gspread Documentation

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gspread is a Python API for Google Sheets.

Features:

- Google Sheets API v4.
- Open a spreadsheet by title, key or url.
- Read, write, and format cell ranges.
- Sharing and access control.
- Batching updates.

CHAPTER 1

Installation

```
pip install gspread
```

Requirements: Python 3+.

CHAPTER 2

Quick Example

```
import gspread

gc = gspread.service_account()

# Open a sheet from a spreadsheet in one go
wks = gc.open("Where is the money Lebowski?").sheet1

# Update a range of cells using the top left corner address
wks.update('A1', [[1, 2], [3, 4]])

# Or update a single cell
wks.update('B42', "it's down there somewhere, let me take another look.")

# Format the header
wks.format('A1:B1', {'textFormat': {'bold': True}})
```

CHAPTER 3

Getting Started

3.1 Authentication

To access spreadsheets via Google Sheets API you need to authenticate and authorize your application.

- If you plan to access spreadsheets on behalf of a bot account use *Service Account*.
- If you'd like to access spreadsheets on behalf of end users (including yourself) use *OAuth Client ID*.

3.1.1 Enable API Access for a Project

1. Head to Google Developers Console and create a new project (or select the one you already have).
2. In the box labeled "Search for APIs and Services", search for "Google Drive API" and enable it.
3. In the box labeled "Search for APIs and Services", search for "Google Sheets API" and enable it.

3.1.2 For Bots: Using Service Account

A service account is a special type of Google account intended to represent a non-human user that needs to authenticate and be authorized to access data in Google APIs [sic].

Since it's a separate account, by default it does not have access to any spreadsheet until you share it with this account. Just like any other Google account.

Here's how to get one:

1. *Enable API Access for a Project* if you haven't done it yet.
2. Go to "APIs & Services > Credentials" and choose "Create credentials > Service account key".
3. Fill out the form
4. Click "Create" and "Done".
5. Press "Manage service accounts" above Service Accounts.

6. Press on near recently created service account and select "Manage keys" and then click on "ADD KEY > Create new key".
7. Select JSON key type and press "Create".

You will automatically download a JSON file with credentials. It may look like this:

```
{
    "type": "service_account",
    "project_id": "api-project-XXX",
    "private_key_id": "2cd ... ba4",
    "private_key": "-----BEGIN PRIVATE KEY-----\nNrDyLw ... jINQh/9\n-----END PRIVATE␣
↪KEY-----\n",
    "client_email": "473000000000-yoursisdifferent@developer.gserviceaccount.com",
    "client_id": "473 ... hd.apps.googleusercontent.com",
    ...
}
```

Remember the path to the downloaded credentials file. Also, in the next step you'll need the value of *client_email* from this file.

6. Very important! Go to your spreadsheet and share it with a *client_email* from the step above. Just like you do with any other Google account. If you don't do this, you'll get a `gspread.exceptions.SpreadsheetNotFound` exception when trying to access this spreadsheet from your application or a script.
7. Move the downloaded file to `~/.config/gspread/service_account.json`. Windows users should put this file to `%APPDATA%\gspread\service_account.json`.
8. Create a new Python file with this code:

```
import gspread

gc = gspread.service_account()

sh = gc.open("Example spreadsheet")

print(sh.sheet1.get('A1'))
```

Ta-da!

Note: If you want to store the credentials file somewhere else, specify the path to *service_account.json* in *`service_account()`*:

```
gc = gspread.service_account(filename='path/to/the/downloaded/file.json')
```

Make sure you store the credentials file in a safe place.

For the curious, under the hood *`service_account()`* loads your credentials and authorizes gspread. Similarly to the code that has been used for authentication prior to the gspread version 3.6:

```
from google.oauth2.service_account import Credentials

scopes = [
    'https://www.googleapis.com/auth/spreadsheets',
    'https://www.googleapis.com/auth/drive'
]

credentials = Credentials.from_service_account_file(
```

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```
    'path/to/the/downloaded/file.json',
    scopes=scopes
)

gc = gspread.authorize(credentials)
```

There is also the option to pass credentials as a dictionary:

```
import gspread

credentials = {
    "type": "service_account",
    "project_id": "api-project-XXX",
    "private_key_id": "2cd ... ba4",
    "private_key": "-----BEGIN PRIVATE KEY-----\nNrDyLw ... jINQh/9\n-----END PRIVATE␣
↪KEY-----\n",
    "client_email": "473000000000-yoursisdifferent@developer.gserviceaccount.com",
    "client_id": "473 ... hd.apps.googleusercontent.com",
    ...
}

gc = gspread.service_account_from_dict(credentials)

sh = gc.open("Example spreadsheet")

print(sh.sheet1.get('A1'))
```

Note: Older versions of gspread have used oauth2client. Google has deprecated it in favor of *google-auth*. If you're still using *oauth2client* credentials, the library will convert these to *google-auth* for you, but you can change your code to use the new credentials to make sure nothing breaks in the future.

3.1.3 For End Users: Using OAuth Client ID

This is the case where your application or a script is accessing spreadsheets on behalf of an end user. When you use this scenario, your application or a script will ask the end user (or yourself if you're running it) to grant access to the user's data.

1. *Enable API Access for a Project* if you haven't done it yet.
2. Go to "APIs & Services > OAuth Consent Screen." Click the button for "Configure Consent Screen".

a. In the "1 OAuth consent screen" tab, give your app a name and fill the "User support email" and "Developer contact information". Click "SAVE AND CONTINUE".

b. There is no need to fill in anything in the tab "2 Scopes", just click "SAVE AND CONTINUE".

c. In the tab "3 Test users", add the Google account email of the end user, typically your own Google email. Click "SAVE AND CONTINUE".

d. Double check the "4 Summary" presented and click "BACK TO DASHBOARD".

3. Go to "APIs & Services > Credentials"
4. Click "+ Create credentials" at the top, then select "OAuth client ID".
5. Select "Desktop app", name the credentials and click "Create". Click "Ok" in the "OAuth client created" popup.

6. Download the credentials by clicking the Download JSON button in "OAuth 2.0 Client IDs" section.
7. Move the downloaded file to `~/.config/gspread/credentials.json`. Windows users should put this file to `%APPDATA%\gspread\credentials.json`.

Create a new Python file with this code:

```
import gspread

gc = gspread.oauth()

sh = gc.open("Example spreadsheet")

print(sh.sheet1.get('A1'))
```

When you run this code, it launches a browser asking you for authentication. Follow the instruction on the web page. Once finished, gspread stores authorized credentials in the config directory next to *credentials.json*. You only need to do authorization in the browser once, following runs will reuse stored credentials.

Note: If you want to store the credentials file somewhere else, specify the path to *credentials.json* and *authorized_user.json* in *oauth()*:

```
gc = gspread.oauth(
    credentials_filename='path/to/the/credentials.json',
    authorized_user_filename='path/to/the/authorized_user.json'
)
```

Make sure you store the credentials file in a safe place.

There is also the option to pass your credentials directly as a python dict. This way you don't have to store them as files or you can store them in your favorite password manager.

```
import gspread

credentials = {
    {
        "installed": {
            "client_id": "1234567890123456789abcdefghijklmn.apps.googleusercontent.
↪com",
            "project_id": "my-project1234",
            "auth_uri": "https://accounts.google.com/o/oauth2/auth",
            "token_uri": "https://oauth2.googleapis.com/token",
            ...
        }
    }
}
gc, authorized_user = gspread.oauth_from_dict(credentials)

sh = gc.open("Example spreadsheet")

print(sh.sheet1.get('A1'))
```

Once authenticated you must store the returned json string containing your authenticated user information. Provide that details as a python dict as second argument in your next *oauth* request to be directly authenticated and skip the flow.

Note: The second time if your authorized user has not expired, you can omit the credentials. Be aware, if the

authorized user has expired your credentials are required to authenticate again.

