

## **Getting Started Accessing Statistical Software Inside the U Iowa Virtual Desktop (i.e., how to freely access SAS, STATA, or R for use on-campus or off-campus)**

**Step 1a.** You will need to have already configured **two-factor authentication** using Duo Security for your university accounts. Instructions are here: <https://its.uiowa.edu/duo>

**Step 1b. If you are off-campus,** you will need to have the **VPN** running in the background. You can download the program and instructions here: <https://its.uiowa.edu/vpn>

When the window pops up for you to log into the VPN program (Cisco AnyConnect), you will enter your HawkID name and usual password. The box called **second password** refers to a two-factor authentication method. If you type **push** it will ping your two-factor program for approval (i.e., as installed on your smart phone). Alternatively, if you type **sms** it will tell you that you could not log in, but ignore this. In the box that appears again, enter your same HawkID and usual password, and then for the second password enter one of the six-digit codes that should have been sent in a text message.

**Step 1c. If you are on-campus,** you will need to be connected to the eduroam UIowa network. To do so, your username is your **HawkID@uiowa.edu** (i.e., it is a combination of your HawkID name with an email-address-like ending, but it's not your actual email address).

**Step 2.** If you haven't already do so, **map your H: drive to your computer**, which is a campus network drive that will be the most easily linked to the Virtual Desktop software. (You don't have to use it, but previous students have had the most success putting files here). Instructions to do so for both Windows and Mac are here: <https://its.uiowa.edu/support/article/104047>

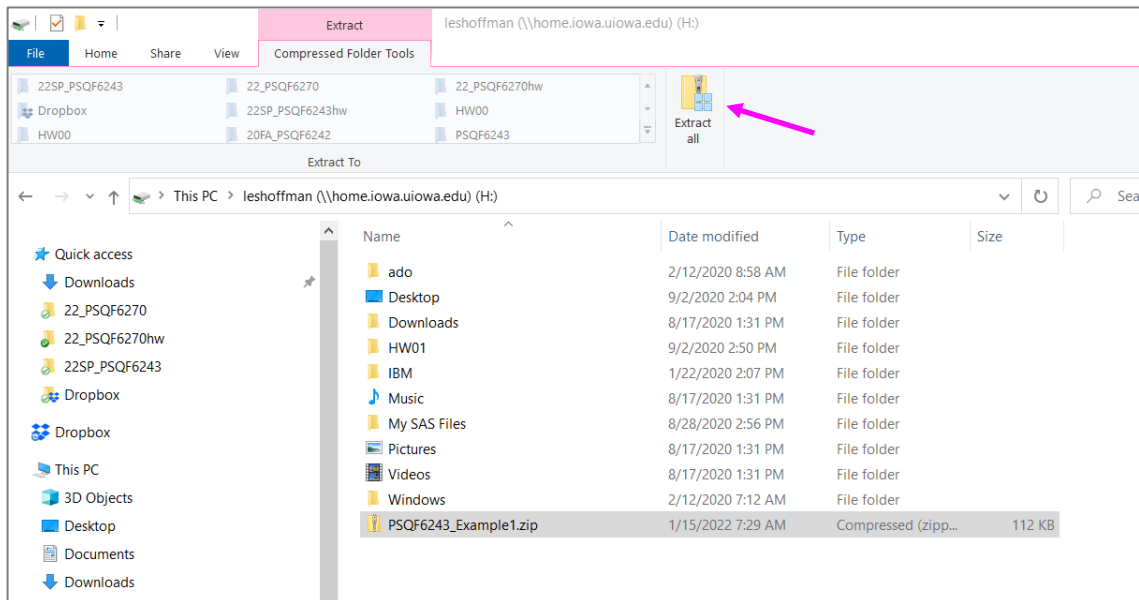
**Step 3a.** Download the Example 1 files from here:

[https://www.lesahoffman.com/PSQF6243/PSQF6243\\_Example1.zip](https://www.lesahoffman.com/PSQF6243/PSQF6243_Example1.zip)

The Example1 folder includes an Excel data file (.xlsx extension), program syntax files (as .sas for SAS, .do for STATA, .and .R for R), and output files so you can see what each program does (as .rtf for SAS, .log for STATA, and .txt for R). Plots from both STATA and R are also saved in separate .png files; the plots are embedded in the SAS .rtf output already.

It may be easiest if you put the Example1 folder inside your university H: drive (but any folder on your local computer can be used, so long as you can navigate to it). For this demonstration, I saved the PSQF6243\_Example1.zip folder directly to my H drive (as shown below).

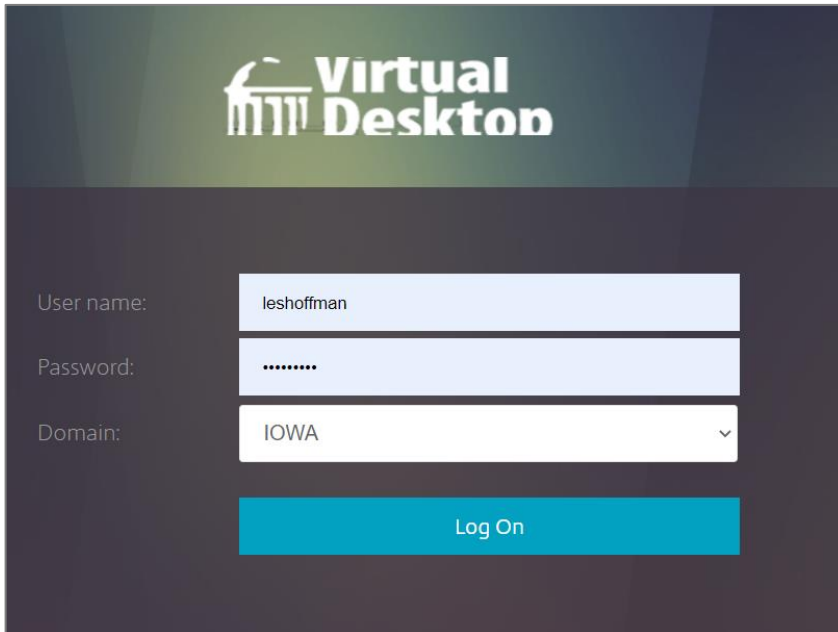
**Step 3b.** The files must be **extracted before use**, a command you can access from the toolbar (as shown by the arrow below) or by right-clicking on the folder and selecting “extract all”:



**Step 4a.** After completing steps 1–3, you can access the U Iowa Virtual Desktop login from this page: <https://its.uiowa.edu/virtualdesktop>

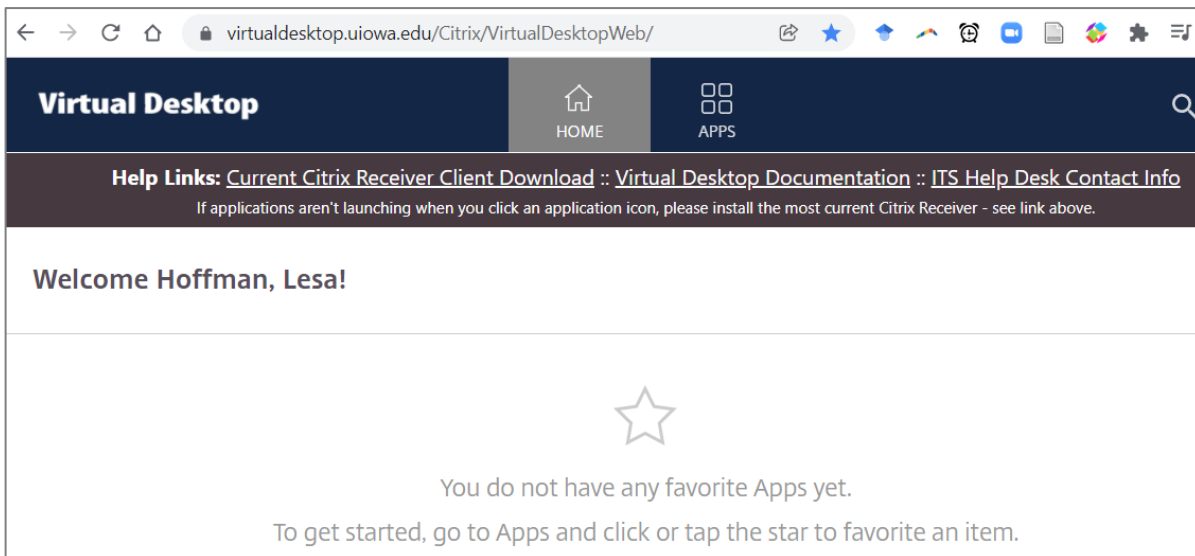
If you have not already downloaded and installed the Citrix Workspace program that runs the Virtual Desktop, it will prompt you do so.

Once the program is installed, you can open it and a log-in box will appear. Enter your HawkID name and usual password for the domain IOWA as shown below:



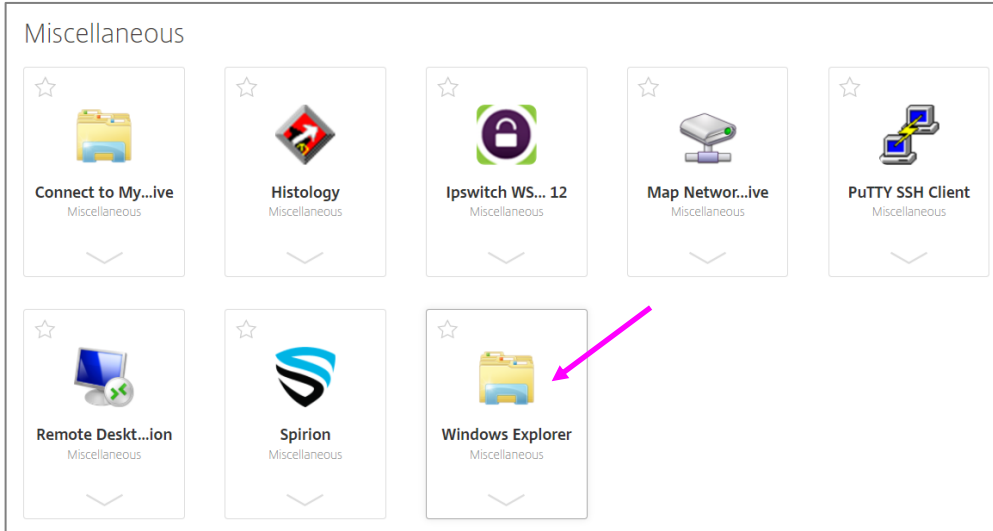
The screenshot shows the login interface for the Virtual Desktop. At the top, the text 'Virtual Desktop' is displayed in white on a dark background. Below this, there are three input fields: 'User name:' containing 'leshoffman', 'Password:' containing masked characters (dots), and 'Domain:' containing 'IOWA'. A blue button labeled 'Log On' is positioned below the input fields.

