

**State Agency Personnel Information Reports:
a SAS/IntrNet® Project**

Thomas J. Winn, Jr.
State Auditor's Office, Austin, Texas

Abstract

This paper describes how the author used SAS/IntrNet to develop a simple intranet application to provide auditors and investigators at the State Auditor's Office with information extracted from several databases containing personnel information data for the State of Texas.

Introduction

Sometimes auditors need information pertaining to the employment status or authorized salary of certain individuals, as of a particular date. The source data for responding to such queries are contained in three different databases that are maintained by the State Comptroller's Office. Instead of executing a separate query against the personnel databases each time a data request is received, the SAO decided to create its own version of the essential tables every quarter, containing the most frequently-requested columns, and to use those data for data requests, as needed. The SAO also decided to develop an intranet application which auditors could use, without having to solicit assistance from programmers, in order to create standardized reports or data files containing the personnel data that they need.

Early in 2004, using SAS/IntrNet software, the State Auditor's Office created an intranet application for creating standardized reports or data files containing financial summary and detail information – including expenditures, revenues, encumbrances, budgets, and vendor payments. *[Note -- This was reported in a paper at the SCSUG 2004 conference. See "Suggestions for Further Reading", at the end of this paper.]* The well-received "USAS Guide" was intended to be the first of several useful SAS/IntrNet applications developed for use by auditors and investigators. Developing the USAS Guide provided a template for development of other web-based applications. One year later, the second SAS/IntrNet application to be put into production was Personnel Information Reports. This paper will describe some of the "nuts and bolts" for building that simple application.

Our Computing Environment -- Hardware and Software

In November 2002, in order to create a facility capable of analyzing large data files, the State Auditor's Office established a SAS server system consisting of a Dell PowerEdge™ 2650 server (with two Pentium® III Xeon™ processors) connected to a Dell PowerVault™ storage system. The storage system consists of one PowerVault 660F 14-bay fiber channel RAID array and one PowerVault 220S 14-bay SCSI RAID array, both in RAID 5 configuration. The server is configured with Microsoft® Windows® 2000 Server. Initially, the SAS System software installed on our server was limited to Base SAS®, SAS/SHARE®, SAS/STAT®, SAS/GRAPH®, SAS/CONNECT®, and SAS/ACCESS® Interface to PC File Formats. And in October 2003, we added SAS/IntrNet®, and SAS/ACCESS® Interface to Sybase®.

The SAO's Web server has the same basic specifications as the SAS Server, except that there is no external storage system attached to it. It is a Dell PowerEdge 2650 server with

dual Pentium III Xeon processors. The internal hard drives are configured in RAID 5 configuration. It is running Windows 2000 Server with Internet Information Services.

At the SAO, there are only five Systems Analysts who are knowledgeable about SAS programming. There are a few other programmers, who are proficient with certain development tools besides SAS. And there are many non-programmers, who possess varying levels of familiarity with using several application software packages. All SAO employees know how to access information on our intranet. Therefore, SAS/IntrNet applications seem to be an excellent method for delivering information to SAO employees, since using such applications requires only a web browser on the user's machine, and their users don't need to have any SAS knowledge either.

The Personnel Data

Data concerning employees of the State of Texas is distributed between three different personnel systems, each system containing information for different collections of state agencies and institutions. Although one might suppose that a single personnel and payroll system would be desirable, for historical reasons Texas has three distinct systems, and each system has different capabilities.

The Texas Comptroller of Public Accounts maintains three systems for personnel and payroll data concerning all employees of the State of Texas. These are:

- HRIS - Human Resources Information System,
- USPS - Uniform Statewide Payroll/Personnel System, and
- SPRS - Standardized Payroll/Personnel Reporting System.

Some types of information are common to all three systems (for example, employee names, social security numbers, gender, race, birthdates, and job titles), but the column names and other attributes for similar data items often differ from one system to the next. USPS contains the greatest amount of useful information, as well as several optional human resources administration modules. HRIS cannot generate a payroll, and it also lacks some duration-of-service measures. SPRS does include amounts paid as compensation, but it contains only essential personnel data.

The data for all three personnel systems are stored in DB2 databases on the Comptroller's mainframe computer. Unfortunately, that agency does not have SAS Integration Technologies, so we are unable to take advantage of the interoperability and easy information distribution that would be available using that SAS System component. Except during transitional periods, personnel information for any particular agency is stored in one, and only one, of the three personnel systems. Therefore, to obtain historical information concerning the current or former employees of most agencies, one would have to look in different systems for various intervals of dates.

About one month after the last day of a fiscal quarter, the most frequently-requested personnel information for all state employees as of the last day of the preceding fiscal quarter, and for all employee terminations and other personnel actions during the preceding fiscal quarter are extracted from the HRIS, USPS, and SPRS databases on the Comptroller's mainframe computer. These data are downloaded to the SAO network environment, and are saved in a SAS Data Library on the SAS Server. This is accomplished using SQL Pass-Through, DATA step programming, certain basic SAS

procedures, and FTP. Here is a peek at the PROC CONTENTS output for some of the members from that SAS Data Library.

The screenshot shows the SAS interface with the following components:

- Explorer Window:** Lists the contents of the 'Emppls' library. The table below summarizes the listed items.
- Output Window:** Displays the output of the PROC CONTENTS procedure, showing a directory of tables in the EMPPLS library.

Name	Size	Type
Actions_fy2000	64.69B	Table
Actions_fy2001	53.59B	Table
Actions_fy2002	62.59B	Table
Actions_fy2003	39.99B	Table
Actions_fy2004	39.79B	Table
Actions_q1fy2...	8.69B	Table
Emppls_28Feb2002	91.79B	Table
Emppls_28Feb2003	91.39B	Table
Emppls_28Feb2004	92.59B	Table
Emppls_30Nov2...	90.59B	Table
Emppls_30Nov2...	93.09B	Table
Emppls_30Nov2...	91.59B	Table
Emppls_30Nov2...	96.39B	Table
Emppls_31Aug2...	91.19B	Table
Emppls_31Aug2...	91.79B	Table
Emppls_31Aug2...	95.89B	Table
Emppls_31May2...	92.19B	Table
Emppls_31May2...	93.79B	Table
Emppls_31May2...	93.59B	Table
Terms_fy2000	21.49B	Table
Terms_fy2001	20.99B	Table
Terms_fy2002	10.09B	Table
Terms_fy2003	20.99B	Table
Terms_fy2004	29.09B	Table
Terms_q1fy2005	3.09B	Table

Name	Memtype	File Size	Last Modified
1 ACTIONS_FY2000	DATA	67716096	16MAR2005:07:31:27
2 ACTIONS_FY2001	DATA	56116224	16MAR2005:07:31:46
3 ACTIONS_FY2002	DATA	65537024	16MAR2005:07:32:24
4 ACTIONS_FY2003	DATA	41812392	16MAR2005:07:32:50
5 ACTIONS_FY2004	DATA	41600000	16MAR2005:07:36:40
6 ACTIONS_Q1FY2005	DATA	9828608	16MAR2005:07:37:05
7 EMPPLS_28FEB2002	DATA	96158720	07MAR2005:10:06:53
8 EMPPLS_28FEB2003	DATA	98911232	07MAR2005:10:12:17
9 EMPPLS_28FEB2004	DATA	98394304	07MAR2005:10:14:10
10 EMPPLS_30NOV2001	DATA	94346304	07MAR2005:10:15:38
11 EMPPLS_30NOV2002	DATA	97518532	07MAR2005:10:17:05
12 EMPPLS_30NOV2003	DATA	95362112	07MAR2005:10:18:53
13 EMPPLS_30NOV2004	DATA	100326464	07MAR2005:10:20:12
14 EMPPLS_31AUG2002	DATA	95486376	07MAR2005:10:23:12
15 EMPPLS_31AUG2003	DATA	96158720	07MAR2005:10:24:51
16 EMPPLS_31AUG2004	DATA	100451328	07MAR2005:10:26:22
17 EMPPLS_31MAY2002	DATA	96551936	07MAR2005:10:28:01
18 EMPPLS_31MAY2003	DATA	98296720	07MAR2005:10:29:26
19 EMPPLS_31MAY2004	DATA	97393728	07MAR2005:10:31:29
20 TERMS_FY2000	DATA	22397952	14MAR2005:09:28:47
21 TERMS_FY2001	DATA	21890048	14MAR2005:09:25:44
22 TERMS_FY2002	DATA	19743744	14MAR2005:09:36:02
23 TERMS_FY2003	DATA	21906432	14MAR2005:09:36:22
24 TERMS_FY2004	DATA	30260576	14MAR2005:09:36:52
25 TERMS_Q1FY2005	DATA	3113984	14MAR2005:09:37:08

SAS

File Edit View Tools Solutions Window Help

Contents of 'EMPL'

Name	Size	Type
Actions_fy2000	64.6MB	Table
Actions_fy2001	53.5MB	Table
Actions_fy2002	62.5MB	Table
Actions_fy2003	39.9MB	Table
Actions_fy2004	39.7MB	Table
Actions_qfy2005	8.6MB	Table
Empls_28feb2002	91.7MB	Table
Empls_28feb2003	94.3MB	Table
Empls_28feb2004	92.5MB	Table
Empls_30nov2002	90.5MB	Table
Empls_30nov2003	93.0MB	Table
Empls_30nov2004	91.5MB	Table
Empls_31aug2002	96.3MB	Table
Empls_31aug2003	91.1MB	Table
Empls_31aug2004	91.7MB	Table
Empls_31may2002	95.8MB	Table
Empls_31may2003	92.1MB	Table
Empls_31may2004	93.7MB	Table
Empls_31may2005	93.5MB	Table
Terms_fy2000	21.4MB	Table
Terms_fy2001	20.9MB	Table
Terms_fy2002	10.0MB	Table
Terms_fy2003	20.9MB	Table
Terms_fy2004	29.0MB	Table
Terms_qfy2005	3.0MB	Table

Output - (Untitled)

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The CONTENTS Procedure

Data Set Name: EMPLS.ACTIONS.QIFY2005
 Member Type: DATA
 Engine: V8
 Created: 7:37 Wednesday, March 16, 2005
 Last Modified: 7:37 Wednesday, March 16, 2005
 Protection:
 Data Set Type:
 Label:

Observations: 26926
 Variables: 35
 Indexes: 0
 Observation Length: 424
 Deleted Observations: 0
 Compressed: NO
 Sorted: NO

-----Engine/Host Dependent Information-----

Data Set Page Size: 16384
 Number of Data Set Pages: 551
 First Data Page: 1
 Max Obs per Page: 38
 Obs in First Data Page: 26
 Number of Data Set Repairs: 0
 File Name: 0:\Empls\actions_qfy2005.sas7bdat
 Release Created: 8.020290
 Host Created: MIN_PRO

-----Alphabetic List of Variables and Attributes-----

* Variable	Type	Len	Pos	Format	Informat	Label
2 Agency	Char	3	129	\$3.	\$3.	Agency
18 Amount_of_Change	Num	8	56			Amount_of_Change
28 Birth_Date1	Num	8	80	DATE9.	DATE9.	Birthdate
19 Birthdate	Num	8	8	DATE9.	DATE9.	Birthdate
25 Bonus	Num	8	64			Bonus
27 Data_Source	Char	5	273	\$5.	\$5.	Data_Source
12 Eff_Date1	Num	8	72	DATE9.	DATE9.	Effective_Date
21 Effective_Date	Num	8	32	DATE9.	DATE9.	Effective_Date
10 Employee_Type	Char	3	248	\$3.	\$3.	Employee_Type
23 Employment_Date	Num	8	16	DATE9.	DATE9.	Employment_Date
23 FLSA_Eligibility	Char	10	254	\$10.	\$10.	FLSA_Eligibility