```
import gspread

credentials = {
    "installed": {
        "client_id": "1234567890123456789abcdefghijklmn.apps.googleusercontent.com",
        "project_id": "my-project1234",
        "auth_uri": "https://accounts.google.com/o/oauth2/auth",
        "token_uri": "https://oauth2.googleapis.com/token",
        ...
    }
}
authorized_user = {
    "refresh_token": "8//ThisALONGTOkEn....",
    "token_uri": "https://oauth2.googleapis.com/token",
    "client_id": "1234567890123456789abcdefghijklmn.apps.googleusercontent.com",
    "client_secret": "MySecRet....",
    "scopes": [
        "https://www.googleapis.com/auth/spreadsheets",
        "https://www.googleapis.com/auth/drive"
    ],
    "expiry": "1070-01-01T00:00:00.000001Z"
}
gc, authorized_user = gspread.oauth_from_dict(credentials, authorized_user)

sh = gc.open("Example spreadsheet")

print(sh.sheet1.get('A1'))
```

Warning: Security credentials file and authorized credentials contain sensitive data. **Do not share these files with others** and treat them like private keys.

If you are concerned about giving the application access to your spreadsheets and Drive, use Service Accounts.

Note: The user interface of Google Developers Console may be different when you're reading this. If you find that this document is out of sync with the actual UI, please update it. Improvements to the documentation are always welcome. Click **Edit on GitHub** in the top right corner of the page, make it better and submit a PR.

CHAPTER 4

Usage

4.1 Examples of gspread Usage

If you haven't yet authorized your app, read *Authentication* first.

4.1.1 Opening a Spreadsheet

You can open a spreadsheet by its title as it appears in Google Docs:

```
sh = gc.open('My poor gym results')
```

If you want to be specific, use a key (which can be extracted from the spreadsheet's url):

```
sht1 = gc.open_by_key('0BmgG6nO_6dprdS1MN3d3MkdPa142WFRrdnRRUWl1UFE')
```

Or, if you feel really lazy to extract that key, paste the entire spreadsheet's url

```
sht2 = gc.open_by_url('https://docs.google.com/spreadsheet/ccc?key=0Bm...FE&hl')
```

4.1.2 Creating a Spreadsheet

Use *create()* to create a new blank spreadsheet:

```
sh = gc.create('A new spreadsheet')
```

Note: If you're using a *service account*, this new spreadsheet will be visible only to this account. To be able to access newly created spreadsheet from Google Sheets with your own Google account you *must* share it with your email. See how to share a spreadsheet in the section below.

4.1.3 Sharing a Spreadsheet

If your email is *otto@example.com* you can share the newly created spreadsheet with yourself:

```
sh.share('otto@example.com', perm_type='user', role='writer')
```

See `share()` documentation for a full list of accepted parameters.

4.1.4 Selecting a Worksheet

Select worksheet by index. Worksheet indexes start from zero:

```
worksheet = sh.get_worksheet(0)
```

Or by title:

```
worksheet = sh.worksheet("January")
```

Or the most common case: *Sheet1*:

```
worksheet = sh.sheet1
```

To get a list of all worksheets:

```
worksheet_list = sh.worksheets()
```

4.1.5 Creating a Worksheet

```
worksheet = sh.add_worksheet(title="A worksheet", rows=100, cols=20)
```

4.1.6 Deleting a Worksheet

```
sh.del_worksheet(worksheet)
```

4.1.7 Getting a Cell Value

Using A1 notation:

```
val = worksheet.acell('B1').value
```

Or row and column coordinates:

```
val = worksheet.cell(1, 2).value
```

If you want to get a cell formula:

```
cell = worksheet.acell('B1', value_render_option='FORMULA').value

# or

cell = worksheet.cell(1, 2, value_render_option='FORMULA').value
```

4.1.8 Getting All Values From a Row or a Column

Get all values from the first row:

```
values_list = worksheet.row_values(1)
```

Get all values from the first column:

```
values_list = worksheet.col_values(1)
```

Note: So far we've been fetching a limited amount of data from a sheet. This works great until you need to get values from hundreds of cells or iterating over many rows or columns.

Under the hood, gspread uses Google Sheets API v4. Most of the time when you call a gspread method to fetch or update a sheet gspread produces one HTTP API call.

HTTP calls have performance costs. So if you find your app fetching values one by one in a loop or iterating over rows or columns you can improve the performance of the app by fetching data in one go.

What's more, Sheets API v4 introduced Usage Limits (as of this writing, 300 requests per 60 seconds per project, and 60 requests per 60 seconds per user). When your application hits that limit, you get an *APIError 429 RESOURCE_EXHAUSTED*.

Here are the methods that may help you to reduce API calls:

- `get_all_values()` fetches values from all of the cells of the sheet.
- `get()` fetches all values from a range of cells.
- `batch_get()` can fetch values from multiple ranges of cells with one API call.
- `update()` lets you update a range of cells with a list of lists.
- `batch_update()` lets you update multiple ranges of cells with one API call.

4.1.9 Getting All Values From a Worksheet as a List of Lists

```
list_of_lists = worksheet.get_all_values()
```

4.1.10 Getting All Values From a Worksheet as a List of Dictionaries

```
list_of_dicts = worksheet.get_all_records()
```

4.1.11 Finding a Cell

Find a cell matching a string:

```
cell = worksheet.find("Dough")

print("Found something at R%sC%s" % (cell.row, cell.col))
```

Find a cell matching a regular expression

```
amount_re = re.compile(r'(Big|Enormous) dough')
cell = worksheet.find(amount_re)
```

find returns *None* if value is not Found

4.1.12 Finding All Matched Cells

Find all cells matching a string:

```
cell_list = worksheet.findall("Rug store")
```

Find all cells matching a regexp:

```
criteria_re = re.compile(r'(Small|Room-tiering) rug')
cell_list = worksheet.findall(criteria_re)
```

4.1.13 Clear A Worksheet

Clear one or multiple celle ranges at once:

```
worksheet.batch_clear(["A1:B1", "C2:E2", "my_named_range"])
```

Clear the entire workshseet:

```
worksheet.clear()
```

4.1.14 Cell Object

Each cell has a value and coordinates properties:

```
value = cell.value
row_number = cell.row
column_number = cell.col
```

4.1.15 Updating Cells

Using A1 notation:

```
worksheet.update('B1', 'Bingo!')
```

Or row and column coordinates:

```
worksheet.update_cell(1, 2, 'Bingo!')
```

Update a range

```
worksheet.update('A1:B2', [[1, 2], [3, 4]])
```

4.1.16 Formatting

Here's an example of basic formatting.

Set **A1:B1** text format to bold:

```
worksheet.format('A1:B1', {'textFormat': {'bold': True}})
```

Color the background of **A2:B2** cell range in black, change horizontal alignment, text color and font size:

```
worksheet.format("A2:B2", {
    "backgroundColor": {
      "red": 0.0,
      "green": 0.0,
      "blue": 0.0
    },
    "horizontalAlignment": "CENTER",
    "textFormat": {
      "foregroundColor": {
        "red": 1.0,
        "green": 1.0,
        "blue": 1.0
      },
      "fontSize": 12,
      "bold": True
    }
})
```

The second argument to `format()` is a dictionary containing the fields to update. A full specification of format options is available at CellFormat in Sheet API Reference.

Tip: gspread-formatting offers extensive functionality to help you when you go beyond basics.

4.1.17 Using gspread with pandas

pandas is a popular library for data analysis. The simplest way to get data from a sheet to a pandas DataFrame is with `get_all_records()`:

```
import pandas as pd

dataframe = pd.DataFrame(worksheet.get_all_records())
```

Here's a basic example for writing a dataframe to a sheet. With `update()` we put the header of a dataframe into the first row of a sheet followed by the values of a dataframe:

```
import pandas as pd

worksheet.update([dataframe.columns.values.tolist()] + dataframe.values.tolist())
```

For advanced pandas use cases check out these libraries:

- gspread-pandas
- gspread-dataframe

4.1.18 Using gspread with NumPy

NumPy is a library for scientific computing in Python. It provides tools for working with high performance multi-dimensional arrays.

Read contents of a sheet into a NumPy array:

```
import numpy as np
array = np.array(worksheet.get_all_values())
```

The code above assumes that your data starts from the first row of the sheet. If you have a header row in the first row, you need replace `worksheet.get_all_values()` with `worksheet.get_all_values()[1:]`.

Write a NumPy array to a sheet:

```
import numpy as np

array = np.array([[1, 2, 3], [4, 5, 6]])

# Write the array to worksheet starting from the A2 cell
worksheet.update('A2', array.tolist())
```

CHAPTER 5

Advanced

5.1 Advanced Usage

5.1.1 Custom Authentication

Google Colaboratory

If you familiar with the Jupyter Notebook, Google Colaboratory is probably the easiest way to get started using gspread:

```
from google.colab import auth
auth.authenticate_user()

import gspread
from oauth2client.client import GoogleCredentials

gc = gspread.authorize(GoogleCredentials.get_application_default())
```

See the full example in the External data: Local Files, Drive, Sheets, and Cloud Storage notebook.

Using Authlib

Using `Authlib` instead of `google-auth`. Similar to google.auth.transport.requests.AuthorizedSession Authlib's `AssertionSession` can automatically refresh tokens.:

```
import json
from gspread import Client
from authlib.integrations.requests_client import AssertionSession

def create_assertion_session(conf_file, scopes, subject=None):
    with open(conf_file, 'r') as f:
        conf = json.load(f)
```

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```
    token_url = conf['token_uri']
    issuer = conf['client_email']
    key = conf['private_key']
    key_id = conf.get('private_key_id')

    header = {'alg': 'RS256'}
    if key_id:
        header['kid'] = key_id

    # Google puts scope in payload
    claims = {'scope': ' '.join(scopes)}
    return AssertionSession(
        grant_type=AssertionSession.JWT_BEARER_GRANT_TYPE,
        token_url=token_url,
        issuer=issuer,
        audience=token_url,
        claims=claims,
        subject=subject,
        key=key,
        header=header,
    )

scopes = [
    'https://www.googleapis.com/auth/spreadsheets',
    'https://www.googleapis.com/auth/drive',
]
session = create_assertion_session('your-google-conf.json', scopes)
gc = Client(None, session)

wks = gc.open("Where is the money Lebowski?").sheet1

wks.update_acell('B2', "it's down there somewhere, let me take another look.")

# Fetch a cell range
cell_list = wks.range('A1:B7')
```

CHAPTER 6

API Documentation

6.1 API Reference

6.1.1 Top level

gspread.**oauth**(*scopes=['https://www.googleapis.com/auth/spreadsheets', 'https://www.googleapis.com/auth/drive'], flow=<function local_server_flow>, credentials_filename='/home/docs/.config/gspread/credentials.json', authorized_user_filename='/home/docs/.config/gspread/authorized_user.json'*)

Authenticate with OAuth Client ID.

