

# Advanced Administration

Documentation covering more advanced topics relating to the administration of your homesever.

- [Getting Started Using the Admin API](#)
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# Getting Started Using the Admin API

The Synapse Admin API allows administration of your homeserver, such as managing users, rooms and media. In order to make use of the API you will need to have an admin user account present on the homeserver you wish to manage.

## Promoting a Matrix Account to Admin

If you're an EMS customer, you can create / manage your users via the Server Admin tab of the EMS Control Panel.

If you're an ESS customer, you can create / manage your users via your admin dashboard, or via the Admin tab available when running the installer.

Promote the user you will be using to Admin by clicking on the desired user, and checking the `Admin` checkbox and confirming.

## Getting your `access_token`

In order to use the Synapse Admin API you will need to authenticate your calls to the API using an `access_token` from an Admin user account. You can find your `access_token` from the Help & About section of your settings. Check out the Help & About page from the Element Web/Desktop Client Settings chapter for more guidance.

## Making an Admin API request

Using your preferred method, you will need to authenticate each request to an Admin API endpoint by providing the token as either a query parameter or a request header. To add it as a request header in cURL, you can use the following, replacing `syt_AjfVef2_L33JNpafeif_0feKJfeaf0CQpoZk` with your own `access_token`:

```
curl --header "Authorization: Bearer syt_AjfVef2_L33JNpafeif_0feKJfeaf0CQpoZk" -X GET
http://127.0.0.1:8008/_synapse/admin/v2/users/@foo:bar.com
```

Here is the equivalent action using Python and the `requests` library:

```
import requests

headers = {
    'Authorization': 'Bearer syt_AjfVef2_L33JNpafeif_0feKJfeaf0CQpoZk',
}

response = requests.get('http://127.0.0.1:8008/_synapse/admin/v2/users/@foo:bar.com', headers=headers)
```

Further details on the using the API are out-of-scope for this documentation, please consult the [Synapse Admin API](#) documentation. You will find multiple sections covering its use, such as [Rooms](#), [Users](#) and [Media](#).

# Getting Started Using the Client-Server API

The [Client-Server API](#) allows a user to perform any action they could via a Matrix client programmatically. In order to make use of the API you will need to retrieve an access token for your account.

## Getting your `access_token`

In order to use the [Client-Server API](#) you will need to authenticate your calls to the API using an `access_token` from your user account. You can find your `access_token` from the [Help & About](#) section of your settings. Check out the [Help & About](#) page from the [Element Web/Desktop Client Settings](#) chapter for more guidance.

## Making a Client-Server API request

Using your preferred method, you will need to authenticate each request to a Client-Server API endpoint by providing the token as either a query parameter or a request header. To add it as a request header in cURL, you can use the following, replacing `syt_AjfVef2_L33JNpafeif_0feKJfeaf0CQpoZk` with your own `access_token`:

```
curl --header "Authorization: Bearer syt_AjfVef2_L33JNpafeif_0feKJfeaf0CQpoZk" -X GET
https://HOMESERVER_URL/_matrix/client/v0/profile/@user:example.com
```

Here is the equivalent action using Python and the `requests` library:

```
import requests

headers = {
    'Authorization': 'Bearer syt_AjfVef2_L33JNpafeif_0feKJfeaf0CQpoZk',
}

response = requests.get('https://HOMESERVER_URL/_matrix/client/v0/profile/@user:example.com',
headers=headers)
```

Further details on the using the API are out-of-scope for this documentation, please consult the [Client-Server API](#) documentation.

# Using Python with the Admin + Client-Server APIs

You can use Python to make consume and utilise APIs, including those available with Matrix - such as the Synapse Admin API, and the Matrix Client-Server API. See the below docs to learn more about them before progressing with this guide.

- [Getting Started Using the Admin API](#)
- [Getting Started Using the Client-Server API](#)

The key requirement before progressing is getting the Matrix Accounts' `access_token`, if your using the Synapse Admin API, you must use a Matrix Account which is a Synapse Admin.

