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## Using PC SAS CONNECT

### What is PC SAS Connect?

PC SAS along with SAS CONNECT is a powerful alternative to logging directly onto the WRDS UNIX or Cloud servers and running SAS programs in a "shell" session. The main advantage is that you can avoid learning and remembering UNIX syntax and software, staying almost entirely in a Windows PC environment to access and process data on the WRDS system. In other words, SAS CONNECT allows the user to make use of the resources of the remote machine without having to work on it through SSH connection.

When running a SAS program that will make use of SAS CONNECT, the following steps are automatically executed by SAS:

1. Sign on the remote server
2. Run the program on the remote machine.
3. Return to the local SAS the output and the log generated by running the program on the remote computer.
4. Sign off the remote server

## How to work with SAS CONNECT

In order to use SAS CONNECT and run a program remotely, the SAS program must contain some extra code.

### **1. Sign on the remote server**

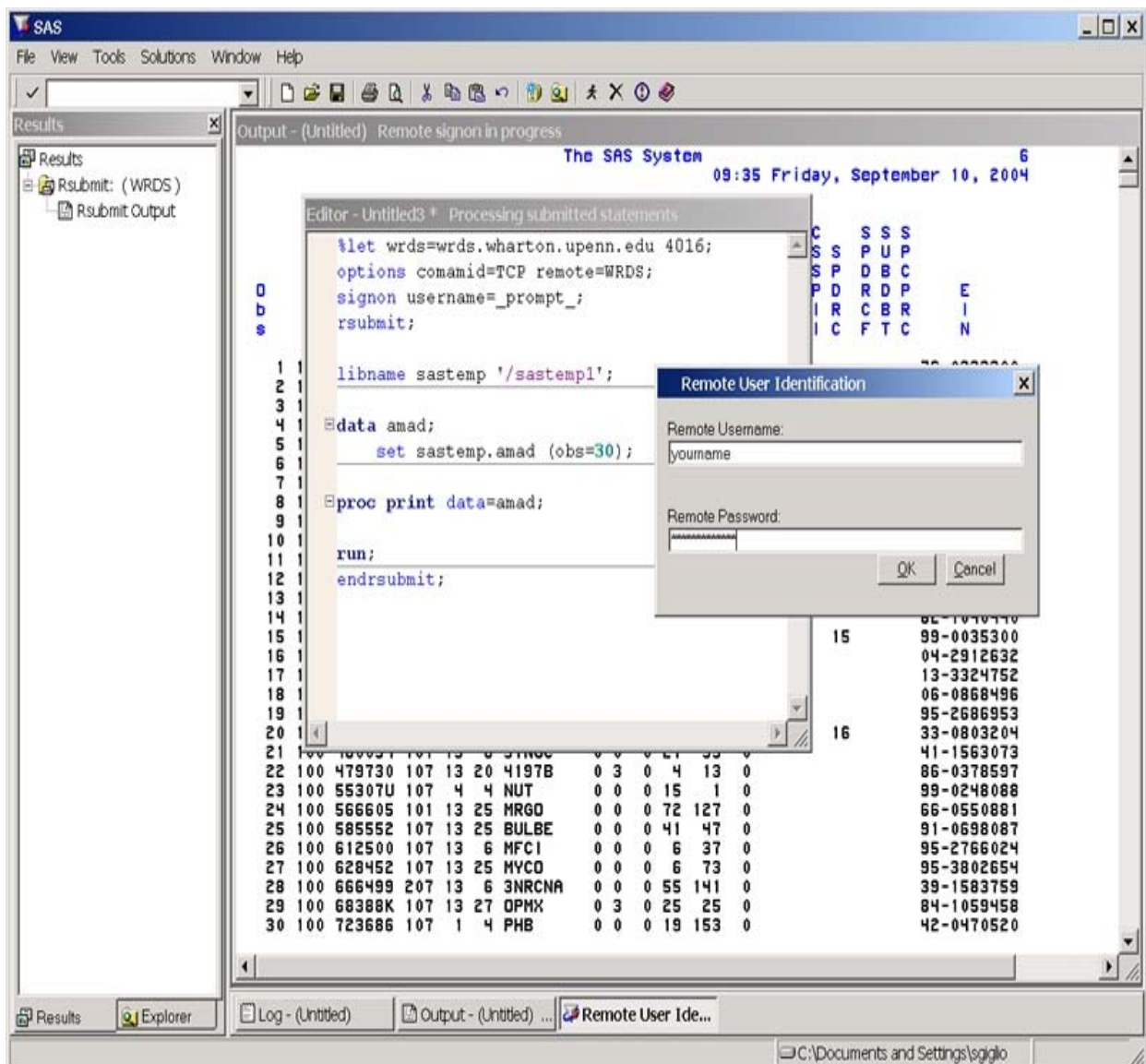
At the beginning of the program add the three lines of code below that allow the remote system to identify the user and establish the remote connection. Once the connection is established, it will remain for future instruction or programs, until PC SAS encounters the sign-off instructions.

The code for the sign-in is:

```
%let wrds=wrds.wharton.upenn.edu 4016;
options comamid=TCP remote=WRDS;
signon username=_prompt_;
```

When these lines are executed, a window will appear on the local system asking for username and password, which are then used to log into the server wrds-cloud.wharton.upenn.edu or wrds.wharton.upenn.edu.

