



BIOGRID AUSTRALIA

SAS ENTERPRISE GUIDE 8.1



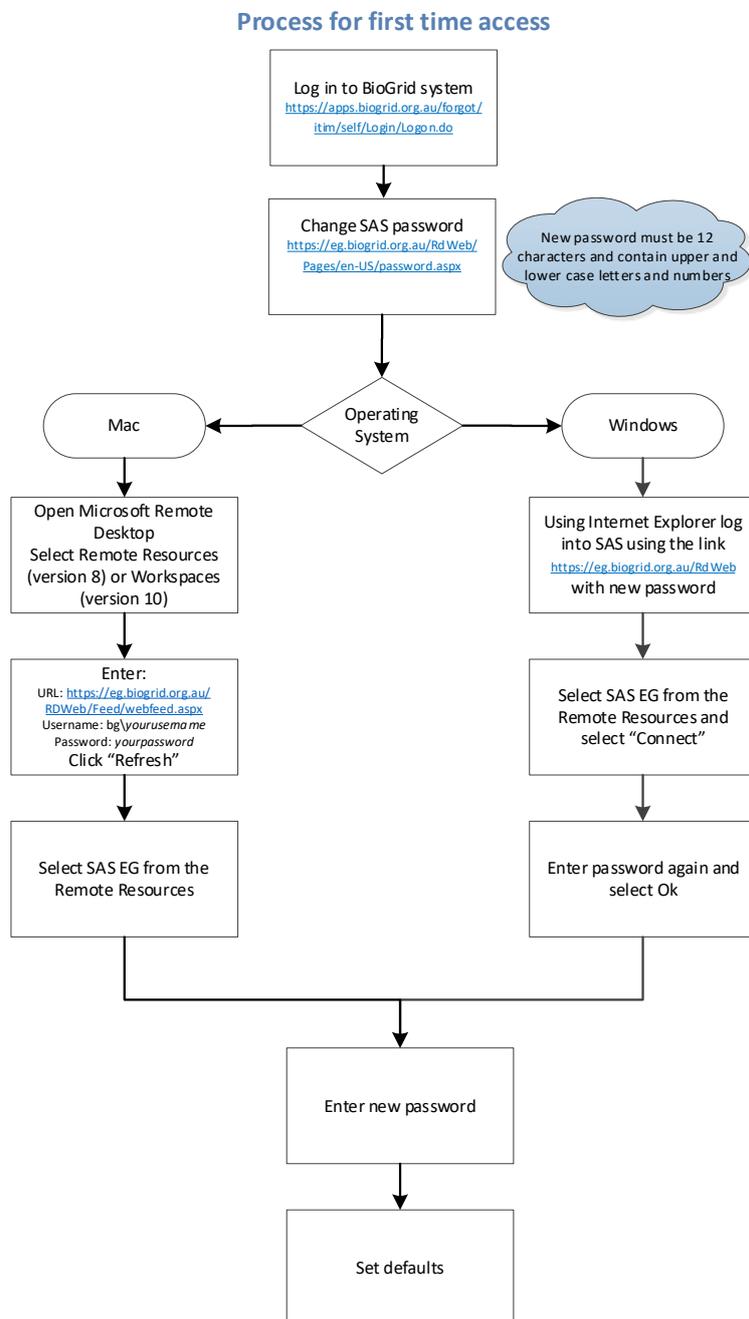
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1 Setting up your account for the first time

When you first use SAS EG 8.1 you will need to set up your account by following the process outlined below. After you have completed this process your account will be ready for use and you will not need to complete this again (unless you want to update your password at a later date). **The detailed steps are listed overleaf.**

Please note: If your account is inactive for a period of 12 months, it will be automatically disabled, even if your project in the BioGrid Access Request System has not expired. This practice is now part of BioGrid's data and information security policy. If you require your account to be reactivated, please email access@biogrid.org.au with your username and project details including the BioGrid project reference, e.g. BG-YYYYMM/99, project title and project principal investigator.





1.1 Change Your BioGrid SAS password

1. Click, or copy and paste into your browser, the URL below to change your BioGrid SAS password

<https://apps.biogrid.org.au/forgot/itim/self/Login/Logon.do>

2. Login with your username and first-time SAS password provided to you by BioGrid Australia
3. Answer the five security questions that appear and click submit.
4. Under Related Tasks at the bottom of the screen, select the link for the “Tivoli Identity Manager Home”.
5. Select change password.
6. Enter your first-time password (section 2) and your new password (section 4) and select OK.

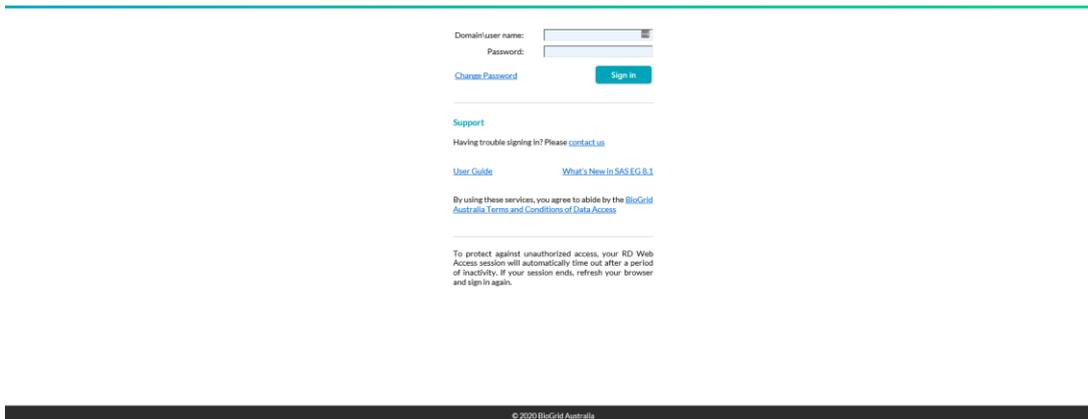
Your password needs to be 12 characters long and include a mix of upper and lower case letters and at least one numeric character.

7. You will see a “Request Submitted” confirmation, your password has now been changed.
8. Log-off from the BioGrid system.

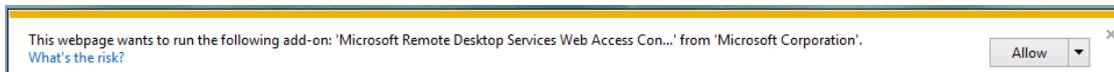
1.2 Launch SAS EG – Windows 7, 8 and 10.

1. Open Microsoft Internet Explorer (Version 6 or later is required)
2. Navigate to the website <https://eg.biogrid.org.au/RDWeb>
 - a. Log in with your username and password

In the domain\username field, enter your username with the domain prefix bg\ i.e. "bg\username"



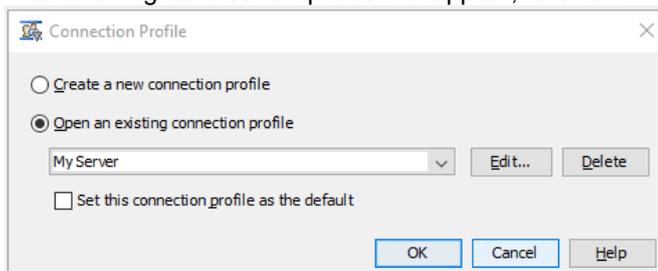
3. If you receive the following prompt, select "Allow"



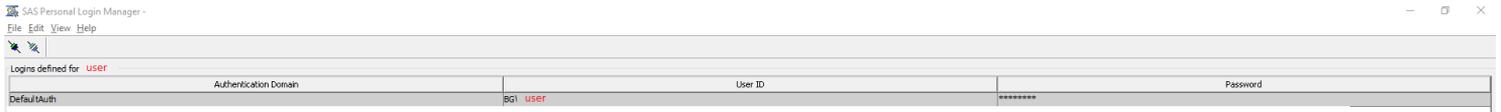
1. If you have changed your password as per section 2.1 select the SAS Personal Login Manager 9.4



2. When prompted to run SAS Personal Login Manager 9.4 as a RemoteApp, press "Connect"
3. The following connection profile will appear, click ok



