

WSO2 API Manager 2.0.0

Fundamentals

Module 02 - Working with APIs

WSO2 Training

Objectives

At the end of this module, attendees will:

- Understand how to create, advertise and manage your APIs end-to-end using WSO2 API Manager

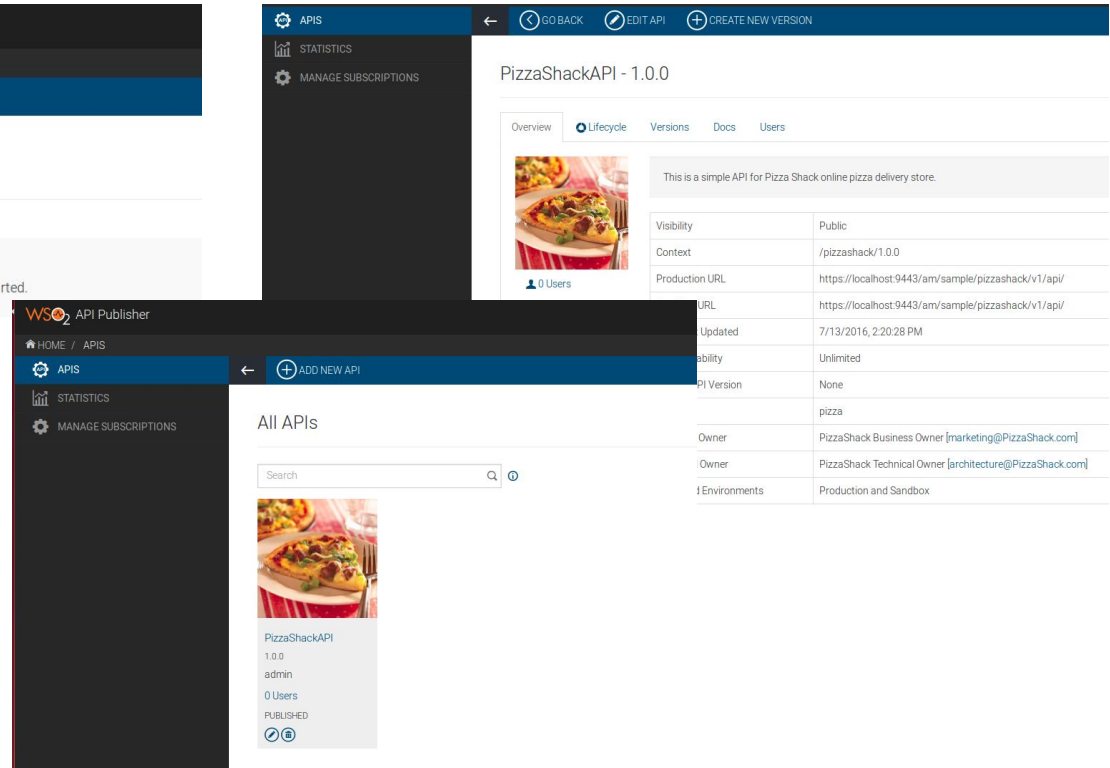
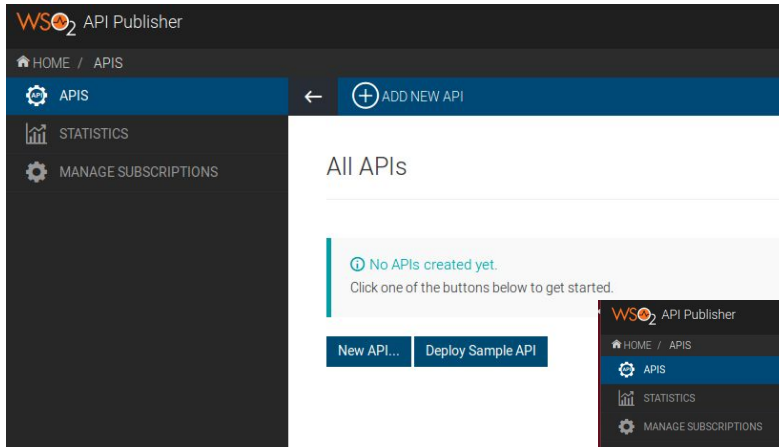