Once logged in, the front page will look something like this (if you haven't used it before):

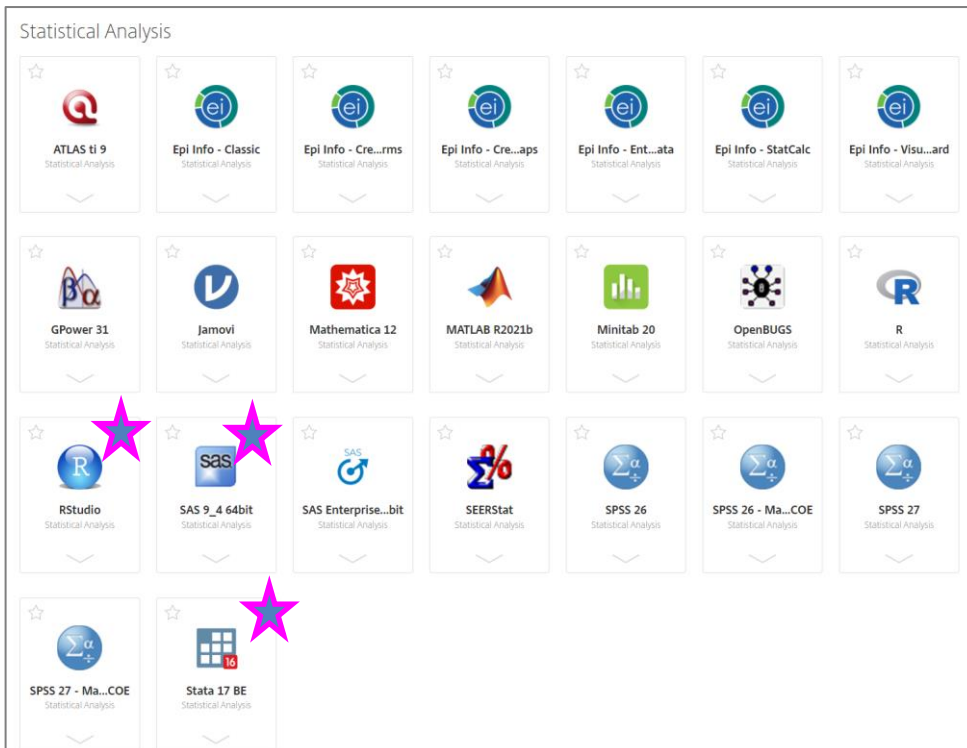


The screenshot shows the Virtual Desktop home page in a browser. The address bar displays 'virtualdesktop.uiowa.edu/Citrix/VirtualDesktopWeb/'. The page header features the 'Virtual Desktop' logo, a 'HOME' button, and an 'APPS' button. Below the header, there is a 'Help Links' section with links for 'Current Citrix Receiver Client Download', 'Virtual Desktop Documentation', and 'ITS Help Desk Contact Info'. The main content area displays a personalized welcome message: 'Welcome Hoffman, Lesa!' and a message stating 'You do not have any favorite Apps yet. To get started, go to Apps and click or tap the star to favorite an item.'

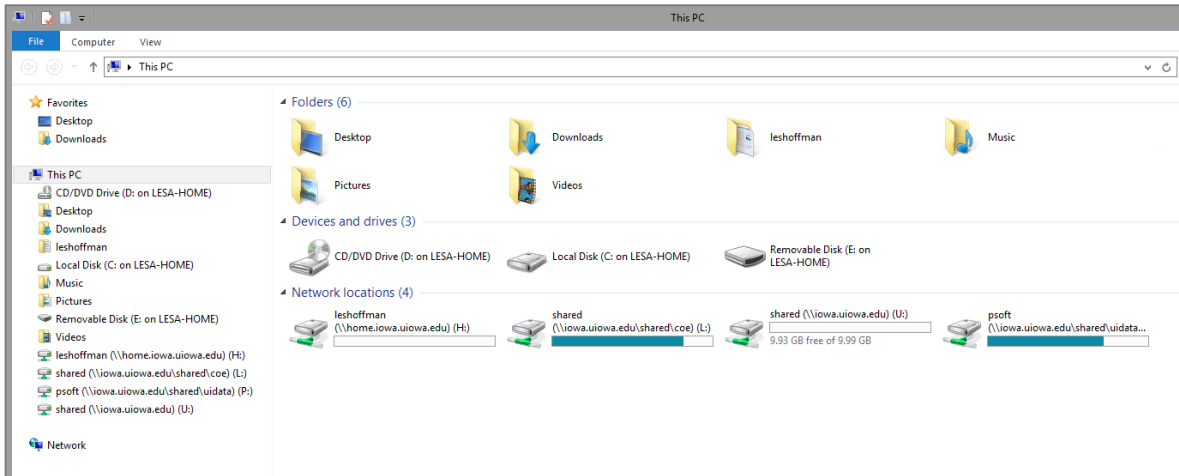
**Step 4b.** Go to **APPS** → **Categories** → **Miscellaneous**. You will find **Windows Explorer** (highlighted by the arrow below) which will be critically useful in telling Virtual Desktop how to access the files on your local computer. Click the down arrow on the program, and then click on the star next to “add to favorites” and it will be saved to your home screen.