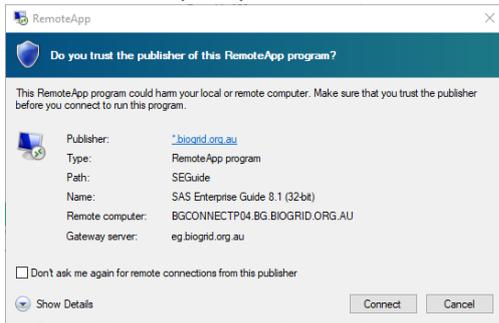
4. You should now see the logins defined for your user as per the below image:



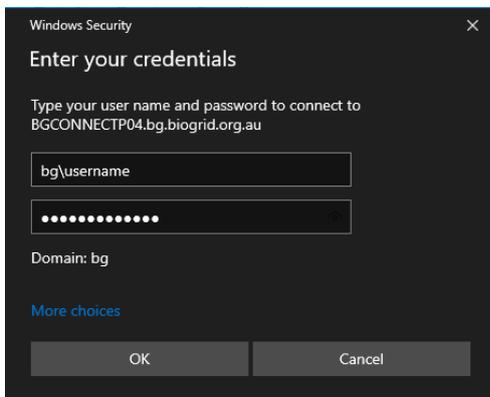
5. Double click on the defaultAuth user, the edit login properties box appears
6. Enter your new password in the Password and confirm password boxes
7. Click ok
8. Close the SAS Personal Login Manager 9.4 program
9. Return to the website opened in step 2
10. Select the SAS Enterprise Guide 8.1 icon



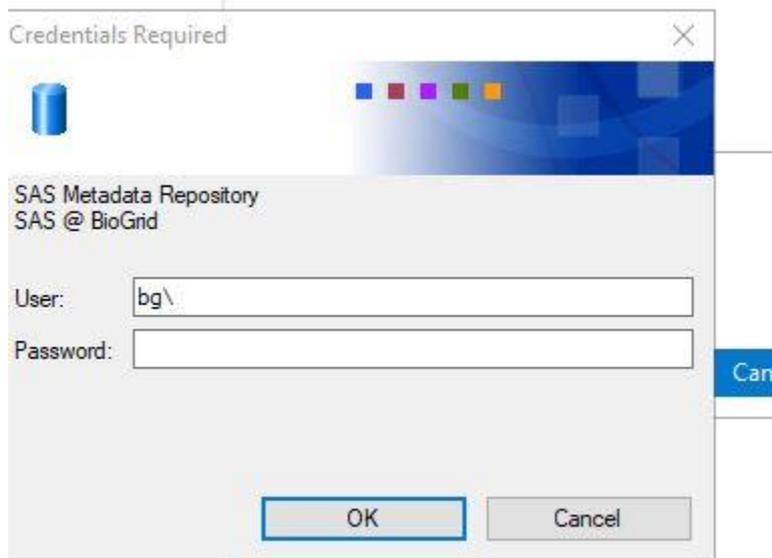
11. When prompted to run SAS Enterprise Guide as a RemoteApp, press “Connect”



12. When prompted, re-enter your Username and password, ensuring you enter bg\ before your username i.e. **bg\username**



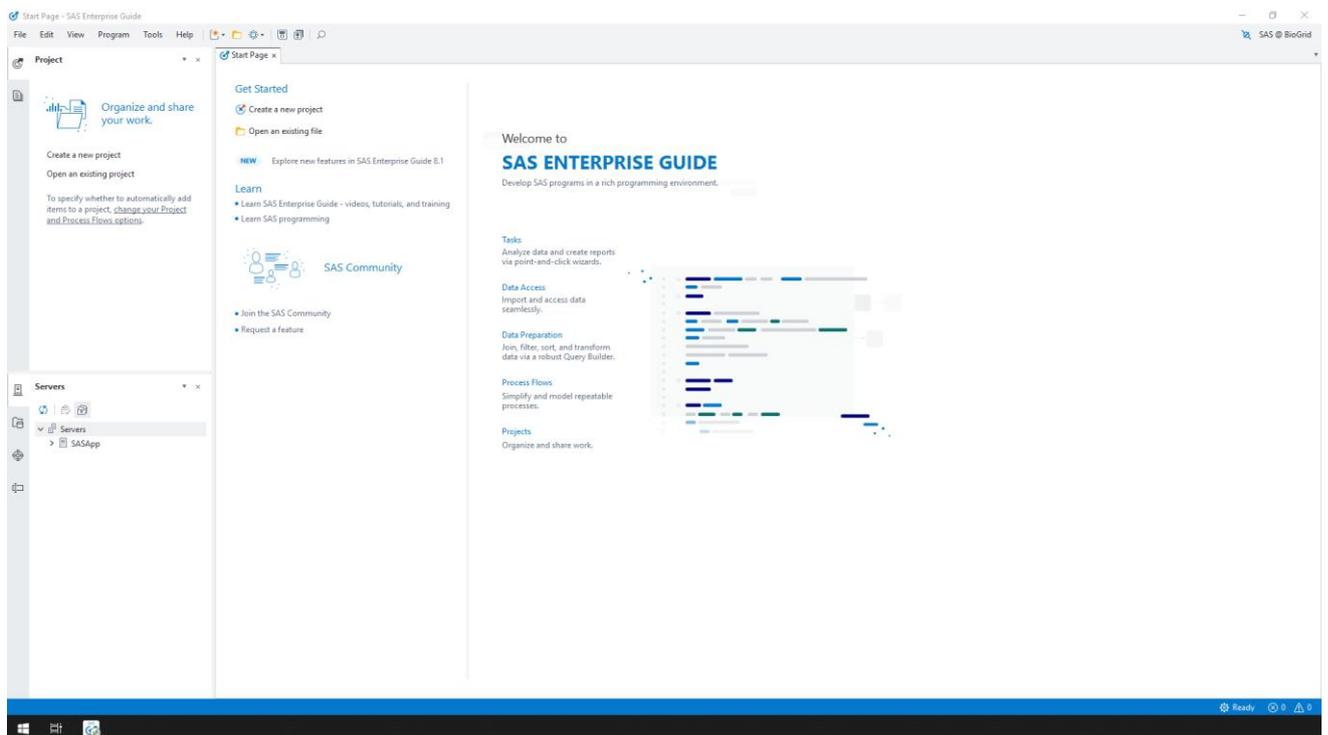
13. Once complete, SAS Enterprise Guide will appear as a program on your local computer taskbar.
14. If you changed your password as per 1.1 or have not logged on after the SAS Enterprise Guide upgrade to 8.1 a popup will appear to re-enter your password



15. Enter the following details:

Username: `bg\username`

Password: *Enter your new password*



1.3 Launch SAS EG – MAC Operating System

For remote desktop version 8 refer to 1.3.1, for version 10 refer to 1.3.2.

1.3.1 Remote Desktop Version 8

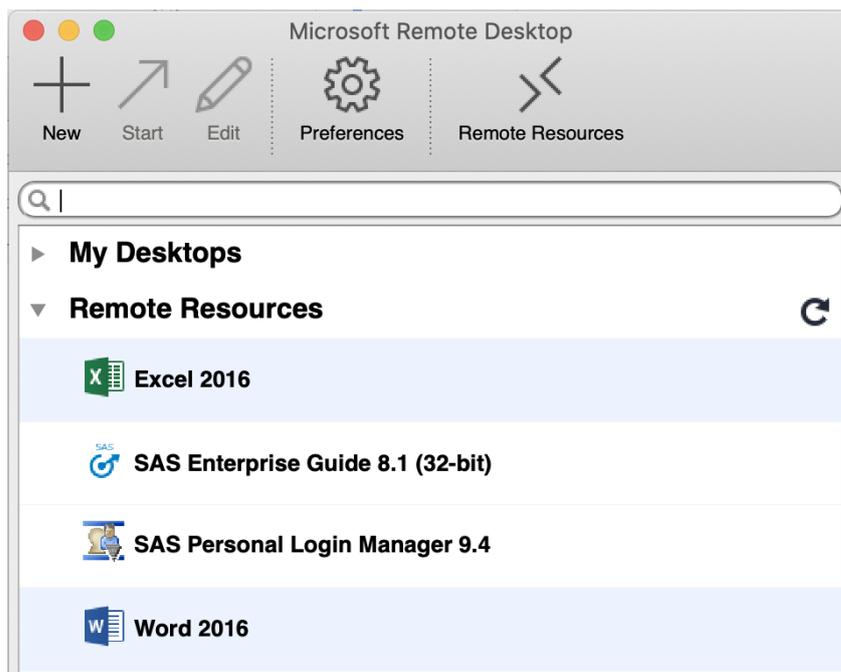
1. Open Microsoft Remote Desktop (requires at least version 8.0.6). If you do not have this installed you can download this application from the Apps Store.
2. Select the Remote Resources button
3. Enter the details:

URL: <https://eg.biogrid.org.au/RDWeb>

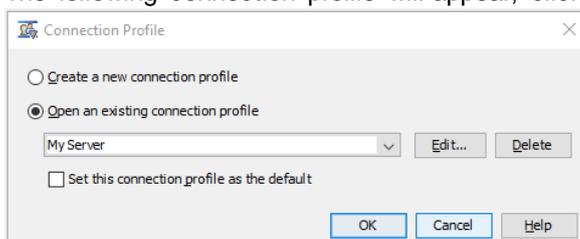
Username: *bg\username* (Your username will be provided by BioGrid)

Password: *yourpassword*

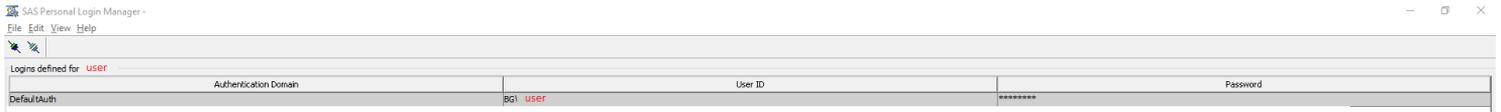
4. Click **Refresh**
5. **Click the red X button in the top left of the pop up**
6. If you have changed your password as per section 2.1 select the SAS Personal Login Manager 9.4



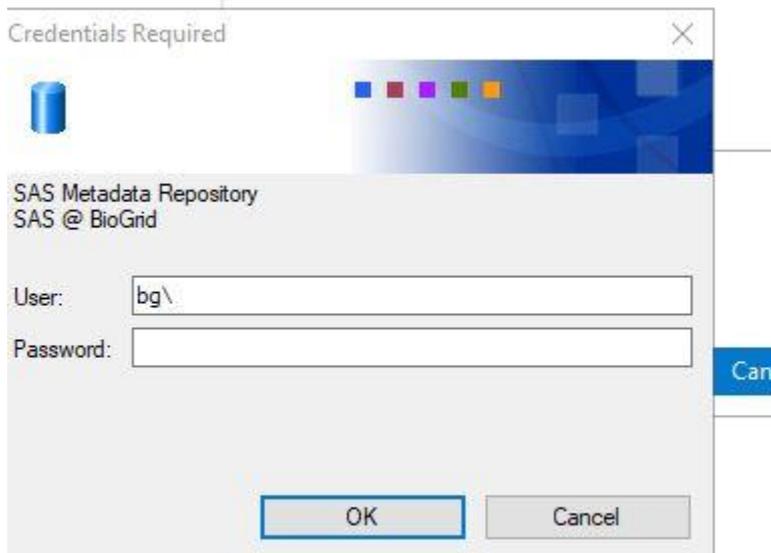
7. When prompted to run SAS Personal Login Manager 9.4 as a RemoteApp, press “Connect”
8. The following connection profile will appear, click ok



9. You should now see the logins defined for your user as per the below image:



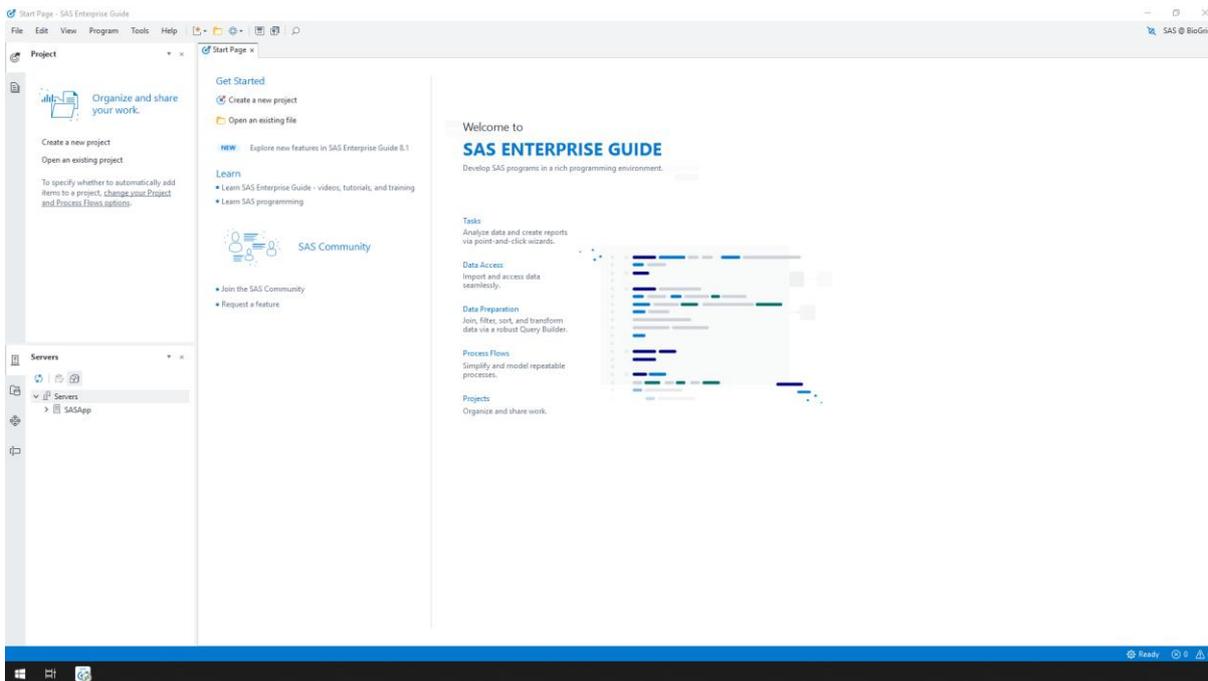
10. Double click on the defaultAuth user, the edit login properties box appears
11. Enter your new password in the Password and confirm password boxes
12. Click ok
13. Close the SAS Personal Login Manager 9.4 program
14. Return to Microsoft Remote Desktop
15. From the Remote Resources that will appear, select SAS Enterprise Guide 8.1
16. If you encounter a message to Verify Certificate, please press **Continue** and SAS EG will launch
17. Once complete, SAS Enterprise Guide will appear as a program on your local computer taskbar.
18. If you changed your password as per 1.1 or have not logged on after the SAS Enterprise Guide upgrade to 8.1 a popup will appear to re-enter your password



Enter the following details:

Username: *bg\username*

Password: *Enter your new password*



1.3.2 Remote Desktop Version 10

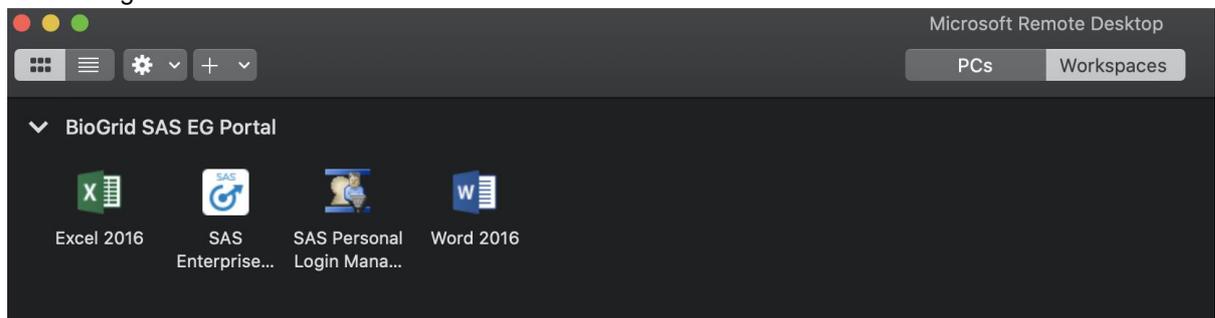
1. Open Microsoft Remote Desktop If you do not have this installed you can download this application from the Apps Store.
2. Click on workspaces
3. Click add workspace button
4. Enter: <https://eg.biogrid.org.au/RDWeb/Feed/webfeed.aspx>
5. The application will search for the workspace
6. Click user accounts dropdown
7. Select Add user account
8. Enter the details:

