MBUG 2019

Security Violation Using Fine Grain Access Control to Restrict Banner Access

Lisa McDaniel The University of Alabama September 10, 2019



Session Rules of Etiquette

- Please turn off your cell phone
- If you must leave the session early, please do so discreetly
- Please avoid side conversation during the session



Introduction

Fine Grain Access Control is an Oracle feature that allows row level security for Oracle tables based on a value or field level security. Access can be granted/revoked to particular fields such as SSN and can be limited by a field value such as hold type.



Types of Fine Grain Access

- Value Based Security (VBS)
 - Access restricted by a value
- Security for Personally Identifiable Information (PII)
 - Masking partially hide some of the data
 - Hiding field is removed from form
 - Concealing show conceal character instead of data



Agenda

- Fine Grain Access Control (FGAC) Implementation using Value Based Security
 - Restricting Registration Permit Override SFASRPO by department
 - Restricting Holds SOAHOLD by hold type
- Fine Grain Access Control (FGAC) Implementation of masking/hiding
 - SPAPERS SSN



Value Based Security Example

Insert, Update, and Delete of Registration Permit Overrides are restricted by course department code.



- FGAC Business Profile Validation GTVFBPR
- The name of the Business Profile is defined OUR_SFRSRPO_AC.
- This is the group allowed to enter overrides for courses in 'AC' department.

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★ FGAC Business Profile Validation GTVFBPR 9.0 (PROD)					
▼ FGAC BUSINESS PROFILE VALIDATION					
Active filters: Code: OUR_SFRSRPO% Clear All					
Code *	Description *				
OUR_SFRSRPO_AC	Group allowed to update AC dept courses on SFASRPO				
OUR_SFRSRPO_ACAD	Group allowed to update ACAD dept courses on SFASRPO				
OUR_SFRSRPO_AEM	Group allowed to update AEM,GES dept courses on SFASRPO				
OUR_SFRSRPO_AIR	Group allowed to update AIR dept courses on SFASRPO				
OUR_SFRSRPO_AMS	Group allowed to update AMS dept courses on SFASRPO				
OUR_SFRSRPO_ANT	Group allowed to update ANT dept courses on SFASRPO				
OUR_SFRSRPO_ANY	Group allowed to enter permit for any department - Needed?				
OUR_SFRSRPO_APR	Group allowed to update APR dept courses on SFASRPO				
OUR_SFRSRPO_ART	Group allowed to update ART dept courses on SFASRPO				

- FGAC Domain Validation GTVFDMN
- Define the Domain SB_SFRSRPO_VBS

FGAC DOMAIN VALIDATION			
Code *	Description *		
SB_OTHERGPA_STUDENT_VBS	Student Other GPA with Student Secured VBS Security		
SB_OTHERGPA_VBS	Student Other GPA VBS Security		
SB_RECRUIT_PII	Student Recruit PII Security		
SB_RECRUIT_VBS	Student Recruit VBS Security		
SB_REGISTRATION_PII	Student Registration PII Security		
SB_SCHEDULE_ELEVATE_VBS	Schedule Elevate VBS Security		
SB_SCHEDULE_VBS	Schedule VBS Security		
SB_SCRINTG_ELEVATE_VBS	Student Catalog Elevate VBS Security		
SB_SFRSRPO_VBS	Student Registration Permits and Overrides VBS Security		
SB_SGRCHRT_VBS	Student Cohort VBS Security		

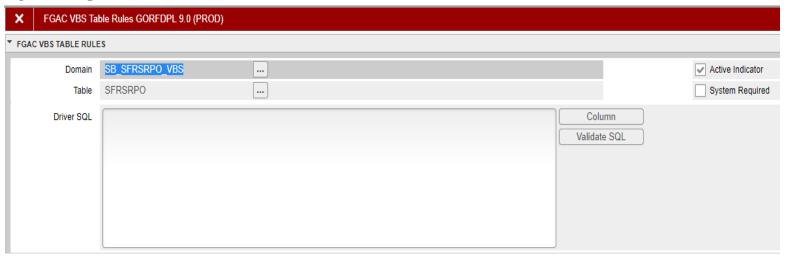


- FGAC Domain Driver Rules GORFDMN
- Define the Driver Table for the domain.

