



# Subscription Central 1-latest

## Using APIs in Red Hat Subscription Management

authorizing, managing, and troubleshooting subscription management APIs



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## Abstract

Red Hat subscription services offer developed and documented APIs to help you better automate, manage, and track your subscriptions to Red Hat products.

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## 1. USING APIS IN RED HAT SUBSCRIPTION MANAGEMENT

Using APIs in subscription services can help you more effectively track and automate your Red Hat subscriptions usage in the following ways:

- Control which tools that you use for each product
- Better manage your system and subscription inventories
- Update and secure your systems more efficiently
- Continue receiving official support for your Red Hat products

Red Hat Subscription Management APIs use OAuth 2.0 for authorization. To obtain a token and access the APIs, you will need the following pieces of information:

- Offline token generated on the Red Hat Subscription Manager API Tokens page
- Client ID = rhsm-api
- Token URL = <https://sso.redhat.com/auth/realms/redhat-external/protocol/openid-connect/token>

## 2. USING TOKENS FOR AUTHENTICATION

Offline and refresh tokens are used by Red Hat Subscription Management to authenticate your system after you set up your account using your secret to authenticate your Red Hat Single Sign On (SSO) account.



### WARNING

Please use password management that is consistent with security best practices. It is never safe to store any passwords or credentials in plaintext. Treat your offline token with the same security measures that you use for a password to protect it against unauthorized use.

### 2.1. Generating a new offline token

An offline token never expires as long as it is used at least once every 30 days and is used to create access tokens for the Red Hat Subscription Manager APIs. It works as a password and allows you to continue being able to authenticate your account without having to create new refresh tokens.

#### Procedure

1. Visit the [Red Hat Subscription Manager API Tokens page](#) .

- Click the **Generate Token** button.

## 2.2. Generating a new refresh token

After you have created the offline token, you can use that token to create a new refresh token, which includes an access token that is valid for five minutes. Access tokens are used in the header to authenticate your Customer Portal user account to the Red Hat Subscription Manager APIs.

### Procedure

- Set the offline token value. In this example, we set it in plaintext and shorten the token value for clarity:

```
# offline_token='eyJhbGciOiJSUzI1NiIsInR5cCI6IkpzZW50L3R5cyJ9'
```

- Enter the following command to create a function to easily filter out JSON values.

```
# function jsonValue() {
KEY=$1
num=$2
awk -F"[,:]" '{for(i=1;i<=NF;i++){if($i~/`$KEY`042/){print $(i+1)}}}' | tr -d "" | sed -n ${num}p
}
```

- Enter the following command to extract the **access\_token**:

```
# curl https://sso.redhat.com/auth/realms/redhat-external/protocol/openid-connect/token -d
grant_type=refresh_token -d client_id=rhsm-api -d refresh_token=$offline_token
```

