



**z/OS**

# **APARs OA39486 and OA39487: RACF Support for DB2 V11**



## Preface

This information applies to APARs OA39486 and OA39487.  
RACF® support for cache management of RACF permissions.

## Overview

APARs OA39486 (RACF) and OA39487 (SAF) provide RACF support for applications that cache RACF access control decisions.  
RACF has enhanced the existing RACF ENF signal, event 71, and added a new RACF ENF signal, event 79.

## Software requirements

Support for APAR OA39486 and APAR OA39487 requires BCP APAR OA39506 and software release:

- z/OS® Security Server RACF Version 1 Release 13 (FMID HRF7780)

## Updated RACF publications

The chapters of this document supplement the V1R13 level of the following RACF publications:

<u>Chapter</u>	<u>Supplements ...</u>
Chapter 1: "Changes to z/OS Security Server RACF Security Administrator's Guide"	<i>z/OS Security Server RACF Security Administrator's Guide</i>
Chapter 2: "Changes to z/OS Security Server RACF System Programmer's Guide"	<i>z/OS Security Server RACF System Programmer's Guide</i>
Chapter 3: "Changes to z/OS Security Server RACF Command Language Reference"	<i>z/OS Security Server RACF Command Language Reference</i>
Chapter 4: "Changes to z/OS Security Server RACF Macros and Interfaces"	<i>z/OS Security Server RACF Macros and Interfaces</i>
Chapter 5: "Changes to z/OS Security Server RACROUTE Macro Reference"	<i>z/OS Security Server RACROUTE Macro Reference</i>
Chapter 6: "Changes to z/OS Security Server RACF Data Areas"	<i>z/OS Security Server RACF Data Areas</i>

## Chapter 1: Changes to z/OS Security Server RACF Security Administrator's Guide

This information supplements *z/OS Security Server RACF Security Administrator's Guide*.

The following information is updated in the topic called "Appendix A. Supplied RACF resource classes".

Two new DB2® classes are added to the Class Descriptor Table (CDT)

<b><u>Class name</u></b>	<b><u>Description</u></b>
GDSNGV	Grouping class for DB2 Global Variables
MDSNGV	Member class for DB2 Global Variables

## Chapter 2: Changes to z/OS Security Server RACF System Programmer's Guide

This information supplements *z/OS Security Server RACF System Programmer's Guide*.

The following information is updated in the topic called " ENF Signals" in "Chapter 3. RACF Customization".

### Type 71 ENF signals

RACF sends a type 71 ENF signal to listeners when a CONNECT, REMOVE, ALTUSER (when the REVOKE option has been specified), DELUSER, or DELGROUP command has affected a user's group authorizations.

Description	Qualifier	Parameter list passed to user exit	Exit type / Cross-system capable
<p>A RACF command has affected a user's group connections which may affect his/her resource authorization.</p> <p>The user affected is in the parameter list in field <b>IRR_ENF2USER</b>.</p> <p>The group affected is in the parameter list in field <b>IRR_ENF2GROUP</b>.</p> <p>Control flags that are used to provide greater granularity for the listeners are in the parameter list in field <b>IRR_ENF2Flags</b>.</p>	<p>The qualifier (QUAL) has the following format:            BYTE1  <b>X'80' CONNECT</b> command  <b>X'40' REMOVE</b> command  <b>X'20' ALTUSER REVOKE</b> command  <b>X'10' DELUSER</b> command  <b>X'08' DELGROUP</b> command            BYTE2 – 4 Reserved</p>	<p>Mapped by <b>IRRPENF2</b> (See <b>z/OS Security Server RACF Data Areas</b>)</p>	<p><b>EXIT / YES</b></p>

## Type 79 ENF signals

RACF sends a type 79 ENF signal to listeners when a PERMIT, RDEFINE, RALTER, or RDELETE command has affected a user's or group's authorization to resources.

Description	Qualifier	Parameter list passed to user exit	Exit type / Cross-system capable
<p>A RACF command has modified a profile such that a user's authorization to the resources it protects may be affected.</p> <ul style="list-style-type: none"> <li>• The user affected is in the parameter list in field <b>IRR_ENF3_UserID</b>.</li> <li>• The class in which the modified profile belongs is in the parameter list in field <b>IRR_ENF3_ClassName</b>.</li> <li>• The length of the affected profile name is in the parameter list in field <b>IRR_ENF3_ProfName_Length</b>.</li> <li>• The name of the affected profile is in the parameter list in field <b>IRR_ENF3_ProfName</b>.</li> <li>• Control flags that are used to provide greater granularity for the listeners are in the parameter list in field <b>IRR_ENF3_Flags</b>.</li> </ul>	<p>The qualifier (<b>IRR_ENF3_QualCode</b>) has the following format:</p> <p>BYTE1</p> <p><b>X'80' PERMIT</b> command</p> <p><b>X'40' RDEFINE</b> command</p> <p><b>X'20' RALTER</b> command</p> <p><b>X'10' RDELETE</b> command</p> <p>BYTE2 – 4 Reserved</p>	<p>Mapped by <b>IRRPENF3</b> (See <b>z/OS Security Server RACF Data Areas</b>)</p>	<p><b>EXIT / YES</b></p>