Username: *bg\username*

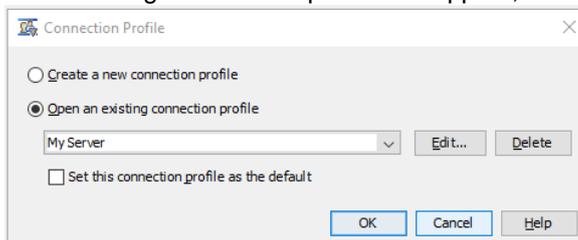
(Your username will be provided by BioGrid)

Password: *yourpassword*

9. Click Add, this will return you to the add workspace screen
10. Click add
11. The setting up workspace will appear
12. If you have changed your password as per section 2.1 select the SAS Personal Login Manager 9.4



13. When prompted to run SAS Personal Login Manager 9.4 as a RemoteApp, press “Connect”
14. The following connection profile will appear, click ok

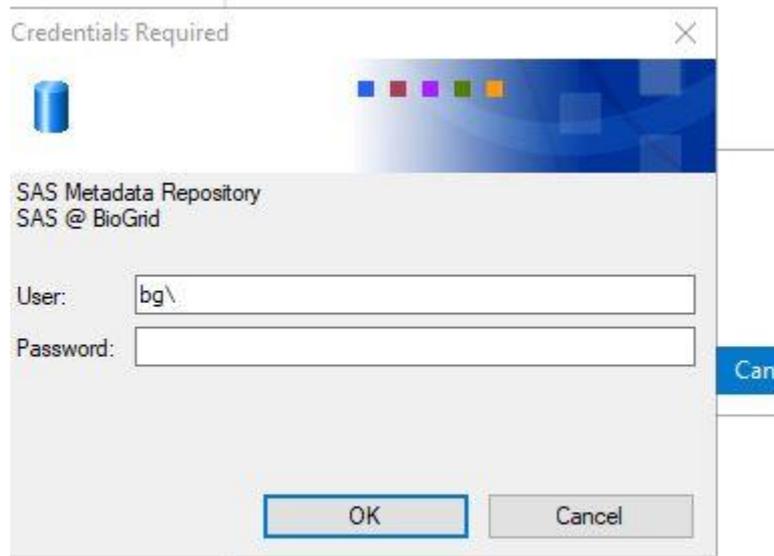


15. You should now see the logins defined for your user as per the below image:



16. Double click on the defaultAuth user, the edit login properties box appears
17. Enter your new password in the Password and confirm password boxes
18. Click ok
19. Close the SAS Personal Login Manager 9.4 program
20. Return to Microsoft Remote Desktop
21. Select the SAS Enterprise Guide 8.1 icon

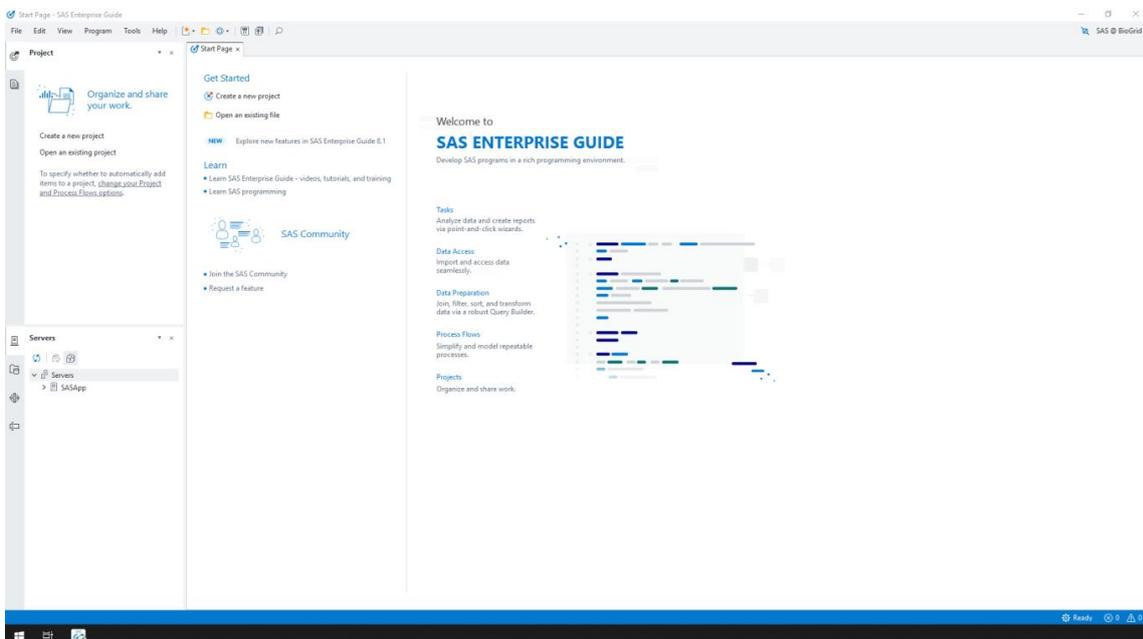
22. Once complete, SAS Enterprise Guide will appear as a program on your local computer taskbar.
23. If you changed your password as per 1.1 or have not logged on after the SAS Enterprise Guide upgrade to 8.1 a popup will appear to re-enter your password



24. Enter the following details:

Username: `bg\username`

Password: *Enter your new password*



2 Using SAS EG 8.1

2.1 User Interface Overview

The user interface is divided into five areas:

1. **Navigation Panes** - contains different panes like the **Project**, **Servers**, and **Tasks** panes to assist you while working on your project or program.
2. **Content Area** - provides the main work area. You can open as many tabs as you like, arranging them and docking them in any configuration.
3. **Tools Area** - displays the **Submission Status** and **Search** panes below the content area by default.
4. **Profile Connection Indicator** – indicates the active connection profile.
5. **Status Bar** - shows information about the active project and item.

The screenshot shows the SAS Enterprise Guide (EG) 8.1 interface for a project named "Analyze Netflix Data". The interface is divided into five numbered areas:

- 1. Navigation Panes:** Located on the left, it includes the "Project" pane showing a tree view of the project structure (e.g., "NetflixHistory01", "Analyze Netflix Data", "NetflixHistory.xlsx", "Import NF History", "Data Imported from NetflixHistor", "Calc Days and Ratings", "RATINGS", "Ratings Format", "TITLESDAYS/RATINGS", "Chart of ratings", "Summary Statistics", "Movies we like", "Didn't like", "Prepare Time Series Data", "Modified Time Series data for WOF") and the "Servers" pane showing "Local" and "Private OLAP Servers".
- 2. Content Area:** The main workspace displaying a workflow diagram with various tasks and data objects connected by arrows. Tasks include "Import NF History", "Data Imported from NetflixHistory.x", "Calc Days and Ratings", "TITLESDAYS/RATINGS", "Chart of ratings", "SAS Report - Chart of ratings", "Netflix History Report", "create_ratings_data", "RATINGS", "Ratings Format", "scatter_days_vs_shipped", "SAS Report - scatter_days_vs_shipped", "Summary Statistics", "SAS Report - Summary Statistics", "Movies we like", "SAS Report - Movies we like", "Like and Dislikes", and "create_series_plots".
- 3. Tools Area:** A table titled "Submission Status" showing the progress of various tasks. The table has columns for Name, Completed, Status Information, Run Time, Submitted, Process Flow, and Server.
- 4. Profile Connection Indicator:** Located in the top right corner, it shows "No profile selected".
- 5. Status Bar:** Located at the bottom, it displays "Project: NetflixHistory01", "Analyze Netflix Data", and "Zoom: 100%".

| Name | Completed | Status Information | Run Time | Submitted | Process Flow | Server |
|--------------------------|-----------|---------------------|----------|---------------------|--------------|--------|
| Chart of ratings | | Collecting... | | 3/5/2019 6:52:02 PM | Analyze Netf | Local |
| scatter_days_vs_shipped | | Queued... | | | Analyze Netf | Local |
| Summary Statistics | | Queued... | | | Analyze Netf | Local |
| Movies we like | | Queued... | | | Analyze Netf | Local |
| Prepare Time Series Data | | Queued... | | | Analyze Netf | Local |
| Didn't like | | Queued... | | | Analyze Netf | Local |
| create_series_plots | | Waiting on [Prepare | | | Analyze Netf | Local |

