

## Banner 8's Supplemental Data Engine Capabilities

### Part I – Introduction

#### SDE stands for “Supplemental Data Engine”

It is a means for the user to functionally add fields to forms.

- You can give certain users in your organization authority access to the SDE forms, so they can have the ability to add fields to forms. The security access to the SDE forms is granted via Banner Application security (GSASECR)

#### What do SDE fields look like?

- Appear on Banner INB forms in popup boxes.
- The popup boxes don't open automatically when you open the form, but you will know they exist, that SDE fields exist, by the appearance of the SDE icon at the top, right hand part of the screen:
- If you click on the “illuminated” icon, the SDE popups will open.

The screenshot shows the Oracle Developer Forms Runtime interface for the PPAIDEN form. The main form displays the following information:

- ID: 710000011 (dropdown) Eugene V. Adams (text)
- Generate ID: (button)
- Current Identification | Alternate Identification | Address | Telephone | Biographical | E-mail | Emergency Contact
- Gender:  Male,  Female,  Not Available
- Birth Date: 19-OCT-1944 (calendar icon)
- Age: 64
- SSN/SIN/TIN: 710000011
- Deceased Date: (checkbox)
- Citizenship: Citizen
- Veteran File Number: (checkbox)
- Supplemental Data PPAIDEN 8.0 (C800) popup window:

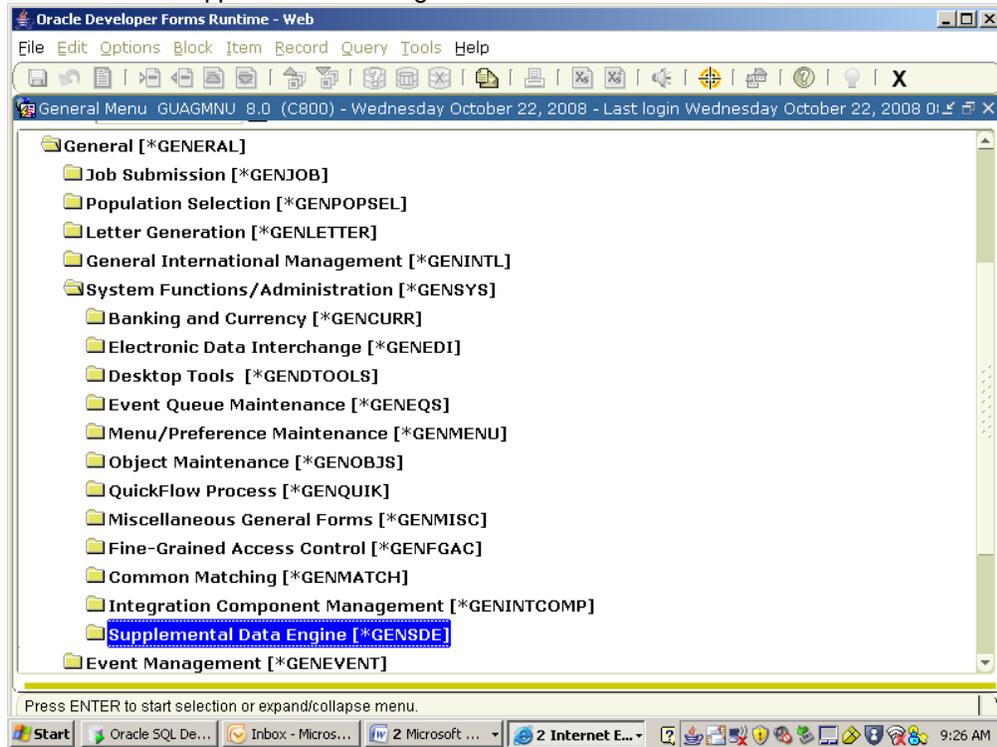
  - \* = Required
  - Professional Title 4
  - FERPA Permis. Parent can view accounts
  - FERPA Permis. Parent can view grades
  - Music Preference : 1
  - Mother's maiden name
  - Last Updated: (checkbox)
  - User: (checkbox)
  - Activity Date: (checkbox)