FGAC DOMAIN DRIVER RULES			
Domain *	Driver Table *	Type *	Enable PII *
SB_OTHERGPA_STUDENT_VBS	SORGPAT	VBS	
SB_OTHERGPA_VBS	SORGPAT	VBS	
SB_RECRUIT_PII	SRBRECR	PII	
SB_RECRUIT_VBS	SRBRECR	VBS	
SB_REGISTRATION_PII	SFBETRM	PII	
SB_SCHEDULE_ELEVATE_VBS	SSBSECT	VBS	
SB_SCHEDULE_VBS	SSBSECT	VBS	
SB_SCRINTG_ELEVATE_VBS	SCBCRKY	VBS	
SB_SFRSRPO_VBS	SFRSRPO 🗡	VBS	
SB_SGRCHRT_VBS	SGRCHRT	VBS	



- FGAC VBS Table Rules GORFDPL
- Driver SQL joins the table to the domain driver.





- FGAC Group Validation GTVFGAC
- Define the group OUR_SFRSRPO_AC.

FGAC Group Validation GTVFGAC 9.3 (PROD)				
FGAC GROUP VALIDATION				
Code * Description *				
ELEVATE	Elevate restrictions			
OUR_SFRSRPO_AC	AC			
OUR_SFRSRPO_ACAD	ACAD			
OUR_SFRSRPO_AEM	AEM			
OUR_SFRSRPO_AIR	AIR			
OUR_SFRSRPO_AMS	AMS			



FGAC Group Rules GOAFGAC

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Predicate (sql) makes sure that the override course is in the 'AC' department.



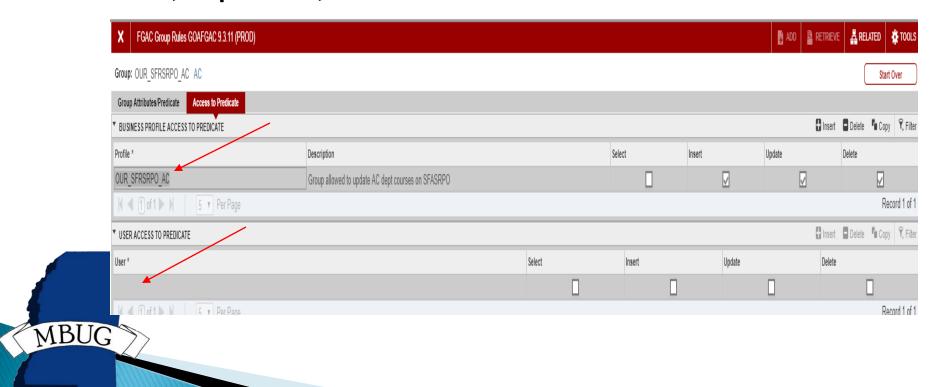
 Validate SQL button creates a SQL statement such as: Select 'x' from <domain driver> where cpredicate> and executes the code dynamically.