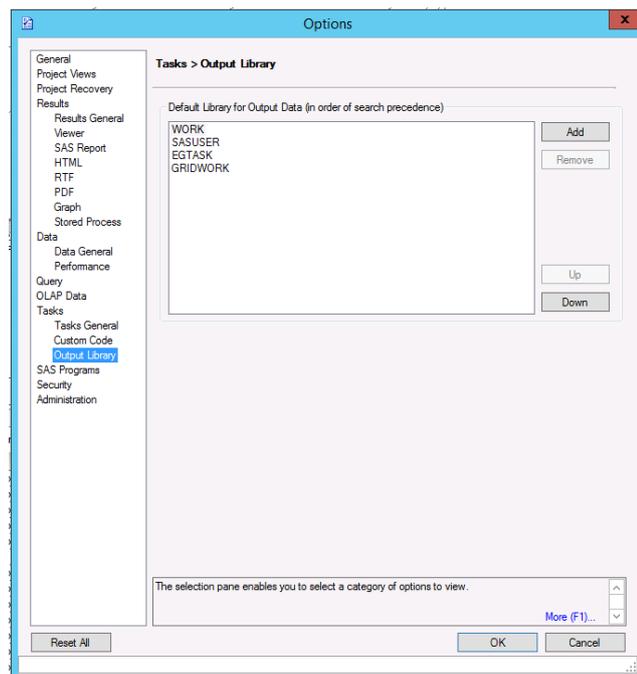
2.2 Preference Changes

There are a few changes to make to the default settings that will enable a better experience using SAS EG.

2.2.1 Change default storage

The SAS default output storage is set to EGTASK. This will save a copy of all queries, outputs and work that you create. However this is resource intensive and will quickly slow your analyses down. We suggest you change this default to WORK which will save your instructions/process flow, but does not store all the temporary tables. These can easily be re-created when you open a project and run the process flow and this has the benefit of updating your analyses with the latest data from the library.

1. From the Tools menu, select Options
2. Select the Output Library in the Left-hand menu
3. Select WORK and then click the Up button until this appears at the top of your list
4. Move SASUSER to be the second in the list.
5. Your list should now appear as in the figure:
6. Click OK



2.2.2 Projects

SAS Enterprise Guide 8.1 does not require working with a project. Projects are a convenient way to group and organize related SAS content (programs, data references, process flows, results, and so on). However, you might just want to work with .sas files or simply open data sets for viewing, without a project. You now have the choice!

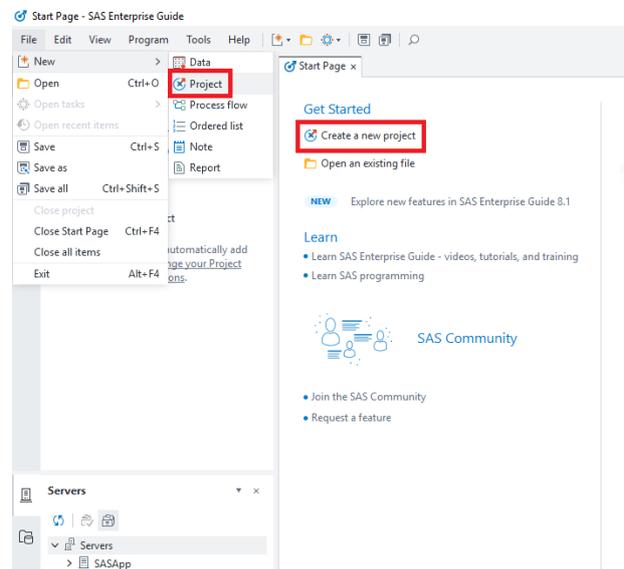
By default, SAS Enterprise Guide 8.1 does not start up with a project open, however this can be changed in the start-up options (Tools > Options > Start Up). The selectable options are:

- **No project or program.** Selected by default. Start with no project or program.
- **New program only.** Start with a new empty program, so you can immediately begin coding.
- **New project only.** Start with a new project.
- **New project and program.** Start with a new empty program in a new project, so you can immediately begin coding in a new project.

2.2.3 Create a new project

Use one of these four ways to create a new project:

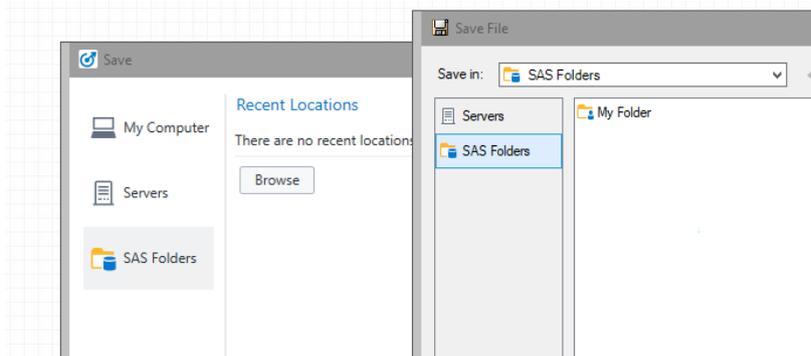
1. Select **File > New > Project**.
2. Select the new icon () on the top toolbar, and then select **Project**.
3. On the **Start Page**, select **Create new project**.
4. From the **Project** pane, select **Create a New Project**.



2.2.4 Save location

To save your project work:

1. From the File menu, select “Save *“Project Name”* Project As”
2. Click on the SAS Folders on the left-hand side menu
3. Click browse
4. Select the folder labelled “My Folder” and save your projects here.

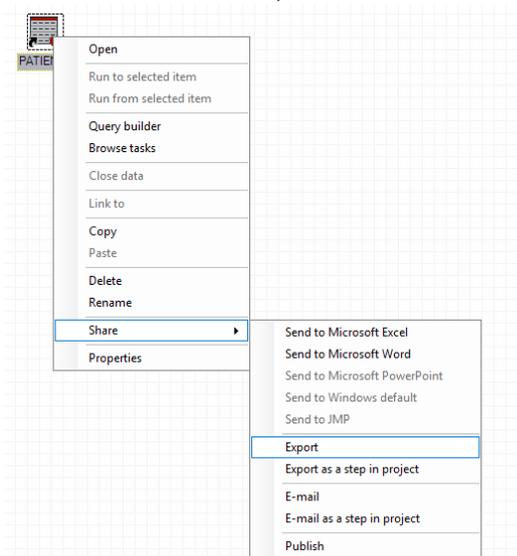


This folder is only visible to you, and has the benefit of being able to be accessed from any computer you connect to the network, so you can work on your project from multiple locations.

2.2.5 To export data

If you would like to export your data to work in another statistical software program you can first create the tables you need using the SAS EG program, or export each table separately.

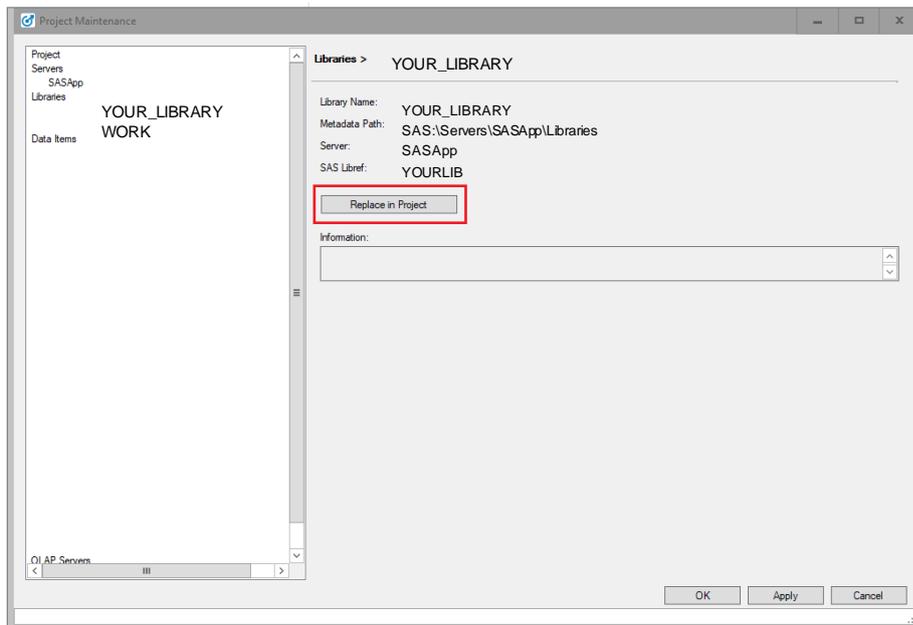
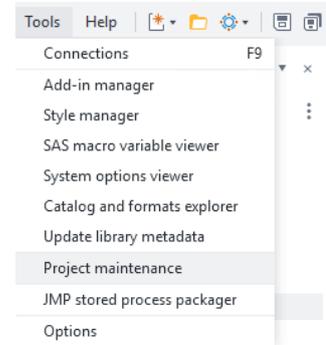
1. Right click on the table in the Process Flow
2. Select share -> export
3. You can then select where to save the table to, and the file format you require (.csv, .txt, .xlsx, .tab, .sas7bdat)



2.2.6 Update/replace library

If you have a project detailed for one library that you would like to copy the queries to another library, or if you need to update your library linkage after a SAS display name change, you can do so with one simple change within your project. Some SAS Library Display Names have changed in SAS EG 8.1 and you may need to work through this process for projects created in SAS EG 4.3.

