

TS-518C

***SAS/ACCESS® Guidelines for Connecting to
INGRES® Databases in the UNIX® Environment***

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Abstract

Due to the increased interest of the SAS/ACCESS Interface to INGRES product in the UNIX environment, this topic has been a popular discussion for a number of SAS users. This paper documents the necessary steps and clarifies the issues involved with connecting to INGRES databases using SAS/ACCESS on UNIX platforms.

Introduction

The SAS/ACCESS Interface to INGRES product provides support for the SQL Procedure Pass-Through Facility, the ACCESS Procedure and the DBLOAD Procedure.

The SAS/ACCESS product, in general, consists of three procedures: PROC ACCESS, PROC DBLOAD and PROC SQL Pass-Through. However, all three of these procedures may not be available for every relational database system (DBMS) on every UNIX platform. Users should be familiar with what procedures their SAS/ACCESS product supports for their platform. An addendum has been included for the SAS/ACCESS Interface to INGRES support.

The SQL utility is available with INGRES to provide users the capability to retrieve and create data stored in the INGRES database. Users or the Database Administrator (DBA) should be familiar with this utility because it can make the SAS/ACCESS connection process much easier.

The discussion, necessary steps, and examples that follow were run on a Solaris 2 operating system using SAS 6.11 TS020, and demonstrate the use of the INGRES SQL utility and successful connections to databases using SAS/ACCESS.

Using the INGRES SQL Utility

In order to connect to an INGRES database locally or remotely from SAS, you must be able to connect to the same database outside of SAS. You can establish a connection outside of SAS by using the INGRES SQL utility.

*Once a successful database connection is made using the SQL utility, you should be able to connect to the same database from within SAS with the **same** environment and userid. Below are some simple steps to verify whether you are able to connect to an INGRES database outside of SAS successfully.*

- 1) *Invoke the SQL utility as follows (where db_name is a valid database name for connecting):*

```
unix_prompt> sql db_name
```

- 2) *Once you successfully invoke the SQL utility and connect to the database specified, you will receive a prompt similar to the following. If you are having problems invoking the INGRES SQL utility or connecting to the database, you will need to contact your DBA or INGRES Technical Support for assistance.*

```
INGRES TERMINAL MONITOR Copyright (c) 1981, 1991 Computer
Associates Intl, Inc.
00openINGRES SPARC SOLARIS Version OpING 1.1/04 (su4.us5/00)
login Tue Aug 20 10:59:06 1996
```

```
continue
*
```

- 3) *To verify that you have been granted the appropriate privileges, submit some SQL code from INGRES, similar to what you plan to submit from within SAS. If you experience problems with privileges or submitting SQL from the INGRES SQL utility, you will need to contact your DBA or INGRES Technical Support for assistance. Below is a simple SQL select statement and its results (where tbl_name is a valid table name in the database that you are connected):*

```
* select * from tbl_name \g
```

Executing . . .

name	salary	dept	div	mgr	birthdate	num
Aitken	\$50000.00	sales	NE	Verducci	12-mar-1947	2
Blumberg	\$32000.00	sales	SC	Clark	06-dec-1952	2
Brodie	\$40000.00	sales	NC	Clark	01-feb-1948	2
Cameron	\$35000.00	tech sup	SE	Shigio	15-aug-1960	2

- 4) *You have just demonstrated that you can connect to an INGRES database outside of SAS. Before you attempt to bring up SAS and try to connect using SAS/ACCESS, be sure that you use the **exact** db_name and tbl_name that you used with the INGRES SQL utility.*

Using SAS/ACCESS Interface to INGRES

Before you attempt to connect to an INGRES database using SAS/ACCESS, you must be able to connect to the same database outside of SAS using the INGRES SQL utility as demonstrated above. Once you have verified that you can connect to the database(s) using the SQL utility, you should be able to connect to the same database(s) from within SAS, assuming the following requirements have been met.