Predicate – GOAFGAC

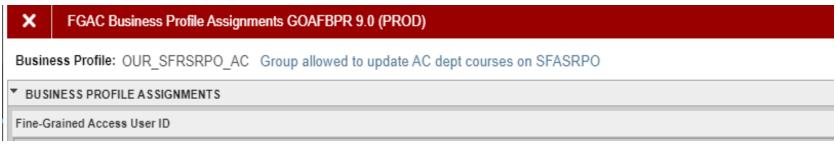
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```
(select 1 from ssbsect, scbcrse a
where ssbsect cm = sfrsrpo cm
and ssbsect term code = sfrsrpo term code
and sfrsrpo rovr code != 'ELCAMP'
and ssbsect subj code = a.scbcrse subj code
and ssbsect_crse_numb = a.scbcrse_crse_numb
and a.scbcrse_eff_term = (select max(b.scbcrse_eff_term) from scbcrse b
                            where a.scbcrse_subj_code = b.scbcrse_subj_code
                            and a.scbcrse_crse_numb = b.scbcrse_crse_numb)
and a.scbcrse_dept_code = 'AC'
or exists
(select 1 from ssbsect, scbcrse a
where ssbsect_subj_code = sfrsrpo_subj_code
and ssbsect_crse_numb = sfrsrpo_crse_numb
and ssbsect term code = sfrsrpo term code
and sfrsrpo_rovr_code != 'ELCAMP'
and ssbsect_subj_code = a.scbcrse_subj_code
and sabsect crse numb = a.scbcrse crse numb
and a.scbcrse eff term = (select max(b.scbcrse eff term) from scbcrse b
                            where a.scbcrse subi code = b.scbcrse subi code
                            and a.scbcrse crse numb = b.scbcrse crse numb)
and a.scbcrse dept code = 'AC'
or exists
(select 1 from ssbsect, scbcrse a
where ssbsect subj code = sfrsrpo subj code
and ssbsect crse numb = sfrsrpo crse numb
and ssbsect seg numb = sfrsrpo seg numb
and ssbsect_term_code = sfrsrpo_term_code
and sfrsrpo_rovr_code != 'ELCAMP'
and ssbsect_subj_code = a.scbcrse_subj_code
and ssbsect_crse_numb = a.scbcrse_crse_numb
and a.scbcrse_eff_term = (select max(b.scbcrse_eff_term) from scbcrse b
                            where a.scbcrse_subj_code = b.scbcrse_subj_code
                            and a.scbcrse crse numb = b.scbcrse crse numb)
and a.scbcrse dept code = 'AC'
```

- FGAC Group Rules GOAFGAC
- Access to Predicate Tab
- Insert, Update, Delete access to Predicate



 FGAC Business Profile Assignment GOAFBPR – to assign users to business profiles



Run gfvbsaddpol.sql as BANINST1 the first time a policy is created on a table.



- FGAC Predicate Inquiry GOIFGAC
- This form shows the policy and predicate being enforced for the user and table selected. Leave the table null to see all enforced policies for the user.



Value Based Security Example

Fine Grain Access Value Based Security is used on SOAHOLD to restrict insert, update, delete access by the hold type code.



- ▶ FGAC Business Profile Validation GTVFBPR
- Define the Business Profile and Description.

X FGAC Business Profile Validation GTVFBPR 9.0 (PROD)	FGAC Business Profile Validation GTVFBPR 9.0 (PROD)			
FGAC BUSINESS PROFILE VALIDATION				