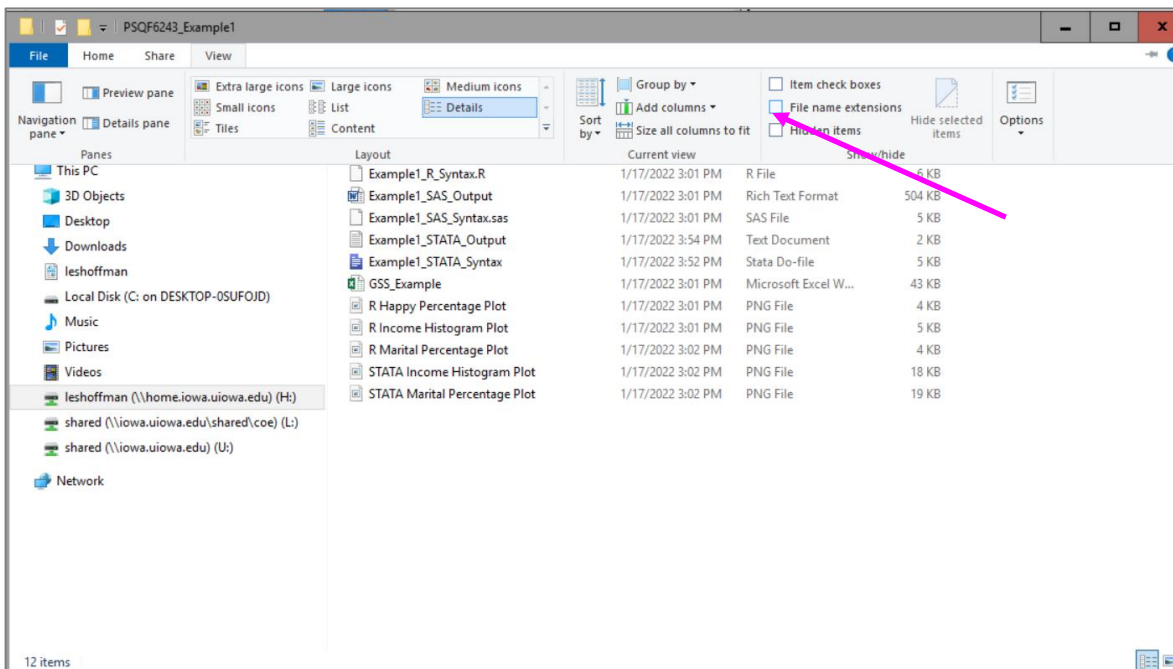
**Step 4c.** Go to **APPS** → **Categories** → **Statistical Analysis**. There you will find the programs we will need: **SAS 9\_4 64bit**, **Stata 17 BE**, or **RStudio** (as highlighted by the pink stars below). For each, click the down arrow on the program, and then click on the star next to “add to favorites” and it will be saved to your home screen.



**Step 5a. Open Windows Explorer** from inside the Virtual Desktop (i.e., NOT the same program on your local computer) by clicking on its icon, which will look something like this.



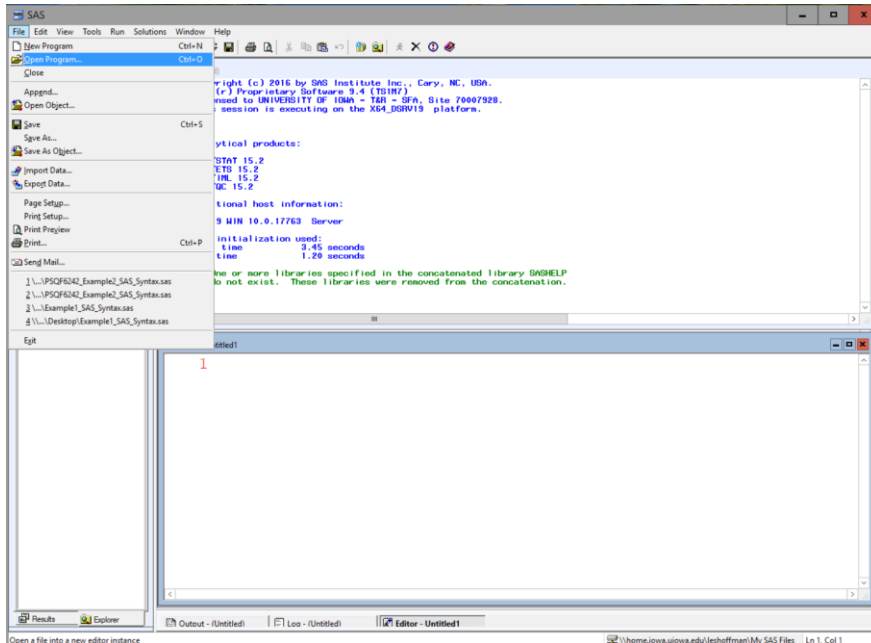
**Step 5b. Navigate to the folder that has your Example 1 files**, either using the tree structure on the left or the drill-down menu at the top. For example, below is my folder in my H: drive. Under **View**, check the box for **File name extensions** (as shown by the pink arrow) to make it easier to see your file types.



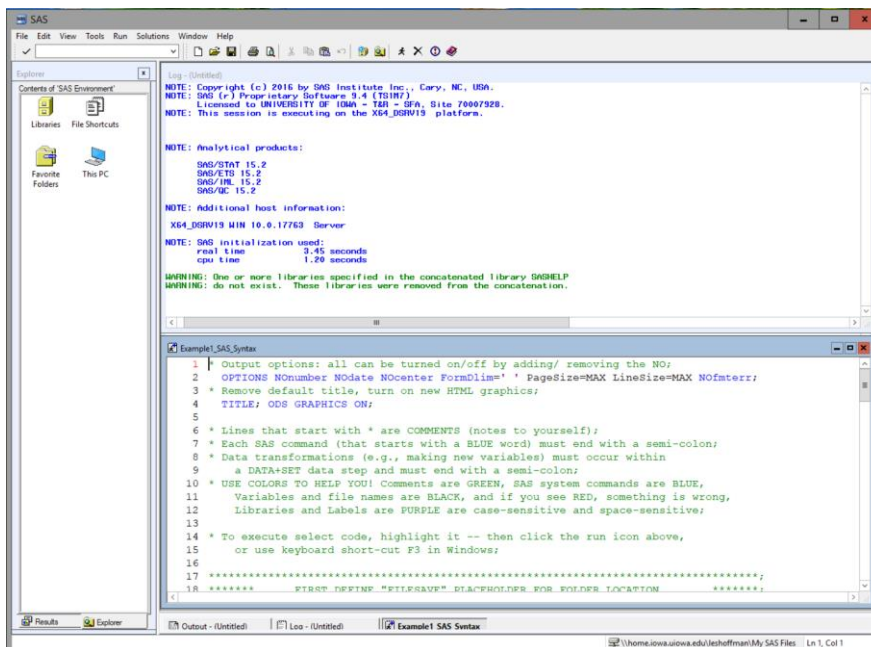
Note that by default when you extract .zipped files, it puts a subfolder of the same name inside the folder! Once you are inside the folder, **put your cursor into the top address bar**, and it will collapse into a **link that can be copied** to your clipboard. Here is mine (note the nested folders):