Description	Qualifier	Parameter list passed to user exit	Exit type / Cross-system capable
<p>For the <b>PERMIT</b> RACF command processor there maybe additional information regarding:</p> <ul style="list-style-type: none"> <li>• The type of Conditional Access, a numerical value that is in the parameter list in field <b>IRR_ENF3_PERMIT_WHEN_Cond</b>.</li> <li>• The Conditional Access List Entry. The length of the Conditional Access Name and the Conditional Access Name itself is in the parameter list in the fields: <ul style="list-style-type: none"> <li>• <b>IRR_ENF3_CACLName_Length</b></li> <li>• <b>IRR_ENF3_CACLName</b></li> </ul> </li> </ul> <p>For the <b>RDEFINE</b> and <b>RALTER</b> RACF command processors there maybe additional information in the <b>ADDMEM</b> and <b>DELMEM</b> lists. The number of elements in the list, the length of the list, and the offset to the list are in the parameter list in the fields:</p> <ul style="list-style-type: none"> <li>• <b>IRR_ENF3_ADDMEML_Member#</b></li> <li>• <b>IRR_ENF3_DELMEML_Member#</b></li> <li>• <b>IRR_ENF3_ADDMEML_Length</b></li> <li>• <b>IRR_ENF3_DELMEML_Length</b></li> <li>• <b>IRR_ENF3_ADDMEML_Offset</b></li> <li>• <b>IRR_ENF3_DELMEML_Offset</b></li> </ul>			



### Chapter 3: Changes to z/OS Security Server RACF Command Language Reference

This information supplements *z/OS Security Server RACF Command Language Reference*.

The following information is updated in the topic called "Appendix B. Supplied RACF resource classes".

Two new DB2 classes are added to the Class Descriptor Table (CDT)

<b><u>Class name</u></b>	<b><u>Description</u></b>
GDSNGV	Grouping class for DB2 Global Variables
MDSNGV	Member class for DB2 Global Variables

## Chapter 4: Changes to z/OS Security Server RACF Macros and Interfaces

This information supplements *z/OS Security Server RACF Macros and Interfaces*.

The following information is updated in the topic called "Appendix C. Supplied class descriptor table entries".

The following classes will have the SIGNAL=YES option enabled:

- DSNADM (Administrative privileges)
- GDSNTB (Tables/View/Indices)
- GDSNSP (Stored procedures)
- GDSNSQ (Sequence)
- GDSNSM (Administrative privileges)
- GSNUF (User defined functions)
- GDSNPK (Package privileges)
- MDSNTB (Tables/View/Indices)
- MDSNSP (Stored procedures)
- MDSNSQ (Sequence)
- MDSNSM (Administrative privileges)
- MDSNUF (User defined functions)
- MDSNPK (Package privileges)

Two new DB2 classes are added to the Class Descriptor Table (CDT)

**Class**

GDSNGV	POSIT=596 RACLIST=DISALLOWED GENLIST=DISALLOWED RACLREQ=NO  MEMBER=MDSNGV OPER=NO PROFDEF=YES FIRST=ANY  SIGNAL=YES	OTHER=ANY MAXLNTH=246 DFTRETC=4 DFTUACC=NONE SLBLREQ=YES  ID=1  MAXLENX=246
MDSNGV	POSIT=596 RACLIST=DISALLOWED GENLIST=DISALLOWED RACLREQ=NO  GROUP=GDSNGV OPER=NO PROFDEF=YES FIRST=ANY  SIGNAL=YES	OTHER=ANY MAXLNTH=246 DFTRETC=4 DFTUACC=NONE SLBLREQ=YES  ID=1  MAXLENX=246

## Chapter 5: Changes to z/OS Security Server RACROUTE Macro Reference

This information supplements *z/OS Security Server RACROUTE Macro Reference*.

The following information is updated in the topic called "Appendix E. Supplied class descriptor table entries".

