TRAINING WORKBOOK

SCT Banner Technical Training

Introduction to SCT Banner
General Technical

Confidential Business Information

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Section A: Introduction

Overview

Workbook goal

Participants in this course will be able to:

- Identify SCT Banner General forms and tables
- Query the SCT Banner General Technical tables
- Follow key General Technical processes
- Identify and read reports, processes, procedures and scripts in SCT Banner
- Identify the SCT Banner General naming conventions, form types, directories and their contents, database structure, processes and procedures
- Follow the basics of how Job Submission, Population Selection, and Letter Generation work

Prerequisites

Prerequisites include:

- Banner Navigation
- SCT Oracle Training: Introduction to Oracle

Intended audience

Programmers, DBAs, and analysts who teach others about SCT Banner navigation, perform programming tasks in the SCT Banner environment, use any of the SCT Banner General features, or perform analysis on any SCT Banner module.

In this section

These topics are covered in this section.

Introduction

Objectives

The purpose of this course is to present to the attendees the forms, tables, and processes necessary to perform daily technical support tasks in the SCT Banner General System.

At the end of this course, participants will be able to:

- Understand SCT Banner ID relationships
- Work with General Person tables
- Identify tables and fields for data conversion
- Identify tables and fields for migration to the production database
- Follow key General System processes
- Identify and read reports, processes, procedures, and scripts in SCT Banner General
- Use Job Submission and sleep/wake
- Secure their SCT Banner environments

Topics include SCT services, SCT Banner naming conventions, data directories and their contents, database structures, Job Submission, Population Selection, Letter Generation, conversions and resources for data and help.

Workbook contents

Workbook contents

This workbook contains the following sections:

- Section A: Introduction
- Section B: Introduction to the General System
- Section C: Job Submission
- Section D: Population Selection
- Section E: Letter Generation
- Section F: SCT Banner Security
- Section G: Shared Validation Tables

Section B: Introduction to the General System

Overview

Prerequisites	Prerequisites include: • Banner Navigation • SCT Oracle Training: Introduction to Oracle
Intended audience	Programmers, DBAs, and analysts who teach others about SCT Banner navigation, perform programming tasks in the SCT Banner environment, use any of the SCT Banner General features, or perform analysis on any SCT Banner module.

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Overview, Continued

In this section

These topics are covered in this section.

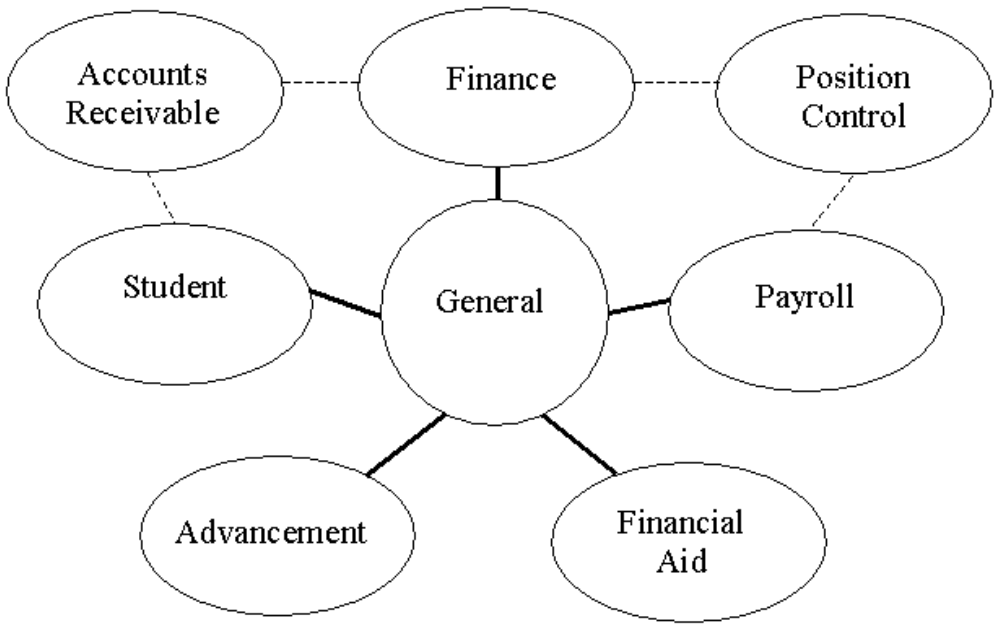
General System features

General System

The General System, the core component of the SCT Banner series, is integrated with the SCT Banner Advancement, Finance, Financial Aid, Human Resources and Student Systems.

The General system provides other SCT Banner applications with centralized System management tools and utility programs.

Diagram of SCT Banner systems



General System components

System functions/ Administration	• Manages the functions common to all SCT Banner Systems
Job Submission	• Facilitates the background processing of reports and processes
Population Selection	• Provides processes with the ability to identify groups for reporting purposes or for facilitating Letter Generation
Letter Generation	• Constructs letters or merge files for mailing to selected populations
Event Management	• Manages the scheduling of events, such as alumni fundraising activities
Graphing	• Produces graphs of SCT Banner data • Provide field for 'X' axis and 'Y' axis to generate graphs.
General Web Management	• Enables the customization of SCT Banner web pages • Allows the generation of dynamic menus which are accessible by web users • Establishes security for SCT Banner web pages for any SCT Banner Self Service product installed

Naming conventions

Basics

All SCT Banner objects adhere to naming conventions.

Objects include forms, tables, processes, etc.

For more information, refer to Chapter 1 of the *General Technical Reference Manual*.

Form, process and table naming

The names of all SCT Banner forms (except menu forms), reports, processes and tables are seven characters long, with each character representing a position location.

Example

Character: G L R V R B L
Position Location: 1 2 3 4 5 6 7

Position 1

Position 1 identifies the primary System that owns the form, report, process or table.

Note: The letters W, Y and Z are reserved for client applications which coexist with SCT Banner.

Letter	System	Letter	System
A	Advancement	**O**	Customer Contact
B	Property Tax	**P**	HR / Payroll / Personnel
C	Courts	**Q**	Electronic Work Queue
D	Cash Drawer	**R**	Financial Aid
F	Finance	**S**	Student
G	General	**T**	Accounts Receivable
I	Information Access	**U**	Utilities
K	Work Management	**V**	Voice Response
L	Occupational Tax/License	**X**	Records Indexing
N	Position Control		

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Naming conventions, Continued

Position 2

Position 2 identifies the module that owns the form, report, process or table. The letter assignments will vary by System.

For example, in the General System, the letter assignments are as follows:

Letter	System	Letter	System
E	Event Management	**S**	Security
J	Job Submission	**T**	Validation Form/Table
L	Letter Generation	**U**	Utility
O	Overall	**X**	Cross Product
P	Purge		

Position 3

Position 3 identifies the type of form, report, process or table.

Letter	System	Letter	System
A	Application form	**Q**	Query form
B	Base table/Batch COBOL process	**R**	Rule table, repeating table, or report/process
I	Inquiry form	**T**	General maintenance temporary table
O	Online COBOL process	**V**	Validation form/table or view

Positions 4 – 7

The remaining positions identify a unique four-character name for the form, report, process or table.

Examples

GUAIDEN:	**G**	General
	U	Utility
	A	Application
	IDEN	Identification
GJRRPTS:	**G**	General
	J	Job Submission
	R	Report
	RPTS	Report and Parameter Information
GTVZIPC:	**G**	General
	T	Table
	V	Validation
	ZIPC	ZIP/Postal Code
SPAIDEN:	**S**	Student
	P	Person
	A	Application
	IDEN	Identification

SCT Banner toolbar icons

Icon	Function
	Save
	Rollback
	Select
	Insert Record
	Delete Record
	Enter Query
	Execute Query
	Cancel Query
	Previous Record
	Next Record
	Previous Block
	Next Block
	View/Send Message
	Print
	Graph Information
	Show Keys
	Bookshelf
	Online Help
	Exit

Common SCT Banner form icons

Icon	Function
	Calculate
	Comments
	Complete
	Copy
	Data
	Detail
	Disapprove
	In Process
	Maintenance
	No Data
	Search
	Summary

SCT Banner menus

Menus

Menus are located across the top of every SCT Banner form.

Menu items pull down/activate by clicking.

Dimmed options are not available.

Menus are not available if you are already in a dialog box, alert box, or List of Values (LOV) waiting for response.

Available Banner menus

- File
- Edit
- Block
- Field
- Record
- Query
- Help
- Window

File menu

Navigation to other forms:

- Direct Access: opens a window used to access an additional form
- Object Search: allows you to search for and open an additional form
- Quick Flow: pops up a window from which you can select a call list
- You can use QuickFlow to automatically access forms that are linked in a chain. Activating a QuickFlow opens the first form in the chain. When you exit that form, the next for automatically opens. QuickFlow is accessible through the **File** menu or by using Direct Access.