By default this function will use the local server strategy and open the authorization URL in the user's browser:

```
gc = gspread.oauth()
```

Another option is to run a console strategy. This way, the user is instructed to open the authorization URL in their browser. Once the authorization is complete, the user must then copy & paste the authorization code into the application:

```
gc = gspread.oauth(flow=gspread.auth.console_flow)
```

`scopes` parameter defaults to read/write scope available in `gspread.auth.DEFAULT_SCOPES`. It's read/write for Sheets and Drive API:

```
DEFAULT_SCOPES =[
    'https://www.googleapis.com/auth/spreadsheets',
    'https://www.googleapis.com/auth/drive'
]
```

You can also use `gspread.auth.READONLY_SCOPES` for read only access. Obviously any method of `gspread` that updates a spreadsheet **will not work** in this case:

```
gc = gspread.oauth(scopes=gspread.auth.READONLY_SCOPES)

sh = gc.open("A spreadsheet")
sh.sheet1.update('A1', '42')    # <-- this will not work
```

If you're storing your user credentials in a place other than the default, you may provide a path to that file like so:

```
gc = gspread.oauth(
    credentials_filename='/alternative/path/credentials.json',
    authorized_user_filename='/alternative/path/authorized_user.json',
)
```

Parameters

- **scopes** (*list*) – The scopes used to obtain authorization.
- **flow** (*function*) – OAuth flow to use for authentication. Defaults to *local_server_flow()*
- **credentials_filename** (*str*) – Filepath (including name) pointing to a credentials *.json* file. Defaults to DEFAULT_CREDENTIALS_FILENAME:
  - *%APPDATA%gspreadcredentials.json* on Windows
  - *~/.config/gspread/credentials.json* everywhere else
- **authorized_user_filename** (*str*) – Filepath (including name) pointing to an authorized user *.json* file. Defaults to DEFAULT_AUTHORIZED_USER_FILENAME:
  - *%APPDATA%gspreadauthorized_user.json* on Windows
  - *~/.config/gspread/authorized_user.json* everywhere else

Return type *gspread.Client*

gspread.**service_account**(*filename='/home/docs/.config/gspread/service_account.json', scopes=['https://www.googleapis.com/auth/spreadsheets', 'https://www.googleapis.com/auth/drive']*)

Authenticate using a service account.

`scopes` parameter defaults to read/write scope available in `gspread.auth.DEFAULT_SCOPES`. It's read/write for Sheets and Drive API:

```
DEFAULT_SCOPES =[
    'https://www.googleapis.com/auth/spreadsheets',
    'https://www.googleapis.com/auth/drive'
]
```

You can also use `gspread.auth.READONLY_SCOPES` for read only access. Obviously any method of `gspread` that updates a spreadsheet **will not work** in this case.

Parameters

- **filename** (*str*) – The path to the service account json file.
- **scopes** (*list*) – The scopes used to obtain authorization.

Return type *gspread.Client*

gspread.**authorize**(*credentials*, *client_class=<class 'gspread.client.Client'>*)
Login to Google API using OAuth2 credentials. This is a shortcut function which instantiates *client_class*. By default *gspread.Client* is used.

Returns *client_class* instance.

6.1.2 Client

class gspread.**Client**(*auth*, *session=None*)
An instance of this class communicates with Google API.

Parameters

- **auth** – An OAuth2 credential object. Credential objects created by google-auth.
- **session** – (optional) A session object capable of making HTTP requests while persisting some parameters across requests. Defaults to google.auth.transport.requests.AuthorizedSession.

```
>>> c = gspread.Client(auth=OAuthCredentialObject)
```

copy(*file_id*, *title=None*, *copy_permissions=False*, *folder_id=None*, *copy_comments=True*)
Copies a spreadsheet.

Parameters

- **file_id** (*str*) – A key of a spreadsheet to copy.
- **title** (*str*) – (optional) A title for the new spreadsheet.
- **copy_permissions** (*bool*) – (optional) If True, copy permissions from the original spreadsheet to the new spreadsheet.
- **folder_id** (*str*) – Id of the folder where we want to save the spreadsheet.
- **copy_comments** (*bool*) – (optional) If True, copy the comments from the original spreadsheet to the new spreadsheet.

Returns a `Spreadsheet` instance.

New in version 3.1.0.

Note: If you're using custom credentials without the Drive scope, you need to add `https://www.googleapis.com/auth/drive` to your OAuth scope in order to use this method.

Example:

```
scope = [
    'https://www.googleapis.com/auth/spreadsheets',
    'https://www.googleapis.com/auth/drive'
]
```

Otherwise, you will get an `Insufficient Permission` error when you try to copy a spreadsheet.

---

create(*title*, *folder_id=None*)
Creates a new spreadsheet.

Parameters

- **title** (*str*) – A title of a new spreadsheet.

- **folder_id** (*str*) – Id of the folder where we want to save the spreadsheet.

Returns a `Spreadsheet` instance.

del_spreadsheet(*file_id*)
Deletes a spreadsheet.

Parameters **file_id** (*str*) – a spreadsheet ID (a.k.a file ID).

import_csv(*file_id*, *data*)
Imports data into the first page of the spreadsheet.

Parameters **data** (*str*) – A CSV string of data.

Example:

```
# Read CSV file contents
content = open('file_to_import.csv', 'r').read()

gc.import_csv(spreadsheet.id, content)
```

Note: This method removes all other worksheets and then entirely replaces the contents of the first worksheet.

insert_permission(*file_id*, *value*, *perm_type*, *role*, *notify=True*, *email_message=None*, *with_link=False*)
Creates a new permission for a file.

Parameters

- **file_id** (*str*) – a spreadsheet ID (aka file ID).
- **value** (*str, None*) – user or group e-mail address, domain name or None for 'default' type.
- **perm_type** (*str*) – (optional) The account type. Allowed values are: `user`, `group`, `domain`, `anyone`
- **role** (*str*) – (optional) The primary role for this user. Allowed values are: `owner`, `writer`, `reader`
- **notify** (*str*) – (optional) Whether to send an email to the target user/domain.
- **email_message** (*str*) – (optional) An email message to be sent if `notify=True`.
- **with_link** (*bool*) – (optional) Whether the link is required for this permission to be active.

Examples:

```
# Give write permissions to otto@example.com

gc.insert_permission(
    '0BmgG6nO_6dprnRRUWl1UFE',
    'otto@example.org',
    perm_type='user',
    role='writer'
)

# Make the spreadsheet publicly readable
```

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```
gc.insert_permission(
    '0BmgG6nO_6dprnRRUWl1UFE',
    None,
    perm_type='anyone',
    role='reader'
)
```

list_permissions(*file_id*)
Retrieve a list of permissions for a file.

Parameters **file_id** (*str*) – a spreadsheet ID (aka file ID).

open(*title*, *folder_id=None*)
Opens a spreadsheet.

Parameters

- **title** (*str*) – A title of a spreadsheet.
- **folder_id** (*str*) – (optional) If specified can be used to filter spreadsheets by parent folder ID.

Returns a `Spreadsheet` instance.

If there's more than one spreadsheet with same title the first one will be opened.

Raises **gspread.SpreadsheetNotFound** – if no spreadsheet with specified *title* is found.

```
>>> gc.open('My fancy spreadsheet')
```

open_by_key(*key*)
Opens a spreadsheet specified by *key* (a.k.a Spreadsheet ID).

Parameters **key** (*str*) – A key of a spreadsheet as it appears in a URL in a browser.

Returns a `Spreadsheet` instance.

```
>>> gc.open_by_key('0BmgG6nO_6dprdS1MN3d3MkdPa142WFRrdnRRUWl1UFE')
```

open_by_url(*url*)
Opens a spreadsheet specified by *url*.

Parameters **url** (*str*) – URL of a spreadsheet as it appears in a browser.

Returns a `Spreadsheet` instance.

Raises **gspread.SpreadsheetNotFound** – if no spreadsheet with specified *url* is found.