Results Explorer

Output - (Untitled) Log - (Untitled) empl.lst (Read-Only) Editor - (Untitled) *

C:\Documents and Settings\m.SAO

SAS

File Edit View Tools Solutions Window Help

Contents of 'EMPL'

Name	Size	Type
Actions_fy2000	64.6MB	Table
Actions_fy2001	53.5MB	Table
Actions_fy2002	62.5MB	Table
Actions_fy2003	39.9MB	Table
Actions_fy2004	39.7MB	Table
Actions_qfy2005	8.6MB	Table
Empls_28feb2002	91.7MB	Table
Empls_28feb2003	94.3MB	Table
Empls_28feb2004	92.5MB	Table
Empls_30nov2002	90.5MB	Table
Empls_30nov2003	93.0MB	Table
Empls_30nov2004	91.5MB	Table
Empls_31aug2002	96.3MB	Table
Empls_31aug2003	91.1MB	Table
Empls_31aug2004	91.7MB	Table
Empls_31may2002	95.8MB	Table
Empls_31may2003	92.1MB	Table
Empls_31may2004	93.7MB	Table
Empls_31may2005	93.5MB	Table
Terms_fy2000	21.4MB	Table
Terms_fy2001	20.9MB	Table
Terms_fy2002	10.0MB	Table
Terms_fy2003	20.9MB	Table
Terms_fy2004	29.0MB	Table
Terms_qfy2005	3.0MB	Table

Output - (Untitled)

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The CONTENTS Procedure

-----Alphabetic List of Variables and Attributes-----

* Variable	Type	Len	Pos	Format	Informat	Label
4 First_Name	Char	15	129	\$15.	\$15.	First_Name
8 Gender	Char	1	175	\$1.	\$1.	Gender
35 HRIS_Reason	Char	3	414			
23 Hire_Date1	Num	8	88	DATE9.		
1 ID	Num	8	0	11.	11.	ID
20 Job_Category	Char	1	247	\$1.	\$1.	Job_Category
34 Job_Class_cd	Char	4	410			
33 Job_Description	Char	65	345			
13 Job_Title	Char	55	176	\$55.	\$55.	Job_Title
6 Last_Name	Char	26	148	\$26.	\$26.	Last_Name
5 Middle_Initial	Char	1	147	\$1.	\$1.	Middle_Initial
26 Name	Char	67	278			
14 Pay_Group	Char	4	241	\$4.	\$4.	Pay_Group
15 Pay_Step	Char	2	245	\$2.	\$2.	Pay_Step
7 Race	Char	1	174	\$1.	\$1.	Race
9 SSN	Char	9	123	\$9.	\$9.	SSN
16 Salary_After_Action	Num	8	40			Salary_After_Action
17 Salary_Before_Action	Num	8	48			Salary_Before_Action
30 Termination_Date1	Num	8	96	DATE9.	DATE9.	Termination_Date
11 Termination_Date	Num	8	24	DATE9.	DATE9.	Termination_Date
24 Total_State_Service	Char	9	264	\$9.	\$9.	Total_State_Service
22 Work_County_Code	Char	3	251	\$3.	\$3.	Work_County_Code
31 Work_County_Code	Num	8	104			
32 Work_County_Code	Num	8	112			

Results Explorer

Output - (Untitled) Log - (Untitled) empl.lst (Read-Only) Editor - (Untitled) *

C:\Documents and Settings\m.SAO

SAS

File Edit View Tools Solutions Window Help

Contents of 'empl'

Name	Size	Type
Actions_fy2000	64.69K	Table
Actions_fy2001	53.59K	Table
Actions_fy2002	62.59K	Table
Actions_fy2003	39.99K	Table
Actions_fy2004	39.79K	Table
Actions_gtfy2...	8.69K	Table
Empls_28feb2002	91.79K	Table
Empls_28feb2003	94.39K	Table
Empls_28feb2004	92.59K	Table
Empls_30nov2...	90.59K	Table
Empls_30nov2...	93.09K	Table
Empls_30nov2...	91.59K	Table
Empls_30nov2...	96.39K	Table
Empls_31aug2...	91.19K	Table
Empls_31aug2...	91.79K	Table
Empls_31aug2...	95.89K	Table
Empls_31may2...	92.19K	Table
Empls_31may2...	93.79K	Table
Empls_31may2...	93.59K	Table
Terms_fy2000	21.49K	Table
Terms_fy2001	20.99K	Table
Terms_fy2002	18.09K	Table
Terms_fy2003	20.99K	Table
Terms_fy2004	29.09K	Table
Terms_gtfy2005	3.09K	Table

Output - (Untitled)

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The CONTENTS Procedure

Data Set Name: EMPLS.EMPLS_30NOV2004 Observations: 326416
 Member Type: DATA Variables: 28
 Engine: V8 Indexes: 0
 Created: 10:19 Monday, March 7, 2005 Observation Length: 304
 Last Modified: 10:19 Monday, March 7, 2005 Deleted Observations: 0
 Protection: Compressed: NO
 Data Set Type: Sorted: NO
 Label:

-----Engine/Host Dependent Information-----

Data Set Page Size: 16384
 Number of Data Set Pages: 6160
 First Data Page: 1
 Max Obs per Page: 53
 Obs in First Data Page: 39
 Number of Data Set Repairs: 0
 File Name: G:\Empls\empls_30nov2004.sas7bdat
 Release Created: 8.020210
 Host Created: WIN_PFO

-----Alphabetic List of Variables and Attributes-----

* Variable	Type	Len	Pos	Format	Informat	Label
2 Agency	Char	8	88	\$9.	\$9.	Agency
3 Birth_Date	Num	8	8	DATE20.	DATE20.	Birth_Date
24 Birth_Date1	Num	8	40	DATE9.		
22 Data_Source	Char	4	239	\$4.		
14 EEO_Job_Category	Char	1	209	\$1.		
15 Employee_Type	Char	3	201	\$3.		
20 FLSA_Eligibility	Char	10	213	\$10.		
4 First_Name	Char	15	92	\$15.		
10 Hire_Date	Num	8	16	DATE20.	DATE20.	Hire_Date
25 Hire_Date1	Num	8	48	DATE9.		
1 ID	Num	8	0	11.	11.	ID

Results Explorer

Output - (Untitled) Log - (Untitled) empl.lst (Read-Only) Editor - (Untitled) *

C:\Documents and Settings\lm.SAO

SAS

File Edit View Tools Solutions Window Help

Contents of 'empl'

Name	Size	Type
Actions_fy2000	64.69K	Table
Actions_fy2001	53.59K	Table
Actions_fy2002	62.59K	Table
Actions_fy2003	39.99K	Table
Actions_fy2004	39.79K	Table
Actions_gtfy2...	8.69K	Table
Empls_28feb2002	91.79K	Table
Empls_28feb2003	94.39K	Table
Empls_28feb2004	92.59K	Table
Empls_30nov2...	90.59K	Table
Empls_30nov2...	93.09K	Table
Empls_30nov2...	91.59K	Table
Empls_30nov2...	96.39K	Table
Empls_31aug2...	91.19K	Table
Empls_31aug2...	91.79K	Table
Empls_31aug2...	95.89K	Table
Empls_31may2...	92.19K	Table
Empls_31may2...	93.79K	Table
Empls_31may2...	93.59K	Table
Terms_fy2000	21.49K	Table
Terms_fy2001	20.99K	Table
Terms_fy2002	18.09K	Table
Terms_fy2003	20.99K	Table
Terms_fy2004	29.09K	Table
Terms_gtfy2005	3.09K	Table

Output - (Untitled)

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The CONTENTS Procedure

-----Alphabetic List of Variables and Attributes-----

* Variable	Type	Len	Pos	Format	Informat	Label
12 Job_Class_Cd	Char	4	196	\$4.	\$4.	Job_Class_Cd
13 Job_Description	Char	60	140	\$60.	\$60.	Job_Description
6 Last_Name	Char	26	108	\$26.	\$26.	Last_Name
5 Middle_Init	Char	1	107	\$1.	\$1.	Middle_Init
18 Monthly_Salary	Num	8	32	DOLLAR27.2	DOLLAR27.2	Monthly_Salary
23 Name	Char	67	236			
16 Pay_Group	Char	4	204	\$4.	\$4.	Pay_Group
17 Pay_Step	Char	2	208	\$2.	\$2.	Pay_Step
7 Race	Char	1	134	\$1.	\$1.	Race
9 SSN	Char	9	89	\$9.	\$9.	SSN
8 Sex	Char	1	135	\$1.	\$1.	Sex
11 Termin_Date	Num	8	24	DATE20.	DATE20.	Termin_Date
26 Termin_Date1	Num	8	56	DATE9.		
21 Total_State_Svc	Char	9	223	\$9.	\$9.	Total_State_Svc
19 Work_County	Char	3	210	\$3.	\$3.	Work_County
27 durcorcemp	Num	8	64			
28 durstascvc	Num	8	72			

Results Explorer

Output - (Untitled) Log - (Untitled) empl.lst (Read-Only) Editor - (Untitled) *

C:\Documents and Settings\lm.SAO

SAS

File Edit View Tools Solutions Window Help

Contents of 'empl'

Name	Size	Type
Actions_fy2000	64.69K	Table
Actions_fy2001	53.59K	Table
Actions_fy2002	62.59K	Table
Actions_fy2003	39.99K	Table
Actions_fy2004	39.79K	Table
Actions_q1fy2...	8.69K	Table
Empls_28feb2002	91.79K	Table
Empls_28feb2003	94.39K	Table
Empls_29feb2004	92.59K	Table
Empls_30nov2...	90.59K	Table
Empls_30nov2...	93.09K	Table
Empls_30nov2...	91.59K	Table
Empls_30nov2...	96.39K	Table
Empls_31aug2...	91.19K	Table
Empls_31aug2...	91.79K	Table
Empls_31aug2...	95.89K	Table
Empls_31may2...	92.19K	Table
Empls_31may2...	93.79K	Table
Empls_31may2...	93.99K	Table
Terms_fy2000	21.49K	Table
Terms_fy2001	20.99K	Table
Terms_fy2002	10.09K	Table
Terms_fy2003	20.99K	Table
Terms_fy2004	29.09K	Table
Terms_q1fy2005	3.09K	Table

Output - (Untitled)

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The CONTENTS Procedure

Data Set Name: EMPLS_TERMS_Q1FY2005
 Member Type: DATA
 Engine: V8
 Created: 9:37 Monday, March 14, 2005
 Last Modified: 9:37 Monday, March 14, 2005
 Protection:
 Data Set Type:
 Label:

Observations: 9992
 Variables: 33
 Indexes: 0
 Observation Length: 336
 Deleted Observations: 0
 Compressed: NO
 Sorted: NO

-----Engine/Host Dependent Information-----

Data Set Page Size: 16384
 Number of Data Set Pages: 130
 First Data Page: 1
 Max Obs per Page: 48
 Obs in First Data Page: 34
 Number of Data Set Repairs: 0
 File Name: G:\Empls\terms_q1fy2005.sas\bdst
 Release Created: 8.020280
 Host Created: WIN_P80

-----Alphabetic List of Variables and Attributes-----

* Variable	Type	Len	Pos	Format	Informat	Label
32 Agency	Char	3	329			
2 Agency_Nun	Char	9	96	\$3.	\$3.	Agency_Nun
9 Birth_Date	Num	8	8	DATE9.	DATE9.	Birth_Date
27 Birth_Date1	Num	8	56	DATE9.		
24 Data_Source	Char	4	251	\$4.	\$4.	Data_Source
19 EEO_Job_Category	Char	1	225	\$1.	\$1.	EEO_Job_Category
26 Eff_Date1	Num	8	48	DATE9.		
12 Effective_Date	Num	8	32	DATE9.	DATE9.	Effective_Date
20 Employee_Type	Char	3	226	\$3.	\$3.	Employee_Type
22 FLSA_Eligibility	Char	10	232	\$10.	\$10.	FLSA_Eligibility
4 First_Name	Char	15	108	\$15.	\$15.	First_Name