Form activities:

- Select: used to select a value from LOV and return
- Print: prints the active window
- Rollback: clears form and inserts cursor at Key block
- Save: saves changes since last save

Form exits

- Exit:
  - From a form, exits out of that form to previous form or menu
  - From a menu, exits from SCT Banner
  - From Query mode, cancels the query
- Exit QuickFlow: if you're in a QuickFlow, exits call list and returns to regular forms navigation

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SCT Banner menus, Continued

Edit menu	Provides text editing. • Cut: removes selected list to clipboard • Copy: copies selection to clipboard • Paste: pastes clipboard contents to current location • Edit: opens the Editor window
Block menu	Moves cursor between a form's blocks which have modifiable fields. • Previous: moves cursor to previous block • Next: moves cursor to next block • Clear: clears the information from the current block
Field menu	Moves cursor between modifiable fields. • Display: skips fields only • Previous: moves to previous field • Next: moves to next field • Clear: clears contents of current field • Duplicate: for duplicating records, carries data from prior record's field into current field
Record menu	Navigates cursor between rows. • Previous: moves cursor to previous row • Next: moves cursor to next row • Scroll Up and Scroll Down: control which section of the list of records is visible • Clear: clears contents of form fields for current record • Remove: removes the record • Insert: adds a new blank record to the list of existing records • Duplicate: Creates a new record with the same values as the current one • Lock: locks tables in non-Oracle databases

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SCT Banner menus, Continued

Query menu	Query performs database searches • Status of query or Query mode: the information displayed on the Status Line at the bottom of the form • Enter: accesses Query mode so you can enter search criteria • Execute: returns records from database search • Last criteria: populates most recent search criteria for reuse • Cancel: exits Query mode • Count hits: counts the number of records that are returned by query • Fetch Next Set: displays the next set of records that satisfied the search criteria
'Query Where'	• Uses field variables for more flexible searches • Has variables that start with ' : ' • Enter a variable and hit [**F8**] to execute Query • Enter where clause or order by clause using your variable
Help menu	Provides different levels of form documentation • Online Help: available for certain processes • Help: shows Forms 6.0 property sheet for the field • Keys: key mapping • List: opens the List of Values (LOV) box attached to the field • Display Error: shows details on the most recently encountered Oracle error • Dynamic Help Query: pops up window for accessing Help (local or baseline) • Dynamic Help Edit: pops up window allowing editing of help text • Display Image: displays available image for GUI only • About SCT Banner: pops up information about form version
Window menu	• Cascade: arranges open windows in a cascade • Tile: provides an alternative for arranging open windows • Arrange Icons: distributes icons in an open window • A list of open windows

Behind the form

Tips

- Use Dynamic Help to locate tables referenced by the form.
- Differentiate between tables, views and non-database elements by using naming conventions.

Online Help

Online Help

- Created for SCT Banner version 4.0 using RoboHELP version 5.0, a product of Blue Sky Software
- Uses Microsoft Windows WINHELP.EXE to run
- Unavailable for the current form if Online Help is disabled

Customizing Online Help

You can customize Help using RoboHELP. From RoboHelp, you can open the .HPJ file for the desired form, make the necessary changes, save and compile the .DOC file, and run the .HLP file.

Help files are in the **help/helpsrc** directory for each product.

Instructions can be found in the *General Technical Reference Manual* at the end of Chapter 1.

Column naming conventions

Column conventions

- Columns always start with the table name.
- Columns ending in _CODE are referencing a validation table.
- Columns ending in _IND are indicators.
- Columns labeled ACTIVITY_DATE are timestamps indicating the last update.

SPRIDEN and PIDM

SPRIDEN description

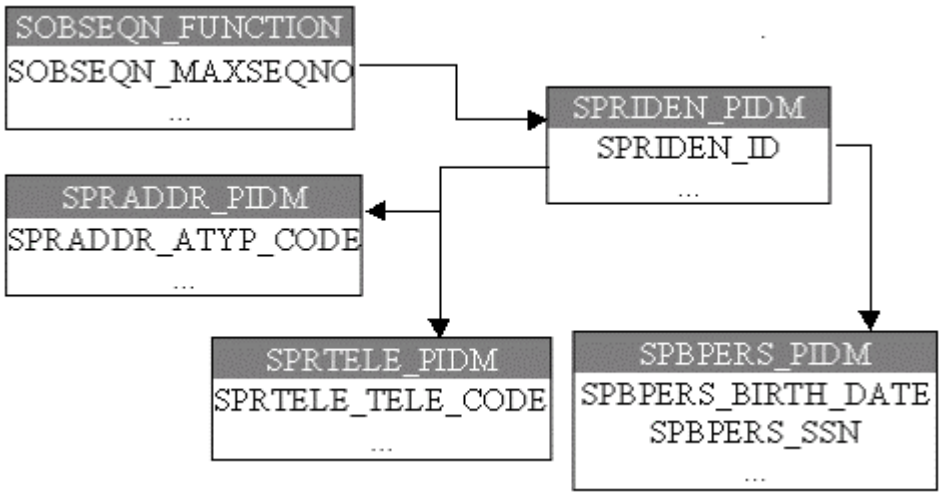
```
SQL> describe spriden
 Name                           Null?    Type
 ------------------------------ -------- ----
 SPRIDEN_PIDM                   NOT NULL NUMBER(8)
 SPRIDEN_ID                     NOT NULL VARCHAR2(9)
 SPRIDEN_LAST_NAME              NOT NULL VARCHAR2(60)
 SPRIDEN_FIRST_NAME                      VARCHAR2(15)
 SPRIDEN_MI                              VARCHAR2(15)
 SPRIDEN_CHANGE_IND                      VARCHAR2(1)
 SPRIDEN_ENTITY_IND                      VARCHAR2(1)
 SPRIDEN_ACTIVITY_DATE          NOT NULL DATE
 SPRIDEN_USER                            VARCHAR2(30)
 SPRIDEN_ORIGIN                          VARCHAR2(30)
 SPRIDEN_SEARCH_LAST_NAME                VARCHAR2(60)
 SPRIDEN_SEARCH_FIRST_NAME               VARCHAR2(15)
 SPRIDEN_SEARCH_MI                       VARCHAR2(15)
 SPRIDEN_SOUNDEX_LAST_NAME               CHAR(4)
 SPRIDEN_SOUNDEX_FIRST_NAM               CHAR(4)
 SPRIDEN_NTYP_CODE                       VARCHAR2(4)
 SPRIDEN_CREATE_USER                     VARCHAR2(30)
 SPRIDEN_CREATE_DATE                     DATE
```

Personal Identification Master (pidm)

SPRIDEN and Related Tables are joined by PIDM.
SOBSEQN is used to generate one-up numbers.

PIDM and ID relationships

Diagram



SOBSEQN

Description

```
SQL> describe sobseqn
 Name                           Null?    Type
 ------------------------------ -------- ----
 SOBSEQN_FUNCTION               NOT NULL VARCHAR2(30)
 SOBSEQN_SEQNO_PREFIX                    VARCHAR2(1)
 SOBSEQN_MAXSEQNO               NOT NULL NUMBER(8)
 SOBSEQN_ACTIVITY_DATE          NOT NULL DATE
```

Select

```
  1  select sobseqn_function function,
  2         sobseqn_seqno_prefix pfx,
  3         sobseqn_maxseqno maxseqno,
  4         sobseqn_activity_date act_date
  5*   from sobseqn
SQL> /
```

Contents

```
FUNCTION          PFX MAXSEQNO  ACT_DATE
------------------- --- --------- ---------
RECEIPT                        195 06-OCT-95
ID                  @           16 07-APR-95
PIDM                           490 15-NOV-95
ALUMNIGIFT                      40 23-MAY-95
ALUMNIPLEDGE                    22 23-MAY-95
EDIREQUESTID                     1 25-APR-95
EDI_DCMT_SEQNO                   1 04-JAN-96
.
.
.
```

SPRADDR

Description

```
SQL> describe spraddr
 Name                           Null?    Type
 ------------------------------ -------- -----------
 SPRADDR_PIDM                   NOT NULL NUMBER(8)
 SPRADDR_ATYP_CODE              NOT NULL VARCHAR2(2)
 SPRADDR_SEQNO                  NOT NULL NUMBER(2)
 SPRADDR_FROM_DATE                       DATE
 SPRADDR_TO_DATE                         DATE
 SPRADDR_STREET_LINE1                    VARCHAR2(30)
 SPRADDR_STREET_LINE2                    VARCHAR2(30)
 SPRADDR_STREET_LINE3                    VARCHAR2(30)
 SPRADDR_CITY                   NOT NULL VARCHAR2(20)
 SPRADDR_STAT_CODE                       VARCHAR2(3)
 SPRADDR_ZIP                             VARCHAR2(10)
 SPRADDR_CNTY_CODE                       VARCHAR2(5)
 SPRADDR_NATN_CODE                       VARCHAR2(5)
 SPRADDR_PHONE_AREA                      VARCHAR2(3)
 SPRADDR_PHONE_NUMBER                    VARCHAR2(7)
 SPRADDR_PHONE_EXT                       VARCHAR2(4)
 SPRADDR_STATUS_IND                      VARCHAR2(1)
 SPRADDR_ACTIVITY_DATE          NOT NULL DATE
 SPRADDR_USER                            VARCHAR2(30)
 SPRADDR_ASRC_CODE                       VARCHAR2(4)
 SPRADDR_DELIVERY_POINT                  NUMBER(2)
 SPRADDR_CORRECTION_DIGIT                NUMBER(1)
 SPRADDR_CARRIER_ROUTE                   VARCHAR2(4)
 SPRADDR_GST_TAX_ID                      VARCHAR2(15)
 SPRADDR_REVIEWED_IND                    VARCHAR2(1)
 SPRADDR_REVIEWED_USER                   VARCHAR2(30)
```

SPRTELE

Description

```
SQL> describe sprtele
 Name                           Null?    Type
 ------------------------------ -------- ----------
 SPRTELE_PIDM                   NOT NULL NUMBER(8)
 SPRTELE_SEQNO                  NOT NULL NUMBER(3)
 SPRTELE_TELE_CODE              NOT NULL VARCHAR2(4)
 SPRTELE_ACTIVITY_DATE          NOT NULL DATE
 SPRTELE_PHONE_AREA                      VARCHAR2(3)
 SPRTELE_PHONE_NUMBER                    VARCHAR2(7)
 SPRTELE_PHONE_EXT                       VARCHAR2(4)
 SPRTELE_STATUS_IND                      VARCHAR2(1)
 SPRTELE_ATYP_CODE                       VARCHAR2(2)
 SPRTELE_ADDR_SEQNO                      NUMBER(2)
 SPRTELE_PRIMARY_IND                     VARCHAR2(1)
 SPRTELE_UNLIST_IND                      VARCHAR2(1)
 SPRTELE_COMMENT                         VARCHAR2(60)
 SPRTELE_INTL_ACCESS                     VARCHAR2(16)
```