```
>>> gc.open_by_url('https://docs.google.com/spreadsheet/ccc?key=0Bm...FE&hl')
```

openall(*title=None*)
Opens all available spreadsheets.

Parameters **title** (*str*) – (optional) If specified can be used to filter spreadsheets by title.

Returns a list of `Spreadsheet` instances.

remove_permission(*file_id*, *permission_id*)
Deletes a permission from a file.

Parameters

- **file_id** (*str*) – a spreadsheet ID (aka file ID.)

- **permission_id** (*str*) – an ID for the permission.

class gspread.client.**BackoffClient**(*auth*, *session=None*)

BackoffClient is a gspread client with exponential backoff retries.

In case a request fails due to some API rate limits, it will wait for some time, then retry the request.

This can help by trying the request after some time and prevent the application from failing (by raising an APIError exception).

> **Warning:** This Client is not production ready yet. Use it at your own risk !

Note: Currently known issues are:

- will retry exponentially even when the error should raise instantly. Due to the Drive API that raises 403 (Forbidden) errors for forbidden access and for api rate limit exceeded.

6.1.3 Models

The models represent common spreadsheet entities: *a spreadsheet*, *a worksheet* and *a cell*.

Note: The classes described below should not be instantiated by the end-user. Their instances result from calling other objects' methods.

---

class gspread.spreadsheet.**Spreadsheet**(*client*, *properties*)

The class that represents a spreadsheet.

add_worksheet(*title*, *rows*, *cols*, *index=None*)

Adds a new worksheet to a spreadsheet.

Parameters

- **title** (*str*) – A title of a new worksheet.
- **rows** (*int*) – Number of rows.
- **cols** (*int*) – Number of columns.
- **index** (*int*) – Position of the sheet.

Returns a newly created `worksheets`.

batch_update(*body*)

Lower-level method that directly calls spreadsheets.batchUpdate.

Parameters **body** (*dict*) – Request body.

Returns Response body.

Return type dict

New in version 3.0.

creationTime

Spreadsheet Creation time.

del_worksheet(*worksheet*)

Deletes a worksheet from a spreadsheet.

Parameters **worksheet** (Worksheet) – The worksheet to be deleted.

duplicate_sheet(*source_sheet_id*, *insert_sheet_index=None*, *new_sheet_id=None*, *new_sheet_name=None*)

Duplicates the contents of a sheet.

Parameters

- **source_sheet_id** (*int*) – The sheet ID to duplicate.
- **insert_sheet_index** (*int*) – (optional) The zero-based index where the new sheet should be inserted. The index of all sheets after this are incremented.
- **new_sheet_id** (*int*) – (optional) The ID of the new sheet. If not set, an ID is chosen. If set, the ID must not conflict with any existing sheet ID. If set, it must be non-negative.
- **new_sheet_name** (*str*) – (optional) The name of the new sheet. If empty, a new name is chosen for you.

Returns a newly created <gspread.models.Worksheet>.

New in version 3.1.

get_worksheet(*index*)

Returns a worksheet with specified *index*.

Parameters **index** (*int*) – An index of a worksheet. Indexes start from zero.

Returns an instance of gspread.models.Worksheet.

Raises WorksheetNotFound: if can't find the worksheet

Example. To get third worksheet of a spreadsheet:

```
>>> sht = client.open('My fancy spreadsheet')
>>> worksheet = sht.get_worksheet(2)
```

get_worksheet_by_id(*id*)

Returns a worksheet with specified *worksheet id*.

Parameters **id** (*int*) – The id of a worksheet. it can be seen in the url as the value of the parameter 'gid'.

Returns an instance of gspread.models.Worksheet.

Raises WorksheetNotFound: if can't find the worksheet

Example. To get the worksheet 123456 of a spreadsheet:

```
>>> sht = client.open('My fancy spreadsheet')
>>> worksheet = sht.get_worksheet_by_id(123456)
```

id

Spreadsheet ID.

lastUpdateTime

Spreadsheet Creation time.

list_named_ranges()

Lists the spreadsheet's named ranges.

list_permissions()

Lists the spreadsheet's permissions.

list_protected_ranges(*sheetid*)
Lists the spreadsheet's protected named ranges

locale
Spreadsheet locale

named_range(*named_range*)
return a list of `Cell` objects from the specified named range.

Parameters **name** (*str*) – A string with a named range value to fecth.

remove_permissions(*value*, *role='any'*)
Remove permissions from a user or domain.

Parameters

- **value** (*str*) – User or domain to remove permissions from
- **role** (*str*) – (optional) Permission to remove. Defaults to all permissions.

Example:

```
# Remove Otto's write permission for this spreadsheet
sh.remove_permissions('otto@example.com', role='writer')

# Remove all Otto's permissions for this spreadsheet
sh.remove_permissions('otto@example.com')
```

reorder_worksheets(*worksheets_in_desired_order*)
Updates the `index` property of each Worksheets to reflect its index in the provided sequence of Worksheets.

Parameters **worksheets_in_desired_order** – Iterable of Worksheet objects in desired order.

Note: If you omit some of the Spreadsheet's existing Worksheet objects from the provided sequence, those Worksheets will be appended to the end of the sequence in the order that they appear in the list returned by `Spreadsheet.worksheets()`.

New in version 3.4.

share(*value*, *perm_type*, *role*, *notify=True*, *email_message=None*, *with_link=False*)
Share the spreadsheet with other accounts.

Parameters

- **value** (*str, None*) – user or group e-mail address, domain name or None for 'default' type.
- **perm_type** (*str*) – The account type. Allowed values are: `user`, `group`, `domain`, `anyone`.
- **role** (*str*) – The primary role for this user. Allowed values are: `owner`, `writer`, `reader`.
- **notify** (*str*) – (optional) Whether to send an email to the target user/domain.
- **email_message** (*str*) – (optional) The email to be sent if notify=True
- **with_link** (*bool*) – (optional) Whether the link is required for this permission

Example:

```
# Give Otto a write permission on this spreadsheet
sh.share('otto@example.com', perm_type='user', role='writer')

# Transfer ownership to Otto
sh.share('otto@example.com', perm_type='user', role='owner')
```

sheet1
Shortcut property for getting the first worksheet.

timezone
Spreadsheet timeZone

title
Spreadsheet title.

update_locale(*locale*)
Update the locale of the spreaddsheet. Can be any of the ISO 639-1 language codes, such as: de, fr, en, ... Or an ISO 639-2 if no ISO 639-1 exists. Or a combination of the ISO language code and country code, such as en_US, de_CH, fr_FR, ...

Note: Note: when updating this field, not all locales/languages are supported.

update_timezone(*timezone*)
Updates the current spreadsheet timezone. Can be any timezone in CLDR format such as "America/New_York" or a custom time zone such as GMT-07:00.

update_title(*title*)
Renames the spreadsheet.

Parameters **title** (*str*) – A new title.

updated
Deprecated since version 2.0.

This feature is not supported in Sheets API v4.

url
Spreadsheet URL.

values_append(*range*, *params*, *body*)
Lower-level method that directly calls spreadsheets.values.append.

Parameters

- **range** (*str*) – The A1 notation of a range to search for a logical table of data. Values will be appended after the last row of the table.
- **params** (*dict*) – Query parameters.
- **body** (*dict*) – Request body.

Returns

Response body.

Return type dict

New in version 3.0.

values_batch_get(*ranges*, *params=None*)
Lower-level method that directly calls spreadsheets.values.batchGet.

Parameters

- **ranges** – List of ranges in the A1 notation of the values to retrieve.
- **params** (*dict*) – (optional) Query parameters.

Returns

Response body.

Return type dict

values_clear(*range*)

Lower-level method that directly calls spreadsheets.values.clear.

Parameters **range** (*str*) – The A1 notation of the values to clear.

Returns

Response body.

Return type dict

New in version 3.0.

values_get(*range*, *params=None*)

Lower-level method that directly calls spreadsheets.values.get.

Parameters

- **range** (*str*) – The A1 notation of the values to retrieve.
- **params** (*dict*) – (optional) Query parameters.

Returns

Response body.

Return type dict

New in version 3.0.

values_update(*range*, *params=None*, *body=None*)

Lower-level method that directly calls spreadsheets.values.update.

Parameters

- **range** (*str*) – The A1 notation of the values to update.
- **params** (*dict*) – (optional) Query parameters.
- **body** (*dict*) – (optional) Request body.

Returns

Response body.

Return type dict

Example:

```
sh.values_update(
    'Sheet1!A2',
    params={
        'valueInputOption': 'USER_ENTERED'
    },
    body={
        'values': [[1, 2, 3]]
```

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```
    }
)
```

New in version 3.0.

worksheet(*title*)
Returns a worksheet with specified *title*.

Parameters **title** (*str*) – A title of a worksheet. If there're multiple worksheets with the same title, first one will be returned.

Returns an instance of `gspread.models.Worksheet`.

Raises WorksheetNotFound: if can't find the worksheet

Example. Getting worksheet named 'Annual bonuses'

```
>>> sht = client.open('Sample one')
>>> worksheet = sht.worksheet('Annual bonuses')
```

worksheets()
Returns a list of all `worksheets` in a spreadsheet.

class gspread.worksheet.**Worksheet**(*spreadsheet*, *properties*)
The class that represents a single sheet in a spreadsheet (aka "worksheet").

acell(*label*, *value_render_option='FORMATTED_VALUE'*)
Returns an instance of a `gspread.models.Cell`.

Parameters

- **label** (*str*) – Cell label in A1 notation Letter case is ignored.
- **value_render_option** ((*ValueRenderOption.formatted* | *ValueRenderOption.unformatted* | *ValueRenderOption.formula*)) – (optional) Determines how values should be rendered in the the output. See ValueRenderOption in the Sheets API.

Example:

```
>>> worksheet.acell('A1')
<Cell R1C1 "I'm cell A1">
```

add_cols(*cols*)
Adds columns to worksheet.

Parameters **cols** (*int*) – Number of new columns to add.

add_dimension_group_columns(*start*, *end*)
Group columns in order to hide them in the UI.