Results Explorer

Output - (Untitled) Log - (Untitled) empl.lst (Read-Only) Editor - (Untitled) *

C:\Documents and Settings\m.SAO

SAS

File Edit View Tools Solutions Window Help

Contents of 'empl'

Name	Size	Type
Actions_fy2000	64.69K	Table
Actions_fy2001	53.59K	Table
Actions_fy2002	62.59K	Table
Actions_fy2003	39.99K	Table
Actions_fy2004	39.79K	Table
Actions_q1fy2...	8.69K	Table
Empls_28feb2002	91.79K	Table
Empls_28feb2003	94.39K	Table
Empls_29feb2004	92.59K	Table
Empls_30nov2...	90.59K	Table
Empls_30nov2...	93.09K	Table
Empls_30nov2...	91.59K	Table
Empls_30nov2...	96.39K	Table
Empls_31aug2...	91.19K	Table
Empls_31aug2...	91.79K	Table
Empls_31aug2...	95.89K	Table
Empls_31may2...	92.19K	Table
Empls_31may2...	93.79K	Table
Empls_31may2...	93.99K	Table
Terms_fy2000	21.49K	Table
Terms_fy2001	20.99K	Table
Terms_fy2002	10.09K	Table
Terms_fy2003	20.99K	Table
Terms_fy2004	29.09K	Table
Terms_q1fy2005	3.09K	Table

Output - (Untitled)

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The CONTENTS Procedure

-----Alphabetic List of Variables and Attributes-----

* Variable	Type	Len	Pos	Format	Informat	Label
13 HRIS_Reason	Char	3	152	\$3.	\$3.	HRIS_Reason
10 Hire_Date	Num	8	16	DATE9.	DATE9.	Hire_Date
28 Hire_Date1	Num	8	64	DATE9.		
1 ID	Num	8	9	\$1.	\$1.	ID
14 JobClass	Char	4	155	\$4.	\$4.	JobClass
33 Job_Class_cd	Char	4	325			
15 Job_Description	Char	80	153	\$80.	\$80.	Job_Description
6 Last_Name	Char	26	124	\$26.	\$26.	Last_Name
5 Middle_Init	Char	1	123	\$1.	\$1.	Middle_Init
18 Monthly_Salary	Num	8	40	DOLLAR27.2	DOLLAR27.2	Monthly_Salary
25 None	Char	67	255			
16 Pay_Group	Char	4	219	\$4.	\$4.	Pay_Group
17 Pay_Step	Char	2	223	\$2.	\$2.	Pay_Step
7 Race	Char	1	150	\$1.	\$1.	Race
3 SSN	Char	9	89	\$9.	\$9.	SSN
8 Sex	Char	1	151	\$1.	\$1.	Sex
11 Termin_Date	Num	8	24	DATE9.	DATE9.	Termin_Date
29 Termin_Date1	Num	8	72	DATE9.		
23 Total_State_Svc	Char	9	248	\$9.	\$9.	Total_State_Svc
21 Work_County	Char	3	229	\$3.	\$3.	Work_County
30 durrescomp	Num	8	80			
31 durstasvc	Num	8	88			

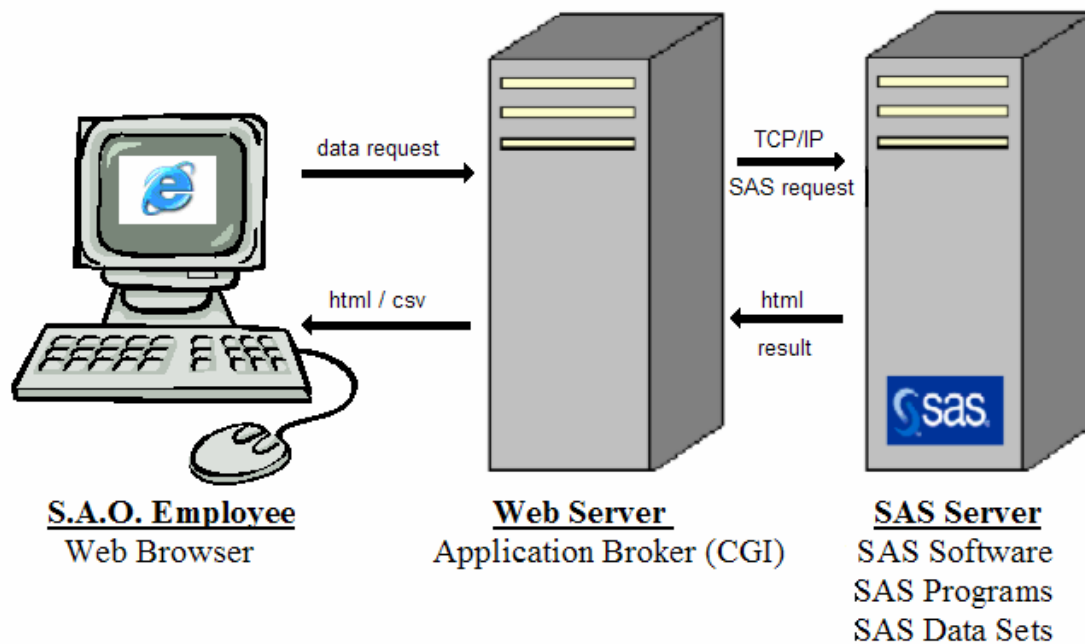
Results Explorer

Output - (Untitled) Log - (Untitled) empl.lst (Read-Only) Editor - (Untitled) *

C:\Documents and Settings\m.SAO

An Overview of the Personnel Information Reports Application

Here is a conceptual diagram which describes the interaction of the operational components that are used by the Personnel Information Reports intranet application at the SAO:



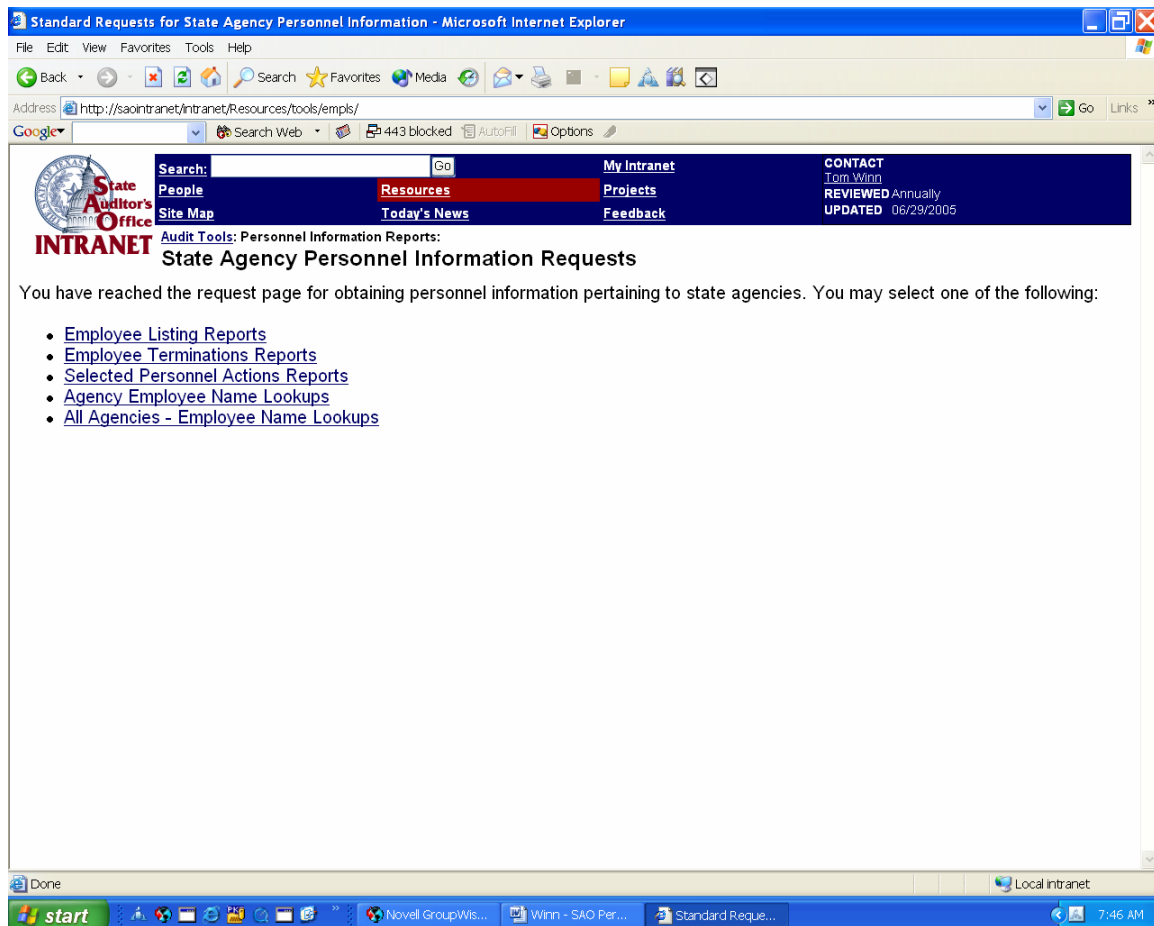
The Personnel Information Reports intranet application is made possible by SAS/IntrNet software, using Compute Services with the Application Dispatcher. Application Dispatcher is composed of two pieces: (1) the Application Broker, which is a Common Gateway Interface (CGI) program that resides on the web server, and communicates between the browser and the SAS Application Server, and (2) the SAS/IntrNet compute server, which is a SAS program on the SAS Server. Since the SAO's has SAS/SHARE installed on the SAS Server, it also would be possible for the SAO to develop SAS/IntrNet applications that make use of Data Services through execution of the htmSQL CGI program on the Web server; however, the Personnel Information Reports application does not use htmSQL. *[However, the USAS Guide does!]*

The Personnel Information Reports application is available to all SAO employees by following a straightforward path from any intranet page. In the application, requestors are prompted to make selections from a web page, and ultimately from one of three HTML forms. The parameters from the HTML form are passed to a SAS program as values of macro variables, and the program executes a query and generates HTML output, which is sent back to the requestor. All of the HTML documents, are kept in a single folder on the web server. They are retrieved from the web server by referencing their URLs. The SAS programs and data are stored on the SAS Server.

The web pages pertaining to the data requests were constructed using Notepad and Macromedia Dreamweaver MX software. Like all SAO internet/intranet applications, the Personnel Information Reports application conforms to agency standards for web applications. For example, a particular style sheet is used repeatedly by all of the HTML files which generate data requests. It provides a standardized header, as well as some links to certain other SAO web pages. There also are standards which pertain to the coding and formatting of web content. For example, we are prohibited from using frames, and also from using certain colors.

Operating the Personnel Information Reports Application

Here is a portion of the main request page for the application:



The main request page presents the user with links to three data request pages. Let us suppose that the user is interested in reports containing an employee listing for a specific agency and as-of date. So, for example, if the user clicked on the link for "Employee Listing Reports", then the following HTML form would be returned:

Make Selections for Employee Listing Report - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address: http://sao.intranet/intranet/resources/tools/empl_list2.html

Search: Go

State Auditor's Office
INTRANET

Audit Tools: Personnel Information Reports: Employee Listing Reports:

Employee List Request Form

Social Security Numbers are confidential information. If you have a legitimate need for a listing that includes SSNs, then contact Olin Davis or Tom Winn.