Publishing APIs

User Roles of API Publisher



Sample API



<https://docs.wso2.com/display/AM200/Quick+Start+Guide>

API Design

The screenshot shows the WSO2 API Publisher interface. At the top, the header includes the WSO2 logo and 'API Publisher' text, and a user profile 'admin'. The breadcrumb navigation shows 'HOME / APIS / ADD NEW API'. A left sidebar contains links for 'APIS', 'STATISTICS', and 'MANAGE SUBSCRIPTIONS'. The main content area has a 'GO BACK' button and the heading 'Let's get started! Add New API'. Below this, there are three radio button options: 'I have an Existing API' (with subtext 'Use an existing API's endpoint or the API definition to create an API.'), 'I have a SOAP Endpoint' (with subtext 'Use an existing SOAP endpoint to create a managed API. Import WSDL of the SOAP service.'), and 'Design New API' (with subtext 'Design and prototype a new API.'). Each option has a dropdown arrow on the right. The footer of the interface reads 'WSO2 API Manager | © 2016 WSO2 Inc.'

<https://docs.wso2.com/display/AM200/Create+and+Publish+an+API>

API Design

[←](#) [GO BACK](#)

Design API

1 Design

2 Implement

3 Manage

General Details

Name: *

Context: *

Version: *

E.g.: v1.0.0

Visibility: *

Public

Description:


Maximum 20000 characters.

Tags: *

Add tags

Type a tag and Enter

Thumbnail Image



Select image

Dimensions (max): 100 x 100 pixels

API Definition

URL Pattern

/ {context} / {version} /

Url Pattern E.g.: path/to/resource

☐ GET

☐ POST

☐ PUT

☐ DELETE

☐ PATCH

☐ HEAD

more

+

Add

Save

Next: Implement >

<https://docs.wso2.com/display/AM200/Create+and+Publish+an+API>

API Implementation

PhoneVerification: /phoneverify/1.0.0

1 Design

2 Implement

3 Manage

Managed API
Provide the production and sandbox endpoints of the API to be managed.

Endpoint Type *

HTTP/REST Endpoint

☐ Load Balanced ☐ Failover

Production Endpoint *

E.g. http://appserver/resource

Test

Sandbox Endpoint *

E.g. http://appserver/resource

Test

Show More Options

Message Mediation Policies

Enable Message Mediation

☐ Check to select a message mediation policy to be executed in the message flow

CORS configuration

Enable API based CORS Configuration

☐

Save Next : Manage >

PhoneVerification: /phoneverify/1.0.0

1 Design

2 Implement

3 Manage

Managed API
Provide the production and sandbox endpoints of the API to be managed.

Prototyped API
Use the inbuilt JavaScript engine to prototype the API or provide an endpoint to a prototype API. The inbuilt JavaScript engine does not have support to prototype SOAP APIs

Implementation Method

☐ Inline ☒ Endpoint

Prototype Endpoint *

http://localhost

Test

CORS configuration

Enable API based CORS Configuration

☐

Save Deploy as a Prototype

<https://docs.wso2.com/display/AM200/Create+and+Publish+an+API>

Managing APIs

PhoneVerification : /phoneverify/1.0.0

1 Design

2 Implement

3 Manage

Configurations

Make this the Default Version: ☐

No default version defined for the current API

Transports: * ☒ HTTPS ☒ HTTP

Response Caching:

Throttling Settings

Maximum Backend Throughput: ☒ Unlimited ☐ Specify

Subscription Tiers: * ☐ **Unlimited** : Allows unlimited requests
☐ **Gold** : Allows 5000 requests per minute
☐ **Silver** : Allows 2000 requests per minute
☐ **Bronze** : Allows 1000 requests per minute

Advanced Throttling Policies: ☐ Apply to API ☒ Apply per Resource

Select Policy per Resource

① Refer documentation to find out details about each throttling setting.