H:\PSQF6243\_Example1\PSQF6243\_Example1

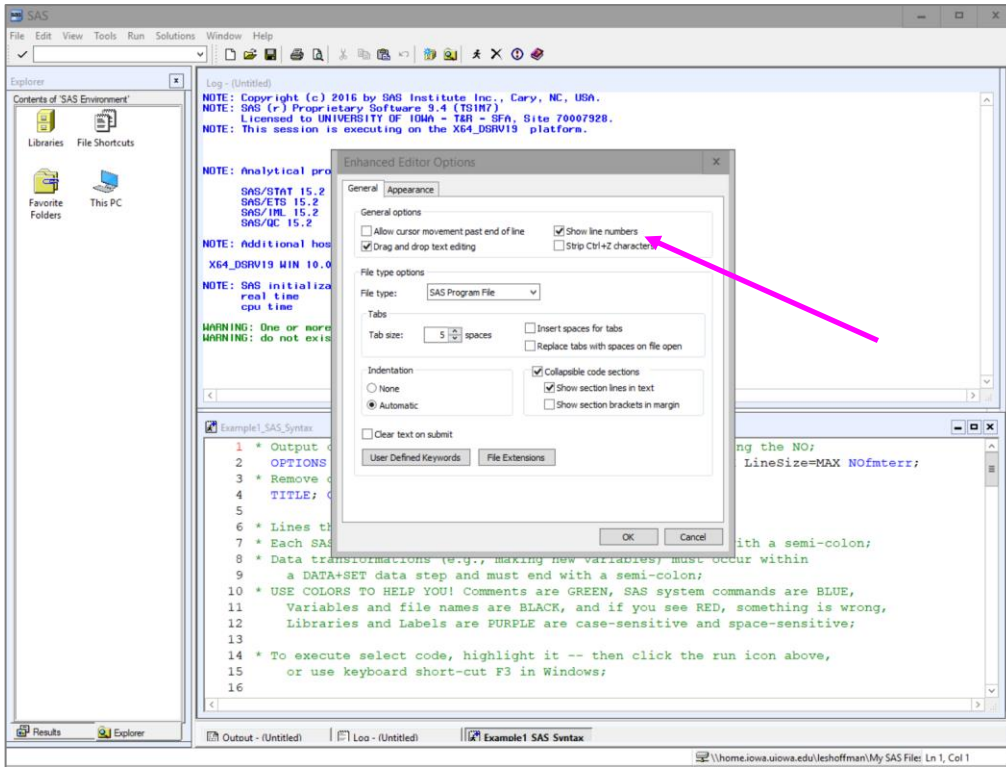
**Step 6a for SAS.** From the original **Virtual Desktop** page, **open SAS**. Put your cursor in the bottom right box labeled “Editor – Untitled 1”. On the **File** menu, select **Open Program**:



Navigate to your **Example1\_SAS\_Syntax.sas** file and open it. It should look like this:



To make **line numbers visible** on your syntax (i.e., as shown on the left side of the file above), go to **Tools → Options → Enhanced Editor → General tab**, and check the box **Show Line Numbers** (see pink arrow below). Under the **Appearance** tab, you can change the font as well.



**Step 6b for SAS.** In the `Example1_SAS_Syntax.sas` file, scroll to line 22 where it says

```
%LET filesave= C:\Dropbox\22SP_PSQF6243\PSQF6243_Example1;
```

This is where \*MY\* files were. To change it, **paste in the path (after the =) that you found from Windows Explorer in Step 5b**—this will tell SAS where your folder is that contains the data file to be used. **End the path with a semi-colon.** The path for my H drive folder would look like this:

```
%LET filesave= H:\PSQF6243_Example1\PSQF6243_Example1;
```

