

Paper 052-30

Remote Compute Services Simply Stated

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Abstract

What is Remote Compute Services and what is its relationship to SAS/Connect? When might it be to my benefit to leverage the power of Remote Compute Services? How can I use Remote Compute Services? These are questions a SAS user of varying levels of expertise and experience may ask.

As many of us are required to routinely work on multiple platforms, the need to make use of Remote Compute Services becomes even more critical to our success.

By using Remote Compute Services, one can easily utilize the computer resource on various platforms by running jobs on remote systems. In addition, by submitting the SAS source code from the local host, you can now store the SAS source code in a single location; thereby, eliminating one of the primary obstacles to efficiently and effectively managing SAS source code.

This paper will explore a high level description of SAS/Connect and its relationship to Remote Compute Services, what you need to get started, define what Remote Compute Services is, when one would use Remote Compute Services, and explore some sample code.

REMOTE COMPUTE SERVICES RELATIONSHIP TO SAS/CONNECT

SAS/Connect is software (i.e. middleware) that enables a user to seamlessly communicate with remote sessions of SAS running on one or more computer platforms.

There are three main features of SAS/Connect: Data Transfer Services, Remote Compute Services, and Remote Library Services.

Data Transfer Services allows the user to easily move datasets from one platform to another.

Remote Compute Services allows the user to submit jobs to run on remote platforms.

Remote Library Services allows the user local access to datasets stored on a remote host.

For the purposes of this paper, we will focus on Remote Compute Services.

WHAT YOU NEED TO GET STARTED

In addition to having SAS[®] software on the platforms you intend to do the processing on, you will need three key pieces of information. The three key pieces of information needed to make use of Remote Compute Services are as follows: the communications access method (COMAMID), the remote node name (REMOTE), and a script file for signing on, establishing a remote session of SAS, and signing off The remote host (RLINK). (At first glance this may seem a bit overwhelming, but it's not really that bad.).

The communications access method and the remote node name are supplied to SAS as SAS system options: COMAMID and REMOTE respectively. The location of the script file is coded on a filename statement and is assigned the fileref RLINK.

COMAMID is an acronym for Communications Access Method Identification. This identifies the access method used by the local machine to communicate with the remote machine (e.g. TCP/IP, etc.).

REMOTE is where you would code either the IP Address of the remote host or the remote hostname.

The fileref RLINK points to the script you wish to use to connect to the remote host. SAS/Connect® supplies numerous signon scripts to be used to establish a connection to a remote host.

So there you have it, all you need is COMAMID, REMOTE, and RLINK and you are on your way to making use of Remote Compute Services.

Remote Compute Services Defined

Remote Compute Services allows the user to efficiently execute SAS code to maximize the use of all computing resources.

Remote Compute Services enables you to move any or all portions of an application's processing to other processors, either local or remote, to take advantage of hardware resources, to utilize software available in the remote environment, to interface with existing legacy systems, and to execute against the remote copy of the data.

The results of the remote processing are then returned to the local machine. This is useful when the remote machine has hardware and/or software resources available to more efficiently perform the task at hand.

When to use Remote Compute Services

An ideal candidate for using Remote Compute Services would involve a project where input data resides on more than one platform.

For example, you may want to manage the SAS code from PC-based SAS to subset data from a SAS data file stored on the mainframe and a subset of SAS data file stored on UNIX. One way to accomplish this would be to invoke a session of SAS on Windows and submit code to create the subsets on each of the respective platforms (i.e. mainframe and UNIX). Once the subsets are created, Data Transfer Services can be used to move the data to the Local Host (i.e. Windows).

In short, Remote Compute Services provides a good option if the amount of data to be processed is too large to be moved to the local machine or if it is updated too frequently for a local static copy to be useful.

Sample Code

This section will cover how to make use of the Remote Compute Services of SAS/Connect. Consider the following scenario: you have a SAS dataset named TESTDAT2 on UNIX stored in the following directory /mydir/compx/data/ and you want to run a frequency on variable KEY and return the procedure output to the output window of the session of SAS running on Windows. The access method used to connect to the remote host is TCP/IP and the name of the remote host is UNIX1. The signon script is named tcpunix.scr and is stored in the following directory on Windows C:\Program Files\SAS Institute\SAS\V8\saslink. The code to accomplish this follows:

```
1      Options comamid=tcp remote=UNIX1;
2      Filename RLINK 'C:\Program Files\SAS Institute\SAS\V8\saslink\tcpunix.scr';
3      Run;
4      Signon;
5      Run;
6      Rsubmit;
7      Libname in '/mydir/compx/data/';
8      Run;
9      Proc freq data=in.testdat2;
10     Table key / missing;
11     Run;
12     Endrsubmit;
13     Signoff;
```

Step1 – Access method (COMAMID) is identified as TCP and remote (hostname) UNIX1
Step2 – fileref RLINK is established and points to tcpunix.scr signon script.
Step3 – signon to remote host is initiated. User is prompted to enter UNIX1 userid and password. Once signon is complete, remote session of SAS is started.
Step4 – statements following rsubmit will be processed on the remote session of SAS
Step5 – libref IN is assigned on UNIX1
Step6 – PROC FREQ is executed on UNIX1
Step7 – signifies the end of statements to be executed on the remote session
Step8 – connection to remote session is terminated

After the SAS code is finished running on the remote host, the output of the PROC FREQ is returned to the OUTPUT window on the local host.

Conclusion

This paper is designed to help you get started using Remote Compute Services.

Since we are required to process data residing on multiple platforms, Remote Compute Services is an essential component to our successfully utilizing the computer resources we have at our disposal.

Remote Compute Services also allows us to maintain a single point of reference for SAS source code which will result in simplifying the previously formidable task of managing SAS source code when multiple platforms are involved.

CONTACT INFORMATION

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