



# Efficiencies, Tricks and FAQs of the SAS PIV-Grid

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# Poll Question

- **What is your primary usage of the SAS Grid?**
- **A – ETL**
- **B – Data Preparation (SQL & SAS)**
- **C – Analysis (including Modeling)**
- **D - Other**



# Overview:

- **FAQs and Common Issues**
- **Data Efficiency Techniques**
- **Coding Techniques**
- **Parallel Processing**
- **Enterprise Miner**
- **Please ask questions at any time**





# Grid Access/Connection Issues

- When you do not see SASApp or any Servers, you are not connected. The reason is that you have not selected the desired profile as illustrated in the next slide. Please go through the VINCI Portal to access the Grid or connect to `vhacdwwapp15.vha.med.va.gov` for Operations. We will use Research Grid references for our examples. As you can see in the next slide, it details “no profile selected”. This means you are local and NOT connected to the Grid. The slide after shows a proper connection to the Research Grid and the necessary configuration of the profile (`vhacdwdwhsasmd2.vha.med.va.gov` for Research and `vhacdwdwhsasmd1.vha.med.va.gov` for Operations). If it says you are connected as a “Public User” you have not been configured in SAS Metadata. Please inform the [VINCISASAdmins@va.gov](mailto:VINCISASAdmins@va.gov) and we will construct this for you.



# No profile selected

The screenshot shows the SAS Enterprise Guide interface. A 'Connections' dialog box is open, displaying a list of profiles. The status bar at the bottom right indicates 'No profile selected'.

| Name                   | Server                           | User               |
|------------------------|----------------------------------|--------------------|
| <do not use a profile> |                                  |                    |
| Grid_LSF               | vhacdwsasgrid1.vha.med.va.gov... | lsfadmin           |
| Grid_MID               | vhacdwsasmid1.vha.med.va.gov...  | vha19\vhalscez...  |
| Grid_SAS               | vhacdwsasgrid1.vha.med.va.gov... | sas                |
| Grid3                  | vhacdwdhsasgrid3.vha.med.va....  | vha19\vhalscez...  |
| Grid3_0s               | vhacdwdhsasgrid3.vha.med.va....  | vhamaster\vhasl... |
| Grid3_SAS              | vhacdwdhsasgrid3.vha.med.va....  | sas                |
| Grid94                 | vhacdwsasgrid1.vha.med.va.gov... | vha19\vhalscez...  |
| Grid940                | vhacdwdhsasmd1.vha.med.va....    | vhamaster\vhasl... |
| OPS_lsfadmin           | vhacdwdhsasmd1.vha.med.va....    | lsfadmin           |
| OPS2_0s                | vhacdwdhsasmd1.vha.med.va....    | vhamaster\vhasl... |
| OPS2_IWA               | vhacdwdhsasmd1.vha.med.va....    | IWA                |



# Solution: Select the Profile

SAS Enterprise Guide

File Edit View Tasks Favorites Program Tools Help | Process Flow | Search Current Project

Project Tree | Process Flow | Run | Stop | Export | Schedule | Project Log | Properties

**Profiles**

| Name         | Server            |
|--------------|-------------------|
| Grid_SAS     | vhacdwsasgrid1.vh |
| Grid3        | vhacdwdwhsasgrid1 |
| Grid3_0s     | vhacdwdwhsasgrid1 |
| Grid3_SAS    | vhacdwdwhsasgrid1 |
| Grid94       | vhacdwsasgrid1.vh |
| Grid940      | vhacdwdwhsasmd1   |
| OPS_lsfadmin | vhacdwdwhsasmd1   |
| OPS2_0s      | vhacdwdwhsasmd1   |
| OPS2_IWA     | vhacdwdwhsasmd1   |
| OPS2_V19     | vhacdwdwhsasmd1   |
| Research2    | vhacdwdwhsasmd2   |
| VAA          | vaauvsdsapp43:85  |

Open the Modify Profile dialog box for the selected profile

**Modify Profile**

Name: Research2

Description:

Server:  Remote  Local Port: 8561

Machine: vhacdwdwhsasmd2.vha.med.va.gov

Set proxy list for metadata server

Use Integrated Windows Authentication

Save login in profile

User: Password:

Authentication domain:

Connect On Exit

Save Cancel

Ready | Research2 | 1:31 PM 10/8/2017



# Data Access and Efficiencies

- **Avoid double clicking any table icon in the EG client which happens to point to a remote SQL Server data object.**
  - Use SSMS application instead or
  - Run the Top 1000 Rows stored process in the EG application written by SAS admins.
  - You can use save librefs to load data to your Dflt schema in your project. It is a simple `data lsqserveribref.tablename;set saslibref.tablename;run;`
- **Avoid overusing the libref definitions which point to remote SQL Server databases.**
  - Explicit SQL pass-thru is industry proven best practice for pulling records from RDBMS which don't have full in-database capabilities.
  - See posted "Best Practices in Accessing SQL Server Data" document on VINCI Central or SAS/Grid SharePoint site.
- **Start each day with a fresh SASApp session when using the EG client application.**
  - Current VA-wide policy forces the Kerberos security ticket to expire after 10 hours, Grid platform is hostage to this setting.
  - An expired Kerberos Tickets lead to the "unspecified GSS error".