#### How SDE works:

- The user associates additional fields to a table.
- These additional fields will be displayable on any form that displays fields from that associated table.
- The actual supplemental fields are stored in a separate, supplemental table.
  - o GOVSDAV is the view, GORSDAV is the table

### How SDE is set up:

- In the Banner INB menu, you can see the SDE forms under General > System Functions / Administration / Supplemental Data Engine



### The forms involved with SDE setup are:

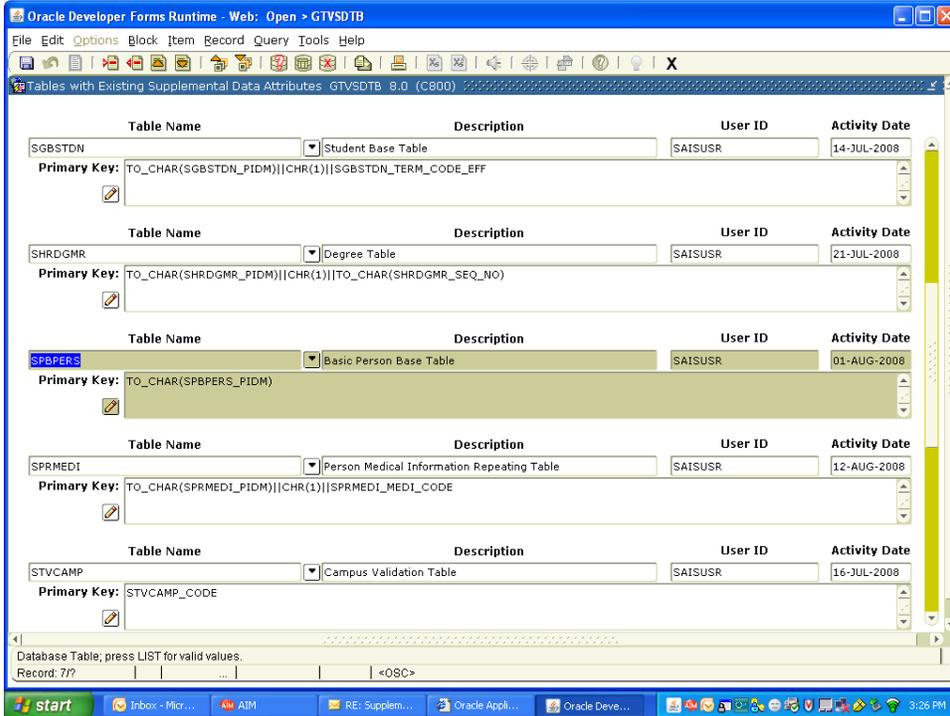
- GTVSDTB – form for setting up tables you will attach supplemental fields to. This is the “Supplemental Data Attributes” form..
- GOADISC – to enter “discriminators”, or the supplemental fields.
- GOASDMD– defines display characteristics of the supplemental field, or “Data Attribute”.

### The three different ways SDE can be set up are:

- ‘User-Defined’ method – supplemental fields are defined by the user as either a single value or multiple set of values
- ‘Select’ method – supplemental fields are defined using a select statement
- ‘Index’ method – supplemental fields can be a growing array of values

## Part II – Basic Setup Example – using the ‘User-Defined’ method

**Step 1:** Go to the GTVSDTB form and ensure that the table you want is displayed. If it is not, enter it. (example: find the entry for PEBEMPL. If it's not there, enter it by inserting a record. The primary key should be "TO\_CHAR(PEBEMPL\_PIDM)")



**Step 2:** Go to the GOADISC form. This is for entering discriminators. This will, in effect, be the additional field or field set.