Note: API behavior with nested groups and non matching `[start:end[` range can be found here

https://developers.google.com/sheets/api/reference/rest/v4/spreadsheets/request#AddDimensionGroupRequest

---

Parameters

- **start** (*int*) – The start (inclusive) of the group
- **end** (*int*) – The end (exclusive) of the group

add_dimension_group_rows(*start*, *end*)
Group rows in order to hide them in the UI.

Note: API behavior with nested groups and non matching `[start:end[` range can be found here

https://developers.google.com/sheets/api/reference/rest/v4/spreadsheets/request#AddDimensionGroupRequest

---

Parameters

- **start** (*int*) – The start (inclusive) of the group
- **end** (*int*) – The end (exclusive) of the group

add_protected_range(*name*, *editor_users_emails*, *editor_groups_emails=[]*, *description=None*, *warning_only=False*, *requesting_user_can_edit=False*)
Add protected range to the sheet. Only the editors can edit the protected range.

Google API will automatically add the owner of this SpreadSheet. The list `editor_users_emails` must at least contain the e-mail address used to open that SpreadSheet.

`editor_users_emails` must only contain e-mail addresses who already have a write access to the spreadsheet.

Parameters **name** (*str*) – A string with range value in A1 notation, e.g. 'A1:A5'.

Alternatively, you may specify numeric boundaries. All values index from 1 (one):

Parameters

- **first_row** (*int*) – First row number
- **first_col** (*int*) – First column number
- **last_row** (*int*) – Last row number
- **last_col** (*int*) – Last column number

For both A1 and numeric notation:

Parameters

- **editor_users_emails** (*list*) – The email addresses of users with edit access to the protected range. This must include your e-mail address at least.
- **editor_groups_emails** (*list*) – (optional) The email addresses of groups with edit access to the protected range.
- **description** (*str*) – (optional) Description for the protected ranges.
- **warning_only** (*boolean*) – (optional) When true this protected range will show a warning when editing. Defaults to `False`.
- **requesting_user_can_edit** (*boolean*) – (optional) True if the user who requested this protected range can edit the protected cells. Defaults to `False`.

add_rows(*rows*)
Adds rows to worksheet.

Parameters **rows** (*int*) – Number of new rows to add.

append_row(*values*, *value_input_option='RAW'*, *insert_data_option=None*, *table_range=None*, *include_values_in_response=False*)

Adds a row to the worksheet and populates it with values.

Widens the worksheet if there are more values than columns.

Parameters

- **values** (*list*) – List of values for the new row.
- **value_input_option** (*str*) – (optional) Determines how the input data should be interpreted. See ValueInputOption in the Sheets API reference.
- **insert_data_option** (*str*) – (optional) Determines how the input data should be inserted. See InsertDataOption in the Sheets API reference.
- **table_range** (*str*) – (optional) The A1 notation of a range to search for a logical table of data. Values are appended after the last row of the table. Examples: `A1` or `B2:D4`
- **include_values_in_response** (*bool*) – (optional) Determines if the update response should include the values of the cells that were appended. By default, responses do not include the updated values.

append_rows(*values*, *value_input_option='RAW'*, *insert_data_option=None*, *table_range=None*, *include_values_in_response=False*)

Adds multiple rows to the worksheet and populates them with values.

Widens the worksheet if there are more values than columns.

Parameters

- **values** (*list*) – List of rows each row is List of values for the new row.
- **value_input_option** (*str*) – (optional) Determines how input data should be interpreted. Possible values are `ValueInputOption.raw` or `ValueInputOption.user_entered`. See ValueInputOption in the Sheets API.
- **insert_data_option** (*str*) – (optional) Determines how the input data should be inserted. See InsertDataOption in the Sheets API reference.
- **table_range** (*str*) – (optional) The A1 notation of a range to search for a logical table of data. Values are appended after the last row of the table. Examples: `A1` or `B2:D4`
- **include_values_in_response** (*bool*) – (optional) Determines if the update response should include the values of the cells that were appended. By default, responses do not include the updated values.

batch_clear(*ranges*)

Clears multiple ranges of cells with 1 API call.

https://developers.google.com/sheets/api/reference/rest/v4/spreadsheets.values/batchClear

Examples:

```
worksheet.batch_clear(['A1:B1','my_range'])

# Note: named ranges are defined in the scope of
# a spreadsheet, so even if `my_range` does not belong to
# this sheet it is still updated
```

New in version 3.8.0.

batch_get(*ranges*, ***kwargs*)

Returns one or more ranges of values from the sheet.

Parameters

- **ranges** (*list*) – List of cell ranges in the A1 notation or named ranges.
- **major_dimension** (*str*) – (optional) The major dimension that results should use. Either `ROWS` or `COLUMNS`.
- **value_render_option** (*str*) – (optional) How values should be represented in the output. The default render option is `ValueRenderOption.formatted`.
- **date_time_render_option** (*str*) – (optional) How dates, times, and durations should be represented in the output. This is ignored if value_render_option is `ValueRenderOption.formatted`. The default dateTime render option is `SERIAL_NUMBER`.

New in version 3.3.

Examples:

```
# Read values from 'A1:B2' range and 'F12' cell
worksheet.batch_get(['A1:B2', 'F12'])
```

batch_update(*data*, ***kwargs*)

Sets values in one or more cell ranges of the sheet at once.

Parameters

- **data** (*list*) – List of dictionaries in the form of *{'range': '...', 'values': [[.., ..], ...]}* where *range* is a target range to update in A1 notation or a named range, and *values* is a list of lists containing new values.
- **value_input_option** (*str*) – (optional) How the input data should be interpreted. Possible values are:

  ValueInputOption.raw The values the user has entered will not be parsed and will be stored as-is.

  ValueInputOption.user_entered The values will be parsed as if the user typed them into the UI. Numbers will stay as numbers, but strings may be converted to numbers, dates, etc. following the same rules that are applied when entering text into a cell via the Google Sheets UI.

Examples:

```
worksheet.batch_update([{
    'range': 'A1:B1',
    'values': [['42', '43']],
}, {
    'range': 'my_range',
    'values': [['44', '45']],
}])

# Note: named ranges are defined in the scope of
# a spreadsheet, so even if `my_range` does not belong to
# this sheet it is still updated
```

New in version 3.3.

cell(*row*, *col*, *value_render_option='FORMATTED_VALUE'*)

Returns an instance of a `gspread.models.Cell` located at *row* and *col* column.

Parameters

- **row** (*int*) – Row number.
- **col** (*int*) – Column number.
- **value_render_option** ((*ValueRenderOption.formatted* | *ValueRenderOption.unformatted* | *ValueRenderOption.formula*)) – (optional) Determines how values should be rendered in the the output. See ValueRenderOption in the Sheets API.

Example:

```
>>> worksheet.cell(1, 1)
<Cell R1C1 "I'm cell A1">
```

clear()
Clears all cells in the worksheet.

clear_basic_filter()
Remove the basic filter from a worksheet.

New in version 3.4.

clear_note(*cell*)
Clear a note. The note is attached to a certain cell.

Parameters **cell** (*str*) – A string with cell coordinates in A1 notation, e.g. 'D7'.

Alternatively, you may specify numeric boundaries. All values index from 1 (one):

Parameters

- **first_row** (*int*) – First row number
- **first_col** (*int*) – First column number
- **last_row** (*int*) – Last row number
- **last_col** (*int*) – Last column number

New in version 3.7.

col_count
Number of columns.

col_values(*col*, *value_render_option='FORMATTED_VALUE'*)
Returns a list of all values in column *col*.

Empty cells in this list will be rendered as `None`.

Parameters

- **col** (*int*) – Column number (one-based).
- **value_render_option** (*str*) – (optional) Determines how values should be rendered in the the output. See ValueRenderOption in the Sheets API.

columns_auto_resize(*start_column_index*, *end_column_index*)
Updates the size of columns in the worksheet.

ex: worksheet.columns_auto_resize(0, 10)

New in version 3.4.

copy_to(*spreadsheet_id*)
Copies this sheet to another spreadsheet.

Parameters **spreadsheet_id** (*str*) – The ID of the spreadsheet to copy the sheet to.

Returns a dict with the response containing information about the newly created sheet.

Return type dict

define_named_range(*name*, *range_name*)

Parameters **name** (*str*) – A string with range value in A1 notation, e.g. 'A1:A5'.

Alternatively, you may specify numeric boundaries. All values index from 1 (one):

Parameters

- **first_row** (*int*) – First row number
- **first_col** (*int*) – First column number
- **last_row** (*int*) – Last row number
- **last_col** (*int*) – Last column number
- **range_name** – The name to assign to the range of cells

Returns the response body from the request

Return type dict

delete_columns(*start_index*, *end_index=None*)

Deletes multiple columns from the worksheet at the specified index.

Parameters

- **start_index** (*int*) – Index of a first column for deletion.
- **end_index** (*int*) – Index of a last column for deletion. When end_index is not specified this method only deletes a single column at `start_index`.

delete_dimension(*dimension*, *start_index*, *end_index=None*)

Deletes multi rows from the worksheet at the specified index.

