Authentication

The first time you call one of the Microsoft365R functions (see below), it will use your Internet browser to authenticate with Azure Active Directory (AAD), in a similar manner to other web apps. You will get a dialog box asking for permission to access your information.

Microsoft365R is registered as an app in the "aicatr" AAD tenant. Because it needs read/write access to groups and SharePoint sites, you'll need an admin to grant it access to your tenant. Alternatively, if the environment variable `CLIMICROSOFT365_AADAPPID` is set, Microsoft365R will use its value as the app ID for authenticating; or you can specify the app ID as an argument when calling the functions below. See also this issue at the GitHub repo for some possible workarounds.

OneDrive

To access your personal OneDrive, call the `personal_onedrive()` function, and to access OneDrive for Business call `business_onedrive()`. Both functions return an R6 client object of class `ms_drive`, which has methods for working with files and folders. Note that OneDrive for Business is technically part of SharePoint, and requires a Microsoft 365 Business subscription.

```
od <- personal_onedrive()
odb <- business_onedrive(tenant="mycompany")

# use the device code authentication flow in RStudio Server
od <- personal_onedrive(auth_type="device_code")

# list files and folders
od$list_items()
od$list_items("Documents")

# upload and download files
od$download_file("Documents/myfile.docx")
od$upload_file("somedata.xlsx")

# create a folder
od$create_folder("Documents/newfolder")
```

You can open a file or folder in your browser with the `open_item()` method. For example, a Word document or Excel spreadsheet will open in Word or Excel Online, and a folder will be shown in OneDrive.

```
od$open_item("Documents/myfile.docx")
```

You can get and set the metadata properties for a file or folder with `get_item_properties()` and `set_item_properties()`. For the latter, provide the new properties as named arguments to the method. Not all properties can be changed; some, like the file size and last modified date, are read-only. You can also retrieve an object representing the file or folder with `get_item()`, which has methods appropriate for drive items.

```
od$get_item_properties("Documents/myfile.docx")
```

```
# rename a file -- version control via filename is bad, mmkay
od$set_item_properties("Documents/myfile.docx", name="myfile version
2.docx")

# alternatively, you can call the file object's update() method
item <- od$get_item("Documents/myfile.docx")
item$update(name="myfile version 2.docx")
```

SharePoint

To access a SharePoint site, use the `sharepoint_site()` function and provide the site URL or ID.

```
site <- sharepoint_site("https://myaadtenant.sharepoint.com/sites/my-site-name")
```

The client object has methods to retrieve drives (document libraries) and lists. To show all drives in a site, use the `list_drives()` method, and to retrieve a specific drive, use `get_drive()`. Each drive is an object of class `ms_drive`, just like the OneDrive clients above.

```
# list of all document libraries under this site
site$list_drives()

# default document library
drv <- site$get_drive()

# same methods as for OneDrive
drv$list_items()
drv$open_item("teamproject/plan.xlsx")
```

To show all lists in a site, use the `get_lists()` method, and to retrieve a specific list, use `get_list()` and supply either the list name or ID.

```
site$get_lists()
lst <- site$get_list("my-list")
```

You can retrieve the items in a list as a data frame, with `list_items()`. This has arguments `filter` and `select` to do row and column subsetting respectively. `filter` should be an OData expression provided as a string, and `select` should be a string containing a comma-separated list of columns. Any column names in the `filter` expression must be prefixed with `fields/` to distinguish them from item metadata.

```
# return a data frame containing all list items
lst$list_items()

# get subset of rows and columns
lst$list_items(
    filter="startsWith(fields/firstname, 'John')",
    select="firstname,lastname,title"
)
```

Finally, you can retrieve subsites with `list_subsites()` and `get_subsite()`. These also return SharePoint site objects, so all the methods above are available for a subsite.

Future plans

Currently, Microsoft365R supports OneDrive and SharePoint Online; future updates will add the ability to post to Teams channels and send emails via Outlook.…