SPBPERS

Description

```
SQL> describe spbpers
 Name                           Null?    Type
 ------------------------------ -------- -----------
 SPBPERS_PIDM                   NOT NULL NUMBER(8)
 SPBPERS_SSN                             VARCHAR2(9)
 SPBPERS_BIRTH_DATE                      DATE
 SPBPERS_LGCY_CODE                       VARCHAR2(1)
 SPBPERS_ETHN_CODE                       VARCHAR2(2)
 SPBPERS_MRTL_CODE                       VARCHAR2(1)
 SPBPERS_RELG_CODE                       VARCHAR2(2)
 SPBPERS_SEX                             VARCHAR2(1)
 SPBPERS_CONFID_IND                      VARCHAR2(1)
 SPBPERS_DEAD_IND                        VARCHAR2(1)
 SPBPERS_VETC_FILE_NUMBER                VARCHAR2(10)
 SPBPERS_LEGAL_NAME                      VARCHAR2(60)
 SPBPERS_PREF_FIRST_NAME                 VARCHAR2(15)
 SPBPERS_NAME_PREFIX                     VARCHAR2(20)
 SPBPERS_NAME_SUFFIX                     VARCHAR2(20)
 SPBPERS_ACTIVITY_DATE          NOT NULL DATE
 SPBPERS_VERA_IND                        VARCHAR2(1)
 SPBPERS_CITZ_IND                        VARCHAR2(1)
 SPBPERS_DEAD_DATE                       DATE
 SPBPERS_PIN                             VARCHAR2(6)
 SPBPERS_CITZ_CODE                       VARCHAR2(2)
 SPBPERS_HAIR_CODE                       VARCHAR2(2)
 SPBPERS_EYES_CODE                       VARCHAR2(2)
 SPBPERS_CITY_BIRTH                      VARCHAR2(20)
 SPBPERS_STAT_CODE_BIRTH                 VARCHAR2(3)
 SPBPERS_DRIVER_LICENSE                  VARCHAR2(20)
 SPBPERS_STAT_CODE_DRIVER                VARCHAR2(3)
 SPBPERS_NATN_CODE_DRIVER                VARCHAR2(5)
 SPBPERS_UOMS_CODE_HEIGHT                VARCHAR2(4)
 SPBPERS_HEIGHT                          NUMBER(2)
 SPBPERS_UOMS_CODE_WEIGHT                VARCHAR2(4)
 SPBPERS_WEIGHT                          NUMBER(4)
 SPBPERS_SDVET_IND                       VARCHAR2(1)
 SPBPERS_LICENSE_ISSUED_DATE             DATE
 SPBPERS_LICENSE_EXPIRES_DATE            DATE
 SPBPERS_INCAR_IND                       VARCHAR2(1)
 SPBPERS_WEBID                           RAW(1)
 SPBPERS_WEB_LAST_ACCESS                 RAW(1)
 SPBPERS_PIN_DISABLED_IND                RAW(1)
 SPBPERS_ITIN                            NUMBER(9)
```

Referential Integrity

Key constraints

Oracle enforces relationships between tables through the use of Primary and Foreign key constraints.
SCT Banner uses naming conventions for these objects.

Diagram 1

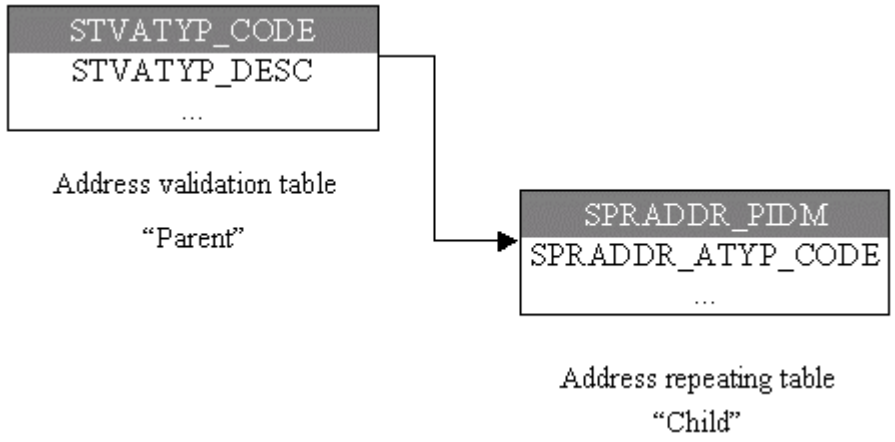
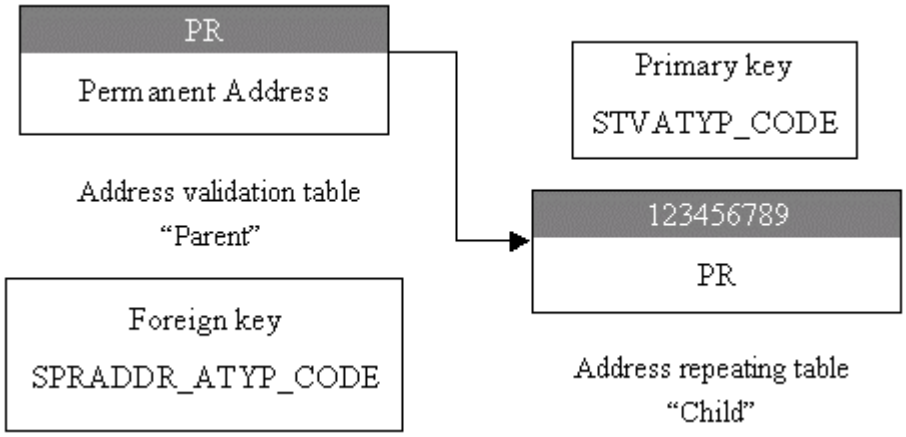


Diagram 2



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Referential Integrity, Continued

Primary keys

PK_ppppppp is the SCT Banner convention for Primary keys, where

- **PK** stands for Primary key
- **ppppppp** is the Primary key table name

Example: PK_STVATYP

Foreign keys

FK + n + "_" + fffffff + "_INV_" + ppppppp + "_code" is the SCT Banner convention for Foreign keys, where:

- **FK** stands for Foreign key
- **n** is a one-up number which distinguishes potential duplicate Foreign key names in a given table
- **fffffff** is the Foreign key table name
- **ppppppp** is the Primary key table name

Example: FK1_SPRADDR_INV_STVATYP_CODE

SCT Banner directories

OS SCT Banner directories - Diagram

Unix and VMS

$BANNER_HOME is the Unix environment variable for /u0x/home/banner

BAN_HOME is the VMS logical for d01:[home.banner]

Each product has its own directory.

Other $BANNER_HOME directories

Other directories at $BANNER_HOME are:

- admin
- common
- links
- install
- upgrade

Directory structures

Admin

Directory	Description
V7	Scripts to create an Oracle SCT Banner database
ORATOOLS	Unsupported Oracle system utilities
OPSYS	Contains COBOL make files for platform (Unix only)

Common

Common objects shared by all products are kept here.

Starting SCT Banner

Components

- BANNER environment
- Database server environment
- Multiple sets of code

Banner environment

- URL for the forms server for each instance
  - General TRM page 109
- Changing Splash Screen
  - Banner.gif
  - Stored with forms executables

Database server environment

SCT Banner environment variables:

- $BANNER_HOME
- $ORACLE_HOME
- $BANNER_LINKS

Menu maintenance forms

GUAINIT	• Checks GUBINST table for installed products. • Creates global variables.
GUAGMNU	• Displays SCT Banner menus and forms.
xOQMENU	• Makes each product visit its own form before going to the indicated form.
GUTGMNU	• Edits menu entries.
GUTPMNU	• Copies menus from one user to another.

xOQOLIB.fmb forms

Characteristics

- Contain commonly used routines
- Make Oracle use the shared pool
- Involve referenced copies in the forms
- Attached when forms are generated

.PLL Library forms

Characteristics

- Contain commonly used routines
- Make Oracle used the shared pool
- Attached as libraries in the forms
- Attach code at run time

Conversion

Components

- Data entry standards
- Validation tables
- Rule tables
- Method
- Shared tables

SQL*Loader and Import

Constraint checking

When loading or importing data, the constraints are checked as each row is inserted into the database.

Constraint checking uses resources, but although it may speed up data, it is not recommended to disable constraints. Consider creating the indexes after the data is loaded to speed up the load.

Create site forms

First approach

Using the skeleton form:

- Start with GUASKEL.fmb to gain access to the global variables and common triggers
- This form has the bare minimum needed for a Banner Form to run
- Add the fields and other functionality as needed
- Save, compile and implement the new on-site form in Banner

Second approach

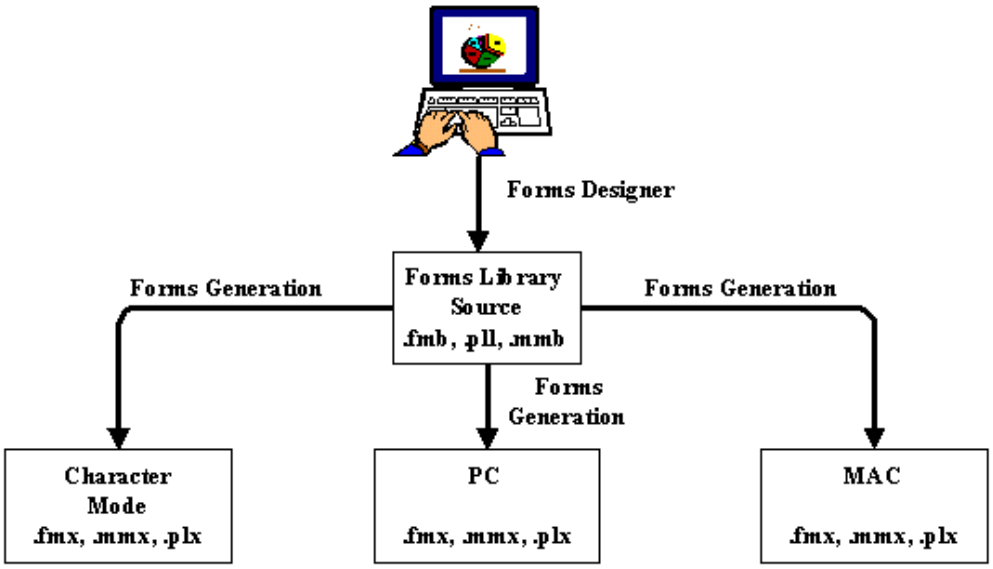
Using an existing Banner form:

- Identify a Banner form that suits closest to your needs
- Copy the source code to a different form file
- Remove unwanted functionality
- Add the functionality needed
- Compile and implement the new on-site form in Banner

Considerations

- Keep the source code for your forms separate from the SCT forms directories
- Do not modify existing Banner Forms
- It is recommended that you first take Oracle Forms training

Diagram



C programs

Steps

- Start with SQL*Report Users Guide 1.0
- Use with the SCTCCONV documentation

Together, these make SCT's C programs understandable.
SCTCCONV contains SCT's C programming standards. You may obtain this from distserv@sct.com.