Gateway Environments

Environment Name	Type	Description
<input type="checkbox"/> Production and Sandbox	hybrid	This is a hybrid gateway that handles both production and sandbox token traffic.

Business Information

Business Owner:

Business Owner Email:

Technical Owner:

Technical Owner Email:

Resources

Scopes:

+ Add Scopes


GET	/CheckPhoneNumber	+ Summary	Application & Application User	Unlimited	+ Scope
POST	/CheckPhoneNumber	+ Summary	Application & Application User	Unlimited	+ Scope


Save

Save & Publish

Cancel

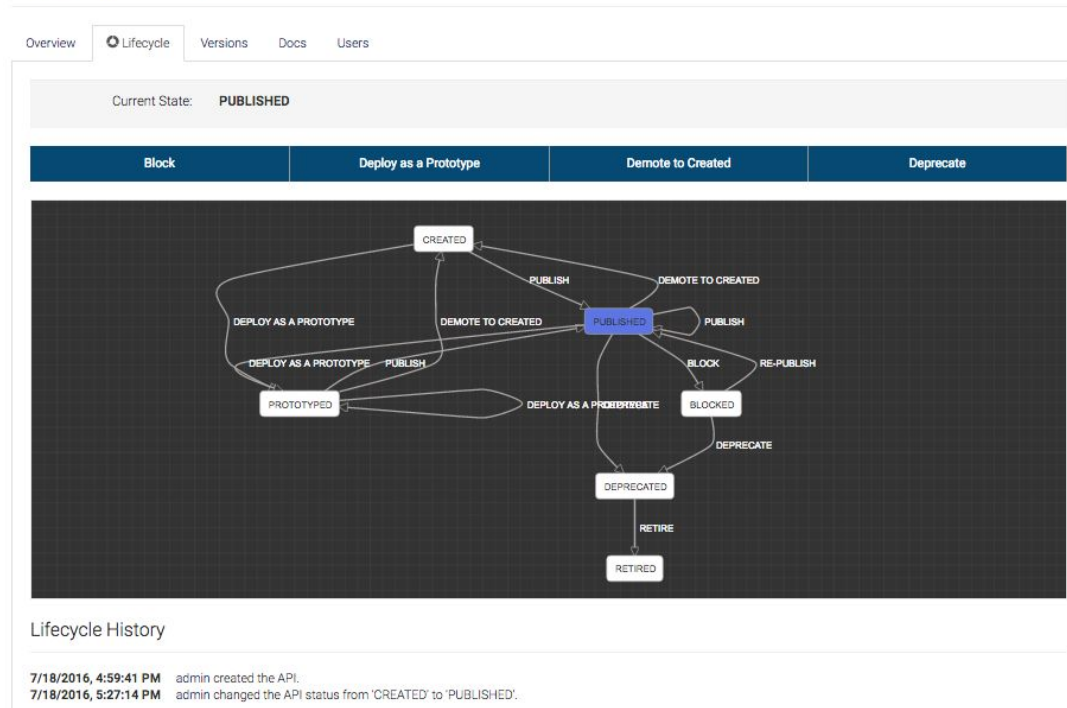
<https://docs.wso2.com/display/AM200/Create+and+Publish+an+API>