Make your selections for a report listing all employees of a particular agency, as of a specified date:

1. Select Agency:
Select an Agency from the Listbox Below

2. Select as-of date:
Select a Date from the listbox below
30Nov2001
28Feb2002
31May2002

3. Sort by:
Select a sorting variable from the listbox below
Employee Name
Monthly Salary Amount

4. Output format:
☒ HTML ☐ Comma-Separated Values

5. Generate the report or reset the values as necessary:

For questions or comments please contact
Tom Winn, Information Systems Support Team
phone: (512) 936-9735
e-mail: twinn@sao.state.tx.us

Done Local intranet

start Procedures Use... Winn - SAO Per... Novell GroupW... 10.40.0.223 - R... Make Selections ... 2:01 PM

The user would make his/her selections from the drop-down boxes, and then would click on the “Generate Report” button. At this point, the important details for the specific data request would be sent from the Web browser to the SAS Application Broker CGI program, which runs on the Web server. Then, the Application Broker would access the SAS Application Server, and would pass the parameters for the user’s particular selections to the appropriate SAS programs.

In the Personnel Information Reports application, all data requests are handled dynamically, which means that the application does not include a collection of pre-prepared reports, covering all possible requests, stored as HTML documents, which would be displayed whenever one of them was requested. The application could have been designed to work that way, but it wasn’t -- because I didn’t want to have to manage a collection of separate, static reports. Instead, each data request results in the execution of SAS programs which extract the data which are pertinent to the request from appropriate SAS data sets, and then create HTML web content using the SAS Output Delivery System (ODS).

If I had decided to build this application using static web pages, then accommodating just five fiscal years of data for the Personnel Information Reports application would have required more than 113,400 static web pages!

Let us suppose that the user made the following selections for his/her data request: “Agency 352 – Texas Bond Review Board”, employees as of “30Nov2004”, sorted according to “Employee Name”, and with the output to be formatted as HTML. The next display that the user would see would be the following web page:

**Employee Listing for Agency #352, as of 30Nov2004,
Sorted According to Values of Name**

Name	Job Classification	Job Title	Date of Current Employment	Total Years of State Service	Monthly Salary Amount
DICKSON, WILLIAM P	1082	FINANCIAL ANALYST II	30SEP2002	4.250	\$3,518.00
GARCIA, REBECCA V	0154	ADMINISTRATIVE ASST III	01OCT2003	18.917	\$2,600.00
GARZA, NICHOLAS P	0154	ADMINISTRATIVE ASST III	21JUN2004	0.417	\$1,268.00
GOOD, JUDY A	1084	FINANCIAL ANALYST III	29JAN1990	16.917	\$4,333.33
KLINE, ROBERT C	E047	EXECUTIVE DIRECTOR	14JUN2004	0.417	\$6,666.66
KRISHOCK, WILLIAM P	1604	MGR V	29NOV1999	7.250	\$5,374.00
LATSHA, ROBERT B	1084	FINANCIAL ANALYST III	12DEC2000	4.750	\$4,264.52
LEMMONS, ZHUZHU	0154	ADMINISTRATIVE ASST III	01OCT2004	0.083	\$1,268.00
MARTINEZ, ELVA M	1084	FINANCIAL ANALYST III	15FEB2000	10.833	\$4,449.00
MARTINEZ, JODEE	1018	ACCOUNTANT V	01JAN2004	10.750	\$3,700.00

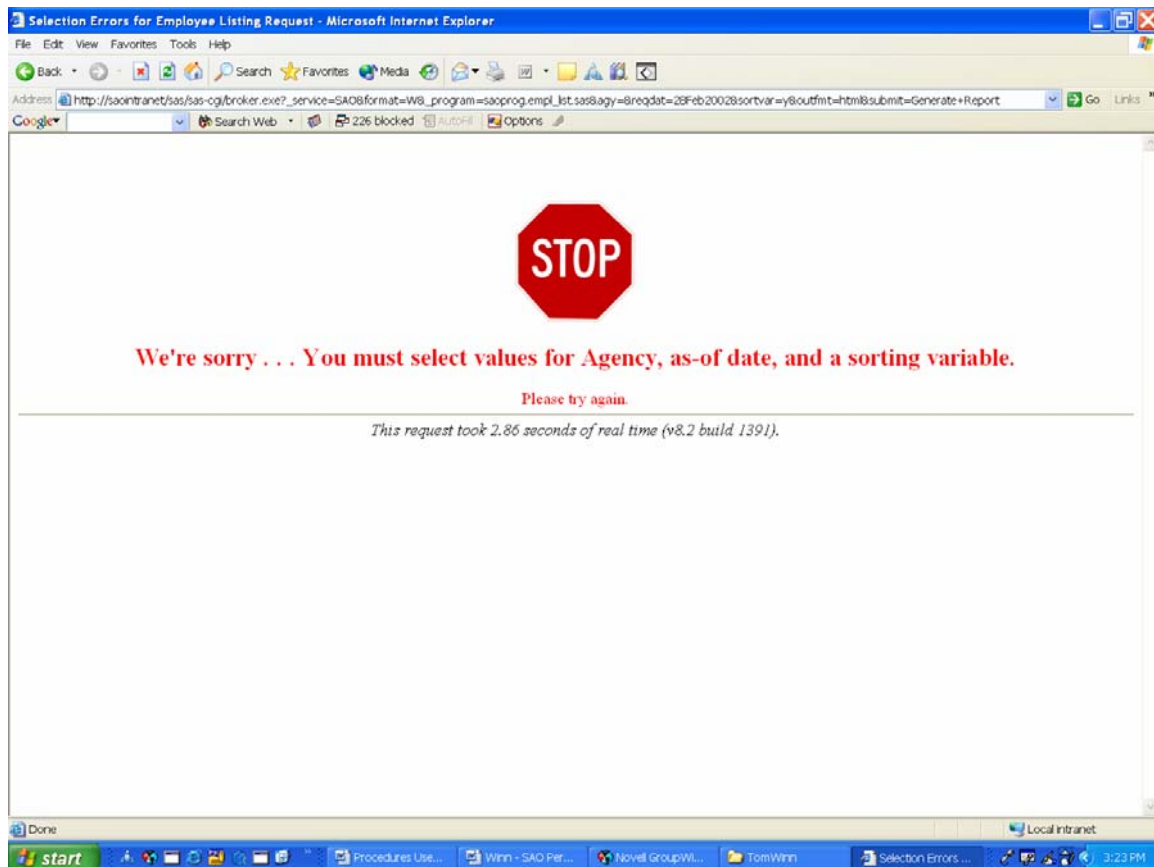
N = 10

This request took 1.20 seconds of real time (v8.2 build 1391).

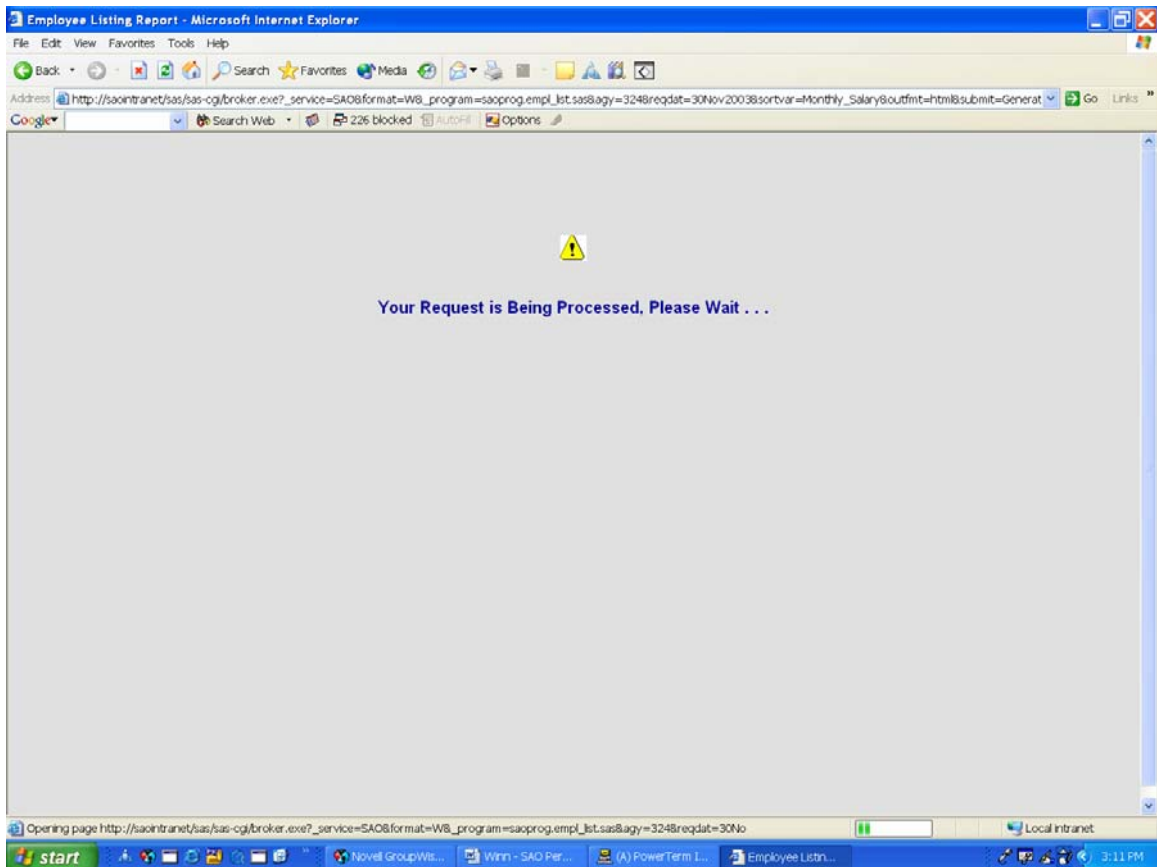
Notice the URL in the “Address” line near the top of the Internet Explorer window.

This line tells us that the SAS program launched on the SAS Server is empl_list.sas. The URL also contains the values of parameters that pertain to the user’s specific selections for this query, “agy”, “reqdat”, “sortvar”, and “outfmt”. In the request, agy=352 identifies Agency #352, which is the Texas Bond Review Board, the “as-of-date” reqdat=30Nov2004, the sorting-variable sortvar=Name, and the output-format outfmt=html. Those parameters were inserted into the particular SAS program, empl_list.sas, as values of macro variables, before it was executed. The program generated a standardized report containing data items have been found to be useful for most data requests of the same type. The program used ODS to write the output to “_webout “, which specifies that the results are to be sent directly to the Web browser. I could have hidden those value-pairs in the browser address line, by changing the METHOD=GET attribute to METHOD=POST in the FORM tag of the HTML that was sent to SAS by the web server.

The SAS program checks the values of the parameters that are sent to it. If there are no user-specified values for agy, reqdat, or sortvar, then the following message is sent to the user.



After the user submits a request, SAS extracts the data from the tables. This generally doesn't take too long. After the data are selected, but just before the desired report is generated, SAS sends a message back to the browser to run some Javascript code that asks for the user to be patient while the report is being formatted. For short queries, the user may never actually see the "Please Wait"-message. But for longer-running requests the user will see the following screen, until SAS completes the report and sends it to the browser:



I have demonstrated that the application can generate output reports as HTML. If desired, the user could have selected an output file of comma-separated values (CSV), instead. A CSV file is a presentation of a table as a series of ASCII text lines, in which each column value in the table row is separated from the value in the next column by a comma, and each table row is a new line. CSV files can be read by various application programs, including Microsoft Excel, Microsoft Access, and ACL. An example of how the Personnel Information Reports application can be used to generate CSV files follows. Notice that the name of the CSV file that is created for download includes elements which identify the type of request (empls, terms, or actions), the agency number, and the period.

