# 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.

# 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.…