Code * Description *				
OUR_GRADSCHOOL_HOLDS Restrict to update only Graduate School holds on SOAHOLD				
OUR_GRAD_ADMIN Group allowed to maintain graduation (APEX)				
OUR_IMMUNIZATION_HOLDS Restrict to update only IM-Immunization holds on SOAHOLD				



- FGAC Domain Validation GTVFDMN
- Define the Domain Code and Description.

FGAC DOMAIN VALIDATION			
Code *	Description *		
FB_AGENCY_PII	Finance Agency PII		
FB_CUSTOMER_PII	Finance Customer PII		
FB_EMPLOYEE_PII	Finance Employee PII		
FB_MANAGER_PII	Finance Manager PII		
FB_VENDOR_PII	Finance Vendor PII		
GB_FGACACCESS_VBS	FGAC Rules Access VBS		
GB_FGAC_PREDICATE_VBS	FGAC Rules Predicate VBS		
GB_INTERNATIONAL_VBS	Person International VBS		
GB_SPRADDR_VBS	Address VBS Security		
GB SPRHOLD VBS	Holds VBS Security		



- FGAC Domain Driver Rules GORFDMN
- Enter the Driver Table and Type for the rule GB_SPRHOLD_VBS

FGAC DOMAIN DRIVER RULES				
Domain *	Driver Table *	Type *	Enable PII *	System Required *
FB_AGENCY_PII	FTVAGCY	PII		✓
FB_CUSTOMER_PII	FTVCUST	PII		✓
FB_EMPLOYEE_PII	FCBEMPL	PII		✓
FB_MANAGER_PII	FTVFMGR	PII		✓
FB_VENDOR_PII	FTVVEND	PII		✓
GB_FGACACCESS_VBS	GOBFGAC	VBS		✓
GB_FGAC_PREDICATE_VBS	GORFPRD	VBS		✓
GB_INTERNATIONAL_VBS	GOBINTL	VBS		✓
GB_SPRADDR_VBS	SPRADDR	VBS		✓
GB_SPRHOLD_VBS	SPRHOLD	VBS		



FGAC VBS Table Rules GORFDPL

X FGAC VBS Ta	FGAC VBS Table Rules GORFDPL 9.0 (PROD)						
▼ FGAC VBS TABLE RULE	FGAC VBS TABLE RULES						
Domain	GB_SPRHOLD_VBS				Active Indicator		
Table	SPRHOLD				System Required		
Driver SQL				Column Validate SQL			
K ◀ 5 of 210	K ◀ 5 of 210 ► N 1 ▼ Per Page						



- FGAC Group Validation GTVFGAC
- Define the group name OUR_SPRHOLD_IM.

FGAC Group Validation GTVFGAC 9.3 (PROD)			
FGAC GROUP VALIDATION			
Code * Description *			
OUR_SPRADDR_GK	Greek Address Updates on SPRADDR		
OUR_SPRHOLD_AR	Army ROTC Holds		
OUR_SPRHOLD_AT Athletic Holds			
OUR_SPRHOLD_GR	Graduate School Holds		
OUR_SPRHOLD_IM	Immunization Holds		
OUR_SPRHOLD_IS	International Services Holds		
OUR_SPRHOLD_ND Graduate Non-Degree Limit Holds			
OUR_SPRHOLD_TN Title IX Holds			

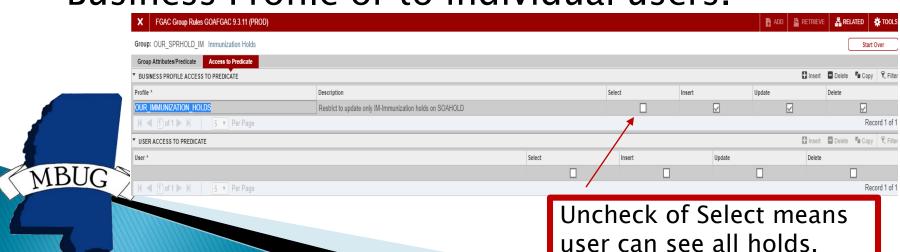


- FGAC Group Rules GOAFGAC
- Define the Predicate SQL for the group.

★ FGAC Group Rules GOAFGAC 9.3.11 (PROD)					
Group: OUR_SPRHOL	D_IM Immunization Holds				
Group Attributes/Predica	Access to Predicate				
▼ GROUP ATTRIBUTES					
	✓ Active		Effective date *	05/18/2017	
▼ PREDICATE					
Domain	GB_SPRHOLD_VBS Holds VBS Security				
Predicate	sprhold_hldd_code in ('IM','MC')	Copy Domain Validate SQL			
Table *	SPRHOLD		Operator	None	▼
	Column		Edit		