Make Selections for Employee Terminations Report - Microsoft Internet Explorer

Address: http://saointranet/intranet/Resources/tools/empl/terms.html

Search: [Go] My Intranet CONTACT
 People Resources Projects Tom Winn
 Site Map Today's News Feedback REVIEWED Annually
 UPDATED 03/17/2005

INTRANET Audit Tools: Personnel Information Reports: Employee Terminations Reports:
Employee Terminations Request Form

Social Security Numbers are confidential information. If you have a legitimate need for a listing that includes SSNs, then contact Olin Davis or Tom Winn.

Make your selections for a report listing all employees for the period:

1. Select Agency:
 301 - GOVERNOR - EXECUTIVE

2. Select period:
 FY2002
 FY2003
 FY2004
 Q1FY2005

3. Sort by:
 Select a sorting variable from the listbox below
 Employee Name
 Effective Date of Termination

4. Output format:
☐ HTML ☒ Comma-Separated Values

5. Generate the report or reset the values as necessary: [Generate Report] [Reset Values]

For questions or comments please contact
 Tom Winn, Information Systems Support Team
 phone: (512) 936-9735
 e-mail: twinn@sao.state.tx.us

File Download

Some files can harm your computer. If the file information below looks suspicious, or you do not fully trust the source, do not open or save this file.

File name: terms_301_Q1FY2005.csv
 File type: Microsoft Office Excel Comma Separated Values File
 From: saointranet

Would you like to open the file or save it to your computer?

[Open] [Save] [Cancel] [More Info]

☒ Always ask before opening this type of file

Microsoft Excel - terms_301_Q1FY2005(1).csv

	A	B	C	D	E	F	G	H
	Effective Date	Name	Job Class	Job Title	Date of Last Employment	Reason Code	Reason	Amount of M
1	8-Sep-04	TOOMEY, MICHAEL V	1630	DEPUTY DIRECTOR	1-Dec-02	68	Retirement	\$11,250.00
2	16-Sep-04	ALONSO, MARIA T	279	WEB ADMIN III	16-Aug-04	67	Dismissal for cause	\$5,348.00
3	30-Sep-04	WATKINS, CATHRYN L	600	RESEARCH SPEC I	6-Jan-03	60	Voluntary termination	\$2,589.00
4	30-Sep-04	VALENTINE, JULIE A	1575	PROG SPEC VI	6-Dec-04	68	Retirement	\$5,736.66
5	17-Oct-04	POINSETT, ROYCE P	3505	ATTORNEY V	15-Oct-01	65	Transfer to another state agency/institution	\$6,812.00
6	10-Nov-04	MEDINA, DAVID M	1624	DIRECTOR V	1-Jan-04	65	Transfer to another state agency/institution	\$11,180.00
7	11-Nov-04	GARCIA, HECTOR S	1621	DIRECTOR II	1-Jan-01	65	Transfer to another state agency/institution	\$6,666.67
8	30-Nov-04	KIMBROUGH, JAY T	1624	DIRECTOR V	7-Sep-04	68	Retirement	\$10,000.00
9	30-Nov-04	GONZALES JR, ALEJANDRO	1014	ACCOUNTANT III	12-Mar-01	65	Transfer to another state agency/institution	\$2,912.00
10	30-Nov-04	GAONA, CYNTHIA B	156	ADMINISTRATIVE ASST IV	23-Jun-99	65	Transfer to another state agency/institution	\$3,010.42
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Ready

Besides generating data products concerning employee listings, terminations, and other personnel actions, the application also includes two utilities for doing name lookups, based upon user-specified name-fragments (a name-fragment can be any string of text, excluding commas, double-quotes, and other non-alphabetical characters):

- (a) The “Agency Employee Name Lookups” tool generates a listing of all employees of the selected state agency and as-of date, whose names contain ANY of the specified name-fragments, and
- (b) The “All Agencies – Employee Name Lookups” tool generates a listing of all employees of any state agency, as of the selected date, whose names contain ALL of the specified name-fragments.

Here are the two name lookup HTML forms, plus a couple of examples of results of queries:

Make Selections for Agency Employee Name Lookup Report - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address: http://saointranet/intranet/resources/tools/empl/empl_lookup.html

Search: Go

My Intranet
People Resources Projects
Site Map Today's News Feedback

CONTACT
Tom Winn
REVIEWED Annually
UPDATED 07/01/2005

INTRANET Audit Tools: Personnel Information Reports: Agency Employee Name Lookups:

Agency Employee Name Lookup Form

Social Security Numbers are confidential information. If you have a legitimate need to know someone's SSN, then contact Olin Davis or Tom Winn.

Make your selections for a report that lists all employees of a particular agency, as of a specified date, whose names contain one or more user-specified strings of text:

1. Select Agency:

2. In the text area below, highlight and then overtype "Default text" with one to ten text-strings (name fragments, separated by blank spaces) to be used as the basis for the search. Include no commas, double quotation marks, or other non-alphabetical characters – but apostrophes are okay. The report will include all employee names which contain any of the user-specified text-strings (for example, John Jon Smith Smyth O'Reilly).

3. Select as-of date:

30Nov2001
28Feb2002
31May2002

4. Generate the report or reset the values as necessary:

For questions or comments please contact
Tom Winn, Information Systems Support Team
phone: (512) 936-9735
e-mail: twinn@sao.state.tx.us

Done Local intranet

start Novell GroupWis... State Employee ... Make Selections ... 3:14 PM

Employee Name-Lookup Report - Microsoft Internet Explorer

Address: http://sao.intranet/sas/sas-cg/broker.exe?

Employee Name-Lookup for Agency #302, and Name-item(s)<Brian Brien Bryan>, as of 31May2005

Name	Job Classification	Job Title	Date of Current Employment	Total Years of State Service	Monthly Salary Amount
BERWICK, BRIAN E	3515	ASST ATTORNEY GENERAL VI	01JUN1979	25.917	\$7,099.52
LOFTUS, BRIAN P	0256	SYS ANALYST III	01APR1993	12.333	\$3,548.48
THOMAS, BRIAN	6230	SECUR OFFCR I	14FEB2005	0.250	\$1,621.00
O'BRIEN, SEAN J	0154	ADMINISTRATIVE ASST III	01AUG2004	0.750	\$2,689.00
O'BRIEN, KERRY V	3510	ASST ATTORNEY GENERAL I	08DEC2003	5.167	\$3,125.00
CRANFORD, BRIAN K	0256	SYS ANALYST III	01FEB2005	0.250	\$4,584.00
BRYANT, GWENDOLYN B	5541	CHILD SUPPORT OFFCR II	17MAR1997	8.167	\$2,833.00
NOVAK, BRYAN W	0236	SYS SUPPORT SPEC II	15JUL2002	2.833	\$2,395.00
BRYANT, AISHA M	3567	LEGAL SECRETARY III	01APR2005	4.917	\$2,600.00
BRYAN, JUDITH L	0156	ADMINISTRATIVE ASST IV	16OCT1989	15.583	\$3,156.15
BRYANT, ANGELA R	0152	ADMINISTRATIVE ASST II	26JUN1995	12.667	\$2,386.00
MONTGOMERY,	0150	ADMINISTRATIVE ASST I	01SEP2000	4.667	\$1,939.42

Done

start

Novell GroupWis... State Employee ... Employee Name...

3:29 PM

Make Selections for All Agencies - Employee Name Lookup Report - Microsoft Internet Explorer

Address: http://sao.intranet/intranet/resources/tools/empls/empl_lookup_all_agys.html

State Auditor's Office

INTRANET

Search: Go

People Resources Projects My Intranet

Site Map Today's News Feedback

CONTACT Tom Winn Annually REVIEWED 07/01/2005 UPDATED

Audit Tools: Personnel Information Reports: All Agencies - Employee Name Lookups:

All Agencies - Employee Name Lookup Form

Social Security Numbers are confidential information. If you have a legitimate need to know someone's SSN, then contact Olin Davis or Tom Winn.

Make your selections for a report that lists all employees of any agency, as of a specified date, whose names contain all elements of certain user-specified strings of text:

1. In the text area below, highlight and then overtype "Default text" with two to ten text-strings (name fragments, separated by blank spaces) to be used as the basis for the search. Include no commas, double quotation marks, or other non-alphabetical characters -- but apostrophes are okay. The report will include all employee names from ANY agency which contain ALL of the user-specified text-strings (for example, John Smith).

Default text

2. Select as-of date:

Select a Date from the listbox below

30Nov2001

28Feb2002

31May2002

3. Generate the report or reset the values as necessary:

For questions or comments please contact
Tom Winn, Information Systems Support Team
phone: (512) 936-9735
e-mail: twinn@sao.state.tx.us

Done

start

Novell GroupWis... State Employee ... Make Selections ...

3:16 PM

Employee Name-Lookup Report - Microsoft Internet Explorer

Address: http://saointranet/sas/sas-cgi/broker.exe?

All Agencies - Employee Name-Lookup for Name-item(s)<Jay De>, as of 31May2005

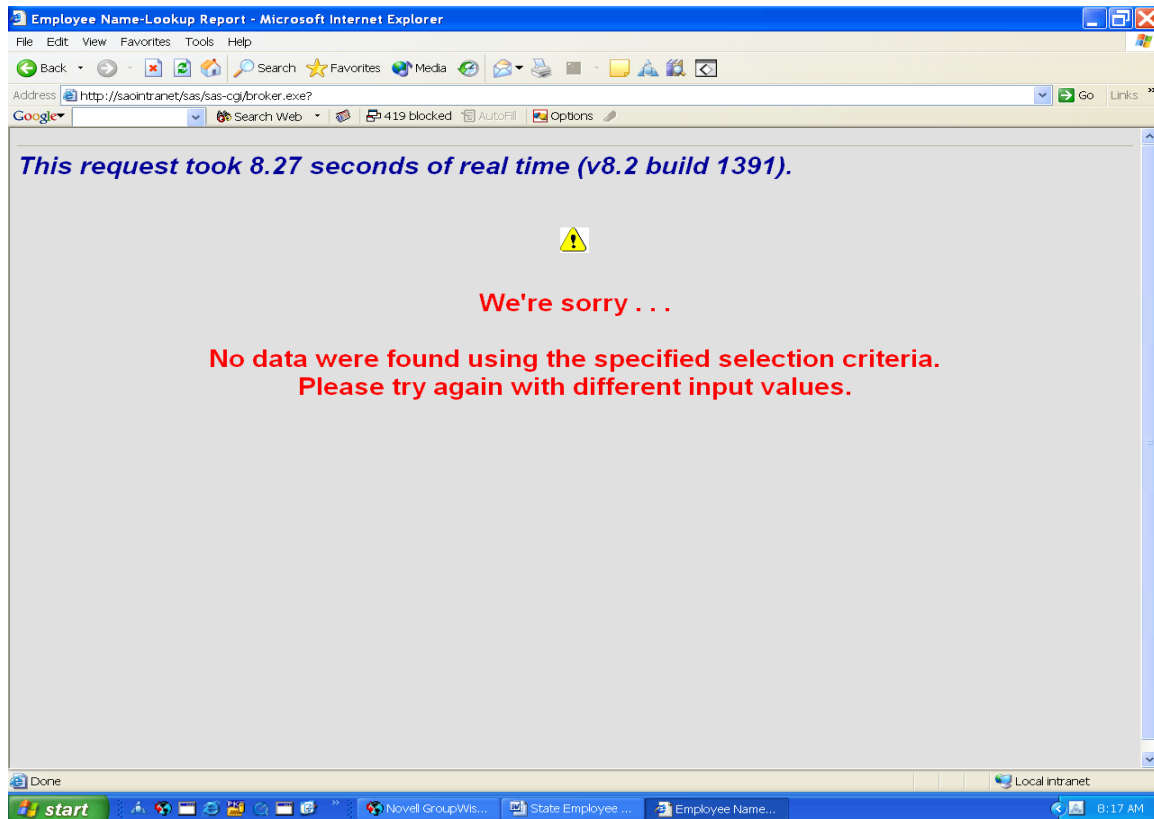
Agency	Name	Job Classification	Job Title	Date of Current Employment	Total Years of State Service	Monthly Salary Amount
401	NIDEVER, JAY A	SAD1	STATE ACTIVE DUTY	01AUG2000	4.750	\$10,000.00
405	VANDEN BOS, JAY W	9928	TROOPER	13OCT2003	6.083	\$3,033.33
405	ALEXANDER, JAY	9940	SERGEANT, PUBLIC SAFETY	22SEP1997	7.667	\$3,761.33
506	BENDER, JAY B		JOB TITLE UNAVAILABLE	05SEP2000	.	.
537	DEFOOR, JAY L	5124	MHMR SRVCS SUPERVSR	01SEP2004	14.833	\$2,021.00
537	SANDERS, JAY E	5120	MHMR SRVCS AIDE	01MAY2005	0.000	\$1,322.00
582	PATEL, JAYDEEP N	2475	CHEMIST V	01JUN1998	11.667	\$3,518.00
601	DEOLAPURE, VIJAYKUMAR G	2155	ENGINEER VI	10OCT1994	10.500	\$5,093.00
696	DECKER III, JAY E	4503	CORREC OFFCR III	06MAY2004	1.000	\$2,036.00
696	AJAYI, AYODEJI A	4503	CORREC OFFCR III	01AUG2003	1.750	\$2,161.00
711	PENDSE, JAYDEEP D		JOB TITLE UNAVAILABLE	01FEB2001	.	.
714	MAHADEVAN, VIJAY	0400	GRADUATE ASSISTANT,	01OCT2004		