1. Open your project file in SAS EG 8.1
2. From the Tools menu, select Project Maintenance
3. SAS will prompt you to close your project, select close and continue.
4. The Project Maintenance window appears for your Project. This lists the libraries used in your Project. Select the library that you want to change.
5. You can now select Replace in Project to change the source library.



6. From the list of libraries that appear, select your new library name.
7. Select Save.

All changes to the library have now been saved in that Project. You can repeat this for any Project that needs to be updated.

The Process flow will now run with the connection to the new/updated library.

3 Useful tips for SAS EG

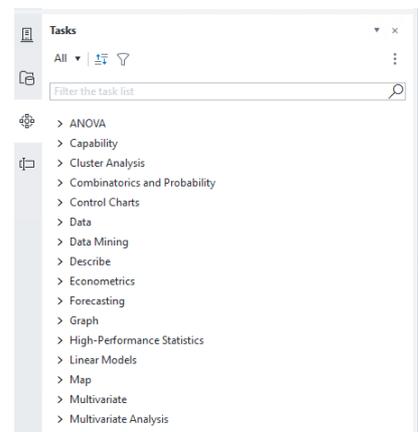
SAS EG can appear quite different to many other statistical analysis software programmes, however – once you know how to navigate your way around EG you will be creating graphs and t-tests in no time.

3.1 General Tips

To become familiar with the SAS EG platform it can take a bit of exploration. Some tips that are useful if you are new to running SAS EG through BioGrid are listed below. If you have any additional tips to share, please let us know!

1. You can have multiple process flows within one project. This allows you to keep your analyses organised and can reduce run time when you need to update or produce one part of the analysis only. Add these to your Project through the File menu, New, Process Flow.
2. CTRL+ALT+END will bring up the option to open task manager for the remote desktop connection if you need to force SAS to close and restart.
3. If you need to repeat the same analyses with a new library, make a copy of your project then use the update library function detailed on section 2.2.6 to save in set-up time.

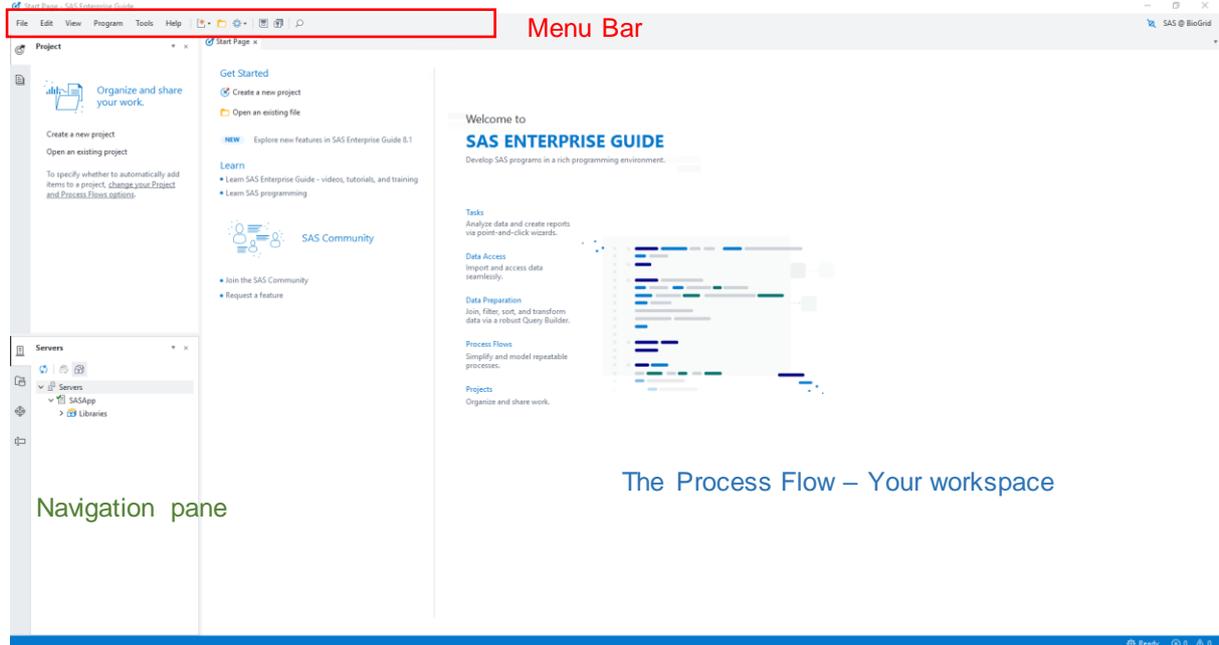
4. The task functions are repeated in the left-hand menu for quick access if you select the third icon. The other icons are also useful for accessing your SAS Folders or the SAS Libraries that you have access to.



5. If you encounter any issues, or problems performing the task you need in SAS EG, make use of the SAS documentation at <http://support.sas.com/documentation/94/index.html> or the SAS forums at <https://communities.sas.com/community/support-communities>

3.2 Where is my data?

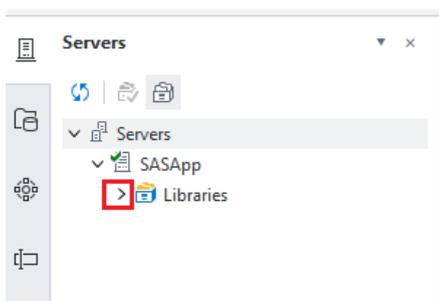
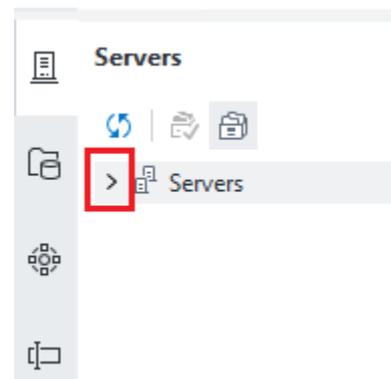
When you first open EG you are presented with a blank looking screen with a standard menu bar and shortcuts/navigation pane on the left.



Unlike other software, if you head to the menu bar to choose, file open, you will not be able to find your data. Instead, SAS stores its data on a Server which is linked to the source database. This enables you to access real time data – anytime there is an update it will be accessible here. This prevents you having multiple data copies and avoids the potential for preparing out of date results or confusing the latest information. SAS calls this data connection to a source database a “Data Library”.

3.2.1 Open your data library

Head to the Navigation pane, it should show the Server List as on the right. If you do not have this showing, select the server icon (highlighted in blue) to view the server list. Expand the Server list by clicking the > beside Servers



You will now see the yellow and blue libraries icon. Select the > beside the Libraries icon to expand the list of libraries you have access to. Depending on what approval was attained for your project, you may have one or multiple libraries listed. To view the Tables in the libraries, click the + beside the library name and this will show you all tables you have access to in the navigation pane.



For example, on the right, in the Diabetes Sample library there are four different tables of data listed.

To view the data, double-click the table you are interested in.

This will add the table to your process flow, and open the table to view the data.