Reporting

Delivered tools	• C • COBOL • Developer 2000
Other options	• MS Access • Crystal Reports • Brio Query
Methodologies	• Web • Object:Access
Reports and processes grid	Reference Chapter 10 of the *General Technical Reference Manual*.

Utilities

Utilities

- GURRDLL
- Data Element Dictionary (GURPDED)
- GURLSID
- GURDLID
- indexes.sql
- GJRRPTS
- GURHELP
- GURTABL
- GURSKEL
- GURRDOC
- GURSTOP
- See Chapter 8 – *General Technical Reference Manual*

SCT Support

ActionLine

- Phone: 800-522-4827
- Fax: 610-725-7430

ActionMail

- SCT Banner HR: ambanhr@sct.com
- SCT Banner General: ambangen@sct.com
- General comments, or to obtain ActionWeb access: csr@sct.com

ActionWeb

http://www.sct.com

- Browse open and resolved contacts of your organization in detail
- Browse all product defects reported by your organization
- Browse Known Issues Reports for defect descriptions, corrections and workarounds
- Request electronic distribution downloading of software modifications and other updates
- Browse the Frequently Asked Questions
- Browse known issues

TCPNet Listservers

- Accessed through http://lists.sct.com.
- For listservers, email listserv@sct.com.
  - Include `Lists` in the body of your message and send. You will receive a list of available listservers.
- To subscribe, email listserv@sct.com.
  - Include
    `subscribe LISTNAME First_name Last_name`
    in the body of your message and send. You will receive a confirmation email containing further instructions.

Self Check

Directions

Use the information you have learned in this workbook to complete this self check activity.

Exercise 1: Work with forms

Practice manipulating data you will commonly use.

Step	Action
1	Navigate to the Identification Form (SPAIDEN).
2	Click the **Generate ID** icon to allow the system to assign an ID.
3	Complete the **Last Name** and **First Name** fields, using your given name.
4	Click the **Save** icon on the toolbar.
5	Select Addresses from the Options menu.
6	To complete the **Type** field, double-click in the field, select **Address Types**, and select **Mailing**. Provide an address and telephone number.
7	Click the **Save** icon and close the Address Information window. Exit the form.
8	Reenter SPAIDEN.
9	Pull up your ID.
10	Delete your ID and enter your Social Security number.
11	Click the **Save** icon.
12	Delete your given name from the **First Name** field and enter your nickname.
13	Click the **Save** icon and exit the form.
14	Navigate to the Person Search Form (SOAIDEN).
15	Enter your given name in the **First Name** field.
16	Execute the query.
17	Review the search results. Notice the value in the **Chg** column. What does *N* indicate? What does *I* indicate.

Continued on the next page

Exercise 2: Perform an extended search

You want to locate all IDs that contain the text *22*.

Step	Action
1	Navigate to the Identification Form (SPAIDEN).
2	Enter *%22%* in the **ID** field and press the **[ENTER]** key. When the ID and Name Extended Search window opens, notice that displayed to the right of the **Search Results** pull-down menu is the number of records that meet your criteria.
3	Select the **Search Results** list and review the results. Consider how can you narrow your search.
4	Enter additional information in the **Reduce Search By** section and click the **Search** icon to view the count adjustment.
5	Click the **Exit** icon.

Section C: Job Submission

Overview

Prerequisites

Prerequisites include:

- Banner Navigation
- SCT Oracle Training: Introduction to Oracle

Intended audience

Programmers, DBAs, and analysts who teach others about SCT Banner navigation, perform programming tasks in the SCT Banner environment, use any of the SCT Banner General features, or perform analysis on any SCT Banner module.

In this section

These topics are covered in this section.

Job Submission process

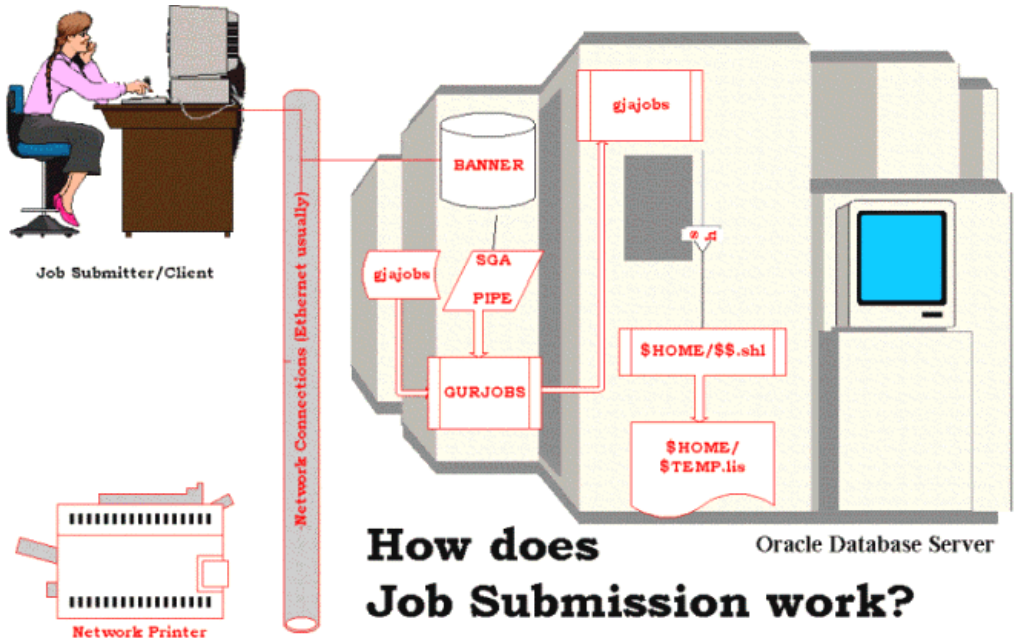
Overview

The Job Submission process allows users to identify and define job parameters, work with job scheduling and printing, schedule jobs and control job printing.

How does job submission work?

- It defines the parameters used to execute any given process
- It communicates with the database server environment to schedule the process
- It communicates with the database server environment to print the output of the process

Diagram



Steps of Job Submission

Steps

- Start Job Submission
- Establish printers
- Define processes
- Define process parameters
- Submit job
- Review results

Start Job Submission--Sleep/Wake

GURJOBS is a PRO*C program created to handle requests in a client-server configuration.

GURJOBS must be running in Sleep/Wake mode prior to Job Submission. The user ID *jobsub* should start this process. All output from Job Submission is owned by *jobsub*.

GURJOBS is dependent upon the Oracle database pipe (dbmspipe.sql).

JOBSUB

jobsub is a System user ID, not an Oracle user ID. *jobsub* starts Job Submission table (GURJOBS) for each database.

All reports (.lis files) reside in *jobsub*'s directory.

Establish Printers

The Printer Validation Form (GTVPRNT) defines the printers that are accessible to users.

Printers must be accessible from the network. The database server must know about the printer and the print queue.

NOPRINT and DATABASE may be defined as printer codes, but do not route to a printer.

Define Processes

The Process Maintenance Form (GJAJOBS) allows for maintenance of overall process attributes.

- Process name
- Process description
- Process type (Pro*C, Pro*COBOL, etc.)

Continued on the next page

Steps of Job Submission, Continued

Define Process Parameters	Parameters for any given process can be maintained dynamically through SCT Banner forms. • Parameter Definition Form (GJAPDEF) • Parameter Value Validation Form (GJAPVAL) • Default Parameter Value Validation Form (GJAPDFT)
Submit Job	The Process Submission Control Form (GJAPCTL) creates a one-up number to uniquely identify the job, and passes the user-entered parameters and the one-up number to the table GJBPRUN. At run time, all processes access GJBPRUN for their parameters.
Review Results	The Process Results Form (GJARSLT) allows for the review of the process log.
Output files	All process output (.lis files) reside in the *jobsub* home directory. Log files (.log) also reside in the *jobsub* home directory.