Parameters

- **dimension** (*str*) – A dimension to delete. `Dimension.rows` or `Dimension.cols`.
- **start_index** (*int*) – Index of a first row for deletion.
- **end_index** (*int*) – Index of a last row for deletion. When `end_index` is not specified this method only deletes a single row at `start_index`.

delete_dimension_group_columns(*start*, *end*)

Delete a grouped columns

Note: API behavior with nested groups and non matching `[start:end[` range can be found here

https://developers.google.com/sheets/api/reference/rest/v4/spreadsheets/request#DeleteDimensionGroupRequest

---

Parameters

- **start** (*int*) – The start (inclusive) of the group
- **end** (*int*) – The end (exclusive) of the group

delete_dimension_group_rows(*start*, *end*)
Delete a grouped rows

Note: API behavior with nested groups and non matching `[start:end[` range can be found here

https://developers.google.com/sheets/api/reference/rest/v4/spreadsheets/request#DeleteDimensionGroupRequest

---

Parameters

- **start** (*int*) – The start (inclusive) of the group
- **end** (*int*) – The end (exclusive) of the group

delete_named_range(*named_range_id*)

Parameters **named_range_id** (*str*) – The ID of the named range to delete. Can be obtained with Spreadsheet.list_named_ranges()

Returns the response body from the request

Return type dict

delete_row(*index*)
Deprecated since version 5.0.

Deletes the row from the worksheet at the specified index.

Parameters **index** (*int*) – Index of a row for deletion.

delete_rows(*start_index*, *end_index=None*)
Deletes multiple rows from the worksheet at the specified index.

Parameters

- **start_index** (*int*) – Index of a first row for deletion.
- **end_index** (*int*) – Index of a last row for deletion. When end_index is not specified this method only deletes a single row at `start_index`.

Example:

```
# Delete rows 5 to 10 (inclusive)
worksheet.delete_rows(5, 10)

# Delete only the second row
worksheet.delete_rows(2)
```

duplicate(*insert_sheet_index=None*, *new_sheet_id=None*, *new_sheet_name=None*)
Duplicate the sheet.

Parameters

- **insert_sheet_index** (*int*) – (optional) The zero-based index where the new sheet should be inserted. The index of all sheets after this are incremented.
- **new_sheet_id** (*int*) – (optional) The ID of the new sheet. If not set, an ID is chosen. If set, the ID must not conflict with any existing sheet ID. If set, it must be non-negative.
- **new_sheet_name** (*str*) – (optional) The name of the new sheet. If empty, a new name is chosen for you.

Returns a newly created <gspread.models.Worksheet>.

New in version 3.1.

export(*format*)
Deprecated since version 2.0.

This feature is not supported in Sheets API v4.

find(*query*, *in_row=None*, *in_column=None*, *case_sensitive=True*)
Finds the first cell matching the query.

Parameters

- **query** (str, re.RegexObject) – A literal string to match or compiled regular expression.
- **in_row** (*int*) – (optional) One-based row number to scope the search.
- **in_column** (*int*) – (optional) One-based column number to scope the search.
- **case_sensitive** (*bool*) – (optional) comparison is case sensitive if set to True, case insensitive otherwise. Default is True. Does not apply to regular expressions.

Returns the first matching cell or None otherwise

findall(*query*, *in_row=None*, *in_column=None*, *case_sensitive=True*)
Finds all cells matching the query.

Parameters

- **query** (str, re.RegexObject) – A literal string to match or compiled regular expression.
- **in_row** (*int*) – (optional) One-based row number to scope the search.
- **in_column** (*int*) – (optional) One-based column number to scope the search.
- **case_sensitive** (*bool*) – (optional) comparison is case sensitive if set to True, case insensitive otherwise. Default is True. Does not apply to regular expressions.

Returns the list of all matching cells or empty list otherwise

format(*range_name*, *cell_format*)
Formats a cell or a group of cells.

Parameters

- **range_name** (*str*) – Target range in the A1 notation.
- **cell_format** (*dict*) – Dictionary containing the fields to update. See CellFormat in the Sheets API for available fields.

Examples:

```
# Set 'A4' cell's text format to bold
worksheet.format("A4", {"textFormat": {"bold": True}})

# Color the background of 'A2:B2' cell range in black,
# change horizontal alignment, text color and font size
worksheet.format("A2:B2", {
    "backgroundColor": {
      "red": 0.0,
      "green": 0.0,
      "blue": 0.0
```

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```
    },
    "horizontalAlignment": "CENTER",
    "textFormat": {
      "foregroundColor": {
        "red": 1.0,
        "green": 1.0,
        "blue": 1.0
      },
      "fontSize": 12,
      "bold": True
    }
})
```

New in version 3.3.

freeze(*rows=None*, *cols=None*)
Freeze rows and/or columns on the worksheet.

Parameters

- **rows** – Number of rows to freeze.
- **cols** – Number of columns to freeze.

frozen_col_count
Number of frozen columns.

frozen_row_count
Number of frozen rows.

get(*range_name=None*, ***kwargs*)
Reads values of a single range or a cell of a sheet.

Parameters

- **range_name** (*str*) – (optional) Cell range in the A1 notation or a named range.
- **major_dimension** (*str*) – (optional) The major dimension that results should use. Either `ROWS` or `COLUMNS`.
- **value_render_option** (*str*) – (optional) How values should be represented in the output. The default render option is `ValueRenderOption.formatted`.
- **date_time_render_option** (*str*) – (optional) How dates, times, and durations should be represented in the output. This is ignored if `value_render_option` is `ValueRenderOption.formatted`. The default `date_time_render_option` is `SERIAL_NUMBER`.

Examples:

```
# Return all values from the sheet
worksheet.get()

# Return value of 'A1' cell
worksheet.get('A1')

# Return values of 'A1:B2' range
worksheet.get('A1:B2')

# Return values of 'my_range' named range
worksheet.get('my_range')
```

New in version 3.3.

get_all_cells()
Returns a list of all *Cell* of the current sheet.

get_all_records(*empty2zero=False*, *head=1*, *default_blank=''*, *allow_underscores_in_numeric_literals=False*, *numericise_ignore=None*, *value_render_option=None*, *expected_headers=None*)
Returns a list of dictionaries, all of them having the contents of the spreadsheet with the head row as keys and each of these dictionaries holding the contents of subsequent rows of cells as values.

Cell values are numericised (strings that can be read as ints or floats are converted), unless specified in numericise_ignore

Parameters

- **empty2zero** (*bool*) – (optional) Determines whether empty cells are converted to zeros.
- **head** (*int*) – (optional) Determines which row to use as keys, starting from 1 following the numeration of the spreadsheet.
- **default_blank** (*str*) – (optional) Determines which value to use for blank cells, defaults to empty string.
- **allow_underscores_in_numeric_literals** (*bool*) – (optional) Allow underscores in numeric literals, as introduced in PEP 515
- **numericise_ignore** (*list*) – (optional) List of ints of indices of the row (starting at 1) to ignore numericising, special use of ['all'] to ignore numericising on all columns.
- **value_render_option** (*str*) – (optional) Determines how values should be rendered in the the output. See ValueRenderOption in the Sheets API.

  Note: ValueRenderOption: https://developers.google.com/sheets/api/reference/rest/v4/ValueRenderOption

- **expected_headers** (*list*) – (optional) List of expected headers, they must be unique.

  Note: returned dictionaries will contain all headers even if not included in this list

get_all_values(***kwargs*)
Returns a list of lists containing all cells' values as strings.

This is an alias to `get_values()`

Note: This is a legacy method. Use `get_values()` instead.

Examples:

```
# Return all values from the sheet
worksheet.get_all_values()

# Is equivalent to
worksheet.get_values()
```

get_note(*cell*)
Get the content of the note located at *cell*, or the empty string if the cell does not have a note.

Parameters **cell** (*str*) – A string with cell coordinates in A1 notation, e.g. 'D7'.

get_values(*range_name=None*, ***kwargs*)
Returns a list of lists containing all values from specified range.

By default values are returned as strings. See `value_render_option` to change the default format.

Parameters

- **range_name** (*str*) – (optional) Cell range in the A1 notation or a named range. If not specified the method returns values from all non empty cells.
- **major_dimension** (*str*) – (optional) The major dimension of the values. 'Dimension.rows'("ROWS") or 'Dimension.cols'("COLUMNS"). Defaults to Dimension.rows
- **value_render_option** (*str*) – (optional) Determines how values should be rendered in the the output. See ValueRenderOption in the Sheets API.

  Possible values are:

  ValueRenderOption.formatted (default) Values will be calculated and formatted according to the cell's formatting. Formatting is based on the spreadsheet's locale, not the requesting user's locale.

  ValueRenderOption.unformatted Values will be calculated, but not formatted in the reply. For example, if A1 is 1.23 and A2 is =A1 and formatted as currency, then A2 would return the number 1.23.

  ValueRenderOption.formula Values will not be calculated. The reply will include the formulas. For example, if A1 is 1.23 and A2 is =A1 and formatted as currency, then A2 would return "=A1".

Parameters **date_time_render_option** (*str*) – (optional) How dates, times, and durations should be represented in the output. This is ignored if `value_render_option` is `ValueRenderOption.formatted`. The default `date_time_render_option` is `SERIAL_NUMBER`.

Note: Empty trailing rows and columns will not be included.

Examples:

```
# Return all values from the sheet
worksheet.get_values()

# Return all values from columns "A" and "B"
worksheet.get_values('A:B')

# Return values from range "A2:C10"
worksheet.get_values('A2:C10')

# Return values from named range "my_range"
worksheet.get_values('my_range')

# Return unformatted values (e.g. numbers as numbers)
worksheet.get_values('A2:B4', value_render_option=ValueRenderOption.
↪unformatted)
```

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```
# Return cell values without calculating formulas
worksheet.get_values('A2:B4', value_render_option=ValueRenderOption.formula)
```

hide_columns(*start*, *end*)
Explicitly hide the given column index range.