- FGAC Group Rules GOAFGAC Access to Predicate Tab
- OUR_IMMUNIZATION_HOLDS Business Profile is assigned the ability to Insert, Update, and Delete access to the predicate ('IM' and 'MC' holds). The predicate can be assigned to a Business Profile or to individual users.



- Run gfvbsaddpol.sql as BANINST1the first time a policy is created on a table – SPRHOLD.
- FGAC Business Profile Assignment GOAFBPR to assign users to business profiles

X FGAC Business Profile Assignments GOAFBPR 9.0 (PROD)

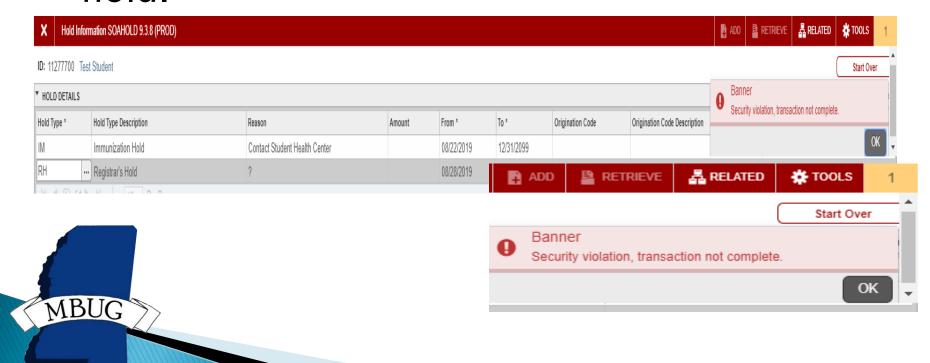
Business Profile: OUR_IMMUNIZATION_HOLDS Restrict to update only IM-Immunization holds on SOAHOLD

BUSINESS PROFILE ASSIGNMENTS

Fine-Grained Access User ID



If user is given access to OUR_IMMUNIZATION_HOLDS only, this error is received when trying to add a 'RH' hold.



Mask/Hide Data Field Example

Limit view and update access to Social Security Number on SPAPERS.



- Data Display Mask Columns GORDMCL
- This table stores the fields that can be used in display mask form.

X	Data Display Mask Columns GORDMCL 9.3.6 (PROD)					ADD	
Obje	Object: SPAPERS General Person						
▼ DAT	DATA DISPLAY MARK COLUMNS						
Block	1	Item *	Form Item Data Queried Into	Data Type *	Length	Numeric Precision	
SPB	PERS	SPBPERS_SSN	SPBPERS_SSN	Character	9		
((◀ 1) of 1 ▶) 10 ▼ Per Page						

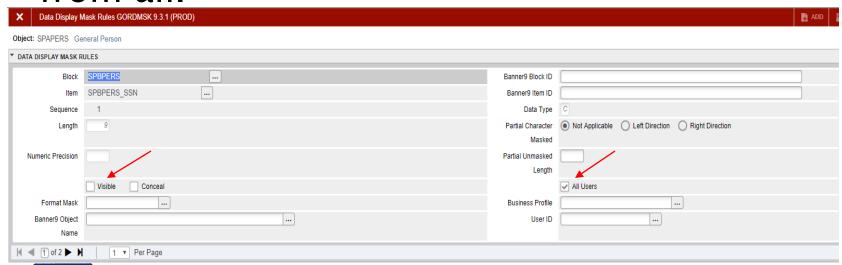


- FGAC Business Profile Validation GTVFBPR
- Define the business profile SSN_GROUP

FGAC Business Profile Validation GTVFBPR 9.0 (PROD)			
FGAC BUSINESS PROFILE VALIDATION			
Code * Description *			
SCHOLARSPOWERUSER	Scholarship Application - Power User		
SOAHOLD_RELEASE_INDICATOR	Group allowed to maintian Release Indicator on SOAHOLD		
SSASECT_GROUP	Group allowed to view building-room data		
SSN_GROUP	Group allowed to view access to SSN		
TRANSFER_CREDIT_ADMIN	Group allowed to update ADVPLC articulation (APEX)		

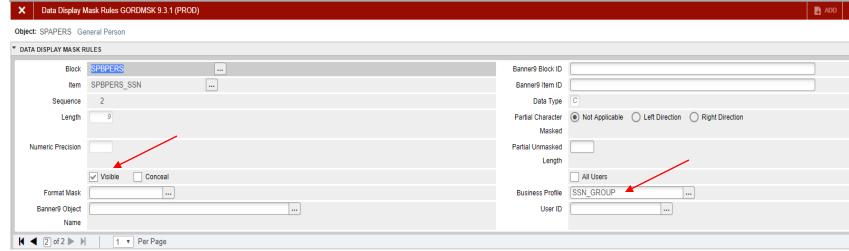


- Data Display Mask Rules GORDMSK
- There are two rules for SSN one to hide from all.





- Data Display Mask Rules GORDMSK
- The second one to display to those in the business profile – SSN_GROUP.





- FGAC Business Profile Assignments GOAFBPR
- Assign users to the SSN_GROUP business profile for users that should see the SSN.

★ FGAC Business Profile Assignments GOAFBPR 9.0 (PROD)

Business Profile: SSN_GROUP Group allowed to view access to SSN

BUSINESS PROFILE ASSIGNMENTS

Fine-Grained Access User ID



SSN does not display since the user is not assigned to the SSN_GROUP business profile.

X General Person	n SPAPERS 9.3.14 (PROD)		B 6					
ID: 11277700 Student, Test								