 CC BY 4.0

 WSO2

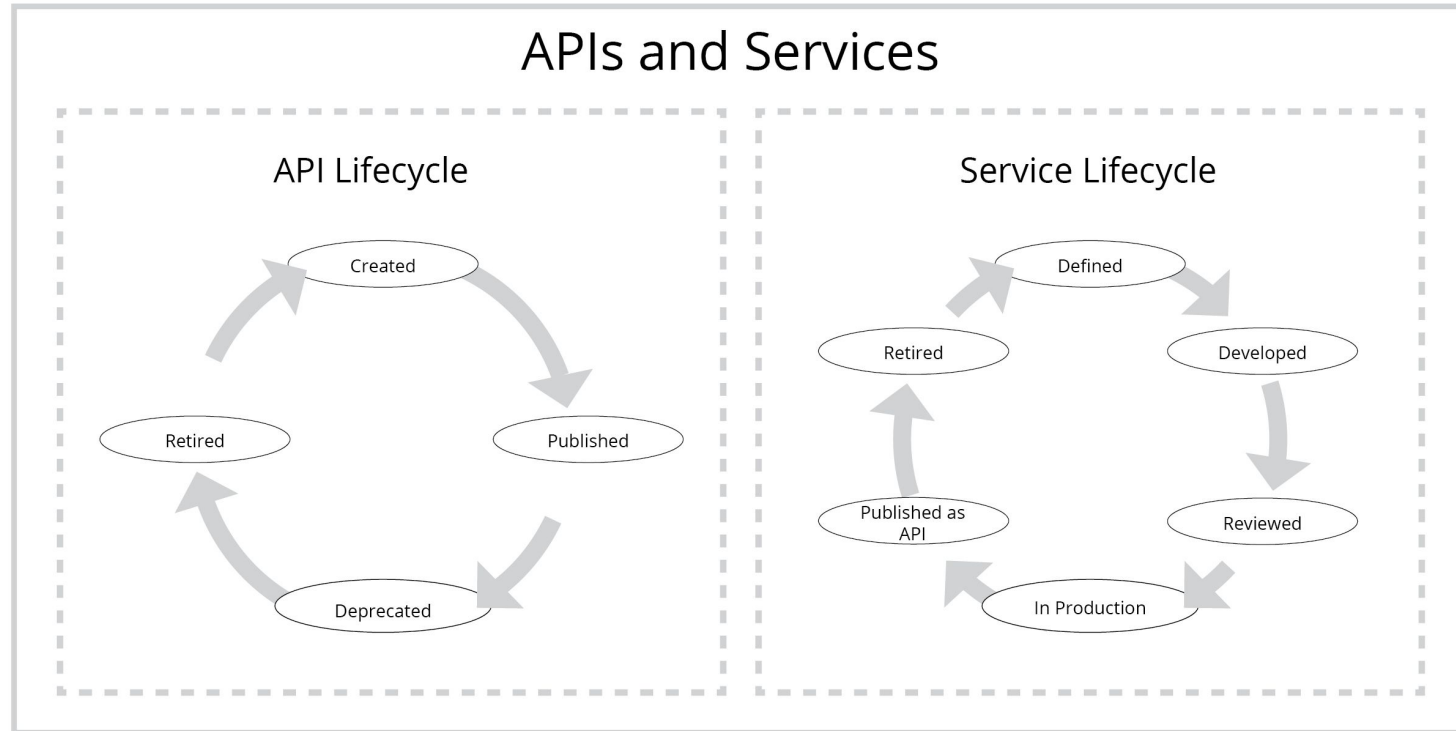
Publish API and Manage Lifecycle

PhoneVerification - 1.0.0



<https://docs.wso2.com/display/AM200/Publish+the+new+Version+and+Deprecate+the+old>

APIs & Services



<https://docs.wso2.com/display/AM200/Key+Concepts#KeyConcepts-APIlifecycle>

API Documentation

PhoneVerification - 1.0.0

[Overview](#) [Lifecycle](#) [Versions](#) [Docs](#) [Users](#)

Add New Document

Name*

Summary*

Type

☒ How To

☐ Samples & SDK

☐ Public Forum

☐ Support Forum

☐ Other (specify)

Source

☒ In-line

☐ URL

☐ File

Add Document

Cancel

📘

No documentation associated with the API

There are no documentation created for this API. You can add new documentation to this API by clicking "Add New Document" button.

