 access token. Run the request pressing the **Send** button.
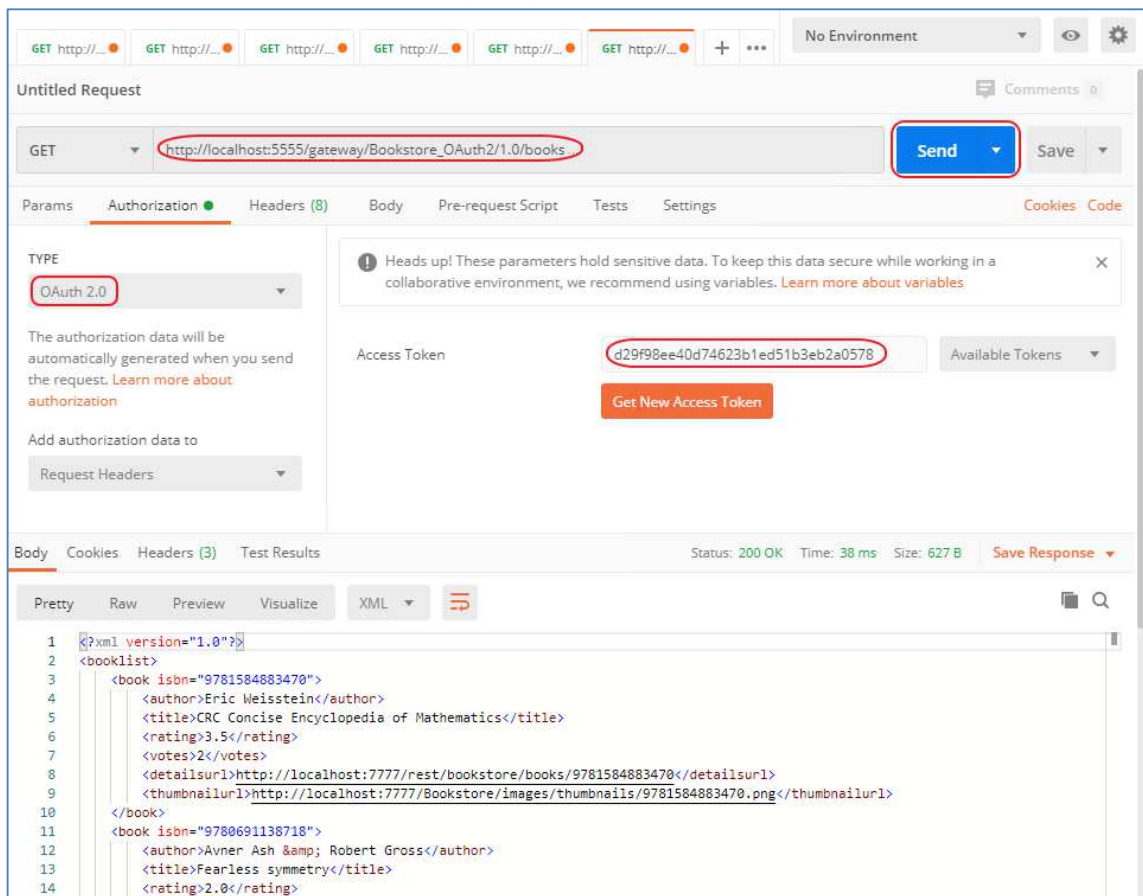


28. Repeat the request several times to trigger the **Throttling** global policy.

29. Back in **API Gateway Dev**, in the User Menu, navigate to **Promotion Management**.

30. In the **Promotions** tab, click **Promote**.

31. Check the checkbox for the **APIs** search option, and then select the APIs **Bookstore_BasicAuth** and **Bookstore_OAuth2** for promotion.

32. Check the checkbox for the **Applications** search option, and then select the **BookstoreApp_OAuth2** application for promotion.

33. Check the checkbox for the **Aliases** search option, and then select the **local** alias for promotion. It includes the OAuth2 **bookstore** scope you configured for the **Bookstore_OAuth2** API.

34. Check the checkbox for the **Global policies** search option, and then select the **Throttling** policy for promotion.

35. Check the checkbox for the **Users** search option, and then select **Andy** and **Sumala** for promotion.

36. Check the checkbox for the **Gateway scope** search option, and then select the **local:bookstore** scope mapping for promotion.

37. Check the checkbox for the **Include admin configurations** search option, and then select the **Extended settings** configuration for promotion. This will include the pg_jwt_isHTTPS, pg_oauth2_isHTTPS and pg_OpenID_isHTTPS settings that you configured for the **Bookstore_OAuth2** API.

local:bookstore
Read and update the list of books in the bookstore.

Extended settings

Click **Next**.

38. Click **Next**. Select the **Production** stage as target stage for the promotion. Click **Next**.

39. Provide the following properties:

    a) **Name:**              Bookstore_BasicAuth and Bookstore_OAuth2 promotion

    b) **Description:**     Promotion of APIs, application, alias, global policy, users, scope and extended settings

40. Select **Overwrites aliases that already exist on the selected target stages.**



Promote
Promote assets to different stages.