Index start from 0.

Parameters

- **start** (*int*) – The (inclusive) starting column to hide
- **end** (*int*) – The (exclusive) end column to hide

hide_rows(*start*, *end*)
Explicitly hide the given row index range.

Index start from 0.

Parameters

- **start** (*int*) – The (inclusive) starting row to hide
- **end** (*int*) – The (exclusive) end row to hide

id
Worksheet ID.

index
Worksheet index.

insert_cols(*values*, *col=1*, *value_input_option='RAW'*)
Adds multiple new cols to the worksheet at specified index and populates them with values.

Parameters

- **values** (*list*) – List of col lists. a list of lists, with the lists each containing one col's values. Increases the number of rows if there are more values than columns.
- **col** (*int*) – Start col to update (one-based). Defaults to 1 (one).
- **value_input_option** (*str*) – (optional) Determines how input data should be interpreted. Possible values are `ValueInputOption.raw` or `ValueInputOption.user_entered`. See ValueInputOption in the Sheets API.

insert_note(*cell*, *content*)
Insert a note. The note is attached to a certain cell.

Parameters

- **cell** (*str*) – A string with cell coordinates in A1 notation, e.g. 'D7'.
- **content** (*str*) – The text note to insert.

Alternatively, you may specify numeric boundaries. All values index from 1 (one):

Parameters

- **first_row** (*int*) – First row number
- **first_col** (*int*) – First column number
- **last_row** (*int*) – Last row number
- **last_col** (*int*) – Last column number

New in version 3.7.

insert_row(*values*, *index=1*, *value_input_option='RAW'*)
Adds a row to the worksheet at the specified index and populates it with values.

Widens the worksheet if there are more values than columns.

Parameters

- **values** (*list*) – List of values for the new row.
- **index** (*int*) – (optional) Offset for the newly inserted row.
- **value_input_option** (*str*) – (optional) Determines how input data should be interpreted. Possible values are `ValueInputOption.raw` or `ValueInputOption.user_entered`. See ValueInputOption in the Sheets API.

insert_rows(*values*, *row=1*, *value_input_option='RAW'*)
Adds multiple rows to the worksheet at the specified index and populates them with values.

Parameters

- **values** (*list*) – List of row lists. a list of lists, with the lists each containing one row's values. Widens the worksheet if there are more values than columns.
- **row** (*int*) – Start row to update (one-based). Defaults to 1 (one).
- **value_input_option** (*str*) – (optional) Determines how input data should be interpreted. Possible values are `ValueInputOption.raw` or `ValueInputOption.user_entered`. See ValueInputOption in the Sheets API.

list_dimension_group_columns()
List all the grouped columns in this worksheet

Returns list of the groupped columns

Return type list

list_dimension_group_rows()
List all the grouped rows in this worksheet

Returns list of the grouped rows

Return type list

merge_cells(*name*, *merge_type='MERGE_ALL'*)
Merge cells. There are 3 merge types: `MERGE_ALL`, `MERGE_COLUMNS`, and `MERGE_ROWS`.

Parameters

- **name** (*str*) – Range name in A1 notation, e.g. 'A1:A5'.
- **merge_type** (*str*) – (optional) one of `MERGE_ALL`, `MERGE_COLUMNS`, or `MERGE_ROWS`. Defaults to `MERGE_ROWS`. See MergeType in the Sheets API reference.

Alternatively, you may specify numeric boundaries. All values index from 1 (one):

Parameters

- **first_row** (*int*) – First row number
- **first_col** (*int*) – First column number
- **last_row** (*int*) – Last row number
- **last_col** (*int*) – Last column number

Returns the response body from the request

Return type dict

range(*name=''*)

Returns a list of `Cell` objects from a specified range.

Parameters **name** (*str*) – A string with range value in A1 notation (e.g. 'A1:A5') or the named range to fetch.

Alternatively, you may specify numeric boundaries. All values index from 1 (one):

Parameters

- **first_row** (*int*) – First row number
- **first_col** (*int*) – First column number
- **last_row** (*int*) – Last row number
- **last_col** (*int*) – Last column number

Example:

```
>>> # Using A1 notation
>>> worksheet.range('A1:B7')
[<Cell R1C1 "42">, ...]

>>> # Same with numeric boundaries
>>> worksheet.range(1, 1, 7, 2)
[<Cell R1C1 "42">, ...]

>>> # Named ranges work as well
>>> worksheet.range('NamedRange')
[<Cell R1C1 "42">, ...]

>>> # All values in a single API call
>>> worksheet.range()
[<Cell R1C1 'Hi mom'>, ...]
```

resize(*rows=None*, *cols=None*)

Resizes the worksheet. Specify one of `rows` or `cols`.

Parameters

- **rows** (*int*) – (optional) New number of rows.
- **cols** (*int*) – (optional) New number columns.

row_count

Number of rows.

row_values(*row*, ***kwargs*)

Returns a list of all values in a *row*.

Empty cells in this list will be rendered as `None`.

Parameters

- **row** (*int*) – Row number (one-based).
- **value_render_option** (*str*) – (optional) Determines how values should be rendered in the the output. See ValueRenderOption in the Sheets API.

set_basic_filter(*name=None*)

Add a basic filter to the worksheet. If a range or bundaries are passed, the filter will be limited to the given range.

Parameters **name** (*str*) – A string with range value in A1 notation, e.g. `A1:A5`.

Alternatively, you may specify numeric boundaries. All values index from 1 (one):

Parameters

- **first_row** (*int*) – First row number
- **first_col** (*int*) – First column number
- **last_row** (*int*) – Last row number
- **last_col** (*int*) – Last column number

New in version 3.4.

sort (**specs*, ***kwargs*)
Sorts worksheet using given sort orders.

Parameters

- **specs** (*list*) – The sort order per column. Each sort order represented by a tuple where the first element is a column index and the second element is the order itself: 'asc' or 'des'.
- **range** (*str*) – The range to sort in A1 notation. By default sorts the whole sheet excluding frozen rows.

Example:

```
# Sort sheet A -> Z by column 'B'
wks.sort((2, 'asc'))

# Sort range A2:G8 basing on column 'G' A -> Z
# and column 'B' Z -> A
wks.sort((7, 'asc'), (2, 'des'), range='A2:G8')
```

New in version 3.4.

title
Worksheet title.

unhide_columns (*start*, *end*)
Explicitly unhide the given column index range.

Index start from 0.

Parameters

- **start** (*int*) – The (inclusive) starting column to hide
- **end** (*int*) – The (exclusive) end column to hide

unhide_rows (*start*, *end*)
Explicitly unhide the given row index range.

Index start from 0.

Parameters

- **start** (*int*) – The (inclusive) starting row to hide
- **end** (*int*) – The (exclusive) end row to hide

update (*range_name*, *values=None*, ***kwargs*)
Sets values in a cell range of the sheet.

Parameters

- **range_name** (*str*) – The A1 notation of the values to update.
- **values** (*list*) – The data to be written.
- **raw** (*bool*) – The values will not be parsed by Sheets API and will be stored as-is. For example, formulas will be rendered as plain strings. Defaults to `True`. This is a shortcut for the `value_input_option` parameter.
- **major_dimension** (*str*) – (optional) The major dimension of the values. Either `ROWS` or `COLUMNS`.
- **value_input_option** (*str*) – (optional) How the input data should be interpreted. Possible values are:

  ValueInputOption.raw The values the user has entered will not be parsed and will be stored as-is.

  ValueInputOption.user_entered The values will be parsed as if the user typed them into the UI. Numbers will stay as numbers, but strings may be converted to numbers, dates, etc. following the same rules that are applied when entering text into a cell via the Google Sheets UI.

Examples:

```
# Sets 'Hello world' in 'A2' cell
worksheet.update('A2', 'Hello world')

# Updates cells A1, B1, C1 with values 42, 43, 44 respectively
worksheet.update([42, 43, 44])

# Updates A2 and A3 with values 42 and 43
# Note that update range can be bigger than values array
worksheet.update('A2:B4', [[42], [43]])

# Add a formula
worksheet.update('A5', '=SUM(A1:A4)', raw=False)

# Update 'my_range' named range with values 42 and 43
worksheet.update('my_range', [[42], [43]])

# Note: named ranges are defined in the scope of
# a spreadsheet, so even if `my_range` does not belong to
# this sheet it is still updated
```

New in version 3.3.

update_acell(*label*, *value*)

Updates the value of a cell.

Parameters

- **label** (*str*) – Cell label in A1 notation.
- **value** – New value.