- ▼ DIABETES SAMPLE
- > COMORBID
- > PATHDATA
- > PATIENTS
- > SURVEY_DATA

Start Page | **Process Flow** | WORK.PT_COM... x

Where | Query Builder | Tasks | Share | *Use this tab to navigate back to your process flow click on the other tabs open to view the data*

| USI | CEREBROVASCULAR_DISEASE | HYPERTENSION_TREATMENT | HYPERLIPIDAEMIA | ADD_RX_IHD | ADD_RX_CCF | ADD_RX_NEURO | ADD_RX_NEPH |
|-----|-------------------------|------------------------|-----------------|------------|------------|--------------|-------------|
| 1 | 1 | | YES | | | | Y |
| 2 | 2 | YES | YES | | Y | Y | Y |
| 3 | 3 | | | | | | |
| 4 | 4 | | YES | | | | |
| 5 | 5 | | | | | | |
| 6 | 6 | | | | | | |
| 7 | 7 | | | | | | |
| 8 | 8 | | | | | | |
| 9 | 9 | YES | | | | | |
| 10 | 10 | | | | | | |
| 11 | 11 | YES | | | | | |
| 12 | 12 | | | | | | |
| 13 | 13 | | | | | | |
| 14 | 14 | | YES | Y | | | Y |

You will now see the data in a more familiar format.

You can return to your Process Flow by selecting the process flow tab.

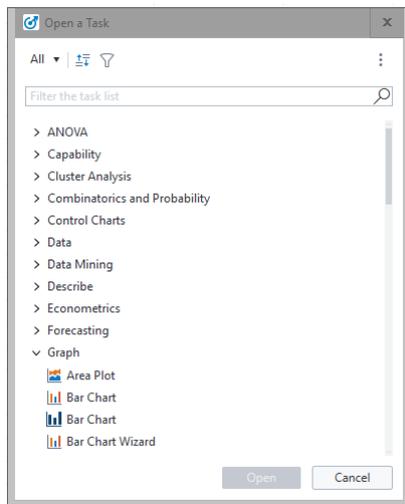
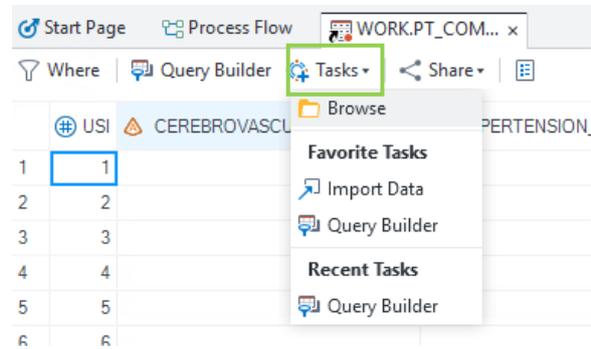
Explore the setup of your tables, the columns and use your Database dictionary and schema to assist your understanding the relationship of your tables within your library.

3.3 Exploring data

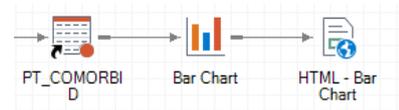
Now that you can view your data, there are several ways to explore your data.

3.3.1 Graphs

When you have a table open, there is another menu bar that is available. One of your options is Tasks. You can select the tasks button, then browse and this will open the task window. From this window you can expand graph list and select the Bar Chart Wizard, or select the options required using the bar chart option.

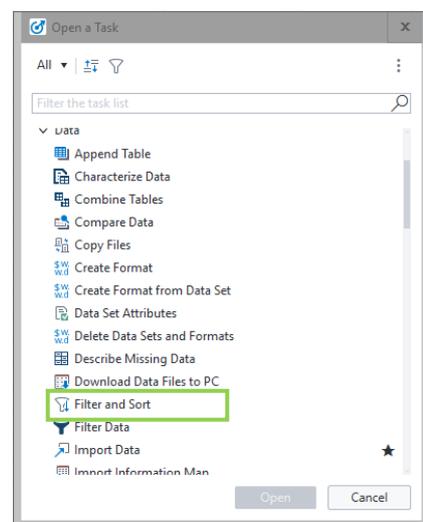


The graph will open automatically once prepared, or you can open it by double-clicking the SAS Report – Bar Chart from your Process Flow.



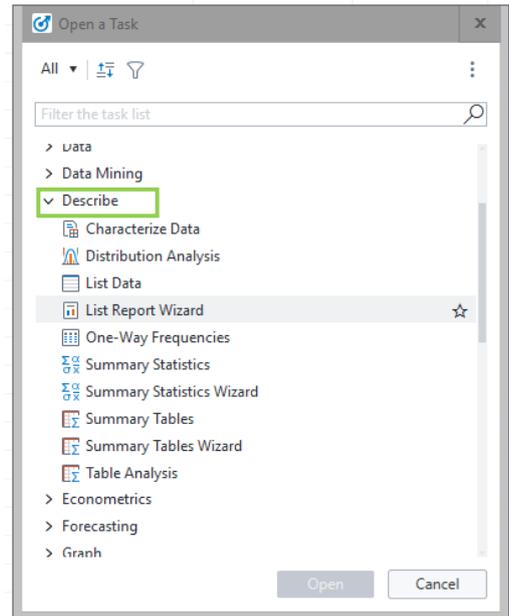
3.3.2 Filter and Sort

Using the filter and sort option you can reorganise the information in the table and limit it to the rows you require



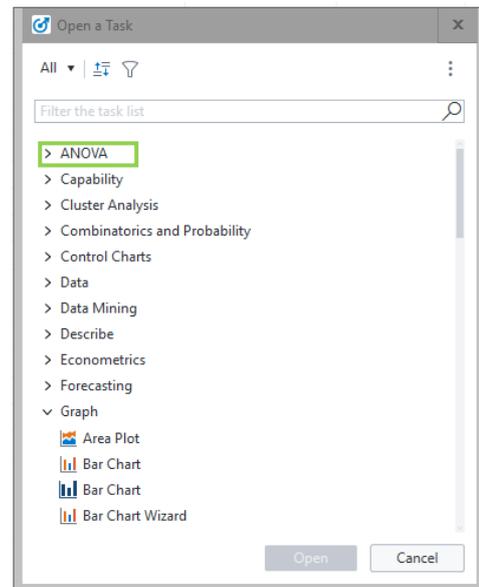
3.3.3 Describe

To create summary statistics, frequency counts and table analyses use the options in the describe menu



3.3.4 Analyze

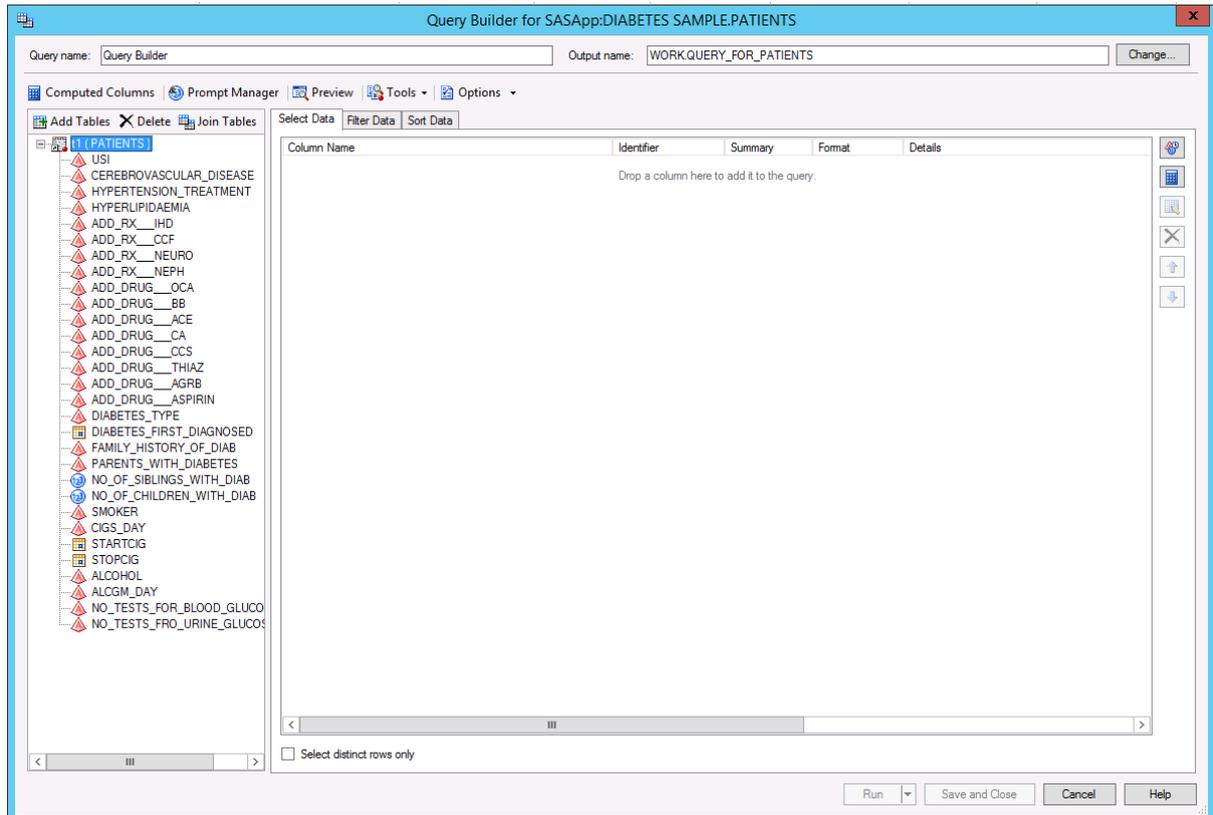
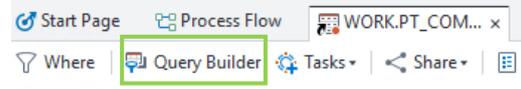
Within the task menu you will find the statistical comparisons tests, such as ANOVA, multivariate analysis, regression etc. You can use the search box to filter the tasks of interest.