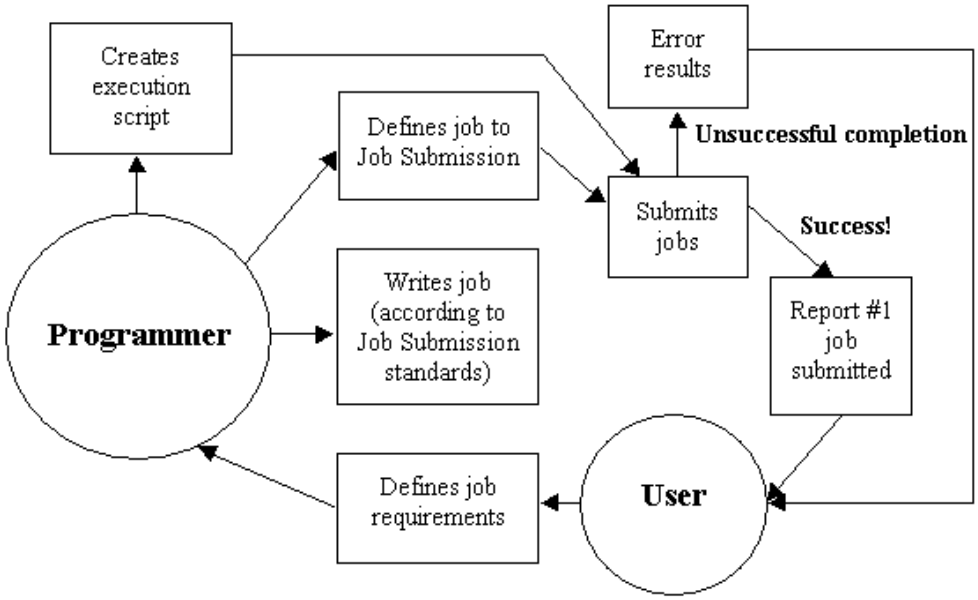
Job Submission process flow

Process flow

1. Job Submission Form (GJAJOBS)
   - Define and maintain jobs
2. Parameter Definition Form (GJAPDEF)
   - Name and define parameters
3. Default Parameter Value Definition Form (GJAPDFT)
   - Define default parameters
4. Parameter Value Form (GJAPVAL)
   - Enter parameter values for a job
5. Job Submission Form (GJAPCTL)
   - Run a job
6. Process Results Form (GJARSLT)
   - View the results of a job

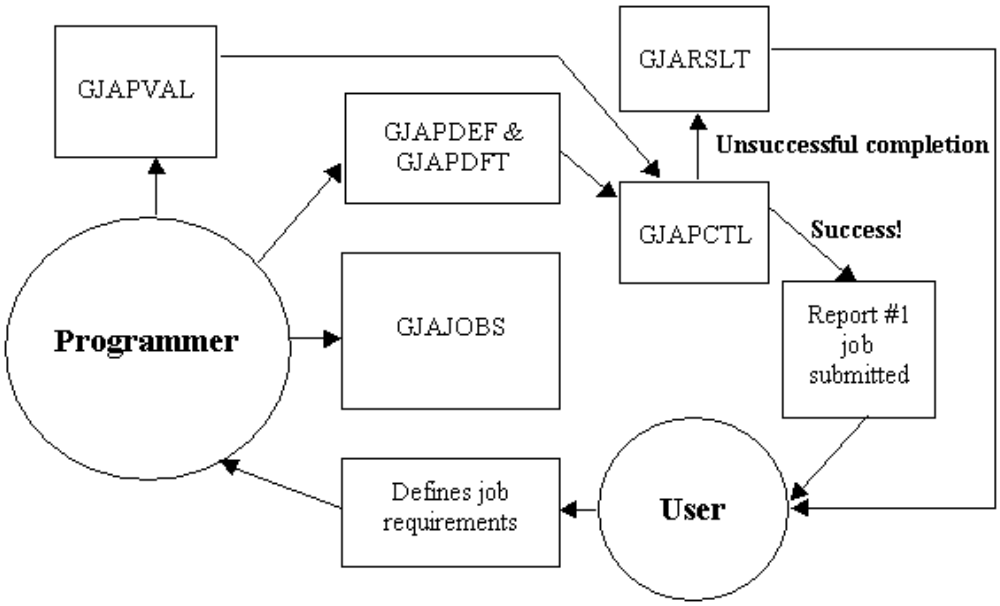
Job submission at the functional level

Diagram



Job submission at the database level

Diagram



Self Check

Directions

Use the information you have learned in this workbook to complete this self check activity.

Exercise 1

In this exercise, you will submit a job.

Step	Action
1	Access the Process Submission Control Form (GJAPCTL).
2	Enter *GJRRPTS* in the **Process** field. Leave the **Parameter Set** field blank.
3	Perform a **Next Block** function.
4	Enter *DATABASE* in the **Printer** field. Ignore the other fields in the block.
5	Perform a **Next Block** function.
6	Notice the parameters listed. For the **Jobs to be Selected** parameter, enter *G%* in the **Values** field to print only the General processes.
7	For the **Print User Levels Default** parameter, enter *Y* or *N* in the **Values** field, depending on your preference. Note: See Chapter 12 of the General System User Manual for specific instructions for each report or process in the SCT Banner General System.
8	Submit the job and exit the form.

Section D: Population Selection

Overview

Prerequisites

Prerequisites include:

- Banner Navigation
- SCT Oracle Training: Introduction to Oracle

Intended audience

Programmers, DBAs, and analysts who teach others about SCT Banner navigation, perform programming tasks in the SCT Banner environment, use any of the SCT Banner General features, or perform analysis on any SCT Banner module.

In this section

These topics are covered in this section.

Population Selection overview

Overview

Population Selection allows you to identify and group entities in the database, such as people, vendors, or organizations.

Population Selection extracts a subset of IDs for use in SCT Banner reports and letters, and allows processes to be run using that subset of IDs (such as people, vendors, or organizations). It is used for reporting purposes or for facilitating Letter Generation.

How does population selection work?

Selects the PIDM* for individuals who meet the selection criteria:

```
SELECT  Pidm
  FROM  Table
 WHERE  Criteria
```

*Primary Identification Master

Steps

Population Selection involves four basic steps:

- Identify an application
- Define the Population Selection criteria
- Extract the IDs that match the criteria
- Review the Population Selection

Step 1: Identify an application

Application

An application owns a grouping of Population Selections.

The rules established by the parent application will be inherited by the child objects.

- Examples: General, Recruiting, Alumni

Although the application must be defined in the Application Rules table (GLRAPPL), the rules (criteria) at this level are optional.

Step 2: Define Population Selection Criteria

Example

```
Example: test_female

 SELECT spbpers_pidm
   FROM spbpers, spriden, spraddr
  WHERE spriden_pidm = spbpers_pidm
***AND spriden_change_ind IS NULL
    AND spraddr_stat_code = 'CA'
    AND spbpers_sex = 'F'
    AND spriden_entity_ind = 'P';
```

GLRSLCT

Population Selection Definition Rules table (GLRSLCT)

- Allows for entry of the specific criteria which distinguishes one population from another
- If the tables are joined by PIDM, the PIDM join is automatic
- If the tables are joined by additional columns, the conditions must be explicitly defined

Step 3: Extract the IDs

GLBDATA

Run the Population Selection Extract Process (GLBDATA) from Job Submission.

Population Selection Extract Process (GLBDATA) parameters:

Required?	Parameter	Description
✓	Selection Identifier 1	Enter in all capital letters.
	Selection Identifier 2	Used only for Union, Intersect, or Minus functionality
	New Selection Identifier	Used only for Union, Intersect, or Minus functionality
	Enter description of Selection	Used only for Union, Intersect, or Minus functionality
	Enter (U)nion, (I)ntersect, (M)inus	Used only for Union, Intersect, or Minus functionality
✓	Application	Enter in all capital letters.
✓	Creator ID	Enter in all capital letters.
	Detailed Execution Report	

Step 4: Review Population Selection

GLAEXTR

Population Selection Extract Data Form (GLAEXTR)

- Review the results of running Population Selection Extract Process (GLBDATA)
- Add other IDs not processed by GLBDATA
- Remove IDs processed by GLBDATA

Population Selection process flow

Application definition	• GLIAPPL - Application Inquiry Form • GLRAPPL - Application Rules table
Objects	• GLIOBJC • GLIOBJT
Variable usage/ Variable definitions	• GLRVRBL - Variable Definition Rules table
SQL Statement in	• GLRCMPL
Population Selection rules	• GLRSLCT - Population Selection Definition Rules table
Manual population creation	• GLAEXTR - Population Selection Extract Data Form
View population	• GLIEXTR - Population Selection Extract Data Inquiry Form

Self Check

Directions

Use the information you have learned in this workbook to complete this self check activity.

Exercise 1

Write a population selection to extract people who have a phone number with a 610 area code. Afterwards, run SPRPDIR.

Questions:

- Why is the number of people in the database different than the number extract by GLBDATA?
- Why did only some of the people in my Population Selection print out, but not all of them?
- Why did phone numbers with different area codes print out on SPRPDIR?

Exercise 2

Write a population selection to extract people who have a phone number with a 610 area code that is active and a telephone code of MA. Afterwards, run SPRPDIR.

Questions:

- How did this change your SPRPDIR report?
- What else should you consider when creating a Population Selection?

Section E: Letter Generation

Overview

Prerequisites

Prerequisites include:

- Banner Navigation
- SCT Oracle Training: Introduction to Oracle

Intended audience

Programmers, DBAs, and analysts who teach others about SCT Banner navigation, perform programming tasks in the SCT Banner environment, use any of the SCT Banner General features, or perform analysis on any SCT Banner module.

In this section

These topics are covered in this section.

Letter Generation Overview

What is Letter Generation?

Letter Generation allows you to extract data from the SCT Banner database and merge that data with text, then print the results and log what letter was created and for whom the letter was created.

Letter Generation allows you to extract data from SCT Banner based on a given Population Selection, merge extracted data with text, print the results, and maintain a log of printed letters.

How does Letter Generation work?

Letter Generation extracts specific data from the PIDMs, which are extracted during a Population Selection.

```
SELECT spriden_first_name,
       spriden_last_name
  FROM spriden
 WHERE pop_sel criteria
```

Next, it merges the extracted data with paragraphs customized for your implementation.

Example letter

Example

April 20, 2000

John Doe
123 Street
Malvern, PA 19355

Heading

Dear John,

The University is in the process of verifying student information in order to prepare for registration using Banner2000 WEB. Please verify that the following information is current and correct:

ID: 123456789
Birth date: 01/01/80

If the information is incorrect, notify our office immediately. Thank you for your assistance.