## Using `python`

You will need [Python](#) setup on your system to make use of the script. The best way to use Python is to keep individual projects / scripts in separate virtual environments (`venv`). The documentation on this can be found [here](#), for example on Windows you'd use:

```
python -m venv .\myPythonProject\  
.\myPythonProject\Scripts\Activate.ps1
```

The script uses the `requests` library in order to make the API requests, to install in in you `venv`, after activating run:

```
python -m pip install requests
```

You will then be able to run scripts you create by using:

```
python .\myPythonProject\scriptName.py
```

## Writing a `python` script

At it's most basic, you will need to setup the below template within your script:

```
import requests  
  
homeserverURL = 'example.com'  
accountToken = 'accountTokenStringExample'
```

```
requestHeaders = {
    'Authorization': 'Bearer ' + accountToken
}

requestData = {
    'key': 'value'
}

getResponse = requests.post('API Endpoint URL', headers=requestHeaders).json()
postResponse = requests.post('API Endpoint URL', headers=requestHeaders, data=requestData).json()
```

The below examples are for reference only, when running any scripts with any access to your homeserver you should verify and understand the script yourself, the below may end up out-dated so please use the various linked documentation before running. We do not provide any support for the following scripts.

## Example #1: Join Users to Rooms

Let's say you wanted to join a list of users to a list of rooms, you would adapt this template to something like the below to make use of the [Edit Room Membership API](#):

```
import requests

# Homeserver
homeserverURL = 'synapse.example.com'

# Credentials
accountToken = 'accountTokenStringExample'

# Rooms to Auto-Join
roomAliasList = ['#room1:example.com', '#room2:example.com']

# Users to Auto-Join
userList = ['@user1:example.com', '@user2:example.com']

# API Auth Header
requestHeaders = {
    'Authorization': 'Bearer ' + accountToken,
}

# Loop through all rooms
for roomAlias in roomAliasList:
```

```

# Construct API Endpoint URL
editRoomMembershipURL = 'https://' + homeserverURL + '/_synapse/admin/v1/join/' + roomAlias

# Loop through all users
for user in userList:
    # Construct POST contents
    editRoomMembershipData = {
        "user_id": user
    }

    # Send Request
    response = requests.post(editRoomMembershipURL, headers=requestHeaders,
data=editRoomMembershipData).json()

```

## Example #2: Delete Older Media

If you are looking to remove all media older than a specific Unix Timestamp, you could adjust the template above to make use of [Delete local media by date or size](#).

```

import requests

# Homeserver
homeserverURL = 'synapse.example.com'

# Credentials
accountToken = 'accountTokenStringExample'

# API Auth Header
requestHeaders = {
    'Authorization': 'Bearer ' + accountToken,
}

# Construct API Endpoint URL
unixTimestamp : str = '1672531200000'
deleteMediaURL = 'https://' + homeserverURL + '/_synapse/admin/v1/media/delete?before_ts=' +
unixTimestamp

# Send Request
response = requests.post(deleteMediaURL, headers=requestHeaders).json()

```

## Example #3: Remove specific `external_ids`

If you are looking to remove specific External IDs from user accounts, you can use the below. Simply replace the `url`, `adminToken` and `authProvider` variables at the top of the script with the desired values. This script makes use of [List Accounts](#) to get all users, [Query User Account](#) to get each users' `external_ids` and finally [Create or Modify Account](#) to remove that specific `external_id`.

```
import requests
import json

url = 'synapse.example.com' # Replace with Synapse FQDN
adminToken = 'exampleToken' # Replace with Admin Token
authProvider = 'exampleAuth'# Replace with Auth Provider to Delete

headers = {
    'Authorization': 'Bearer ' + adminToken,
}

userAccountURL = 'https://' + url + '/_synapse/admin/v2/users'

# GET ALL USER ACCOUNTS
def get_all_users():
    all_users = []
    list_account_from = 0
    users = requests.get(userAccountURL + '?limit=5', headers=headers).json()
    all_users.extend(users['users'])

    while 'next_token' in users.keys():
        list_account_from = int(users['next_token'])
        users = requests.get(userAccountURL + '?from=' + str(list_account_from), headers=headers).json()
        all_users.extend(users['users'])

    return all_users

# DELETE EXTERNAL ID WITH SPECIFIED AUTH PROVIDER
def delete_matching_external_id(auth_provider, user_accounts):
    for user in user_accounts:
        user_details = requests.get(userAccountURL + '/' + user['name'], headers=headers).json()
        if 'external_ids' in user_details.keys():
            body = {
                'external_ids': []
            }
            for external_id in user_details['external_ids']:
                if external_id['auth_provider'] != auth_provider:
```

```
body['external_ids'].append(external_id)
body_json = json.dumps(body)
result = requests.put(userAccountURL + '/' + user['name'], headers=headers, data=body_json).json()
```

```
delete_matching_external_id(authProvider, get_all_users())
```