<https://docs.wso2.com/display/AM200/Add+API+Documentation+In-line,+using+a+URL+or+a+File>

Support for Swagger 2.0

The screenshot displays the Swagger UI interface. On the left, a code editor shows the OpenAPI definition for the PizzaShackAPI. The definition includes a single endpoint `/deliver-order` with a `GET` method. It specifies an `Accept` header parameter for media types (XML or JSON) and an `If-None-Match` header parameter for conditional requests. The response is a list of orders, with a `200` status code and a `406` status code for not modified.

```
1 paths:
2   /deliver-order:
3     get:
4       x-auth-type: "Application & Application User"
5       x-mediation-script: "mc.setProperty('CONTENT_TYPE', 'application/json');\n var
        Accept = mc.getProperty('uri.var.Accept');\nvar If-None-Match = mc.getProperty('uri.var.If-None-Match');\n\nmc.setPayloadJSON('{ \"data\" : \"sample JSON\"}');\n\n/*Uncomment the
        above comment block to send a sample response.*\n\n"
6       x-throttling-tier: Unlimited
7       description: Get Available List of Orders to delivery.
8       parameters:
9         - description: "Media types for the response. Should denote XML or JSON, default
            is JSON."
10           name: Accept
11           type: string
12           in: header
13         - description: Validator for conditional requests; based on ETag.
14           name: If-None-Match
15           type: string
16           in: header
17       responses:
18         "200":
19           headers:
20             ETag:
21               description: "Entity Tag of the response resource. Used by caches, or in
                conditional requests."
22               type: string
23             Content-Type:
24               description: The content type of the body.
25               type: string
26           schema:
27             items:
28               $ref: "#/definitions/Order"
29             type: array
30           description: OK List of tiers returned.
31         "304":
32           description: Not Modified. Empty body because the client has already the latest
            version of the requested resource.
33         "406":
34           schema:
35             $ref: "#/definitions/Error"
```

On the right, the rendered view of the API is shown. It includes the title "PizzaShackAPI", a description "This document describe a RESTful API for Pizza Shack online pizza delivery store.", version "1.0.0", contact information, license "Apache 2.0", and the path `/deliver-order`. The "GET /deliver-order" endpoint is highlighted, showing its description "Get Available List of Orders to delivery." and parameters.

Name	Located in	Description	Required	Schema
Accept	header	Media types for the response. Should denote XML or JSON, default is JSON.	No	string
If-None-Match	header	Validator for conditional requests; based on ETag.	No	string