New Paragraph

Sincerely,

Steps to create a letter

Steps

- Define variables to be used
- Construct paragraphs
- Combine paragraphs into letters
- Extract population
- Extract letter variables
- Print letter or create merge file

Step 1: Define variables

1st Paragraph

```
April 20, 2000              *DATE1

John Doe                    *FUNC_PERSON_NAME
123 Street                  *FUNC_PERSON_ADDRESS_LINE1 (LINE2, LINE3)
Malvern, PA  19355          *FUNC_PERSON_CITY_STATE_ZIP

Dear John,                  *FUNC_PERSON_SALUTATION
```

GLRVRBL

Variable Rules Definition table (GLRVRBL)

- Builds selection criteria for data element
- Owned by an application
- Must have data associated with an ID

2nd paragraph

```
The University is in the process of verifying student information in
order to prepare for registration using Banner2000 WEB.  Please
verify that the following information is current and correct:

ID: 123456789               *ID
Birth date:  01/01/80       *BIRTH_DATE

If the information is incorrect, notify our office immediately.
Thank you for your assistance.

Sincerely,
```

Compilation

When the form is exited, the Parameter Selection Process (GLBPARM) compiles the SELECT statement.

Step 2: Construct paragraphs

GTVPARA	Paragraph Code Validation Form (GTVPARA) • Define codes and descriptions for paragraphs
GUAPARA	Letter Generation Paragraph Form (GUAPARA) • Define the contents of each paragraph • Paragraphs contain variables, formatting commands, and text • Paragraphs for merge files contain only variables

Step 3: Combine paragraphs

GTVLETR

Letter Code Validation Form (GTVLETR)

- Define codes and descriptions for letters

GUALETR

Letter Process Form (GUALETR)

- Combine paragraphs into a letter

Example letter – 1st paragraph

```
*DATE1
#nl
*FUNC_PERSON_NAME
#nl
*FUNC_PERSON_ADDRESS_LINE1 (LINE2, LINE3)
#nl
*FUNC_PERSON_CITY_STATE_ZIP
#nl
#nl
Dear
*FUNC_PERSON_SALUTATION
```

Example letter – 2nd paragraph

```
#nl
The University is in the process of verifying student
information in
#nl
order to prepare for registration using Banner2000 WEB.  Please
#nl
verify that the following information is current and correct:
#nl
#nl
ID:
#nl
*ID
#nl
Birth date:
#nl
*BIRTH_DATE
#nl
If the information is incorrect, notify our office immediately.
#nl
Thank you for your assistance.
#nl
#nl
Sincerely,
```

Continued on the next page

Step 3: Combine paragraphs, Continued

Example letter – merge file

```
*DATE1
*FUNC_PERSON_NAME
*FUNC_PERSON_ADDRESS_LINE1 (LINE2, LINE3)
*FUNC_PERSON_CITY_STATE_ZIP
*FUNC_PERSON_SALUTATION
*ID
*BIRTH_DATE
```

Step 4: Extract a population

Requirement	A population must have been extracted prior to the next few steps in Letter Generation.

Step 5: Extract letter variables

GLBLSEL	Run the Letter Extract Process (GLBLSEL) from Job Submission. This process extracts data from the database for selected PIDMs and stores it in a collector table.

Step 6: Print the letter

GLRLETR

Submit the Letter Generation Print Report (GLRLETR) through the Process Submission Control Form (GJAPCTL).

- Removes the selected variables from the Collector table
- Merges that data with text specified in a letter
- Prints the letter or creates the appropriate word processing file

Creating a letter

Forms and steps

1. Application Definition Rules Form (GLRAPPL)
   - Create an application (only once)

2. Object Definition Rules Form (GLROBJT)
   - Created once per object

3. Letter Code Validation Form (GTVLETR)
   - Needed for every letter

4. Variable Definition Rules Form (GLRVRBL)
   - Every variable has to be created (only once) *

5. Paragraph Code Validation Form (GTVPARA)
   - Needed for every paragraph *

6. Letter Generation Paragraph Form (GUAPARA)
   - Details needed for each paragraph

*Can be used for multiple letters in the same module

Tracking Letters

PL/SQL scripts

There are three PL/SQL scripts to select those needing letters:

- RESTRK1.sql
- RESTRK2.sql
- RESTRK3.sql

Self Check

Directions

Use the information you have learned in this workbook to complete this self check activity.

Exercise 1

In this exercise, you will build a letter for Microsoft Word download.

Step	Action
1	Create a letter code on GTVLETR.
2	Create a paragraph code on GTVPARA.
3	Create multiple variables on GLRVRBL. Variables include **Last Name**, **First Name**, **Middle Name**, **Street Line**, **City**, **State**, **ZIP/Postal Code**, **ID**, **SSN**, etc. You may copy from other applications.
4	Add variables to your paragraph on GUAPARA.
5	Add the paragraph to your letter on GUALETR.
6	Run GLBLSEL.
7	Run GLRLETR.
8	Review the output in GJIREVO.

Section F: Security Administration Training

Overview

Prerequisites

Prerequisites include:

- Banner Navigation
- SCT Oracle Training: Introduction to Oracle

Intended audience

Programmers, DBAs, and analysts who teach others about SCT Banner navigation, perform programming tasks in the SCT Banner environment, use any of the SCT Banner General features, or perform analysis on any SCT Banner module.

In this section

These topics are covered in this section.

SCT Banner Security Overview

How does SCT Banner Security work?	SCT Banner Security: • Protects underlying database structures while giving appropriate groups of people appropriate access based upon job responsibilities • Prevents the user from using his SCT Banner-required Oracle privileges in a non-SCT Banner (third-party) application • Provides object authentication to prevent obsolete or user-developed objects from accessing the database
Implementation	• Uses Oracle's concept of role-level privileges • Groups job responsibilities into 'classes' • Grants appropriate access to objects under the guise of 'classes' • Administration of people according to their jobs... rather than administration of database objects!
Privileges	Privileges for SCT Banner databases are not directly assigned to users. Instead, database privileges are assigned to roles, and each user is then given a role. The role is protected with a randomly generated password that the user does not know, and the application deciphers the password to activate the role. This controls the use of third-party software.
Role activation	Role activation is also integral to object authentication. Object authentication guarantees that the object being executed by the end user is the authorized SCT Banner version and not some modified or user-developed version. Role activation works the same for forms, COBOL, and C programs.
Note on limitations	Regarding the limitations of SCT Banner Security, refer to **securityXXXXXtrm.pdf**. (This pdf file will not be in your bookshelf due to security issues.)

SCT Banner database security

Components

- Oracle privileges
- Oracle roles in SCT Banner
- SCT Banner classes
- The SCT Banner Security process

Oracle Privileges

Access grants

Access can be granted to one OBJECT at a time:

```
GRANT SELECT ON SPRIDEN TO JOHN;
```

Access can be granted to one USER at a time:

```
GRANT SELECT ANY TABLE TO JOHN;
```

Access can be granted to one ROLE at a time:

```
CREATE ROLE CLERKS;
GRANT SELECT ANY TABLE TO CLERKS;
```

Non-Banner environments

This is a better solution, but how do you control the non-SCT Banner environments?

Oracle roles in SCT Banner

Roles

Roles are groups of Oracle privileges. The role maintenance function provides a front end to manage Oracle roles.

When used in conjunction with SCT Banner classes, these roles are dynamically invoked and revoked as access is requested. The use of roles plays a vital part in securing your SCT Banner application.

Pre-built roles

You should use SCT Banner's pre-built roles:

- BAN_DEFAULT_CONNECT
- BAN_DEFAULT_Q
- BAN_DEFAULT_M

BAN_ DEFAULT_ CONNECT

The role BAN_DEFAULT_CONNECT has limited privileges. Users can connect to a database, but cannot access tables.

```
BAN_DEFAULT_CONNECT
GRANT CONNECT TO BAN_DEFAULT_CONNECT
```

Note: SCT Banner Security discourages direct grants of any kind.

BAN_ DEFAULT_Q

The role BAN_DEFAULT_Q gives the user privileges to execute all objects and select on all tables in the database

```
GRANT SELECT ANY TABLE TO
BAN_DEFAULT_Q
GRANT EXECUTE ANY OBJECT TO
BAN_DEFAULT_Q
```

BAN_ DEFAULT_M

The role BAN_DEFAULT_M gives the user DBA privileges to all tables and all objects in the database.

The BAN_DEFAULT_M role ensures access to all appropriate tables, etc.

- INSERT ANY,
- UPDATE ANY,
- DELETE ANY,
- SELECT ANY, and
- EXECUTE ANY

Each role is password-protected, and each password is encrypted.

Additional delivered roles

- BAN_ARSYS_REP
- BAN_FINANCE_REP
- BAN_STUDENT_REP

These are sample roles for reporting, which can be created for each module or as needed.

Continued on the next page

Oracle roles in SCT Banner, Continued

Example

```
SET ROLE BAN_DEFAULT_M IDENTIFIED BY 123;
```

Role invocation

You cannot invoke a role from SQL*Plus without knowing the password, even though the role is granted to a user.

Tables are protected from direct access as long as the role is not invoked from SQL*Plus.

No default assigned

If no default is assigned, ALL granted roles are invoked at log in.

Example:

```
GRANT BAN_DEFAULT_CONNECT TO JOHN;
GRANT BAN_DEFAULT_M TO JOHN;
```

Because John was not assigned a default role, he will be able to perform DBA activities in SQL*Plus.

Default assigned

If a default role was assigned, the default role is automatically invoked at login.

No password is needed to invoke an object.

Example:

```
GRANT BAN_DEFAULT_CONNECT TO JOHN;
GRANT BAN_DEFAULT_M TO JOHN;
ALTER USER JOHN DEFAULT ROLE
    BAN_DEFAULT_CONNECT
```

Upon login, John's default role (BAN_DEFAULT_CONNECT) is invoked.