Since the sign-in is NOT required every time you run a program (unless you submit the signoff line), you do not need to write these lines at the beginning of every program. However, if you do that, PC SAS will check if a connection is already established, and in that case, it will just skip the sign-in part. Therefore, it is perfectly safe to write the sign-in lines at the beginning of every program you intend to be executed on the remote server.



## 2. Remotely submit some code

Once a connection is established, you can choose which instructions you want to be executed on your computer and which on the remote server. The commands `rsubmit` and `endrssubmit` explicitly tell which lines are submitted to the remote server. That is, all the code between these commands will be executed by the remote server.

```
rsubmit;  
...  
...  
run;  
endrssubmit;
```

The lines before and after it will be executed by the local PC SAS. Note that you can have different blocks of instructions and therefore alternate local and remote execution. At the end of every `rsubmit` block **remember to use the `run`** instruction to tell SAS to execute the remote section.

### **3. Get the results**

Once a program is executed, the results (output and log) will be displayed on the local computer, allowing an easier analysis and debugging of the program. The connection will not be canceled, and will remain for future remote submissions.

### **4. Sign off**

The instruction to sign off the remote server is:

```
signoff;
```

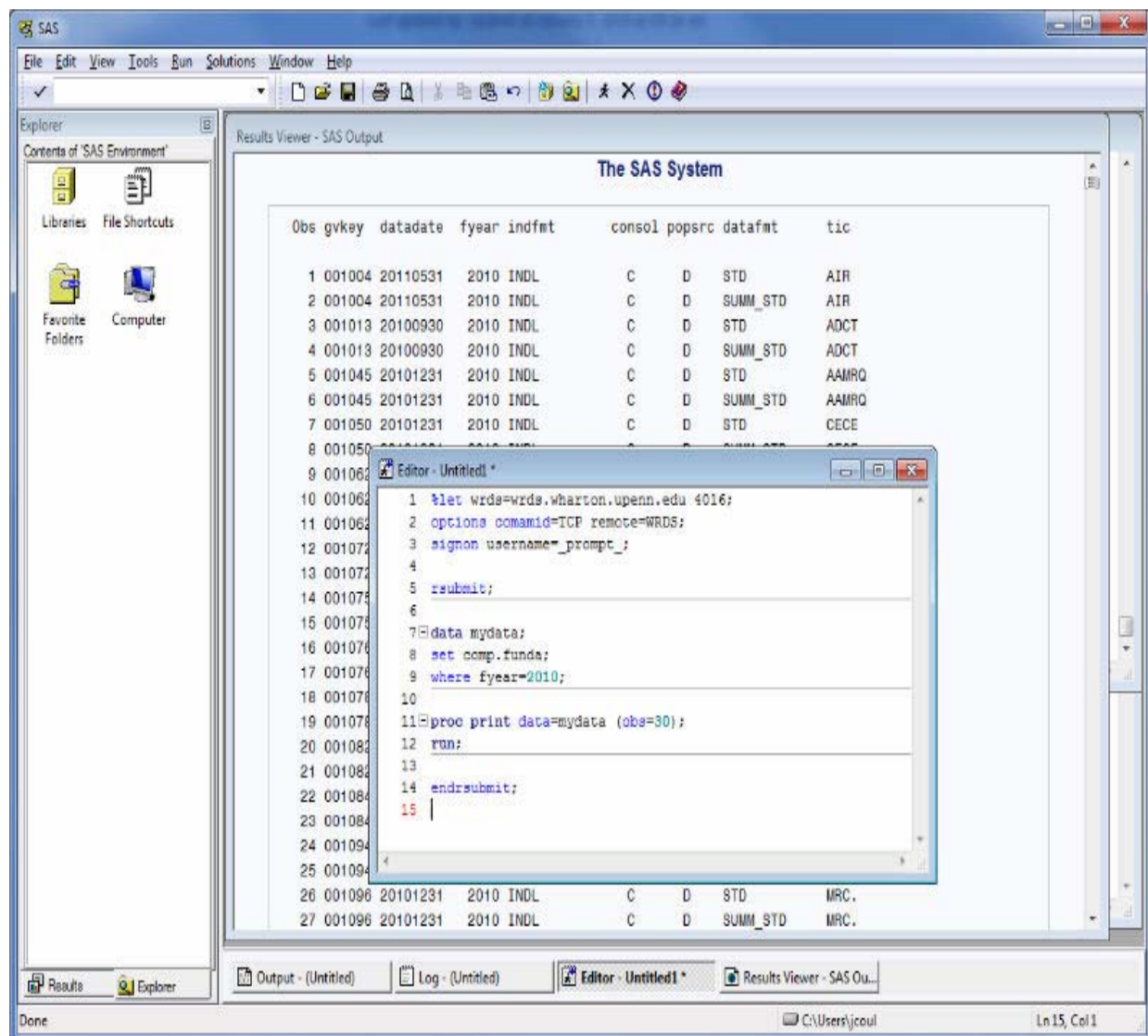
The remote signoff is not necessary since after some time, the remote connection will be canceled.

### **An example**

This is a simple example of the usage of SAS CONNECT. It reads the annual fundamentals dataset of Compustat, selects the 2010 fiscal year, and prints the first 30 lines of the output.

```
%let wrds=wrds-cloud.wharton.upenn.edu 4016;  
options comamid=TCP remote=WRDS;  
signon username=_prompt_;  
  
rsubmit;  
  
data mydata;  
set comp.funda;  
where fyear=2010;  
  
proc print data=mydata (obs=30);  
run;
```

endsubmit;



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