Discriminator Code	Description	Method	Validation
EMAIL	Email address types	Select	SELECT GTVEMAL_CODE code, GTVEMAL_DESC description FROM GTVEM
EMG_COMM	Additional Comments	Index	3
EXCEMAL	Exclude this email from any commur	Select	
FERPA	FERPA Permissions from Student	User defined	
GRADE	Preferred Addr Type for Gradese	Select	SELECT STVATYP_CODE "Address Type" FROM STVATYP
Grad	Graduation Ceremony Attend	User defined	
INST_ID	Future Instructor ID	User defined	
JobComment	Job Change Reason Comment	User defined	
MothMaid	Mothers Maiden Name	User defined	
MothNat	Nacionalidad de la Madre	Select	select stvnatn_code from stvnatn
OutsideEmp	OutsideEmployment	User defined	
PoA	Pattern of Attendance	User defined	

Values	Discriminator Value	Discriminator Value Description	User ID	Activity Date
	Outside employment indicator	Does this employee have outside employment?	SAISUSR	16-MAR-2009
	Outside employer	Name of outside employer, if applicable.	SAISUSR	16-MAR-2009

For our example, we are going to add a discriminator, in this case a field set, associated with the PEBEMPL table. See if a discriminator called "OutsideEmp" already exists in this form. If not, add it, setting the information for it up to look like the screenshot above. If this entry does already exist, you will need to make your new entry with a different name.

We are going to make it so that a supplemental data field is associated with the PEBEMPL table that shows whether or not an employee also works for an outside company or institution. We will also have an entry for the name of that employer.

**Step 3:** Next, go to GOASDMD. Fill out the GOASDMD form as show below. First, however, ensure that someone has not already done the same thing – ensure that this entry is not already there. If it is already there, with the same attribute name, verify its correctness or modify it to look like the screenshot below.

Note that we are entering a new attribute named “OUTSIDE\_EMPLOYER”. We will link this entry to that discriminator we had just created by specifying the discriminator name using the dropdown next to the label “Discriminator” (please see below). Please also note the Prompt “%DISC%”. This is our way of saying that the labels we set up in the discriminator will be used for display.

Please also make good use of the Hint line and always be sure and put the valid allowable values in the hint line.

Table Name: PEBEMPL Employee Base Table  
Key: TO\_CHAR(PEBEMPL\_PIDM)

Sequence	Attribute Name	Data Action	Data Type	Length	Precision	Base Column
3	FORM_RECEIVED_2	Adds	DATE			
	Prompt: Form Received	Required: <input type="checkbox"/>	Hint Text: Enter Date Received			
	Discriminator: OutsideEmp		OutsideEmployment			
4	NATIVE_LANGUAGE	Adds	VARCHAR2	3		
	Prompt: Native Lang, %DISC%	Required: <input type="checkbox"/>	Hint Text: Enter Native Language			
	Discriminator: Single Valued					
5	OUTSIDE_EMPLOYER	Adds	VARCHAR2	60		
	Prompt: %DISC%	Required: <input type="checkbox"/>	Hint Text: Enter outside employer info. Y or N, followed by emp name.			
	Discriminator: OutsideEmp		OutsideEmployment			

Owner	Table Name	Include	Copy Status
ALUMNI	AMRINFO	<input type="checkbox"/>	
FIMSMGR	FBTRND	<input type="checkbox"/>	
PAYROLL	PTREARN	<input type="checkbox"/>	
POSNCTL	NBRBJOB	<input type="checkbox"/>	

The Name of the Attribute. This is a unique identifier and cannot be updated once it is saved.  
Record: 5/5 | ... | <OSC>

We could use the bottom of the form to associate this discriminator/attribute combination to another table. We will not do this for this example.

Save and exit the form.