The following classes will have the SIGNAL=YES option enabled:

- DSNADM (Administrative privileges)
- GDSNTB (Tables/View/Indices)
- GDSNSP (Stored procedures)
- GDSNSQ (Sequence)
- GDSNSM (Administrative privileges)
- GSNUF (User defined functions)
- GDSNPK (Package privileges)
- MDSNTB (Tables/View/Indices)
- MDSNSP (Stored procedures)
- MDSNSQ (Sequence)
- MDSNSM (Administrative privileges)
- MDSNUF (User defined functions)
- MDSNPK (Package privileges)

Two new DB2 classes are added to the Class Descriptor Table (CDT)

**Class**

GDSNGV	POSIT=596 RACLIST=DISALLOWED GENLIST=DISALLOWED RACLREQ=NO  MEMBER=MDSNGV OPER=NO PROFDEF=YES FIRST=ANY  SIGNAL=YES	OTHER=ANY MAXLNTH=246 DFTRETC=4 DFTUACC=NONE SLBLREQ=YES  ID=1  MAXLENX=246
MDSNGV	POSIT=596 RACLIST=DISALLOWED GENLIST=DISALLOWED RACLREQ=NO  GROUP=GDSNGV OPER=NO PROFDEF=YES FIRST=ANY  SIGNAL=YES	OTHER=ANY MAXLNTH=246 DFTRETC=4 DFTUACC=NONE SLBLREQ=YES  ID=1  MAXLENX=246

## Chapter 6: Changes to z/OS Security Server RACF Data Areas

This information supplements *z/OS Security Server RACF Data Areas*.

### Updated information about IRRPENF2

**IRRPENF2 (ENF2):** New fields added: IRR\_ENF2Flags, IRR\_ENF2GROUP

The field IRR\_ENF2Flags has replaced the two byte reserved field in the middle of the mapping macro. The field IRR\_ENF2GROUP, and a reserved field have been added at the end of the mapping macro. The length of the mapping macro increases by the length of IRR\_ENF2GROUP (8 bytes) and the length of the reserved field (16 bytes). The version and the length fields are updated to reflect the changes.

### IRRPENF2 (ENF2):

Common Name:	Mapping macro for RACF ENF Event Code 71	
Macro ID:	IRRPENF2	
DSECT Name:	ENF2	
Owning Component:	SAF	
Eye-Catcher:	IRREN2	
Storage Attributes:	Subpool	231
	Key	0
	Residency	Above
Size:	48 bytes ('30' in hexadecimal) Frequency = 1 per ENF signal	
Created by:	RACF	
Serialization:	None	
Function:	This data area maps the input parameter list for ENF Event Code 71 listen exits	

Offset		Type	Length	Name	Description
Decimal	Hex				
0	0	Structure	48	ENF2	RACF ENF 71 parameter list
0	0	Character	6	IRR_ENF2ID	Control block ID = IRREN2
6	6	Bitstring	2	IRR_ENF2VER	Parameter list version = X'02'
8	8	Signed	2	IRR_ENF2LEN	Parameter list length
10	A	Bitstring	2	IRR_ENF2Flags	CONNECT ... REVOKE  RESERVED
			1... ..	IRR_ENF2_CONNE CT_REVOKE	
			.111 1111	*	
12	C	Character	4	IRR_ENF2Q	Qualifier code
12	C	Bitstring	1	IRR_ENF2Q_CON	CONNECT command when X'80'
				IIRR_ENF2Q_REM	REMOVE command when X'40'
				IRR_ENF2Q_ALU_R EVOKE	ALTUSER REVOKE command when X'20'
				IRR_ENF2Q_DU	DELUSER command when X'10'
				RR_ENF2Q_DGRP	DELGROUP command when X'08'
13	D	Character	3	*	Reserved
16	10	Character	8	IRR_ENF2USER	RACF userID
24	18	Character	8	IRR_ENF2GROUP	RACF groupID
32	20	Character	16	*	Reserved

## IRRPENF3 (ENF3): New data area/mapping macro

Common Name: Mapping macro for RACF ENF Event Code 79  
Macro ID: IRRPENF3  
DSECT Name: ENF3  
Owning Component: SAF  
Eye-Catcher: IRREN3  
Storage Attributes: Subpool 231  
Key 0  
Residency Above  
Size: Variable - header portion is 592 bytes ('250' in hexadecimal)  
Frequency = 1 per ENF signal  
Created by: RACF  
Serialization: None  
Function: This data area maps the input parameter list for ENF Event Code 79 listen exits