Name*

Bookstore_BasicAuth and Bookstore_OAuth2 promotion

Description

Promotion of APIs, application, alias, global policy, users, scope and extended settings

☑ Overwrites assets except alias that already exist on the selected target stages.
☑ Overwrites aliases that already exist on the selected target stages.
☐ Fix missing versions

41. Click **Promote**.

| Asset type | Name | Status | Comments |
|---|---|---|---|
| | **Promotion management** Manage stages, promote assets, and rollback promotions here. | | |
| | **Stages** **Promotions** **Rollback** | | |
| | Stage-specific promotion status | | |
| | Production | | |
| Asset type | Name | Status | Comments |
| API | Bookstore_OAuth2[1.0] | ✔ | OK |
| Policy | Policy For API Bookstore_BasicAuth[1.0] | ✔ | OK |
| Application | BookstoreApp_OAuth2 | ✔ | OK |
| PolicyAction | Policy Action [Log Invocation] -> Policy For API Bookstore_OAuth2[1.0] | ✔ | OK |
| PolicyAction | Policy Action [Enable HTTP / HTTPS] -> Policy For API Bookstore_OAuth2[1.0] | ✔ | OK |
| PolicyAction | Policy Action [Identify & Authorize Application] -> Policy For API Bookstore_OAuth2 [1.0] | ✔ | OK |
| API | Bookstore_BasicAuth[1.0] | ✔ | OK |
| AdministratorSetting | Extended settings | ✔ | OK |
| PolicyAction | Policy Action [Straight Through Routing] -> Policy For API Bookstore_BasicAuth[1. 0] | ✔ | OK |
| PolicyAction | Policy Action [Throttling Traffic Optimization] -> Throttling | ✔ | OK |
| Alias | local | ✔ | OK |
| PolicyAction | Policy Action [Enable HTTP / HTTPS] -> Policy For API Bookstore_BasicAuth[1.0] | ✔ | OK |
| Policy | Policy For API Bookstore_OAuth2[1.0] | ✔ | OK |
| User | Sumala | ✔ | OK |
| PassmanData | 4813a32b-f7a8-4e89-90ed-67c67f576700-clientSecret | ✔ | OK |
| PolicyAction | Policy Action [Authorize User] -> Policy For API Bookstore_BasicAuth[1.0] | ✔ | OK |
| PolicyAction | Policy Action [Identify & Authorize Application] -> Policy For API Bookstore_BasicA uth[1.0] | ✔ | OK |
| Strategy | Bookstore OAuth2 Strategy | ✔ | OK |
| User | Andy | ✔ | OK |
| Policy | Throttling[Global Policy] | ✔ | OK |
| PolicyAction | Policy Action [Straight Through Routing] -> Policy For API Bookstore_OAuth2[1.0] | ✔ | OK |
| PassmanData | API_ACCESS_KEYa8511d18-d720-4cdd-932f-d261d8f84991 | ✔ | OK |
| GatewayScope | local:bookstore | ✔ | OK |

42. In a new private browser window, logon to **API Gateway Prod** as user **Administrator**/**manage**.

43. Navigate to **Administration > General > Extended settings** and check that the **pg_JWT_isHTTPS**, **pg_oauth2_isHTTPS** and **pg_OpenID_isHTTPS** settings were promoted correctly.

44. Navigate to **Administration > Security > JWT/OAuth/OpenID** and check that that the **local** Authorization server alias was promoted correctly including the **bookstore** OAuth2 scope.

45. Navigate to **OAuth/OpenID scopes** and check that that the **local:bookstore** scope mapping was promoted correctly.

46. Navigate to **Policies > Global policies** and check that the **Throttling** global policy was promoted correctly.

47. Navigate to **User management** and check that that the two user accounts were promoted correctly.

48. Navigate to **APIs** in the header section.

49. Click on **Bookstore_BasicAuth** to inspect the promoted **Bookstore_BasicAuth** API.

50. Navigate to **Policies > Identify & Access** and check that the **Identify & Authorize Application** policy and the **Authorize User** policy were also imported correctly.

51. Navigate back to **API details** and copy the gateway endpoint.

52. Open **Postman REST client** and paste the URL into the REST client and append "/books" to the URL; configure Sulama/manage for Basic Authentication and click "Send". This will invoke the **Bookstore_BasicAuth** API on the **API Gateway Prod Stage**.

53. Repeat the request several times to trigger the promoted **Throttling** global policy.

54. Back in **API Gateway Prod**, navigate to **APIs** in the header section.

55. Click on **Bookstore_OAuth2** to inspect the promoted **Bookstore_OAuth2** API.

56. Navigate to **Policies > Identify & Access** and check that the **Identify & Authorize Application** policy was also imported correctly.

57. Navigate to **Applications** and check that the **BookstoreApp_OAuth2** application was also imported correctly.

58. Go back to **Postman REST client** and configure a GET request against the **Bookstore_OAuth2** API on the **API Gateway Prod Stage**. Select Authorization Type OAuth 2.0**.**

59. In the **Configure New Token** section, enter/select the following values:

   a) **Token Name:**             CC_Token

   b) **Grant Type:**             Client Credentials

   c) **Access Token URL:**
         http://localhost:15555/invoke/pub.apigateway.oauth2/getAccessToken

   d) **Client ID:**              <value of client id from authentication strategy>

   e) **Client Secret:**          <value of client secret from authentication strategy>

   f) **Scope:**                  bookstore

   g) **Client Authentication:**  Send as Basic Auth header

   Click **Request Token.**

   Click **Use Token.**

60. Run the request pressing the **Send** button.

61. Repeat the request several times to trigger the promoted **Throttling** global policy.