Next, verify the work you have done. First, go to a form that displays PEBEMPL data. That would be PEAEMPL.. Choose a person to display on this form, like Eugene Adams. Once Eugene's data is displayed, you should note that the yellow light bulb at the top right of the form is lit up. Click on the light bulb. You should see a popup box newly displayed. If necessary, scroll down in this popup box to see the last discriminator field. You should see a display like this:

The screenshot shows the Oracle Developer Forms Runtime interface for the PEAEMPL form. The main form displays employee information for Eugene V. Adams (ID: 710000011). The form is divided into several sections: General Employee, United States Regulatory, and Canadian Regulatory. The Employee Status section includes fields for Employee Status (Active), Employee Class (01 FT Administrative), Employee Group, Leave Category (A1 Administrators - Full Time), Benefit Category (F1 Full Time Employees), and Part or Full Time Status (Full Time). The Termination section includes Reason and Termination Date fields. The Leave of Absence section includes Reason, Begin Date, and End Date fields. The Supplemental Data popup is open, showing fields for Form Received, Native Lang, and Outside Employer (Acme Law Firm). The Supplemental Data popup also includes a section for 'No Outside employment' with a 'Y' entered in the field. The Supplemental Data popup also includes a section for 'Enter outside employer info. Y or N, followed by emp name.'

Next, enter the value 'Y' in the "No Outside employment" field. Enter "Acme Law Firm" in the outside employer name field. Save.

Verify that the entries you just made for Eugene. Exit the PEAEMPL form, then reenter it, pulling up Eugene's record again. When you click on the light bulb and scroll down on within the supplemental data popup box, you should see the entries of 'Y' and "Acme Law Firm'.

Now, let's see where this data is stored in the database.

### Part III: Viewing the data in the database

For this, sign on to a SQL tool like SQL Developer. Enter the following sql statement:

```
select x.gorsdav_table_name, x.gorsdav_attr_name, x.gorsdav_pk_parenttab,  
decode(x.gorsdav_value.gettypeName(),  
      'SYS.VARCHAR2', x.gorsdav_value.accessVARCHAR2(),  
      'SYS.DATE', x.gorsdav_value.accessDATE(),  
      'SYS.NUMBER', x.gorsdav_value.accessNUMBER(),  
      '*ERROR* Unknown SYS.ANYDATA data type ***')  
from gorsdav x  
where x.gorsdav_table_name = 'PEBEMPL'  
and x.gorsdav_attr_name = 'OUTSIDE_EMPLOYER'  
order by x.gorsdav_pk_parenttab;
```

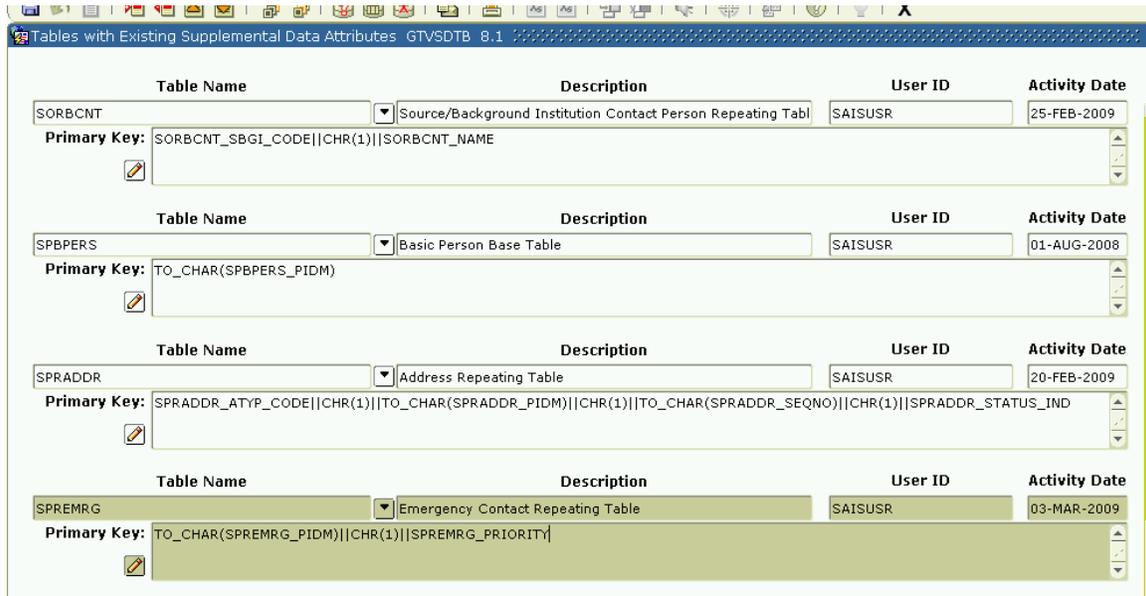
Examine the above statement. The data is viewable using the GOVSDAV view. Describe this view and note the field names used in the query above. This query can be used as a template for including SDE fields in views and in reports.