Biographical		_						
▼ GENERAL PERSON		•	⊕ Insert					
Legal Sex	Male							
Gender Designation			Confidential					
Personal Pronoun	THY They		Deceased					
Birth Date		Deceased Date						
Age								
Citizenship		Ethnicity and Race						
		Confirmed Date						
Marital Status		Veteran File Number						
Religion		Veteran	Not a Veteran					
		Classification						
Legacy		Date of Discharge						
Ethnicity			Armed Forces Service Medal Indicator					
New Ethnicity	None 🔻		☐ Disabled Veteran					
	Ethnicity and Race Confirmed							
▼ RACE DETAILS								
Race *	Race Description							



CAUTION

- The SSN will be visible on GUIALTI if the user has access to this form.
- If the school uses SSN as an alternate id on SPAIDEN, the user can possibly view SSN's.

×	SSN/SIN Alternate ID	/SIN Alternate ID Search GUIALTI 9.3.6 (PROD)									
▼ SSN/SIN/TIN ALTERNATE ID SEARCH											
Active filters: ID: 11277700 👄 Clear All											
SSN/S	SIN/TIN	ID	Person or Non-Person	Last Name	First Name	Middle Name	Prefix				
123456789		11277700	Person	Student	Test						
M											



UA Fine Grain Access VBS

- SFASRPO department and college
- SOAHOLD hold code
- SGASADD cohort code
- SPAIDEN (SPRADDR) address type



UA Fine Grain Access Mask/Hide

- SPAPERS SSN
- SGASTDN Residence Code
- SOAHOLD Release Indicator
- SSASECT building and room data



Summary

Fine Grain Access allows fields to be hidden or masked to prevent some users from seeing personally identifiable information such as SSN. Access can also be restricted at the row level within a form or table to limit which rows a user can view or update such as registration permit overrides or holds on SOAHOLD. There are many other uses for Fine Grain Access depending on the schools needs and policies.



Summary - VBS

- GTVFBPR Define Business Profile
- GTVFDMN Define Domain
- GORFDMN Define Driver Table
- GORFDPL Driver SQL
- GTVFGAC Define the group
- GOAFGAC Predicate SQL & Access to Predicate
- GOAFBPR Business Profile Assignments
- Run gfvbsaddpol.sql if needed.
- FGAC Verify Policy for User



Summary - Mask/Hide

- GORDMCL Define Table Columns
- GTVFBPR Define Business Profile
- GORDMSK Define Data Display Mask Rules
- GOAFBPR Business Profile Assignments
- Run gfvbsaddpol.sql if needed.



Reference Documentation

ellucian.

Banner General

Data Security Handbook

Release 8.6.3 March 2014

CMS-13431: Quick steps to setup FGAC with VBS rules

CMS-13430: Quick steps to setup FGAC with PII rules



Questions





Thank You

- Lisa McDaniel
- IT Data Resource Analyst
- lisa.mcdaniel@ua.edu



Roll Tide!