# Enterprise Guide Tips

- You have many options within EG to help facilitate usage.
- We will examine them under “Tools”
- Use the Programming Wizards under “Tasks” to learn and facilitate your programming
- LIVE Demo!







# GSUB USES:

- **Large Jobs**
- **Long Jobs (especially overnight)**
- **Production Quality Jobs**
- **Use with Linux access Products (Putty, MobaXterm and WinSCP)**
- **Produces Log and LST (output) Files**
- **Can run anything you do in EG (ODS reports, parallel jobs, etc.)**



# SAS Gsub Example

- Here is the command we will be using for batch processing on the Grid:
- **sasgsub -GRIDSUBMITPGM**  
**/data/prod/admin/VHASLCEZZOM/Programs/Program.sas**
- 
- It breaks down as follows:
- 
- **sasgsub** is the command
- **-GRIDSUBMITPGM** is the option to submit a program
- **/data/prod/admin/VHASLCEZZOM/Programs/**is the directory where the program is located
- **Program.sas** is the program you wish to run
- **Live Demo!**



# Scheduling within the Grid

- You are able to schedule your jobs within the Grid utilizing a combination of crontab and a sas\_cron script:
- **#!/bin/bashcd /data/gridshare/\$USER.  
/app/shared/platform/Platform/Isf/conf/profile.Isf/app  
/shared/sasconfig/gsubconfig/Lev1/Applications/SA  
SGridManagerClientUtility/9.4/sasgsub -  
gridwaitresults -gridappserver SASApp -  
gridsubmitpgm  
/data/admin/VHASLCEZZOM/Programs/Test\_gsub\_s  
cript.sas**
- Remember that all scripts in Linux are case-sensitive!





# How to access crontab

- Access putty\_cac within your PIV account and edit via VI.
- [vhaslcezzom@vhacdwdwhsasgs2 ~]\$ crontab -l
- `#* * * * * /data/gridshare/vhaslcezzom/Scripts/sas_cron;  
touch /data/gridshare/vhaslcezzom/sas_cron_has_run`
- [vhaslcezzom@vhacdwdwhsasgs2 ~]\$ crontab -e
- crontab: installing new crontab
- [vhaslcezzom@vhacdwdwhsasgs2 ~]\$ crontab -l
- `* * * * * /data/gridshare/vhaslcezzom/Scripts/sas_cron;  
touch /data/gridshare/vhaslcezzom/sas_cron_has_run`
- [vhaslcezzom@vhacdwdwhsasgs2 ~]\$ crontab -e
- `#* * * * * /data/gridshare/vhaslcezzom/Scripts/sas_cron;  
touch /data/gridshare/vhaslcezzom/sas_cron_has_run`
- Live Demo!



# Parallel Programming

- This is one of the true strengths of any Grid.
- It allows for concurrent processing where you can run several jobs simultaneously, saving hours of processing time.
- You can use this for both Data Development and Analysis.
- Very simple to do with Grid Code Analyzer.
- Live Demonstration!





# Enterprise Miner Uses

- **Analysis**
- **Model Creation**
- **Model Testing (Interpolation)**
- **Model Publishing**
- **Can be shared with Project Group**
- **THE Leading-Edge Tool**
- **Automatically Grid-Enabled**
- **Live Demo**





# TIPS

- **SQL Pass-Through Queries**
- **SAS works faster and is more robust than SQL Server**
- **Ability to use SQL (Proc SQL) or SAS Data Steps and functions**
- **Work within the appropriate Venue (as stated previously)**
- **You can incorporate other technologies (i.e. R) within SAS (very desirable)**
- **SAS can create the data for other packages**



# More Tips

- **Parallel processing can greatly reduce time in both ETL and Analysis.**
- **Far more storage in the Linux Grid than on Windows per project**
- **Standardized environment makes efforts simple and efficient**
- **Pre-prepared security and data via Metadata (always have your project enabled within Metadata)**





# Resources Offered

- The VINCI SAS Admins offer online training for you or your group.
- You can contact [VINCISASAdmins@va.gov](mailto:VINCISASAdmins@va.gov) for SAS Specific questions or [VINCI@va.gov](mailto:VINCI@va.gov) for access, network, data or other questions.
- *VINCI Central site:*  
<http://vhacdwwweb02.vha.med.va.gov/vinci-central/projectsites/SASGrid/Shared%20Documents/Forms/AllItems.aspx>



# Good Gridding!

**Thank you for attending.**

**Please contact VINCI SAS Administrators:**

**VINCI SAS Admins**

**[VINCISASAdmins@va.gov](mailto:VINCISASAdmins@va.gov)**

**with any questions or comments.**