### Part IV: Using 'Select' for discriminators

Example: Let's say that we wish to add fields for email alert addresses to the emergency contact form. We would want to have room for multiple addresses, so can create these multiple entries to correspond to the different email types (ex: personal, business, etc)

We want to use the "Select" option in the discriminator form, GOADISC. The steps for this would be:

**Step 1:** ensure that an entry exists for SPREMRG, the emergency contact table, is listed in the GTVSDTB form, as below:



**Step 2:** Go to the GOADISC form. Create a new record for “EmgEmail” entry like below:

Discriminator Code	Description	Method	Validation
CM_DISC	Testing SDE for Common Matching	User defined	
CM_DISC_DT	Testing SDE for CM with date	User defined	
EMAIL	Email address types	Select	SELECT GTVEMAL_CODE code, GTVEMAL_DESC description FROM GTVEMAL
EMG_COMM	Additional Comments	Index	3
EXCEMAL	Exclude this email from any commur	Select	
FERPA	FERPA Permissions from Student	User defined	
EmgEmail	Emergency email addresses	Select	
FatherStat	Fathers home state	Select	SELECT STVSTAT_CODE code, STVSTAT_CODE description FROM STVSTA
GRADE	Preferred Addr Tvoe for Gradese	Select	SELECT STVATYP_CODE "Address Type" FROM STVATYP

Next, enter ‘GTVEMAL’ in the validation field, then click on the pencil icon for that row. Fill out the resultant popup like so:

Discriminator Code	Description	Method	Validation
CM_DISC	Testing SDE for Common Matching	User defined	
CM_DISC_DT	Testing SDE for CM with date	User defined	
EMAIL	Email address types	Select	SELECT GTVEMAL_CODE code, GTVEMAL_DESC description FROM GTVEMAL
EMG_COMM	Additional Comments	Index	3
EXCEMAL	Exclude this email from any commur	Select	
FERPA	FERPA Permissions from Student	User defined	
EmgEmail	Emergency email addresses	Select	GTVEMAL
FatherStat	Fathers home state	Select	SELECT STVSTAT_CODE code, STVSTAT_CODE description FROM STVSTA
GRADE	Preferred Addr Type for Gradese	Select	SELECT STVATYP_CODE "Address Type" FROM STVATYP
Grad	Graduation Ceremony Attend	User defined	
INST_ID	Future Instructor ID	User defined	
JobComment	Job Change Reason Comment	User defined	

Owner	Table Name	Column Name	Data Type	Data Length	Code	Description
GENERAL	GTVEMAL	GTVEMAL_ACTIVITY_DATE	DATE	7	<input type="radio"/>	<input type="radio"/>
GENERAL	GTVEMAL	GTVEMAL_CODE	VARCHAR2	16	<input checked="" type="radio"/>	<input checked="" type="radio"/>
GENERAL	GTVEMAL	GTVEMAL_DESC	VARCHAR2	240	<input type="radio"/>	<input type="radio"/>
GENERAL	GTVEMAL	GTVEMAL_DISP_WEB_IND	VARCHAR2	4	<input type="radio"/>	<input type="radio"/>
GENERAL	GTVEMAL	GTVEMAL_URL_IND	VARCHAR2	4	<input type="radio"/>	<input type="radio"/>

Enter a Table query then choose a Code and a Description; press OK to return values.

Cancel OK

Click OK in the popup, then save the form. When you save the form, you should see another popup telling you that your query is correct and telling you how many values the query would retrieve.