Offset		Type	Length	Name	Description	
Decimal	Hex					
0	0	Structure	Variable. The fixed portion is 592 bytes	ENF3	RACF ENF 79 parameter list	
0	0	Character	6	IRR_ENF3_ID	Control block ID = IRREN3	
6	6	Bitstring	2	IRR_ENF3_Version	Parameter list version = X'01'	
8	8	Signed	2	IRR_ENF3_Length	Parameter list length	
10	A	Character	2	*	Reserved	
12	C	Character	4	IRR_ENF3_QualCode	Qualifier code	
12	C	Bitstring	1	IRR_ENF3_QualCode_PE	PERMIT command when X'80'	
				IRR_ENF3_QualCode_RDEF	RDEFINE command when X'40'	
				IRR_ENF3_QualCode_RALT	RALTER command when X'20'	
				IRR_ENF3_QualCode_RDEL	RDELETE command when X'10'	
13	D	Character	3	*	Reserved	
16	10	Character	8	IRR_ENF3_UserID	RACF userID	
24	18	Character	8	IRR_ENF3_ClassName	RACF class name	
32	20	Bitstring	4	IRR_ENF3_Flags		
				1... ..	IRR_ENF3_PERMIT_ACCESS	PERMIT ACCESS(...)
				.1.. ..	IRR_ENF3_PERMIT_DELETE	PERMIT DELETE
				..11 ..	IRR_ENF3_PERMIT_RESET	PERMIT RESET
					IRR_ENF3_PERMIT_RESET_STD (..1. ....)	PERMIT RESET(ALL), both bits are "ON" (X'30')
					IRR_ENF3_PERMIT_RESET_WHEN (..1. ....)	PERMIT RESET(STANDARD), first bit is "ON" (X'20')
.... 1...	IRR_ENF3_UACC_Specified	PERMIT RESET(WHEN) second bit is "ON" (X'10')				
.... .111	*	RDEFINE ... UACC(..) or RALTER ... UACC(..)				
					Reserved	

Offset		Type	Length	Name	Description
Decimal	Hex				
36	24	Bitstring	1	IRR_ENF3_Access_Level	Access Level from: <ul style="list-style-type: none"> <li>• PERMIT ACCESS(Access Level)</li> <li>• RDEFINE UACC(Access Level)</li> <li>• RALTER UACC(Access Level)</li> </ul>
			1... ....	IRR_ENF3_Access_Lvl_ALTER	Access Level = ALTER
			.1.. ....	IRR_ENF3_Access_Lvl_CONTROL	Access Level = CONTROL
			..1. ....	IRR_ENF3_Access_Lvl_UPDATE	Access Level = UPDATE
			...1 ....	IRR_ENF3_Access_Lvl_READ	Access Level = READ
			.... 1...	IRR_ENF3_Access_Lvl_EXECUTE	Access Level = EXECUTE
			.... .11.	*	Reserved
			.... ...1	IRR_ENF3_Access_Lvl_NONE	Access Level = NONE
37	25	Signed	1	IRR_ENF3_PERMIT_WHEN_Cond	Numerical value of the PERMIT WHEN(Condition) ***
38	26	Character	2	*	Reserved
40	28	Signed	2	IRR_ENF3_ADDMEML_Member#	Number of Members in ADDMEM List
42	2A	Signed	2	IRR_ENF3_DELMEML_Member#	Number of Members in DELMEM List
44	2C	Signed	2	IRR_ENF3_ADDMEML_Length	Length of ADDMEM Member List
46	2E	Signed	2	IRR_ENF3_DELMEML_Length	Length of DELMEM Member List
48	30	Signed	2	IRR_ENF3_ADDMEML_Offset	Offset to ADDMEM List Data
50	32	Signed	2	IRR_ENF3_DELMEML_Offset	Offset to DELMEM List Data
52	34	Character	28	*	Reserved
80	50	Structure	256	IRR_ENF3_ProfName_DS	RACF Profile Name Structure
80	50	Signed	1	IRR_ENF3_ProfName_Length	Length of RACF Profile Name
81	51	Character	255	IRR_ENF3_ProfName	RACF Profile Name

Offset		Type	Length	Name	Description
Decimal	Hex				
336	150	Structure	256	IRR_ENF3_CACLName_DS	Conditional Access Name Structure
336	150	Signed	1	IRR_ENF3_CACLName_Length	Length of Conditional Access Name
337	151	Character	255	IRR_ENF3_CACLName	Conditional Access Name

\*\*\* Numerical values of the PERMIT WHEN(Condition):

```

PERMIT WHEN (PROGRAM (...)) = 1
PERMIT WHEN (CONSOLE (...)) = 2
PERMIT WHEN (TERMINAL (...)) = 3
PERMIT WHEN (JESINPUT (...)) = 4
PERMIT WHEN (APPCPORT (...)) = 5
PERMIT WHEN (SYSID (...)) = N/A
PERMIT WHEN (SERVAUTH (...)) = 7
PERMIT WHEN (CRITERIA (...)) = 8

```

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