<https://docs.wso2.com/display/AM200/Edit+an+API+Using+the+Swagger+UI>

Maintain API Version within API Context

`{version} / {context}`

e.g.,

`1.0.0/pizzashack`

User Tenants

Tenant

Isolated Domain

Independent

Perform own transactions

Users

Manage own data

LAB

Working with Tenants

LAB

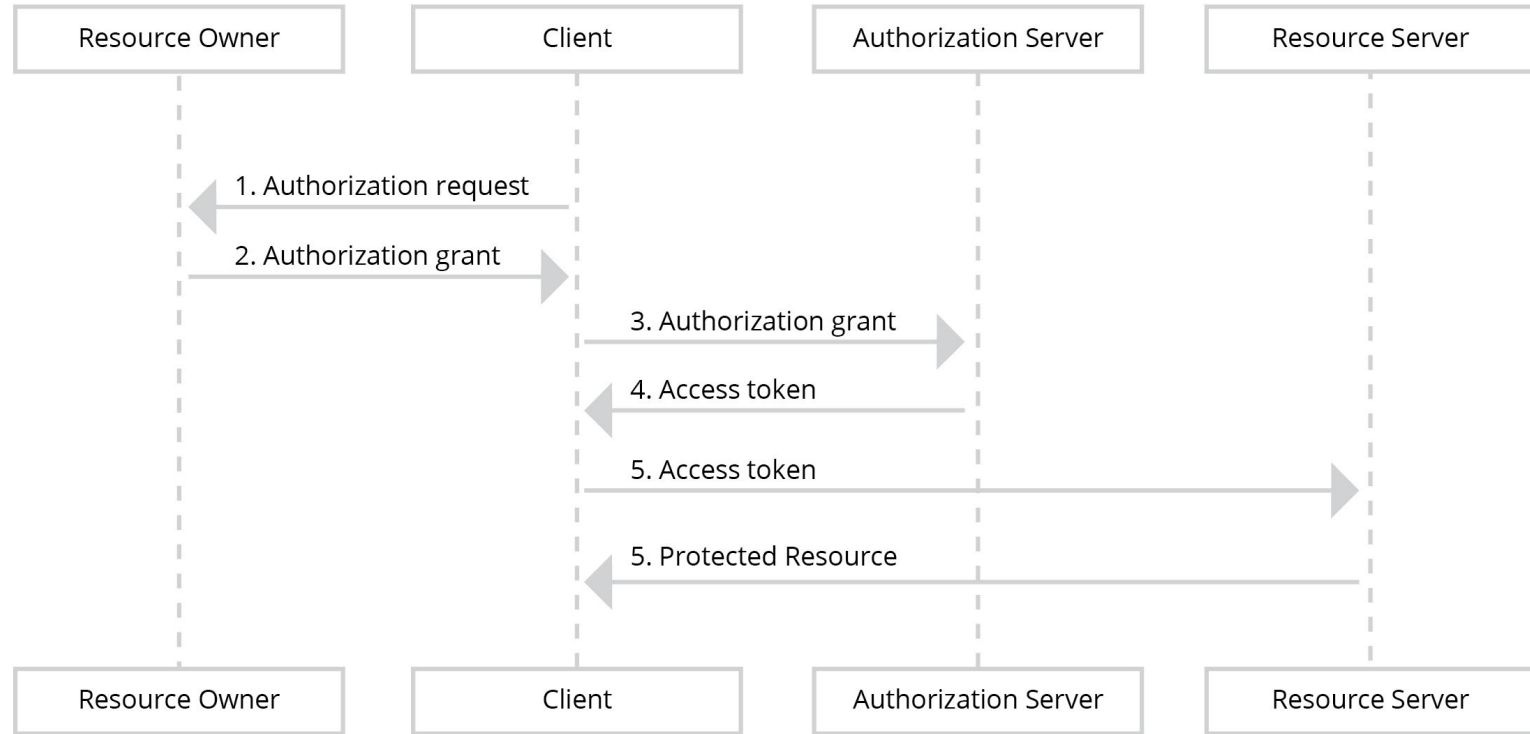
Creating and Publishing the PizzaShack API



Introduction to OAuth2

OAuth2

OAuth 2.0 Protocol Flow



OAuth2 Grant Types

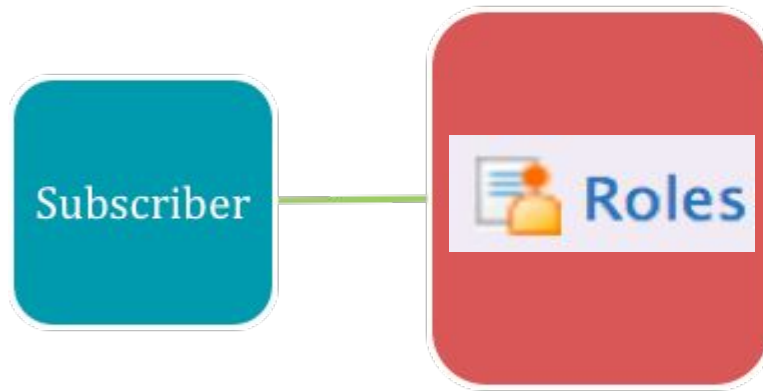
- Code
- Implicit
- Password
- Client credential
- Refresh token
- SAML
- IWA-NTLM

<https://docs.wso2.com/display/AM200/Token+API>




Consuming and Subscribing to APIs

User Roles of API Store



Sign up to API Store



WSO2
API STORE

Create your Account

Username *

Characters left: 30

Password *

Re-type Password *

First Name *

Last Name *

Email *

[View Additional Details](#)

<https://docs.wso2.com/display/AM200/Subscribe+to+an+API>

Subscribing to APIs

Add Application

An application is a logical collection of APIs. Applications allow you to use a single access token to invoke a collection of APIs and to subscribe to one API multiple times with different SLA levels. The DefaultApplication is pre-created and allows unlimited access by default.