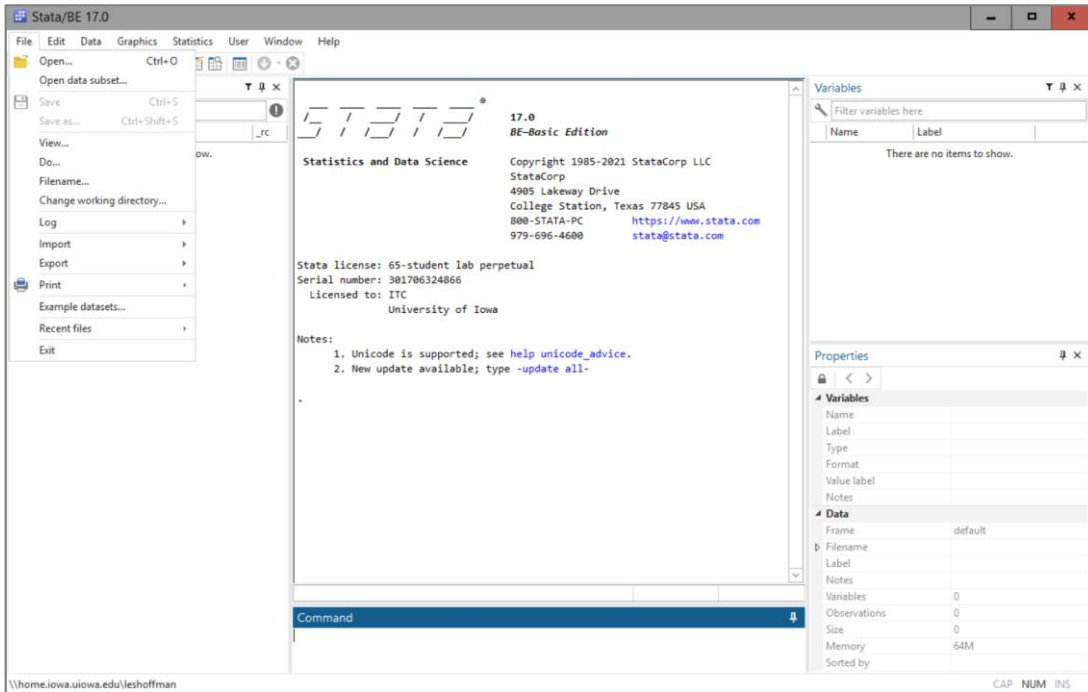
Here are some more examples of what that path would look like using different operating systems and folder locations, assuming your folder is called “PSQF6243\_Example1”:

```
* Windows example using UIowa Virtual Desktop outside H drive;
%LET filesave= \\Client\C:\Dropbox\PSQF6243_Example1;
```

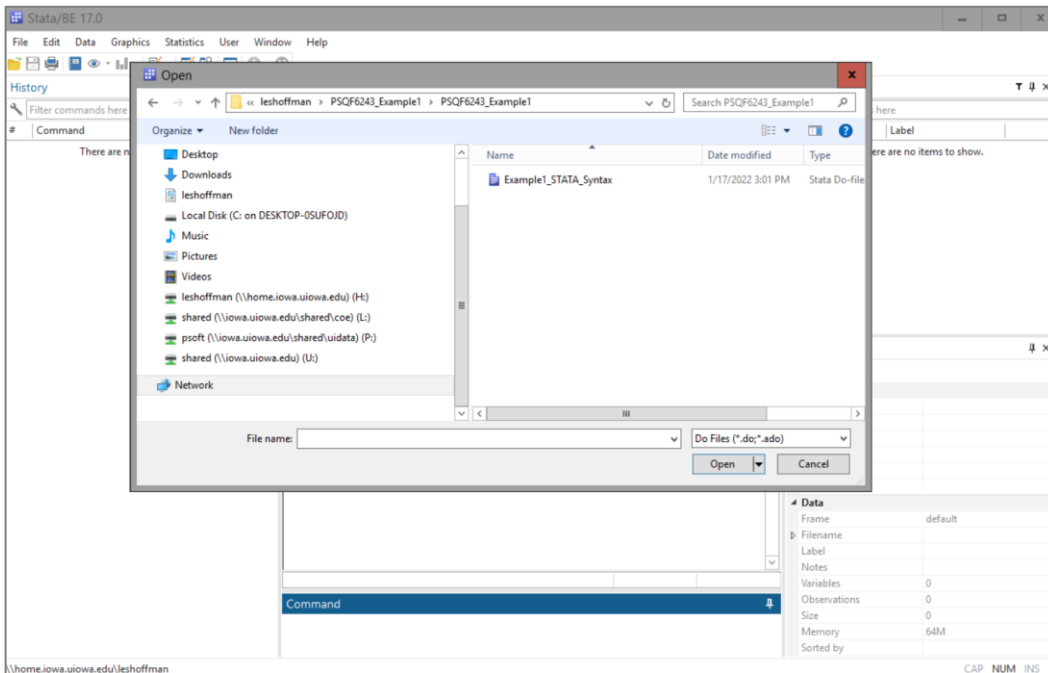
```
* Mac example using UIowa Virtual Desktop and H drive (multiple H drives);
%LET filesave= \\home.iowa.uiowa.edu\hawkID\PSQF6243_Example1;
```

```
* Mac example using UIowa Virtual Desktop outside H drive;
%LET filesave= \\Client\C:/Users/username/Desktop/PSQF6243_Example1;
```

**Step 6a for STATA.** From the original **Virtual Desktop** page, **open Stata 17 BE.**  
 On the **File** menu, select **Open**:



Change the bottom-right menu to **Do Files (\*.do, \*.ado)** and navigate to your **Example1\_STATA\_Syntax.sas** file and open it. The menu should look like this:

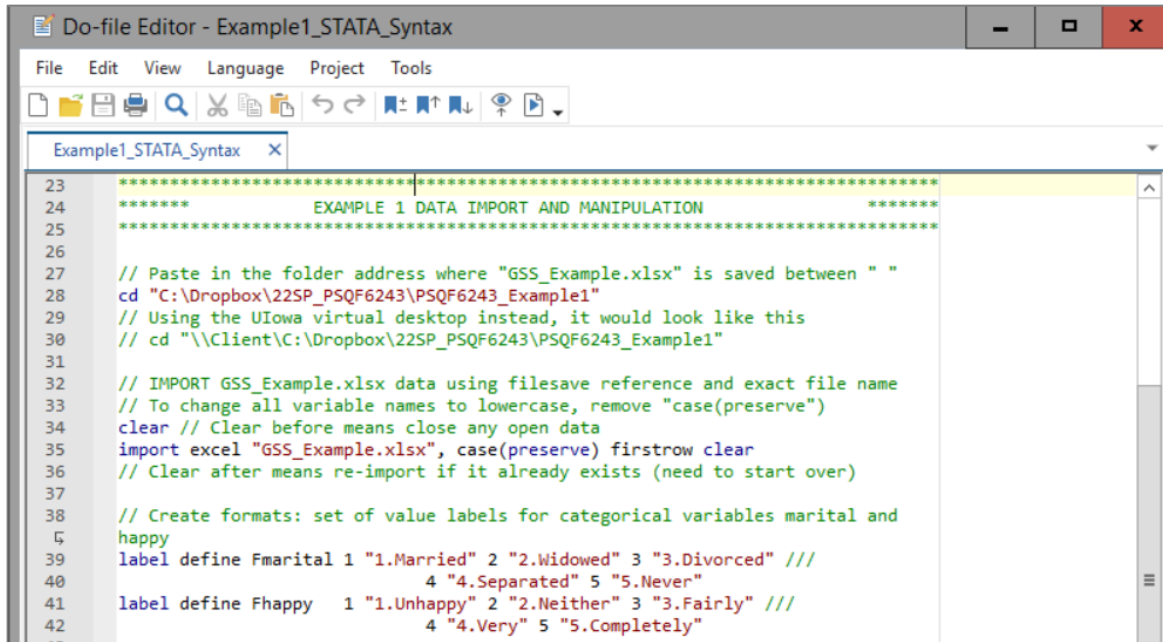




**Step 6b for STATA.** A new syntax window should have opened separately from the previous STATA program window. **Scroll to line 28** where it says

```
cd "C:\Dropbox\22SP_PSQF6243\PSQF6243_Example1"
```

It should look like this:



```

23 *****
24 ***** EXAMPLE 1 DATA IMPORT AND MANIPULATION *****
25 *****
26
27 // Paste in the folder address where "GSS_Example.xlsx" is saved between " "
28 cd "C:\Dropbox\22SP_PSQF6243\PSQF6243_Example1"
29 // Using the UIowa virtual desktop instead, it would look like this
30 // cd "\\Client\C:\Dropbox\22SP_PSQF6243\PSQF6243_Example1"
31
32 // IMPORT GSS_Example.xlsx data using filesave reference and exact file name
33 // To change all variable names to lowercase, remove "case(preserve)"
34 clear // Clear before means close any open data
35 import excel "GSS_Example.xlsx", case(preserve) firstrow clear
36 // Clear after means re-import if it already exists (need to start over)
37
38 // Create formats: set of value labels for categorical variables marital and
39 happy
39 label define Fmarital 1 "1.Married" 2 "2.Widowed" 3 "3.Divorced" ///
40 4 "4.Separated" 5 "5.Never"
41 label define Fhappy 1 "1.Unhappy" 2 "2.Neither" 3 "3.Fairly" ///
42 4 "4.Very" 5 "5.Completely"

```

This is where \*MY\* files were. To change it, **paste in the path (within the quotes) that you found from Windows Explorer in Step 5b**—this will tell STATA where your folder is that contains the data file to be used. The path for my H drive folder would look like this:

```
cd "H:\PSQF6243_Example1\PSQF6243_Example1"
```