3.4 Query Builder

To create more complex comparisons, or to combine information from several tables you will need to use the Query Builder.

The Query Builder allows you to select only the columns you require, calculate new columns, recode existing columns, sort and filter data and join columns from other tables.



You can select columns, by dragging and dropping into the select data tab window. To choose a filter column, select the filter data tab and drag and drop the column you want to filter by. The sort data tab allows you to choose the column to sort by.

3.4.1 Joining Tables

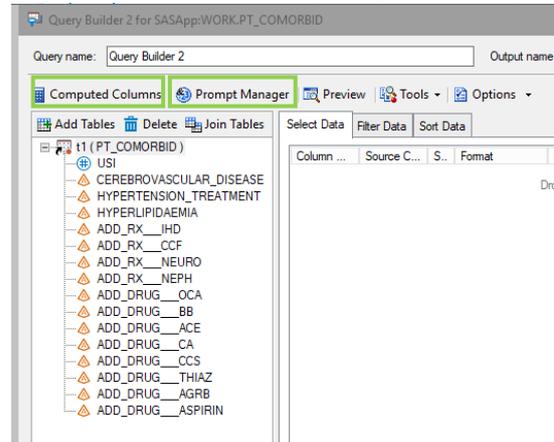
The benefit of using the SAS EG system is it makes it easy to work with relational databases. For example one patient may have, no treatments, one treatment or multiple treatments. This makes it difficult to store in a single table (or spreadsheet) so this is stored in more than one table. However when it comes to the analysis, you will need to bring the information from each table together.

Within the Query Builder, select the Add Table button:

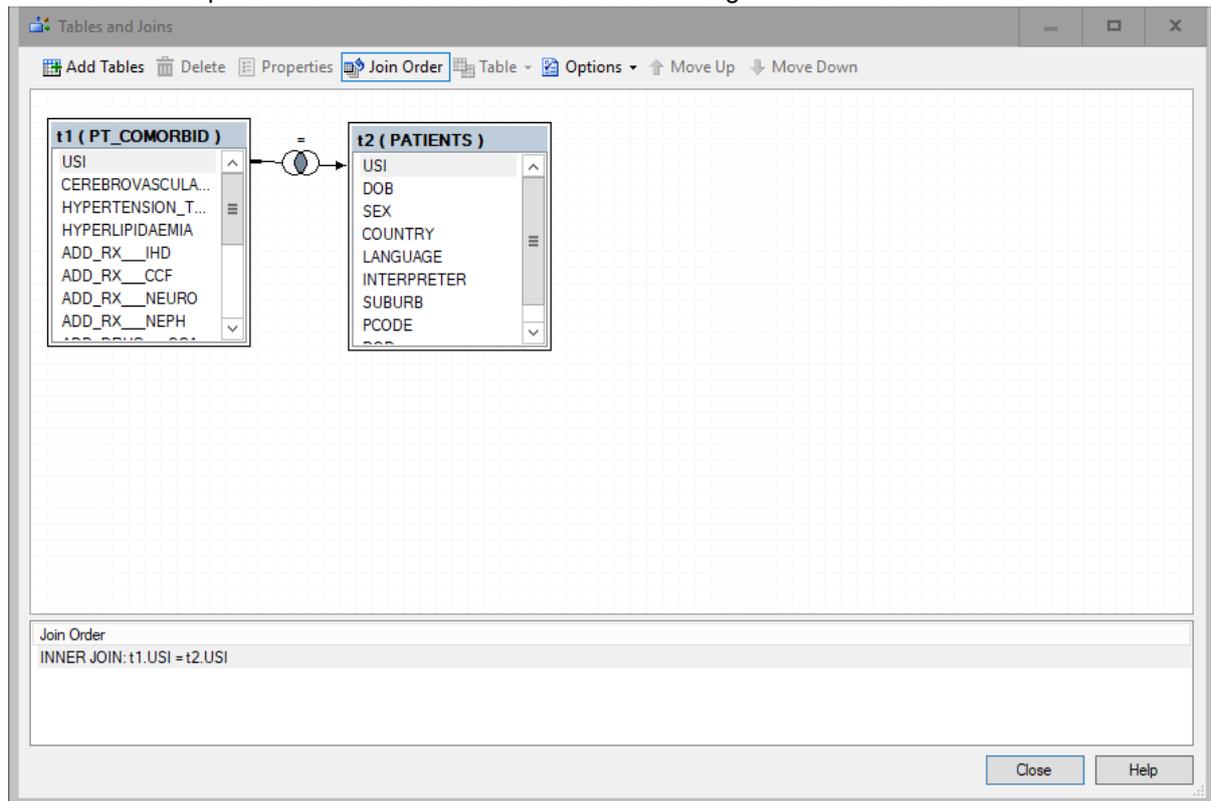
A list of all tables in your project will appear – select the table you want to join.

SAS will select the method to join the tables by using a common column.

You will need to check the method by selecting the Join Tables button



Usually the join is made using the USI number, table identifier and/or dataset/database identifier – if you need to select another column, you can specify how the tables are joined, in what order and any other filter methods required. You can also add further tables through the Join Tables window also.



Once you have selected your options, click close, check your columns are selected and then hit Run.

Be sure to check that the output is what you expected – any differences in row numbers from your expectation probably means your join type needs adjustment

If you encounter any technical issues, or need any assistance, contact us at enquiries@biogrid.org.au

4 Further Support and Training



BioGrid offers ad-hoc training and support for new or experienced SAS users to enable users to have sufficient knowledge of the SAS tools to conduct your own data querying, manipulation and analyses. BioGrid provides access to SAS tools for BioGrid members and collaborators and encourages users to benefit from these tools to assist in auditing, analysing and reporting your data.

Training/Support of “how to” can include but is not limited to:

- General overview of SAS
- Querying
- Filtering
- Calculated fields
- Complex joins
- Macros
- Data analysis tools (Descriptive statistics, Survival Analysis, ANOVA etc.)

The training sessions are provided through a desktop sharing web application i.e. Join.Me, Go to Meeting etc.

To access training please contact BioGrid at enquiries@biogrid.org.au.

If researchers are unable to utilise the SAS tools for themselves and require data analyses to be conducted, BioGrid can provide this service to members and collaborators under a fee-for-service arrangement. Contact us at enquiries@biogrid.org.au if you wish to obtain a quote for this service.

5 References

- Bailey D, DuPont S, and Smith C, 2019, SAS3355-2019: Celebrity Makeover: A Fresh and Modern Look for SAS® Enterprise Guide®, SAS Institute Inc, *SAS Global Forum*, 2019
- SAS Institute Inc, 2019, *SAS® Enterprise Guide 8.1: User's Guide*, <https://documentation.sas.com/?docsetId=eguq&docsetTarget=titlepage.htm&docsetVersion=8.1&locale=en>