**Step 3:** Go to GOASDMD. Choose the SPREMRG form at the top of this form, then go to the next block to populate the body of the form. Enter a new record for the form, giving your new Attribute a unique name, like 'EMERG\_EMAILS'. (Note: the sequence number will automatically filled in later for you). Fill in the rest of the record as displayed below:

	Attribute Name	Data Action	Data Type	Length	Precision	Base Column
  3	EMERG_EMAILS	Adds	VARCHAR2	40		
<b>Prompt:</b>	Emerg Emails - %DISC%	<b>Required:</b>	<input type="checkbox"/>	<b>Hint Text:</b>	Enter as many emergency emails as available	
<b>Discriminator:</b>	EmgEmail					Emergency email addresses

Save the record and close the form.

**Step 4:** Test. Go to either the SPAIDEN or PPAIDEN form and populate this form by choosing a valid test subject (ex: Eugene Adams in the TRNG instance). Click on the emergency contact tab. In order to test this successfully, there must be at least one emergency contact record. If there isn't one, add one and save.

Then, click on the light bulb icon, which should be illuminated, or colored in.

The SDE display should show entry fields for multiple email addresses, one for each email type.

## Part V: Using 'Index' for discriminators

**Step 1:** In this example, we want to have supplemental fields for what languages a person speaks, with the idea of listing them in order of fluency. We will use a discriminator attached to SPBPERS. So, we know that our Step 1 is already taken care of, since this table is already listed in GTVSDTB.

**Step 2:** Set up the GOADISC form, like so:

Discriminator Code	Description	Method
Grad	Graduation Ceremony Attend	User defined
Five	Index for num of languages	Index
INST_ID	Future Instructor ID	User defined
JobComment	Job Change Reason Comment	User defined
MothMaid	Mothers Maiden Name	User defined
MothNat	Nacionalidad de la Madre	Select
OutsideEmp	OutsideEmployment	User defined
PoA	Pattern of Attendance	User defined
ProfTitle	Professional Titles	User defined
RatingComm	Employee Review Comment	User defined
SKILLS	SKILLS YOU CAN TEACH	Index
SKILLS2	SKILLS YOU CAN TEACH	User defined

Discriminator Value	Discriminator Value Description
<input type="text"/>	<input type="text"/>

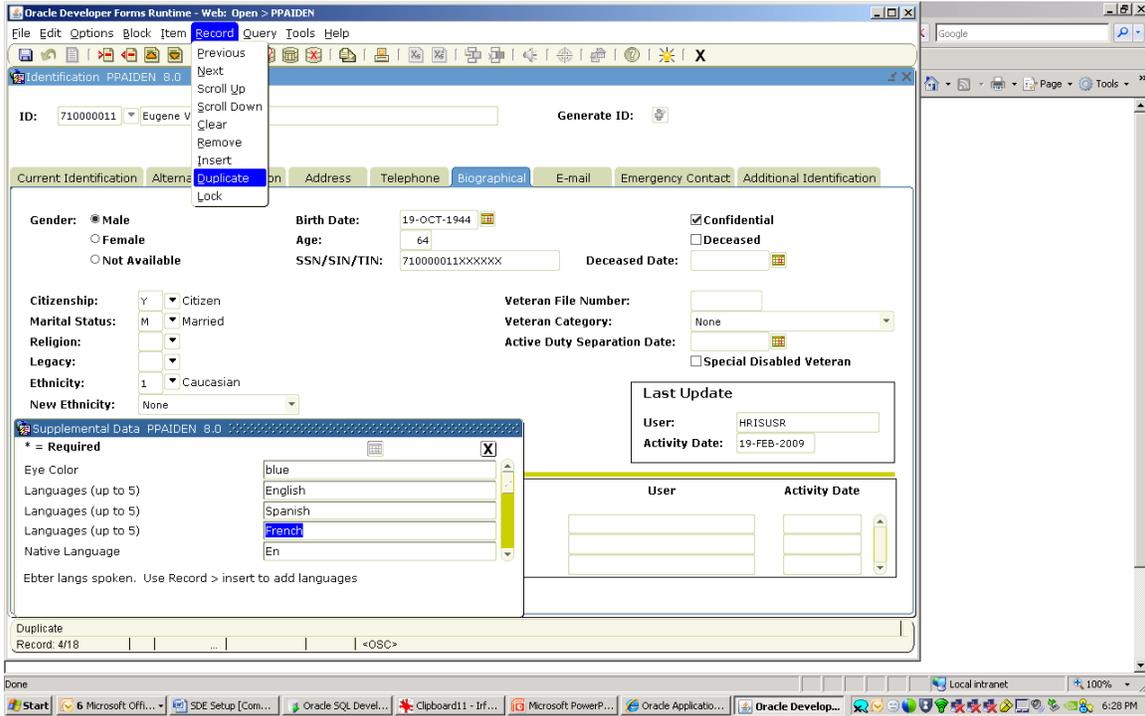
**Step 3:** Go to the GOASDMD form. Choose the SPBPERS table from the top of the form, then go to the next block to populate the body of the form. Fill out the form as shown below:

Sequence	Attribute Name	Data Action	Data Type	Length	Precision	Base Column
2	LANGUAGES_SPOKEN	Adds	VARCHAR2	20		

Prompt: Languages (up to 5)  
 Required:   
 Hint Text: Enter langs spoken. Use Record > Duplicate to add languages  
 Discriminator: Five

Save and exit.

**Step 4:** You can test by going to the PPAIDEN form. Find a valid person and populate this form with data (like Eugene Adams). Click on the SDE lightbulb icon.



You will see one entry for languages. You can enter the first one, and then can enter subsequent ones, up to 5, by choosing Record > Duplicate from the top of the form.

#### Part VI: Functional and Technical Notes:

- Within an SDE box and within an individual field, if the user runs out of room during data entry, press F4.
- The underlying tables that contain the SDE data are:
  - o GOBSDCT stores views to be generated
  - o GOBSDDC stores Discriminators
  - o GOBSDTB stores the SDE enabled Banner table names
  - o GORS DAM stores Metadata (rules for data being extended)
  - o GORS DAV stores the data value
  - o GORS DDDV stores user defined Discriminator values

## FAQ #1-2HZS1P-Data Masking – Quick reference to Biographical codes and descriptions

Biographical information (ie. Birthdate, age, citizenship) is commonly requested for data masking. This FAQ provides a quick list of some commonly requested fields for data masking.

This information may assist you when setting up **GORDMCL** and **GORDMSK**. When adding these records, the block is SPBPERS.

Code fields:

	Item	Data Type	Length
Age:	<b>PERS_AGE</b>	Number	3
Citizenship:	SPBPERS_CITZ_CODE	Character	30
Marital Status:	SPBPERS_MRTL_CODE	Character	30
Religion:	SPBPERS_RELG_CODE	Character	30
Legacy:	SPBPERS_LGCY_CODE	Character	30
Ethnicity:	SPBPERS_ETHN_CODE	Character	1

Corresponding button fields:

	Item	Data Type	Length
Citizenship:	SPBPERS_CITZ_CODE_LBT	Character	1
Marital Status:	SPBPERS_MRTL_CODE_LBT	Character	1
Religion:	SPBPERS_RELG_CODE_LBT	Character	1
Legacy:	SPBPERS_LGCY_CODE_LBT	Character	1
Ethnicity:	SPBPERS_ETHN_CODE_LBT	Character	1

Corresponding descriptions:

	Item	Data Type	Length
Citizenship:	CITZ_DESC	Character	30
Marital Status:	MRTL_DESCRIPTION	Character	30
Religion:	RELG_DESCRIPTION	Character	30
Legacy:	LGCY_DESCRIPTION	Character	30
Ethnicity:	ETHN_DESCRIPTION	Character	30

Define/create the ones you need on **GORDMCL** and then conceal them on **GORDMSK**.