Here are some more examples of what that path would look like using different operating systems and folder locations, assuming your folder is called “PSQF6243\_Example1”:

```

// Windows example using UIowa Virtual Desktop outside H drive
cd "\\Client\C:\Dropbox\PSQF6242_Example1"

// Windows example using Desktop STATA outside H drive
cd "C:\Dropbox\PSQF6243_Example1"

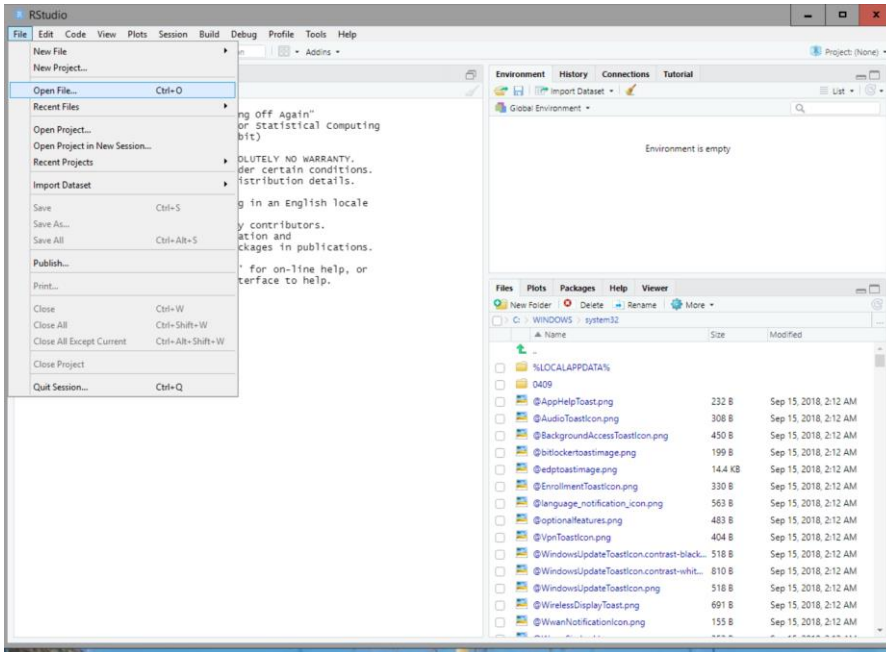
// Mac example using UIowa Virtual Desktop and H drive (multiple H drives)
cd "\\home.iowa.uiowa.edu\hawkID\PSQF6243_Example1"

// Mac example using UIowa Virtual Desktop outside H drive
cd "\\Client\C:/Users/username/Desktop/PSQF6243_Example1"

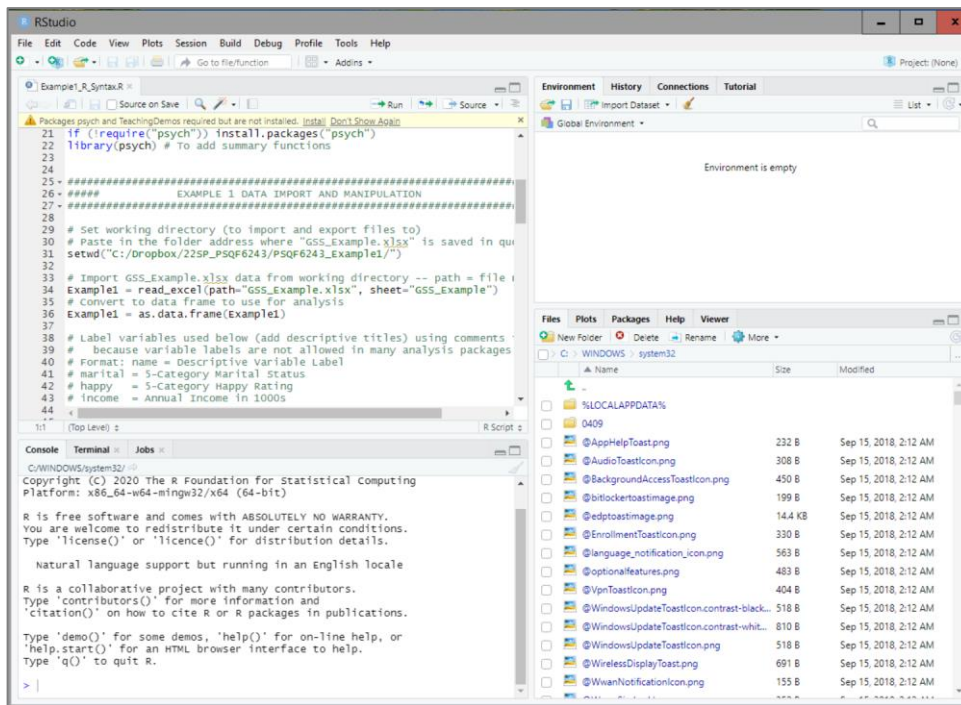
// Mac example using Desktop STATA outside H drive
cd "C:\Users\username\Desktop\PSQF6243_Example1"

```

**Step 6a for R.** From the original **Virtual Desktop** page, open **Rstudio** (not R by itself).  
On the **File** menu, select **Open File**:



**Step 6b for R.** Navigate to your **Example1\_R\_Syntax.R** file and open it. Scroll down to **line 31**.  
The screen should look like this, with a new syntax window in the upper-left corner:



On line 31 it says: `setwd("C:/Dropbox/22SP_PSQF6243/PSQF6243_Example1/")`

This is where \*MY\* files were. To change it, **paste in the path (within the quotes) that you found from Windows Explorer in Step 5b**—this will tell R where your folder is that contains the data file to be used. One catch is that you must **turn the slashes around in Windows**. So the path for my H drive folder (with reversed slashes relative to Windows) would look like this (last slash is optional):

```
setwd("H:/PSQF6243_Example1/PSQF6243_Example1")
```

You can also navigate to where your folder is in the **Files** menu (in lower-right window). Then select **More → Set as Working Directory**. In the output window, it will write the command you just executed, which you can copy into your `setwd ( )` function between the quotes.

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**Step 7.** You should now be able to run the syntax file without errors in each program. I would recommend running the syntax in chunks so you can see what happens at each step.

**To run SAS syntax:** Highlight the text to be executed and hit either F3 (windows) or F8 (mac) to execute (or move the mouse carefully to the running-man icon on the toolbar).

**To run STATA syntax:** Highlight the text to be executed and hit control+D to execute (or move the mouse to the “run” icon in the toolbar).

**To run R syntax:** Highlight the text to be executed and hit control+enter to execute (or move the mouse to the “run” icon in the toolbar).

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**Stata: In case of emergency...** if working with the Virtual Desktop is too annoying or you need to use Stata without an internet connection, you can purchase a six-month student license for \$48 here:

<https://www.stata.com/order/new/edu/gradplans/student-pricing/>

**SAS: In case of emergency...** if working with the Virtual Desktop is too annoying, another way to access SAS for free is through SAS On-Demand, which operates through a web browser:

[https://www.sas.com/en\\_us/software/on-demand-for-academics.html](https://www.sas.com/en_us/software/on-demand-for-academics.html)

**R: In case of emergency...** if working with the Virtual Desktop is too annoying, R+Rstudio can be installed on your local machine. R download (install first): <https://www.r-project.org/>  
Rstudio download (install second): <https://www.rstudio.com/products/rstudio/>

**To edit your syntax files outside the program,** I strongly recommend using a plain-text editor, such as WordPad for Windows or TextEdit for Mac. I like the program TextPad, which allows you to install syntax definition files (i.e., so that the same coloring is used as in the software).

Download TextPad generic syntax editor: <https://www.textpad.com/download>

Download “SAS4” or “Stata” syntax definitions (save to “system” folder of TextPad, then install as “New Document Class”): <https://www.textpad.com/addons/syntax-n2t>