Assigning default roles

Every user must be assigned a default role to prevent Oracle from automatically invoking all granted roles. This default role should be BAN_DEFAULT_CONNECT.

Users connecting to the database through non-SCT Banner applications will only be able to connect.

SCT Banner processes are not Oracle objects, so they are not accessible from outside of the SCT Banner System.

SCT Banner classes

Classes

Classes are to SCT Banner what roles are to Oracle, except that classes control SCT Banner objects (not Oracle tables).

Classes are a group of object permissions that are common to more than one user at your organization. Any change made to a class is immediately applied to all users enrolled in that class. This eliminates the need to define the security for each end-user.

Users may be enrolled in multiple classes.

Organizing forms and processes

SCT Banner forms and processes are organized into groups (classes).

Classes organize SCT Banner processes into job responsibilities unique to your organization.

SCT Banner processes	SCT Banner class
SFAREGS SFRSTCR SOATERM STVRSTS	Registration Admin

Organizing by access levels

Processes are organized additionally by the type of access desired for the class.

Use the pre-determined SCT Banner roles exclusively:

SCT Banner processes	SCT Banner access	SCT Banner class
SFAREGS	BAN_DEFAULT_M	Registration Admin
SFRSTCR	BAN_DEFAULT_M	
SOATERM	BAN_DEFAULT_M	
STVRSTS	BAN_DEFAULT_M	

SCT Banner processes	SCT Banner access	SCT Banner class
SFAREGS	BAN_DEFAULT_Q	Registration Clerk
SFRSTCR	BAN_DEFAULT_Q	
SOATERM	BAN_DEFAULT_Q	
STVRSTS	BAN_DEFAULT_Q	

Continued on the next page

SCT Banner classes, Continued

Assigning classes to users

Classes are then assigned to users:

SCT Banner user	SCT Banner class
John	Registration Admin
Sally	Registration Clerk
George	Registration Clerk
Jane	Registration Clerk

Class maintenance

Changes to your environment are managed through the maintenance of classes. You are not managing users when classes are changed, nor are you managing database objects.

Class considerations

Make your classes granular (fitting the lowest common denominator).
A user with access to two classes containing the same object will ALWAYS be granted the class with the higher role privileges for the object.

SCT Banner security process

Security maintenance

Security maintenance is performed through the Security Maintenance Form (GSASECR). The form is independent; it does not require a menu system and it can be run externally to SCT Banner.

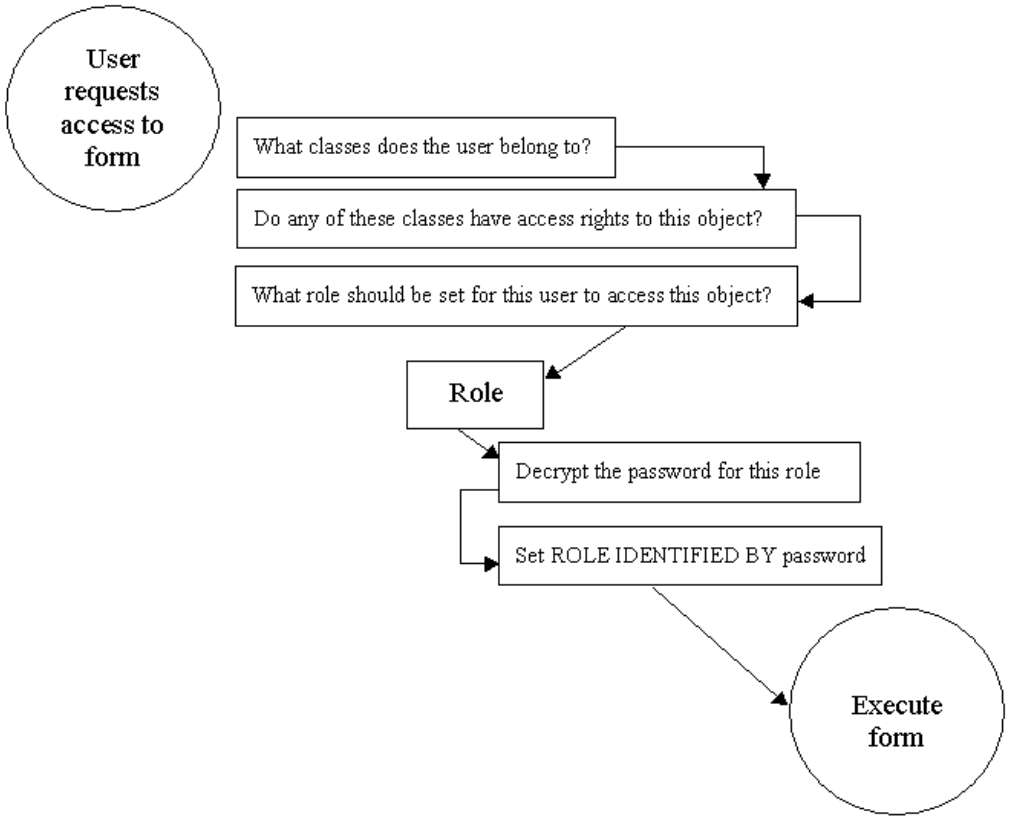
GSASECR

The Security Maintenance Form (GSASECR) can run from any Oracle ID that begins with the text *BANSECR*. In previous versions, it could only be run from the BANSECR account. The BANSECR account still owns all the security objects and is considered the master security maintenance account.

- Encrypted passwords in roles protect database objects
- Classes organize forms and processes
- Classes decide HOW a user accesses the forms and processes

Every SCT Banner form, report, or process executes a multi-phase security check. When the form, report, or process finishes, all grants are revoked.

Diagram



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SCT Banner security process, Continued

Invoking roles and passwords	Processes invoke roles and passwords at the time of execution. Roles cannot be manually invoked because users know nothing about these passwords. Passwords are unencrypted through a three-phase Pro*C process and embedded into the forms and reports.
Oracle IDs	Security can be administered using any Oracle ID that begins with the text BANSECR. Note: For instructions on setting up additional BANSECR accounts, refer to the Distributed Security section of **SecurityXXXXXTRM.pdf**.
Master security account	The master security account (BANSECR) owns all security objects. All security is administered through the Security Maintenance Form (GSASECR).

The Security Maintenance Form (GSASECR)

GSASECR

This form provides the following maintenance capabilities:

- Security profile maintenance
- Oracle user maintenance
- Role maintenance
- Class maintenance
- Security violation tracking

Steps for security administration

Steps

- Establish a profile
- Verify objects
- Set up roles
- Combine classes with roles
- Assign users to classes
- Review security violations

Step 1: Establish a profile

Security modes

The Security Profile Maintenance Form (GSASECR) allows you to select from three modes of security:

None

- Relies on basic Oracle security
- Allows direct grants for tables and roles
- In this mode, an end user can execute any object to which he has sufficient privileges

Process Level

- Relies on basic Oracle security
- Uses SCT Banner 2.0 Forms level security
- Functionally equivalent to the old forms level security

Role Level

- Involves an encrypted role password for each process
- Most secure mode

Encryption keys

Object authentication is accomplished using three encryption keys known as seed numbers. The seed numbers are used as the basis for the password encryption routines.

Changing these numbers necessitates the regeneration of EVERY process, form, and report. If you change a seed number, the change must be performed in all five places where the seed numbers are found.

For more information, refer to **SecurityXXXXXTRM.PDF** (not available in Bookshelf).

- Pro*C, Pro*COBOL, Forms, include files, etc.

Continued on the next page

Step 1: Establish a profile, Continued

Version checking

If version checking is enabled and the form being used is not the current version, the form will not be allowed to activate the role. This feature is important to organizations that distribute multiple copies of the Oracle*FORMS executables.

If the user has previously copied certain FMXs to his local hard disk to speed processing, version checking will require the user to use the current version.

- Objects and their versions are included in the database
- Version information is updated during the upgrade process
- When enabled, version checking forces SCT Banner to verify that the form being used is the current version, as recorded in the database
- If you maintain multiple versions of SCT Banner on multiple servers, version checking is helpful for updating source code
- If the proper version of the source is not replicated correctly, version checking will prohibit access to the form

Call query

This security feature can be activated for any of the three Security modes (*None*, *Process Level*, or *Role Level*). This option is set in the security profile record. When this option is set to *Yes*, any form that will use a query role will be called in Query mode.

- Impacts any form using a query role
- Ends in _Q
- When Call Query is enabled, the user is informed he is in Query mode when attempting to change or enter a value (Otherwise, user is informed when he tries to save)
- Upon entry to the form, the user knows he is in Query mode

Encrypt No Pass

- Assigns an encrypted password to every SCT Banner role that does not currently have a password
- Roles with BAN_ prefix only
- Used to synchronize the new roles with the delivered roles when you create SCT Banner roles via SQL*Plus

Encrypt All

- Reassigns all the SCT Banner roles the appropriate encrypted passwords
- Roles with BAN_ prefix only
- Used when seed numbers have changed

Note: If seed numbers have not changed, only the BAN_ roles that have been created will be impacted.

Step 2: Verify objects

Access requests	Processes, forms, and reports are objects to which a SCT Banner user may request access. The user must have the *Create Session* privilege at a minimum. The permissions in the role specified here will be active when the user connects and can be used in third-party report writing tools.
Current version	The object name and current version are found in the Title Bar of every SCT Banner form. If version checking is activated, object name and current version are verified before user can access a form. • Distribution of source code
Sys code (SCT Banner module)	Sys code indicates the SCT Banner module that the object belongs to. Use SCT Banner naming conventions: • A=Advancement • G=General • S=Student • F=Finance • R=Financial Aid • etc.
Default role	This role will be invoked by default should a different role not be specified. • Object privileges within classes will specify roles to be invoked BAN_DEFAULT_M is recommended for objects outside of classes since it ensures access to all appropriate tables. This can be changed to a site-specific role or BAN_DEFAULT_Q.
Used by (Classes)	Provides a list of classes and users which have been granted access to the object. The object can be specified in a direct grant. • User ID given the access is listed The object can be specified in a class. • Class name given the access is listed • GSASECR shows how each object is granted, including class and/or direct to user grants, with role being invoked for each.