Examples to use a mask for hiding the year-of-birth (31-MAR), and to use “conceal” on the Age field (\*\*\*) in SPAIDEN only. Users who need access to this information will have access through the SPAPERS form.

The image shows two screenshots from a software application. The top screenshot is titled "Data Display Mask Rules GORDMSK 7.2 (PPRD)". It displays a table of mask rules for the "SPAIDEN" object. The table has columns for Block, Item, Sequence, Data Type, Length, Numeric Precision, Visible, Conceal, Format Mask, Activity Date, and User ID. Two rules are shown: one for SPBPERS\_BIRTH\_DATE (DD-MON format) and one for SPBPERS\_PERS\_AGE (concealed format). Below the table are options for "Apply Formatting To" (All Users) and "Business Profile".

The bottom screenshot is titled "General Person Identification SPAIDEN 7.3 (PPRD)". It shows a form for entering personal information. The "ID" field contains "0000042" and the name is "Al Reyaisy, Khalid M.". There are tabs for "Current Identification", "Alternate Identification", "Address", "Telephone", "Biographical", "E-mail", and "Emergency Contact". The "Biographical" tab is active, showing fields for "Gender" (Male selected), "Birth Date" (10-FEB), "Age" (\*\*), "SSN/SIN/TIN", "Confidential" (checkbox), "Deceased" (checkbox), and "Deceased Date".

Note: The source for the form (ie. spapers.fmb or corresponding xxxiden.fmb) can be opened in Forms Builder to find the field names for any other fields.

\*\*See Related FAQ #1-6BL-954 - #13527 - Quick Steps to Mask Banner Forms Data

## Quiz

### A. System Overview

1. Name the five core Banner Products.
2. What is the current version of each product in you Banner instance? How did you find out this information?
3. What does the acronym PIDM stand for?
4. What are the benefits of an integrated system?
5. What are some consequences of an integrated system?

### B. Basic Navigation

1. Define Key block and Information block?
2. Describe 3 different ways of moving from the key block to an information block.
3. Describe 3 different ways of moving from the information block back to the key block.
4. What are the 2 wild card symbols?
5. Describe the location of the Hint Line and name at least two functions it performs.
6. There are many different ways of entering a date value into a date field. Name at least 2.
7. Which menu has features that are different on every form? Why?
8. Match the following functions with their shortcut keys:

Save	F7
Exit	Shift tab
Next Block	F10
Rollback	F8
List (of Values)	F9
Previous Field	Shift F7
Enter Query	Ctrl Page Down
Execute Query	Ctrl Q

### **C. Help**

1. Where can you find online help and what does it describe?
2. Where can you find dynamic help about a particular field, block, or form?
3. Can dynamic help be edited? How?
4. How can you find out how many characters a particular field will hold?
5. How can you find the keystroke for different functions (shortcuts)?
6. How can you find the Banner Bookshelf and what types of documents does it contain?

### **D. Exercises**

1. Log in to Banner and access the File menu (challenge: open the file menu without using the mouse).
2. Select the Preferences feature (what form does this open?)
3. Change some of the color settings on the right hand side of the first tab (note that the right hand side has a scroll bar). If you save after each color change, you should notice the change reflected on your form.
4. Discover what each color field relates to (you may need to exit the form).
5. Return to the main menu.
6. Perform the List function on the Go To box (what form does this access?)
7. Enter "%Password%" (no quotes) into the description field.
8. Execute your query
9. Write down your answers
10. Exit the form
11. Access the My Banner folder
12. Open the Organize My Banner form
13. Add the results of your query to the Object list and save
14. Log out of Banner
15. Log back in to Banner
16. Open the My Banner folder
17. Exit back to the main menu
18. Open the Student folder, and Schedule subfolder
19. Open the Schedule Section Query form
20. Perform a query to find any crn that has enrollment
21. Use Help/Data Extract to export the information (you may need to hold down the control key to override pop up blocker).
22. Find the table and field name of the Enrollment: Actual field.