Done Local intranet

start Novell GroupWis... State Employee ... Employee Name...

7:59 AM

Now, one might think that a user would only need one of those name lookup tools, but they each are a little bit different. To begin with, "Agency Employee Name Lookups" only performs name-fragment searches within a single, user-specified agency for a particular date, while "All Agencies – Employee Name Lookups" performs name-fragment searches across all agencies for the same set of dates; therefore, each tool casts its net into two very differently-sized pools. Next, observe that while "Agency Employee Name Lookups" only does searches for a single agency, nevertheless its search criteria is much more "loose" than the criteria used in "All Agencies – Employee Name Lookups" for determining matches across all state agencies. In "Agency Employee Name Lookups", the user may provide from one to ten name-fragments, and the tool will find instances where one or several of the name-fragments occur. In "All Agencies – Employee Name Lookups", the user may specify from two to ten name-fragments, and the tool will look for cases in which all of the specified name-fragments occur. Therefore, "Agency Employee Name Lookups" is a more exploratory utility, which someone could use to search for various combinations of the name-fragments. This would be particularly useful, for example, in searches for name-fragments which might sound similar, but have different spellings. However, to use "All Agencies – Employee Name Lookups", one must have a more precise idea of what he/she is looking for. If not, the user could wind up with unintended results.



From a technical point of view, the user selections submitted from either of the name lookup HTML forms generates name-value pairs whose parameters are inserted into the appropriate SAS program as values of macro variables. The user's selections for the name-fragments are passed to SAS as a single string of characters, which SAS separates into name-fragments, and then builds a subsetting WHERE clause using the CONTAINS operator. *(the actual code is included in the Appendix)*

Miscellaneous Remarks.

During development and testing of the application, a very useful technique for debugging SAS programs invoked through the Application Dispatcher was to append the debug flag and associated parameter value "&_debug=131" to the URL. This returns all values passed to the SAS Server, the SAS Log, and the total elapsed time.

Employee Listing Report - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address: et/sas/sas-cgi/broker.exe?_service=SAOB&format=WB&program=saprog.empl_list.sas&agy=352&reqdat=30Nov2004&sortvar=Name&outfmt=html&submit=Generate+Report&_debug=131

Symbols passed to SAS

```
#symbols: 26
"SRVNAME" = "saointranet"
"SRVPORT" = "80"
"REQMETH" = "GET"
"RMTHOST" = "10.40.6.5"
"RMTADDR" = "10.40.6.5"
"RMTUSER" = ""
"HTCOOK" = "CFID=97306; CFTOKEN=688359"
"HTUA" = "Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; (R1 1.5); .NET CLR 1.1.4322)"
"mrving" = "/sasweb/IntrNet8/MRV/images"
"grfaplt" = "/sasweb/graph/graphapp.jar"
"grafloc" = "/sasweb/graph"
"service" = "SAO"
"format" = "W"
"program" = "saprog.empl_list.sas"
"agy" = "352"
"reqdat" = "30Nov2004"
"sortvar" = "Name"
"outfmt" = "html"
"submit" = "Generate Report"
"debug" = "131"
"VERSION" = "8.2"
"URL" = "/sas/sas-cgi/broker.exe"
"ADMIN" = "Tom Winn"
"ADMAIL" = "twinn@sao.state.tx.us"
"SERVER" = "10.40.0.223"
"PORT" = "5003"

Using timeout: 300
Content-type: text/html Pragma: no-cache Content-type: text/html
```

Employee Listing for Agency #352, as of 30Nov2004, Sorted According to Values of Name

Done Local intranet

start Novel GroupWise... Winn - SAO Per... Employee Listn... 9:57 AM

Employee Listing Report - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address: et/sas/sas-cgi/broker.exe?_service=SAOB&format=WB&program=saprog.empl_list.sas&agy=352&reqdat=30Nov2004&sortvar=Name&outfmt=html&submit=Generate+Report&_debug=131

Employee Listing for Agency #352, as of 30Nov2004, Sorted According to Values of Name

Name	Job Classification	Job Title	Date of Current Employment	Total Years of State Service	Monthly Salary Amount
DICKSON, WILLIAM P	1082	FINANCIAL ANALYST II	30SEP2002	4.250	\$3,518.00
GARCIA, REBECCA V	0154	ADMINISTRATIVE ASST III	01OCT2003	18.917	\$2,600.00
GARZA, NICHOLAS P	0154	ADMINISTRATIVE ASST III	21JUN2004	0.417	\$1,268.00
GOOD, JUDY A	1084	FINANCIAL ANALYST III	29JAN1990	16.917	\$4,333.33
KLINE, ROBERT C	E047	EXECUTIVE DIRECTOR	14JUN2004	0.417	\$6,666.66
KRISHOCK, WILLIAM P	1604	MGR V	29NOV1999	7.250	\$5,374.00
LATSHA, ROBERT B	1084	FINANCIAL ANALYST III	12DEC2000	4.750	\$4,264.52
LEMMONS, ZHUZHU	0154	ADMINISTRATIVE ASST III	01OCT2004	0.083	\$1,268.00
MARTINEZ, ELVA M	1084	FINANCIAL ANALYST III	15FEB2000	10.833	\$4,449.00
MARTINEZ, JODEE	1018	ACCOUNTANT V	01JAN2004	10.750	\$3,700.00

N = 10

Sas Log for this Request

```
NOTE: running request program saprog.empl_list.sas
NOTE: %INCLUDE (level 1) file G:\SAS_Programs\empl_list.sas is file G:\SAS_Programs\empl_list.sas.
2 *****
```

Done Local intranet

start Novel GroupWise... Winn - SAO Per... Employee Listn... 9:57 AM

Employee Listing Report - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media Downloads Recent History

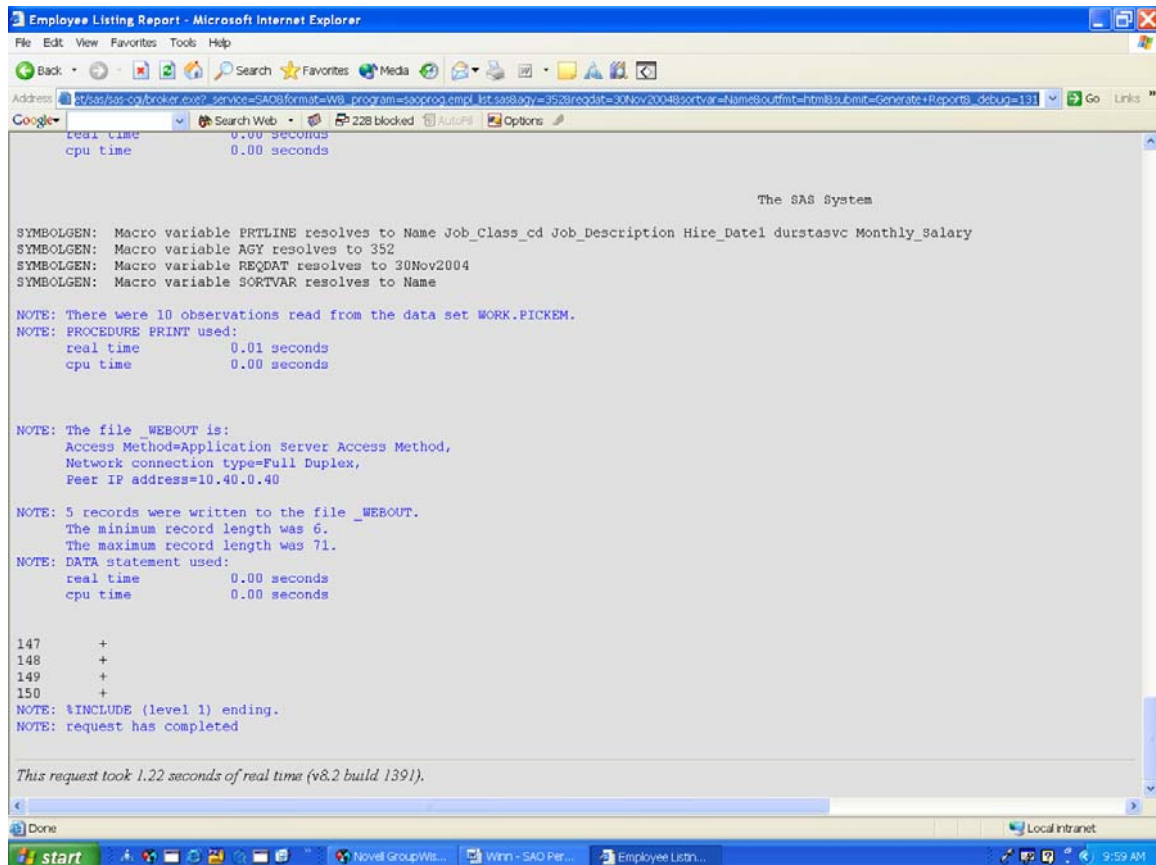
Address [G:\sas\sas-cgi\broker.exe?_service=SAS&format=WB&_program=sasprog.empl_list&_libref=empl&_reqdat=30Nov2004&sortvar=Names&outfmt=html&submit=Generate+Report&_debug=131](#) Go Links