Step 3: Set up roles

Create roles

All roles should begin with BAN_DEFAULT.

- Example: BAN_DEFAULT_TEST

All roles can begin with BAN_object.

- Example: BAN_SFAREGS_CLERK

If a role does not follow this naming convention:

- You WILL NOT be able to assign that role using the Security Maintenance Form (GSASECR)
- SCT Banner password encryption will not be utilized

Copy roles

- Recommended for cloning the delivered SCT Banner roles and making site-specific changes.
- A clone of BAN_DEFAULT_CONNECT should be used. (Individual Oracle objects with greater privileges can be added to a custom role.)

Privileges

Assigning specific objects to a role allows for site-specific grants rather than System level grants.

Objects used in roles refer to Oracle objects only, not SCT Banner objects.

If a DBA grants an object to a role through SQL*Plus, this access will not show up on the Security Maintenance Form (GSASECR).

Warning: **All access should be managed through the Security Maintenance Form (GSASECR).**

Note that no Oracle objects are assigned to the role BAN_DEFAULT_M.

Use the SYS PRIV button to assign, revoke, and view System level privileges granted to a role.

Continued on the next page

Used By and Granted To

The list that appears using the **USED BY OBJECTS** button is a summary of GURUOBJ for this role.

The **USED BY OBJECTS** button shows the users or classes associated with the SCT Banner object.

The **GRANTED TO** button:

- Lists all users who have been granted this role
- Indicates if current role is the default role
- Indicates whether a user has ADMIN permission

Step 4: Combine classes with roles

Classes and users

Recall that classes are to SCT Banner what roles are to Oracle. Classes are a group of object permissions that are common to more than one user at your organization. The use of classes eliminates direct object grants to the end user. Any change made to a class is immediately applied to all users enrolled in that class.

Class codes

- Each object lists the role that is invoked at the time of execution
- User access to an object is determined by an object's role within a class
- Sys code identifies the SCT Banner module

Objects

- The role chosen when an object is assigned to a class overrides the default role
- Use the wildcard % to group objects into a class
- Role list of values can be accessed for viewing by clicking the ROLE LOV button

Class design

Design classes carefully. Use the SCT Banner naming convention *BAN_name_C* to indicate the SCT Banner class.

Example:

- Modular approach: BAN_FINANCE_C has access to all objects that begin with *F*
- More granular approach:

```
BAN_AP_C,
BAN_CASHIER_C,
BAN_FIXED_ASSET_C
```

Users

Users are not enrolled in classes through the Class Maintenance window.

You can view (but not change) the classes to which the user is enrolled.

To enroll a user in a class, use the **USER MAINTENANCE** button on the Security Maintenance Form (GSASECR).

Continued on the next page

Step 4: Combine classes with roles, Continued

Synchronization	When a user is assigned to a class, the objects and associated roles are dynamically granted to the user. A user may be granted many roles at this time without synchronization.
***Out of Sync* message**	If the security administrator later changes class attributes, granted roles are not necessarily revoked and regranted to the user. When changes are made to classes, the *Out of Sync* message appears in the **Messages** column in the Class Maintenance window.
Resolution	To force the grants to be revoked and appropriately regranted, the security administrator can simply click the **SYNCHRONIZE** button. The date listed as the Last Sync Date is updated automatically.

Step 5: Assign users to classes

User maintenance	Enter all SCT Banner users using the Security Maintenance Form (GSASECR). Manage all appropriate grants and permissions using the User Maintenance section of GSASECR. Avoid assigning users access to two or more classes that include the same object.
Example	• John is assigned BAN_CASHIER_C and BAN_AP_C • An object in BAN_CASHIER_C invokes the role BAN_DEFAULT_Q • The same object in BAN_AP_C invokes the role BAN_DEFAULT_M The role with the higher privileges will be invoked.
Oracle user data	Manage data that is normally entered through SQL commands with the User Maintenance section of GSASECR. • Username • Password • Temp tablespace • Default tablespace • Default role (strongly recommended to be BAN_DEFAULT_CONNECT)
SCT Banner permissions for objects	Directly grant users access to any object (Oracle or SCT Banner). • You can choose to bypass classes, but this will create more work in the long run. • Apply the appropriate grants instantly by dynamically enrolling a user in a class.

Step 6: Review security violations

Security Violations function	The Security Violations function queries the security log created by BANSECR's stored procedures. Each violation is assigned a severity of Level 1 to Level 3. Possible hacking attempts are assigned a Level 1 severity (for instance, if a form fails to pass the decryption test). Failures are sorted based on severity, with the most recent events listed first.
Log file	The Security Violation Review and Maintenance window reports all invalid attempts to access the SCT Banner database. You can review which process the user tried to run, when the user tried to run it, and the reason for the failure. This log file must be reviewed on a periodic basis to detect hack attempts.
Messages	Some messages and their levels: • 1 – No parameters passed • 1 – No records found in GUBIPRF • 1 – No password found in GUBROLE • 1 – Invalid password tried • 2 – Invalid version of object being used • 3 – User xxx not authorized access to object Note: Refer to the SCT Banner **SecurityXXXXXTRM.pdf** for more information.
Table management	The table storing these violations may fill rapidly. To avoid exceeding the table's maximum capacity, the security administrator should occasionally truncate this table.

Self Check

Directions

Use the information you have learned in this workbook to complete this self check activity.

Exercise 1

In this exercise, you will create and review security violations.

Step	Action
1	Create a new user. Make sure the default role is set correctly.
2	Assign the user to a class that allows access only to SCT Banner Job Submission.
3	Run SCT Banner as your new user and test to make sure it works.
4	Try running a form (SFAREGS) to which your user does not have access.
5	Review the Security Violations section of GSASECR to check on this security violation.

Section G: Shared Validation Tables

Overview

Prerequisites

Prerequisites include:

- Banner Navigation
- SCT Oracle Training: Introduction to Oracle

Intended audience

Programmers, DBAs, and analysts who teach others about SCT Banner navigation, perform programming tasks in the SCT Banner environment, use any of the SCT Banner General features, or perform analysis on any SCT Banner module.

In this section

These topics are covered in this section.

Shared validation tables

Table	Description	Student	Financial Aid	Advancement	Finance	Human Resources
FTVACCI	Account Index Code			X	X	X
FTVACCT	Account Code			X	X	X
FTVACTV	Activity Code			X	X	X
FTVCOAS	Chart of Account			X	X	X
FTVFUND	Fund Code			X	X	X
FTVLOCN	Location Code			X	X	X
FTVORGN	Organization Code		X	X	X	X
FTVPROG	Program Code			X	X	X
GTVZIPC	ZIP/Postal Code	X	X	X	X	X
GTVNTYP	Name Type	X	X	X		
GTVEMAL	Email Type	X	X	X		
GTVEXPN	Expenses	X	X	X		
GTVSUBJ	Subject Index	X	X	X		
GTVMAIL	Mail Type	X	X	X		
SPRIDEN	Identification Table	X	X	X	X	X
SPRADDR	Address	X	X	X	X	X
SPBPERS		X	X	X	X	X
SPRTELE	Telephone	X	X	X	X	X
STVACCG	Activity Category	X	X	X		X
STVACTC	Activity Code	X		X		
STVACTP	Activity Type	X		X		
STVACYR	Academic Year Code	X	X			
STVASRC	Address Source	X		X	X	
STVATYP	Address Type Code	X	X	X	X	X
STVCAMP	Campus Code	X	X			
STVCIPC	CIPC Code	X				X
STVCITZ	Citizen Type Code	X	X	X		X
STVCLAS	Class Code	X	X			
STVCOMT	Committee/Service Type	X				X
STVCNTY	County Code	X	X	X	X	X
STVCOLL	College Code	X	X	X		X
STVCTYP	Contact Type	X	X			
STVDAYS	Days of the Week	X	X			X
STVDEGC	Degree Code	X	X	X		X
STVDEPT	Department Code	X		X		
STVDLEV	Degree Level	X				X
STVEMPT	Employment Type		X			X
STVETHN	Ethnic Code	X	X	X		X

Continued on the next page

Shared validation tables, Continued

Table	Description	Student	Financial Aid	Advancement	Finance	Human Resources
STVGEOD	Geographic Region Division	X		X		
STVGEOR	Geographic Region Code	X		X		
STVGMOD	Grading Mode Code	X	X			
STVHOND	Departmental Honors Code	X	X	X		X
STVHONR	Institutional Honors Code	X		X		
STVINIT	Initials Code	X		X		
STVLANG	Language	X				X
STVLEAD	Leadership	X		X		
STVLEVL	Level Code	X	X			X
STVLGCY	Legacy	X		X		X
STVMAJR	Major/Minor/Conc. Code	X	X	X		X
STVMDEQ	Medical Equipment Code	X				X
STVMEDI	Medical Code	X				X
STVMRTL	Marital Status Code	X	X	X		X
STVNATN	Nation Code	X	X	X	X	X
STVORIG	Originator Code	X		X		
STVPENT	Port of Entry Code	X				X
STVRELG	Religion Code	X		X		X
STVRELT	Relation Code	X				X
STVRSTS	Course Registration Status	X	X			
STVSBGI	Source/Background Inst.	X	X	X		X
STVSTAT	State/Province Code	X	X	X	X	X
STVTELE	Telephone Type	X	X	X	X	X
STVTERM	Term Type	X	X			
STVVTYP	VISA Type	X				X
TSADETC	Detail Code Control Form	X	X			
TSAEXPT	Exemption Authorization Form	X	X			
TSACONT	Contract Authorization Form	X	X			
GURFEED	Finance Transaction Input Table	X			X	X
GURAPAY	Accounting Feed AP Table	X			X	X