- *You are invoking SAS using the **exact** environment and userid used to invoke the INGRES SQL utility and to connect to the database(s) successfully.*
- *You have successfully performed the SAS/ACCESS Interface to INGRES Installation Instructions from APPENDIX B of the "Installation Instructions for the SAS System under UNIX Environments".*
- *Make sure that the !SASROOT/sasexe/dbi/sasing module, along with all other INGRES related modules in this directory, have read and execute permissions. For dual SAS installations on SUN systems, this module can be found in !SASROOT/solaris2/sasexe/dbi for Solaris 2 platforms.*
- *Make sure that the environment variable \$III_SYSTEM is set to the location of the INGRESS home/root directory.*

Once the above requirements have been met, you should be able to successfully connect to the INGRES database(s) using the following steps:

- 1) *Invoke SAS with the **exact** environment and userid you used when you successfully connected to the database(s) using the INGRES SQL utility.*
- 2) *To verify that you are able to successfully connect to an INGRES database, submit the following PROC SQL Pass-Through code from the SAS Program Editor. Be sure the db_name and tbl_name are the same values used with the INGRES SQL utility.*

```
proc sql;  
connect to ingres(database=db_name);  
    select * from connection to ingres  
        (select * from tbl_name);  
disconnect from ingres;  
quit;
```

- 3) *If, when using SAS/ACCESS, you are unable to connect to the same INGRES database from the **exact** environment and userid that you were able to*

successfully connect to using the INGRES SQL utility, then contact SAS UNIX Technical Support at (919) 677-8008 and have the following information available:

- the exact operating system release level and machine type
- the exact INGRES release level
- is the INGRES database local or remote?
- the environment variable settings
- the results from the steps documented above for both "Using the INGRES SQL utility" and "Using SAS/ACCESS."

- 4) Once you have connected successfully and want more details on using the ACCESS Procedure, DBLOAD Procedure or the SQL Procedure Pass-Through Facility, reference the SAS manuals listed in the CONCLUSION of this paper.

Conclusion

This paper discussed the various aspects of connecting to INGRES databases with both the INGRES SQL utility outside of SAS and with SAS using the SAS/ACCESS Interface to INGRES product on UNIX platforms. This discussion includes details and examples of using the SQL utility and the SAS SQL Procedure Pass-Through Facility.

For detailed information on the INGRES SQL commands used in this report, please refer to your INGRES reference manuals or ask your Database Administrator for assistance.

For detailed information on the SAS procedures PROC ACCESS, PROC DBLOAD, PROC SQL PASS-THROUGH, reference the following manuals:

SAS/ACCESS Software for Relational Databases Reference, Version 6 (# 55144)

SAS/ACCESS Interface to INGRES Usage and Reference, Version 6 (# 56072)

SAS/ACCESS Software Changes and Enhancements, SQL Procedure Pass-Through Facility, Version 6 (# 55237))

SAS Software Changes and Enhancements, Release 6.11 (# 55300)

SAS Technical Report, Append Capability for PROC DBLOAD (TS-347)

Getting Started with SAS/ACCESS Software, Version 6 (# 55103)

SAS/ACCESS INTERFACE TO INGRES SUPPORT ADDENDUM

6.07 PLATFORMS

Platform Ingres

1. SUN4 N/A
2. HPU8 N/A
3. AIXR N/A

6.09 PLATFORMS

Platform Ingres

1. SUN4 TS027
2. SOL2 TS037
3. HPU8 TS027
4. AIXR TS027

6.10 PLATFORMS

Platform Ingres

1. Alpha/OSF N/A
2. MABI
 - SGI N/A
 - Pyramid N/A
3. IABI
 - NCR N/A
 - Sequent N/A

6.11 PLATFORMS

<u>Platform</u>	<u>Ingres</u>
1. SUN4 & SOL2	TS020
2. HPU8	TS020
3. AIXR	TS020
4. Digital UNIX	TS040 *SQL passthrough, DBLOAD
5. MABI	
- SGI	N/A
- Pyramid	N/A
6. IABI	
- NCR	N/A
- Sequent	N/A

6.12 BETA PLATFORMS

<u>Platform</u>	<u>Ingres</u>
1. SUN4 & SOL2	TS005
2. HPU8	TS005
3. AIXR	TS005