Name*

TestApplication

Characters left: 55

Per Token Quota

Unlimited

Allows unlimited requests

Unlimited

Allows unlimited requests

API request quota per access token. Allocated quota for all APIs of the application.

Description

50PerMin

Allows 50 request per minute

20PerMin

Allows 20 request per minute

10PerMin

Allows 10 request per minute

PhoneVerification - 1.0.0



Version: 1.0.0

By: admin

Updated: 18/Jul/2016 17:34:35 PM IST

Status: PUBLISHED

Rating: ☆☆☆☆

Applications

TestApplication

Tiers

Unlimited

Subscribe

<https://docs.wso2.com/display/AM200/Subscribe+to+an+API>

API/Documentation Visibility

Design API

1 Design

2 Implement

3 Manage

General Details

Name: * ?


Context: * ?

Version: *
E.g.: v1.0.0

Visibility: ?
☒ Public
☐ Restricted by roles

Description:
Maximum 20000 characters.

Thumbnail Image



Select image

Dimensions (max): 100 x 100 pixels

<https://docs.wso2.com/display/AM200/Key+Concepts#KeyConcepts-APIvisibilityandsubscription>

Get Access Token for API

TestApplication

Details Production Keys Sandbox Keys Subscriptions SDKs

Hide Keys

Consumer Key

Wjyy0MfdA9IH6KHJSNAAtiteFbkga

Consumer Secret

FGDoYUuwqEdBHaTEY9N4rZn9Jxsa

Callback URL

Grant Types

Application can use the following grant types to generate Access Tokens. Based on the application requirement you can enable or disable grant types for this application.

☒ SAML2 ☒ IWA-NTLM ☐ Implicit ☒ Refresh Token

☒ Client Credential ☐ Code ☒ Password

Update

Generating Access Tokens

Following cURL command shows how to generate an access token using password grant type.

```
curl -k -d "grant_type=password&username=Username&password=Password" \
-H "Authorization: Basic
V2p5eTBNZmRBOWxINKtISlNOQXRpdGVGYmtmYTpGR0RvWU9ld3FFZEJiYVRFWTlONHJabjlkKeHNh" \
https://10.100.5.180:8243/token
```

In a similar manner you can generate an access token using client credential grant type with the following cURL command.

```
curl -k -d "grant_type=client_credentials" \
-H "Authorization: Basic
V2p5eTBNZmRBOWxINKtISlNOQXRpdGVGYmtmYTpGR0RvWU9ld3FFZEJiYVRFWTlONHJabjlkKeHNh" \
https://10.100.5.180:8243/token
```

Generate a Test Access Token

Access Token

3a47e670-ebbe-3e92-82ee-f6dea8b2639a

Above token has a validity period of **3600** seconds. And the token has (**am_application_scope,default**) scopes.

Scopes

Select..

 Validity period

3600

 Seconds.

Re-generate

<https://docs.wso2.com/display/AM200/Working+with+Access+Tokens>

API Console

Overview API Console Documentation Forum

Try Using Key

Set Request Header

Authorization : Bearer

Swagger (/swagger.json)

default

GET /CheckPhoneNumber

Parameter	Value	Description	Parameter Type	Data Type
PhoneNumber	<input type="text" value="(required)"/>	Give the phone number to be validated	query	string
LicenseKey	<input type="text" value="(required)"/>	Give the license key to be validated	query	string

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200			

Try it out!

POST /CheckPhoneNumber

Parameter	Value	Description	Parameter Type	Data Type
Payload	<div><div></div></div>	Request Body	body	Model Example Value

Parameter content type:

Response Messages

HTTP Status Code	Reason	Response Model	Headers
200			

Try it out!

<https://docs.wso2.com/display/AM200/Invoke+an+API+using+the+Integrated+API+Console>

LAB

Subscribing to APIs

LAB

Invoking the API