Example:

```
worksheet.update_acell('A1', '42')
```

update_cell(*row*, *col*, *value*)

Updates the value of a cell.

Parameters

- **row** (*int*) – Row number.
- **col** (*int*) – Column number.
- **value** – New value.

Example:

```
worksheet.update_cell(1, 1, '42')
```

update_cells(*cell_list*, *value_input_option='RAW'*)

Updates many cells at once.

Parameters

- **cell_list** (*list*) – List of `Cell` objects to update.
- **value_input_option** (*str*) – (optional) How the input data should be interpreted. Possible values are:

  ValueInputOption.raw The values the user has entered will not be parsed and will be stored as-is.

  ValueInputOption.user_entered The values will be parsed as if the user typed them into the UI. Numbers will stay as numbers, but strings may be converted to numbers, dates, etc. following the same rules that are applied when entering text into a cell via the Google Sheets UI.

  See ValueInputOption in the Sheets API.

Example:

```
# Select a range
cell_list = worksheet.range('A1:C7')

for cell in cell_list:
    cell.value = 'O_o'

# Update in batch
worksheet.update_cells(cell_list)
```

update_index(*index*)

Updates the `index` property for the worksheet.

See the Sheets API documentation for information on how updating the index property affects the order of worksheets in a spreadsheet.

To reorder all worksheets in a spreadsheet, see *Spreadsheet.reorder_worksheets*.

New in version 3.4.

update_note(*cell*, *content*)

Update the content of the note located at *cell*.

Parameters

- **cell** (*str*) – A string with cell coordinates in A1 notation, e.g. 'D7'.
- **note** (*str*) – The text note to insert.

New in version 3.7.

update_title(*title*)
Renames the worksheet.

Parameters **title** (*str*) – A new title.

updated
Deprecated since version 2.0.

This feature is not supported in Sheets API v4.

url
Worksheet URL.

class gspread.cell.**Cell**(*row*, *col*, *value=''*)
An instance of this class represents a single cell in a `worksheet`.

address
Cell address in A1 notation.

col
Column number of the cell.

input_value
Deprecated since version 2.0.

This feature is not supported in Sheets API v4.

row
Row number of the cell.

value = None
Value of the cell.

6.1.4 Utils

gspread.utils

This module contains utility functions.

gspread.utils.**rowcol_to_a1**(*row*, *col*)
Translates a row and column cell address to A1 notation.

Parameters

- **row** (*int, str*) – The row of the cell to be converted. Rows start at index 1.
- **col** – The column of the cell to be converted. Columns start at index 1.

Returns a string containing the cell's coordinates in A1 notation.

Example:

```
>>> rowcol_to_a1(1, 1)
A1
```

gspread.utils.**a1_to_rowcol**(*label*)
Translates a cell's address in A1 notation to a tuple of integers.

Parameters **label** (*str*) – A cell label in A1 notation, e.g. 'B1'. Letter case is ignored.

Returns a tuple containing *row* and *column* numbers. Both indexed from 1 (one).

Return type tuple

Example:

```
>>> a1_to_rowcol('A1')
(1, 1)
```

gspread.utils.**a1_range_to_grid_range**(*name*, *sheet_id=None*)

Converts a range defined in A1 notation to a dict representing a GridRange.

All indexes are zero-based. Indexes are half open, e.g the start index is inclusive and the end index is exclusive: [startIndex, endIndex).

Missing indexes indicate the range is unbounded on that side.

Examples:

```
>>> a1_range_to_grid_range('A1:A1')
```

{'startRowIndex': 0, 'endRowIndex': 1, 'startColumnIndex': 0, 'endColumnIndex': 1}

```
>>> a1_range_to_grid_range('A3:B4')
{'startRowIndex': 2, 'endRowIndex': 4, 'startColumnIndex': 0, 'endColumnIndex': 2}
```

```
>>> a1_range_to_grid_range('A:B')
{'startColumnIndex': 0, 'endColumnIndex': 2}
```

```
>>> a1_range_to_grid_range('A5:B')
{'startRowIndex': 4, 'startColumnIndex': 0, 'endColumnIndex': 2}
```

```
>>> a1_range_to_grid_range('A1')
{'startRowIndex': 0, 'endRowIndex': 1, 'startColumnIndex': 0, 'endColumnIndex': 1}
```

```
>>> a1_range_to_grid_range('A')
{'startColumnIndex': 0, 'endColumnIndex': 1}
```

```
>>> a1_range_to_grid_range('1')
{'startRowIndex': 0, 'endRowIndex': 1}
```

```
>>> a1_range_to_grid_range('A1', sheet_id=0)
{'sheetId': 0, 'startRowIndex': 0, 'endRowIndex': 1, 'startColumnIndex': 0,
↪'endColumnIndex': 1}
```

gspread.utils.**cast_to_a1_notation**(*method*)

Decorator function casts wrapped arguments to A1 notation in range method calls.

gspread.utils.**absolute_range_name**(*sheet_name*, *range_name=None*)

Return an absolutized path of a range.

```
>>> absolute_range_name("Sheet1", "A1:B1")
"'Sheet1'!A1:B1"
```

```
>>> absolute_range_name("Sheet1", "A1")
"'Sheet1'!A1"
```

```
>>> absolute_range_name("Sheet1")
"'Sheet1'"
```

```
>>> absolute_range_name("Sheet'1")
"'Sheet''1'"
```

```
>>> absolute_range_name("Sheet''1")
"'Sheet''''1'"
```

```
>>> absolute_range_name("'''sheet12'''", "A1:B2")
"'''''sheet12'''''!A1:B2"
```

gspread.utils.**is_scalar**(*x*)

Return True if the value is scalar.

A scalar is not a sequence but can be a string.

```
>>> is_scalar([])
False
```

```
>>> is_scalar([1, 2])
False
```

```
>>> is_scalar(42)
True
```

```
>>> is_scalar('nice string')
True
```

```
>>> is_scalar({})
True
```

```
>>> is_scalar(set())
True
```

gspread.utils.**filter_dict_values**(*D*)

Return a shallow copy of D with all *None* values excluded.

```
>>> filter_dict_values({'a': 1, 'b': 2, 'c': None})
{'a': 1, 'b': 2}
```

```
>>> filter_dict_values({'a': 1, 'b': 2, 'c': 0})
{'a': 1, 'b': 2, 'c': 0}
```

```
>>> filter_dict_values({})
{}
```

```
>>> filter_dict_values({'imnone': None})
{}
```

gspread.utils.**accepted_kwargs**(***default_kwargs*)

```
>>> @accepted_kwargs(d='d', e=None)
... def foo(a, b, c='c', **kwargs):
...     return {
```

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```
...         'a': a,
...         'b': b,
...         'c': c,
...         'd': kwargs['d'],
...         'e': kwargs['e'],
...     }
...
```

```
>>> foo('a', 'b')
{'a': 'a', 'b': 'b', 'c': 'c', 'd': 'd', 'e': None}
```

```
>>> foo('a', 'b', 'NEW C')
{'a': 'a', 'b': 'b', 'c': 'NEW C', 'd': 'd', 'e': None}
```

```
>>> foo('a', 'b', e='Not None')
{'a': 'a', 'b': 'b', 'c': 'c', 'd': 'd', 'e': 'Not None'}
```

```
>>> foo('a', 'b', d='NEW D')
{'a': 'a', 'b': 'b', 'c': 'c', 'd': 'NEW D', 'e': None}
```

```
>>> foo('a', 'b', a_typo='IS DETECTED')
Traceback (most recent call last):
...
TypeError: foo got unexpected keyword arguments: ['a_typo']
```

```
>>> foo('a', 'b', d='NEW D', c='THIS DOES NOT WORK BECAUSE OF d')
Traceback (most recent call last):
...
TypeError: foo got unexpected keyword arguments: ['c']
```

6.1.5 Auth

gspread.auth

Simple authentication with OAuth.

gspread.auth.**local_server_flow**(*client_config*, *scopes*, *port=0*)

Run an OAuth flow using a local server strategy.

Creates an OAuth flow and runs google_auth_oauthlib.flow.InstalledAppFlow.run_local_server. This will start a local web server and open the authorization URL in the user's browser.

Pass this function to `flow` parameter of *`oauth()`* to run a local server flow.

gspread.auth.**console_flow**(*client_config*, *scopes*)

Run an OAuth flow using a console strategy.

Creates an OAuth flow and runs google_auth_oauthlib.flow.InstalledAppFlow.run_console.

Pass this function to `flow` parameter of *`oauth()`* to run a console strategy.

6.1.6 Exceptions

exception gspread.exceptions.**GSpreadException**
A base class for gspread's exceptions.

exception gspread.exceptions.**APIError**(*response*)

CHAPTER 7

How to Contribute

Please make sure to take a moment and read the Code of Conduct.

7.1 Ask Questions

The best way to get an answer to a question is to ask on Stack Overflow with a gspread tag.

7.2 Report Issues

Please report bugs and suggest features via the GitHub Issues.

Before opening an issue, search the tracker for possible duplicates. If you find a duplicate, please add a comment saying that you encountered the problem as well.

7.3 Contribute code

Please make sure to read the Contributing Guide before making a pull request.

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