Google Search Web 228 blocked AutoPilot Options

Sas Log for this Request

```
NOTE: running request program sasprog.empl_list.sas
NOTE: %INCLUDE (level 1) file G:\SAS_Programs\empl_list.sas is file G:\SAS_Programs\empl_list.sas.
2  +*****
3  +***** Program empl_list.sas *****
4  +*****
5  +**** This is the Dispatcher Application program for the "Employee Listing Report". ****
6  +**** It is invoked by the HTML Form, empl_list_form1.html, and utilizes user-specified ****
7  +**** selections for agency number, as-of date, and sorting variable. It was written ****
8  +**** to produce a report similar to the Employee Detail module of CAFE. ****
9  +**** 08-23-2004 Tom Winn 936-9735 ****
10 +*****
11 +**** Replace one sort-variable with another. 03-07-2005 Tom Winn 936-9735 ****
12 +*****
13 +**** Format values of durstasvc in printed output. And identify agency number and ****
14 +**** as-of date in name of csv output file. 03-09-2005 Tom Winn 936-9735 ****
15 +*****
16 +**** Change path-name for graphic objects needed for messages to users, from location ****
17 +**** on test server to location on production server. ****
18 +**** 03-14-2005 Tom Winn 936-9735 ****
19 +*****
20 +
21 +libname empl 'G:\Empls';
NOTE: Libref EMPLS was successfully assigned as follows:
Engine: V8
Physical Name: G:\Empls
22 +options obs=max;
23 +
24 +options symbolgen;
25 +
26 +%macro drvempls;
27 + %global agy reqdat sortvar outfmt;
28 + %if %agy=z or %reqdat=x or %sortvar=y %then %do;
29 + %whoops
30 +
```

(followed by more pages of the SAS Log, . . . and then finally)



The Personnel Information Reports intranet application does not include data analysis capabilities, and no customizable details pertaining to the data products themselves. Providing those functionalities would have required a more complicated application than the one that I developed. However, our auditors prefer performing their own data analysis using other software tools (currently Microsoft Excel, Microsoft Access, and ACL). Therefore, the Personnel Information Reports application seems to meet their needs very well. It is easy to use, and it includes the most-commonly requested types of personnel information needed by auditors (employee listings, as well as terminations, acquisitions, promotions, demotions, merit increases, reclassifications, salary actions, and various other personnel actions, and name lookups). Of course, not all of our audits involve personnel information.

Like its predecessor, the USAS Guide, the Personnel Information Reports application is a “work in progress”, and it is anticipated that making improvements to it will be an ongoing task. Additional modules under consideration for future development within the Personnel Information Reports application include payroll and leave accounting data.

Conclusion

- SAS/IntrNet software was used to create an intranet application for auditors and investigators (non-SAS programmers) for creating standardized data products from a database of personnel information.
- This paper provided descriptions of the development and operation of the Personnel Information Reports intranet application.

Suggestions for Further Reading

- Teresia Arthur & Mary Jafri, "Web Enable Your SAS Applications,"
 - Proceedings of the 28th Annual SAS Users Group International Conference (2003), Paper 35-28, and
 - Proceedings of SCSUG 2003, pp. 19-25 (sponsored by South-Central SAS Users' Group, on October 26-28, 2003).
- Kirby Cossey, Olin Davis, and Tom Winn, "Using SAS/IntrNet to Generate Data Products from a Database: The SAO Online USAS Guide," Proceedings of SCSUG 2004, pp. 113-125 (sponsored by the South-Central SAS Users' Group, on November 7-9, 2004).
- Keith Cranford & Dan Hammarstrom, "Tricks and Tips with SAS/IntrNet,"
 - Proceedings of the Texas Conference for Government SAS Users (sponsored by the Texas State Auditor's Office and SAS Institute Inc., on July 29, 2003), pp.57-70, and
 - Proceedings of SCSUG 2003, pp. 70-83 (sponsored by South-Central SAS Users' Group, on October 26-28, 2003).
- Kevin Davidson, "Using SAS/IntrNet Software," SSU 2001 Proceedings, pp. 204-210 (sponsored by the SouthEast SAS Users Group, and the South-Central SAS Users' Group, on August 19-22, 2001)
- Matthew Grover, "SAS Solutions for the Web: Static and Dynamic Alternatives," Proceedings of SCSUG 2003, pp. 167-178 (sponsored by South-Central SAS Users' Group, on October 26-28, 2003).
- Lauren Haworth, "HTML for the SAS Programmer,"
 - Proceedings of the 26th Annual SAS Users Group International Conference (2000), pp. 235-255, and
 - SSU 2001 Proceedings, pp. 193-201 (sponsored by the SouthEast SAS Users Group, and the South-Central SAS Users' Group, on August 19-22, 2001).
- Lauren E. Haworth, "HTML Output," Chapter 3 in Output Delivery System: The Basics, Cary, NC: SAS Institute Inc., 2001.
- Doyle McDonald & Chas Webb, "SAS/IntrNet Configuration: Deploying a Web-Enabled SAS Environment,"

- Proceedings of the New Mexico SAS Users Conference, pp. 80-138 (sponsored by South-Central SAS Users' Group, on August 5, 2002), and
- Proceedings of the Louisiana SAS Users Conference, pp. 77-140 (sponsored by South-Central SAS Users' Group, on June 16, 2003).
- Frederick E Pratter, Web Development with SAS by Example, Cary, NC: SAS Institute Inc., 2003.

Author Information

Tom Winn
Senior Systems Analyst
Information Systems Support
Texas State Auditor's Office
P.O. Box 12067
Austin, TX 78711-2067

512 / 936-9735
twinn@sao.state.tx.us

– Appendix –

Selected HTML Code and SAS Programs

Used by the Personnel Information Reports Intranet Application

Here is the HTML file that is used for the application's main page. It is located on the intranet server.

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "DTD/xhtml1-transitional.dtd">
<HTML xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
<HEAD>
  <link rel="stylesheet" type="text/css"
href="http://www.sao.state.tx.us/templates/style.css" />
  <link rel="stylesheet" type="text/css" href="/intranet/templates/intranet_style.css"
/>
  <CF_Intranet>
  <cf_nocache>
  <meta name="Description" content="SAO Information Systems Support Team" />
  <meta name="Keywords" content="Information Systems Support Team" />
  <title>Standard Requests for State Agency Personnel Information</title>
  <!-- Set Page Contact & Review Cycle. If no Contact Link, comment out the <cfset
ContactLink...> line. Review Cycle is Annually by default unless Reviewed variable is set
here. --->
  <cfset Contact="Tom Winn">
  <cfset ContactLink="mailto:twinn@sao.state.tx.us">
  <link rel="stylesheet" href="../../../Manuals/Empls/style_usas.css" type="text/css" />
  <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />

</HEAD>

<BODY>

<cfinclude template="#root#templates/master.html">
<!--MAIN CONTENT BEGINS----->
<div class="top">  <p class="section"><a href="../default.html">Audit Tools</a>: Personnel
Information Reports:</p>
  <H1><a name="LISTIndex" id="LISTIndex"></a>State Agency Personnel Information Requests</H1>
</div>

<p> You have reached the request page for obtaining personnel information pertaining to state
agencies. You may select one of the following: </p>
<ul>
  <li><a href="empl_list2.html">Employee Listing Reports</a></li>
  <li><a href="terms.html">Employee Terminations Reports</a></li>
  <li><a href="actions.html">Selected Personnel Actions Reports</a></li>
  <li><a href="empl_lookup.html">Agency Employee Name Lookups</a></li>
  <li><a href="empl_lookup_all_agys.html">All Agencies - Employee Name Lookups</a></li>
</ul>

</BODY>

</HTML>
```

Here is the HTML file that is used for soliciting the user-specified request parameters for the Employee Terminations Report, and for calling the SAS program that generates that report. It also is located on the intranet server.

```
<?xml version="1.0" encoding="utf-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "DTD/xhtml1-transitional.dtd">
<HTML xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en">
<HEAD>
  <link rel="stylesheet" type="text/css"
href="http://www.sao.state.tx.us/templates/style.css" />
  <link rel="stylesheet" type="text/css" href="/intranet/templates/intranet_style.css"
/>
  <CF_Intranet>
  <cf_nocache>
  <meta name="Description" content="SAO Information Systems Support Team" />
  <meta name="Keywords" content="Information Systems Support Team" />
  <title>Make Selections for Employee Terminations Report</title>
  <!-- Set Page Contact & Review Cycle. If no Contact Link, comment out the <cfset
ContactLink...> line. Review Cycle is Annually by default unless Reviewed variable is set
here. --->
  <cfset Contact="Tom Winn">
  <cfset ContactLink="mailto:twinn@sao.state.tx.us">
```

[illegible]

Here is the SAS program for the Employee Terminations Report. It extracts the data and creates the report, and also sends the “We’re sorry ...” and “Please wait ...” messages to the browser, if they are pertinent. It is located on the SAS Application Server.

```

*****
***** Program terms_list.sas *****
*****
*** This is the Dispatcher Application program for the "Employee Terminations Report". ***
*** It is invoked by the HTML Form, terms_list_form1.html, and utilizes user-specified ***
*** selections for agency number, period, and sorting variable. ***
***                                03-14-2005 Tom Winn 936-9735 ***
*****

libname empls 'G:\Empls';
options obs=max;

options symbolgen;

%macro drvterms;
  %global agy period sortvar outfmt;
  %if &agy=z or &period=x or &sortvar=y %then %do;
    %whoops
  %end;
  %else %do;
    data pickem;
      set empls.terms.&period;
      if Agency = "&agy";
      if
        else if HRIS_Reason = '051' then Reason = 'Inadequate salary';
        else if HRIS_Reason = '052' then Reason = 'Lack of opportunity for advancement';
        else if HRIS_Reason = '053' then Reason = 'Dissatisfaction with supervisor or coworkers';
        else if HRIS_Reason = '054' then Reason = 'Dissatisfaction with travel';
        else if HRIS_Reason = '055' then Reason = 'Working hours';
        else if HRIS_Reason = '056' then Reason = 'Dislike/Unsuitability for assigned duties';
        else if HRIS_Reason = '057' then Reason = 'Resignation in lieu of involuntary separation';
        else if HRIS_Reason = '058' then Reason = 'Personal reasons not related to job';
        else if HRIS_Reason = '059' then Reason = 'Reasons unknown';
        else if HRIS_Reason = '060' then Reason = 'Voluntary termination';
        else if HRIS_Reason = '063' then Reason = 'Termination at will';
        else if HRIS_Reason = '064' then Reason = 'Reduction in force';
        else if HRIS_Reason = '065' then Reason = 'Transfer to another state agency/institution';
        else if HRIS_Reason = '067' then Reason = 'Dismissal for cause';
        else if HRIS_Reason = '068' then Reason = 'Retirement';
        else if HRIS_Reason = '069' then Reason = 'Death';
        else Reason = 'Other';
      keep Agency Name Job_Class_cd Job_Description Hire_Date1 Eff_Date1
          HRIS_Reason Reason Monthly_Salary;
    run;

    proc sort data=pickem;
      by &sortvar;
    run;

    %if &outfmt=html %then %do;
      %termhtm
    %end;
    %else %if &outfmt=csv %then %do;
      %termcsv
    %end;
  %end;
%mend drvterms;

%macro whoops;
  data _null_;
    file _webout;
    put 'Content-type: text/html';;
    put ;
    put '<HTML>';
    put '<HEAD>';
    put '<TITLE> Selection Errors for Employee Terminations Request </TITLE>';
    put '</HEAD>';
    put '<BODY BGCOLOR="#FFFFFF">';
    put '  <br /><br /><br />';
    put '<center><br />';
    put '  <H2 ALIGN="center">';
    put '  <FONT COLOR=red>';
    put '  <p>';
    put '  We're sorry . . .';
    put '  You must select values for Agency, period, and a sorting variable.';
    put '  </H2>';
    put '  Please try again.';
    put '  </FONT>';
    put '  </BODY>';
    put '  </HTML>';
  run;
%mend whoops;