The expected output is similar to the following, where **access\_token** is the token used to authorize your account:

```
{"access_token": "oiZjo1MjhhkNzZmZi1mNzA4LTQzZWQtOGNkNS1mZTE2ZjRmZTBjZTY6cmh
uLXN1cHBvcnQta3RvcnRldXliLCJ0eXAIoiJCZWFyZXIIiLCJhenAiOiJyaHNtLWFwaSIsImF1dG
hfdGltZSI6MTU2NzQwODU5Nywic2Vzc2l2b3R5dGF0ZSI6ImYwZGJiOGQ0LTRINGUtNDY1N
C04NDRjLTZmMzcwNGM4NDQyMiIsImF1dGltZSI6ImYwZGJiOGQ0LTRINGUtNDY1NzYwZGJi
FsbV9hY2Nlc3MiOnsicm9sZXMiOlsicG9ydGFsX21hbmFnZV9zdWJzY3JpcHRpb25zliwib2Zmb
GluZV9hY2Nlc3MiLCJjYW5kbGVwaW5fc3lzdGVtX2FjY2Vzc192aWV3X2VkaXRfYWxsliwiYWw
aW46b3JnOmFsbCIsInBvcnRhbF9tYW5hZ2VfY2FzZXMiLCJwb3J0YWxf3lzdGVtX21hbmFnZ
W1lbnQiLCJwb3J0YWxfZG93bmxvYWQiXX0sInJlc291cmNIX2FjY2Vzcy16e30sImFjY291bnRfa
WQiOiIiOTc5NzEwliwibmFtZSI6Iktlbm55IFRvcnRldXJzliwHJIZmVycmVkaXN3VzZXJuYW1lIjoic
mhuLXN1cHBvcnQta3RvcnRldXliLCJnaXZlbnUuYW11Ijoic2VubnkiLCJmYW1pbHlfbmFtZSI6IIR
vcnRldXJzliwZw1haWwiOiJrdG9yZGV1ckByZWRoYXQuY29tIn0.JfStOgLvGFUAIMb7aVfm-
dWxd4wN5oqk377Q6oyDe55pM4zDiZ0f1yJfHsWL8RHeb3r0tj8DY_UAyAFkxAnjyWjq52d7h2Ef
JUPOs1p1P8Yeu5hDwOrA34Es2maN-ZbJCc4sOb7stGhxSCU15CfvPFIRR5tgSQ17-Mx-
x4ZnK_fwPQK6DqQpNzZ0Krz3U1a-NH86XJ8dT8IC3o03YrdlcZx_-wv6-
PehqNQa2Hb9vt1csX8QIL3PEyBVNPZXaaTHvyFYx0orGyjKA83Qq-
LihbWBXzNjf_rIEfsPJYi-
uQHIT_zjaOPYo2rXi7VTPJC2qRSxF2yaRGLihZHxkDzMOTITnaDeMhbx1zvRr-
R9eXocEUzsU9j-
Yx7h3WYCFjb8zdfXTBHV8SCaMdH1u9Eesa5gmHOOki8882RRR85i1fjpBayFTS36y4S-
yDebUYiukXOnw8mMMKy04NhVpFGfWtJ8--
Jy4Ypndqqk_OS_PiWBsFFN6IMv5S6DZWWpjJE-
CENHK9ceA4MlerBBXLY02Xz9h0biiQUZrd-NLy11j4os124Mai1mmlNOLz993hw0gl-
vKKno_bYOv8dEEemKtSLISPVdW5X_0vBU0BtQuSEVctz_8zsRKHpT-
```

```

YIDdmP0VDuzJjWM0YsGz2W0_tMuLG7NYS_la3vWAVuK--
Uv5cAQ", "expires_in":900, "refresh_expires_in":0, "refresh_token": "eyJhbGciOiJIUzI1NiIsInR5c
ClGoiOiAiSldUiIiwia2kiOiA6IHR5cCI6IHR5cCI6IHR5cCI6IHR5cCI6IHR5cCI6IHR5cCI6IHR5cCI6IHR5cCI6IHR5c
xLbEx3In0.eyJqdGkiOiJhODZlZDczZS00MmE1LTQzYjYtYjYkYS1iMWM5NzU3OWUyZWMiLC
JleHAiOiJm5iZil6MCwiaWF0IjoxNTY3NDEwMDIxLCJpc3MiOiJodHRwczovL3Nzby5yZWRoY
XQuY29tL2F1dGgvcmlhbnG1zL3JlZGhhdC1leHRlcm5hbCIsImF1ZCI6IHR5cCI6IHR5cCI6IHR5cCI6IHR5cCI6IHR5c
Zjo1MjhhNzZmZi1mNzA4LTQzZWQ0OGNkNS1mZTE2ZjRmZTBjZTY6cmhuLXN1cHBvcnQta
3RvcmlhbnG1zL3JlZGhhdC1leHRlcm5hbCIsImF1ZCI6IHR5cCI6IHR5cCI6IHR5cCI6IHR5cCI6IHR5cCI6IHR5c
Nlc3Npb25fc3RhdGUiOiJm5iZil6MCwiaWF0IjoxNTY3NDEwMDIxLCJpc3MiOiJodHRwczovL3Nzby5yZWRoY
CJyZWZsbV9hY2Nlc3MiOncicm9sZXMiOlsicG9ydGFsX21hbmFnZV9zdWJzY3JpcHRpb25zliwi
b2ZmbGluZV9hY2Nlc3MiLCJjYW5kbGVwaW5fc3IzdGVtX2FjY2Vzc192aWV3X2VkaXRfYXN1
wiYWRtaW46b3JnOmFsbCIsImF1ZCI6IHR5cCI6IHR5cCI6IHR5cCI6IHR5cCI6IHR5cCI6IHR5c
hbmFnZW1lbnQiLCJw3J0YWxfZG93bmVxYWQiX291cmNIX2FjY2Vzcyl6e319.S_pm
AWzQUc04f0uGHN9rRYd4sH1t4IPnEwCcOH1aBL9Qo4_EbXPWCrtnf84f1pfuKJTQwUS-
DldY6eloyVEsGgnqkygBKk270bu_bNXCNAuLJigEMsYx_2VzdnwWLPtWS2_FUaNwe7Tai8qX
wd8F0ge0Zjoi3P15S_8z4Tp79uD-
qKcVwz6NIPKCOZwEbwZqOkJDZ8JKTIK8O0jfjdtHMfaWwiXMXdvx3B70tTOtHjQGAAsxZA2dP
PvqVGuyMOMmC3bMaISReUbtDwsCV-
eAZplDfDZthr4k4JbmG9lwq1aATaF3aCwfpebcmolZGHE4_RLZrXCZKapXVVvRxcOrJytxlZrb
DHq6ozX7j-
j1SE3kuexcSLvlodmfTlxwPX9g7aqJu2ZLno54NxQSGYO8lQqSvScFgLTbX5f_FUS0lw6yRWWJ
y2o2fnvfGk83rt5UYTtlb8Xd1GXcpHf8Yl10nVy21BetSQY__VpahF_eZghBNxS689GJnwUqAwl
u01pOlB26mmHaydHc3hqUsudZydRbaFfl7nR6gQP8lCtp6b0z5hgVHLG4ZJ7i4MmEL6C5G4x
HUaUs6RZgJUSsc2DzLW0b7rSQj41JuvTmSgD8bMrnVokmkAbfvxjKGc7E8n2GylmO7JiKb3R
A7_o0xOTRYDla_Ns-lnigJkUIQZUzt7Jl", "token_type": "bearer", "not-before-
policy": 0, "session_state": "f0dbb8d4-4e4e-4654-844c-
6f3704c84422", "scope": "offline_access"}%

```

4. Enter the following command to set the **access\_token** as an authorization token that can be used to perform the API call.

```

# token=`curl https://sso.redhat.com/auth/realms/redhat-external/protocol/openid-
connect/token -d grant_type=refresh_token -d client_id=rhsm-api -d
refresh_token=$offline_token | jsonValue access_token`

```

### 3. ACCESSING AVAILABLE SUBSCRIPTION MANAGEMENT APIS

Red Hat provides a [Swagger](#) file to describe the specifications of the Red Hat Subscription Management APIs. The Swagger specification includes information about the API endpoints available, input parameters, expected output, and possible error responses. The swagger file can be imported into REST clients like Postman or RESTlet to automatically build a library of API calls.

### 4. TROUBLESHOOTING API ERRORS

Table 1. API errors

Code	Explanation	Resolution
400	BadRequest error	Validate that you entered the API call correctly and try again.
401	Unauthorized	Generate a new authorization token.



Code	Explanation	Resolution
403	Forbidden	Generate a new authorization token.
404	Not found	Resource not found or does not exist.
429	Too many requests	Reduce the frequency of requests
500	Internal server error	The problem is on Red Hat's end. Wait a minute and try your request again.

### 4.1. Troubleshooting error 403

Error 403 is a "not authorized" error, meaning that the authentication you are using for Red Hat Subscription Manager APIs has failed. There are two possible solutions you can try.

#### Procedure

1. To authenticate through the Red Hat Subscription Manager gateway, ensure the authorization header includes the text "bearer" before entering your API call:

```
curl -H "Authorization: Bearer <token>" <api_url>
```

2. If the header is correct, create a new token. Refresh tokens last for five minutes.

### 4.2. Troubleshooting error 429

Error 429 is a "rate limiting" error, meaning that your account has exceeded the number of allowed requests per second. This limit applies to all users of a single Red Hat account.

#### Procedure

Extract the header of the response, which includes: \* **X-RateLimit-Limit**: the total requests/sec allowed \* **X-RateLimit-Remaining**: the number of requests/sec remaining (this will be a negative integer) \* **X-RateLimit-Delay**: the number of seconds the requester should wait before trying again

Adjust the rate of requests to the X-RateLimit-Limit value and start again once the X-RateLimit-Delay time has passed.