%macro termhtm;
  %global prtline;

```

```

    %if &sortvar=Name %then %let prtline=Name Job_Class_cd Job_Description Hire_Date1 Eff_Date1 HRIS_Reason
Reason Monthly_Salary;
    %else %if &sortvar=Eff_Date1 %then %let prtline=Eff_Date1 Name Job_Class_cd Job_Description Hire_Date1
HRIS_Reason Reason Monthly_Salary;
    %else %if &sortvar=HRIS_Reason %then %let prtline=HRIS_Reason Reason Eff_Date1 Name Job_Class_cd
Job_Description Hire_Date1 Monthly_Salary;

ods listing close;
ods html body=_webout (dynamic title="Employee Terminations Report") rs=none;

data _null_;
file _webout;
put '<div id="pleasewait" style="position:absolute; height:100%; width:100%;">';
put '<br /><br /><br /><br />';
put '<center><br /><br /><br />';
put '<b><font face="Arial" color="#000099" size="3">';
put 'Your Request is Being Processed, Please Wait . . .</font></center></b><br /><br />';
put '</div>';
put '<div id="output" style="visibility:hidden">';
run;

proc print data=pickem label n noobs;
var &prtline;
format Hire_Date1 Eff_Date1 date9.
Monthly_Salary dollar12.2;
label Job_Class_cd='Job Classification'
Job_Description='Job Title'
Hire_Date1='Date of Last Employment'
Eff_Date1='Effective Date of Termination'
HRIS_Reason='Reason Code'
Monthly_Salary = 'Amount of Monthly Salary';
title1 "Employee Terminations for Agency #&agy, during &period, ";
title2 "Sorted According to Values of &sortvar";
run;

data _null_;
file _webout;
put '</div>';
put '<script language="JavaScript1.2">';
put ' document.getElementById("pleasewait").style.visibility = "hidden";';
put ' document.getElementById("output").style.visibility = "visible";';
put '</script>';
run;

ods html close;
ods listing;
%mend termhtml;

%macro termcsv;
%global prtline;
%if &sortvar=Name %then %let prtline=Name Job_Class_cd Job_Description Hire_Date1 Eff_Date1 HRIS_Reason
Reason Monthly_Salary;
%else %if &sortvar=Eff_Date1 %then %let prtline=Eff_Date1 Name Job_Class_cd Job_Description Hire_Date1
HRIS_Reason Reason Monthly_Salary;
%else %if &sortvar=HRIS_Reason %then %let prtline=HRIS_Reason Reason Eff_Date1 Name Job_Class_cd
Job_Description Hire_Date1 Monthly_Salary;

ods html close;
ods listing;

data term2;
retain &prtline;
set pickem;
keep &prtline;
label Job_Class_cd='Job Classification'
Job_Description='Job Title'
Hire_Date1='Date of Last Employment'
Eff_Date1='Effective Date of Termination'
HRIS_Reason='Reason Code'
Monthly_Salary = 'Amount of Monthly Salary';
run;

%ds2csv(data=term2,conttype=y,contdisp=y,
savefile=terms_&agy._&period..csv,
csvfref=_webout,runmode=s,openmode=replace);

%mend termcsv;

%drvterms

```

Here is the SAS program for the Employee Name Lookups tool. It extracts the data and creates the report, and also sends the “We’re sorry ...” and “Please wait ...” messages to the browser, if they are pertinent. It is located on the SAS Application Server.

```

*****;
***** Program empl name lookup.sas *****;
*****;
*** This is the Dispatcher Application program for the "Employee Name Lookup Report". ***;

```

```

*** It is invoked by the HTML Form, empl lookup.html, and utilizes user-specified ***;
*** selections for agency number, one or more name-items, and as-of date. ***;
*** 06-28-2005 Tom Winn 936-9735 ***;
*****

libname empl 'G:\Empl';
options obs=max;
options symbolgen;

%macro drvempls;
  %global aqy namstrng reqdat nam str;
  %if &aqy=z or "&namstrng"="Default text" or %scan(&namstrng,1)= or &reqdat=x %then %do;
    %whoops
  %end;
  %else %do;
    %let nam str = %qsysfunc(appsrv_unsafe(namstrng));
    data null ;
      namstrng = upcase("&namstrng");
      if namstrng ne ' ' then do;
        call symput('namstrng',upcase(trim(left("&namstrng."))));
      end;
    run;
    %namstr
    %emplhtm
  %end;
%mend drvempls;

%macro whoops;
  data null ;
    file webout;
      put 'Content-type: text/html'//;
      put ;
      put '<HTML>';
      put '<HEAD>';
      put '<TITLE> Selection Errors for Employee Name-Lookup Request </TITLE>';
    put '</HEAD>';
    put '<BODY BGCOLOR="#FFFFFF">';
      put '<br /><br /><br />';
    put '<center><br />';
      put '<H2 ALIGN="center">';
      put '<FONT COLOR=red>';
      put '<P>';
      put 'We're sorry . . .';
      put 'You must select values for Agency, one or more name-items, and as-of date.';
      put '</H2>';
      put 'Please try again.';
      put '</FONT>';
      put '</BODY>';
      put '</HTML>';
    run;
  %mend whoops;

%macro namstr;
  %global nam01 nam02 nam03 nam04 nam05 nam06 nam07 nam08 nam09 nam10 whr_cond;
  %let nam01 = %upcase(%scan(&namstrng,1));
  %let nam02 = %upcase(%scan(&namstrng,2));
  %let nam03 = %upcase(%scan(&namstrng,3));
  %let nam04 = %upcase(%scan(&namstrng,4));
  %let nam05 = %upcase(%scan(&namstrng,5));
  %let nam06 = %upcase(%scan(&namstrng,6));
  %let nam07 = %upcase(%scan(&namstrng,7));
  %let nam08 = %upcase(%scan(&namstrng,8));
  %let nam09 = %upcase(%scan(&namstrng,9));
  %let nam10 = %upcase(%scan(&namstrng,10));
  %if &nam10 ne %then %let whr_cond = and (compress(Name,"") contains "&nam01"
                                          or compress(Name,"") contains "&nam02"
                                          or compress(Name,"") contains "&nam03"
                                          or compress(Name,"") contains "&nam04"
                                          or compress(Name,"") contains "&nam05"
                                          or compress(Name,"") contains "&nam06"
                                          or compress(Name,"") contains "&nam07"
                                          or compress(Name,"") contains "&nam08"
                                          or compress(Name,"") contains "&nam09"
                                          or compress(Name,"") contains "&nam10");

  %else %if &nam09 ne %then %let whr_cond = and (compress(Name,"") contains "&nam01"
                                                  or compress(Name,"") contains "&nam02"
                                                  or compress(Name,"") contains "&nam03"
                                                  or compress(Name,"") contains "&nam04"
                                                  or compress(Name,"") contains "&nam05"
                                                  or compress(Name,"") contains "&nam06"
                                                  or compress(Name,"") contains "&nam07"
                                                  or compress(Name,"") contains "&nam08"
                                                  or compress(Name,"") contains "&nam09");

  %else %if &nam08 ne %then %let whr_cond = and (compress(Name,"") contains "&nam01"
                                                  or compress(Name,"") contains "&nam02"
                                                  or compress(Name,"") contains "&nam03"
                                                  or compress(Name,"") contains "&nam04"
                                                  or compress(Name,"") contains "&nam05"
                                                  or compress(Name,"") contains "&nam06"
                                                  or compress(Name,"") contains "&nam07"
                                                  or compress(Name,"") contains "&nam08");

  %else %if &nam07 ne %then %let whr_cond = and (compress(Name,"") contains "&nam01"
                                                  or compress(Name,"") contains "&nam02"
                                                  or compress(Name,"") contains "&nam03"
                                                  or compress(Name,"") contains "&nam04"
                                                  or compress(Name,"") contains "&nam05"
                                                  or compress(Name,"") contains "&nam06"
                                                  or compress(Name,"") contains "&nam07");

  %else %if &nam06 ne %then %let whr_cond = and (compress(Name,"") contains "&nam01"
                                                  or compress(Name,"") contains "&nam02"
                                                  or compress(Name,"") contains "&nam03"
                                                  or compress(Name,"") contains "&nam04"
                                                  or compress(Name,"") contains "&nam05"
                                                  or compress(Name,"") contains "&nam06");

  %else %if &nam05 ne %then %let whr_cond = and (compress(Name,"") contains "&nam01"
                                                  or compress(Name,"") contains "&nam02"
                                                  or compress(Name,"") contains "&nam03"
                                                  or compress(Name,"") contains "&nam04");

```

```

        or compress(Name,"") contains "&nam05");
        (compress(Name,"") contains "&nam01"
        or compress(Name,"") contains "&nam02"
        or compress(Name,"") contains "&nam03"
        or compress(Name,"") contains "&nam04");
    %else %if &nam03 ne %then %let whr cond = and (compress(Name,"") contains "&nam01"
        or compress(Name,"") contains "&nam02"
        or compress(Name,"") contains "&nam03");
    %else %if &nam02 ne %then %let whr cond = and (compress(Name,"") contains "&nam01"
        or compress(Name,"") contains "&nam03");
    %else %if &nam01 ne %then %let whr cond = and compress(Name,"") contains "&nam01";
    %else %if &nam01 = %then %let whr_cond = ;
    run;
%mend namstr;

%macro emplhtm;
    %global nums;
    data pickem;
        set empls.empls_&regdat(keep=Agency Name Job_Class_cd Job_Description Hire_Datel durstasvc
Monthly Salary);
        where Agency = "&agy" &whr_cond;
    run;

    data null ;
        set pickem nobs=count;
        call symput('nums', count);
    run;

    ods listing close;
    ods html body=_webout (dynamic title="Employee Name-Lookup Report") rs=none;

    data null ;
        file webout;
        put '<div id="pleasewait" style="position:absolute; height:100%; width:100%;">';
        put '<br /><br /><br /><br />';
        put '<center><br /><br /><br />';
        put '<b><font face="Arial" color="#000099" size="3">';
        put 'Your Request is Being Processed, Please Wait . . .</font></center></b><br /><br />';
        put '</div>';
        put '<div id="output" style="visibility:hidden">';
    run;

    %if &nums < 1 %then %do;
        %nodata
    %end;
    %else %do;
        %doit
    %end;

    data null ;
        file webout;
        put '</div>';
        put '<script language="JavaScript1.2">';
        put '    document.getElementById("pleasewait").style.visibility    = "hidden";';
        put '    document.getElementById("output").style.visibility      = "visible";';
        put '</script>';
    run;

    ods html close;
    ods listing;
%mend emplhtm;

%macro doit;
    proc print data=pickem label n noobs;
        var Name Job_Class_cd Job_Description Hire_Datel durstasvc Monthly_Salary;
        format durstasvc 6.3;
        label Job_Class_cd='Job Classification'
            Job_Description='Job Title'
            Hire_Datel='Date of Current Employment'
            durstasvc='Total Years of State Service'
            Monthly_Salary='Monthly Salary Amount';
        title1 "Employee Name-Lookup for Agency #&agy, and Name-item(s) <&nam_str.>,";
        title2 "as of &regdat";
    run;
%mend doit;

%macro nodata;
    data null ;
        file webout;
        put '</div>';
        put '<div id="sorry" style="position:absolute; height:100%; width:100%;">';
        put '<br /><br /><br /><br /><br />';
        put '<center><br /><br /><br />';
        put '<b><font face="Arial" color="#000099" size="5">';
        put '<FONT COLOR=red>';
        put '<P>';
        put 'We're sorry . . . <br /><br />';
        put 'No data were found using the specified selection criteria. <br />';
        put 'Please try again with different input values. <br />';
        put '</FONT></center>';
        put '</div>';
        put '<div id="output" style="visibility:hidden">';
    run;
%mend nodata;

%drvempls

```