

# **NOTE MAY 2007**

# The SAP® system trace

SAP® offers with the system trace the opportunity to evaluate the authorization objects that are checked during the call of the different transactions.

With the help of the trace all authorization objects on which an authority check is executed while working with the system can be logged. This also includes the corresponding field values within the authorization objects.

Call the transaction **ST01** for the use of the system trace.



### From Release 4.7

In the selection screen the different components can be activated via checkmark.

#### System Trace

Image trace     Imag	🛃 🕞   🗔 Analysis 🕒 Save   🖪 Onlir (main switch on)	ne Documentation	
Trace components Authorization check // // Kernel Functions // // General Kernel // // DB Access (SQL Trace) // // Table Buffer Trace // RFC calls // Lock operations //	Last changed on/by MLWAGENER 12.05.2007 15:20:27	Le: System Trace. General Filter Lock Without Reference to Trace Type Trace for process number only Trace for user only Trace for transaction only Trace for program only (either or)	

There are options for additional filter settings. Push the button *General Filters.* You can filter for the process you want to log, the user, the transaction, or the program.

Enter the required selection, push the key *Enter*, and then activate the trace.

Note: An activation of the trace for all system users should not be activated. For user evaluation always enter the username you want to analyze.

With activation of the trace all required access rights for the selected user will be logged.

When all actions are traced, and logged, then please switch the *Trace off*. After that you can evaluate the results by pushing the button *Analysis* [or key F2].

The evaluation path varies in dependency of the current release level.



# A. from release 4.7:

Change trace Trace off R Analysis Save Online Documentation Trace status: Trace switched on (main switch on) Trace components Authorization check Kernel Functions Provide Save Official Content of Save Offici		
Trace status :       Trace switched on (main switch on)         Trace components       Last changed on/by         Authorization check       MLWAGENER         Kernel Functions       Image: Company C		
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DB Access (SQL Trace)		
Table Buffer Trace		
RFC calls		
Lock operations		
General Filters		

Activate the integrated button *Analysis*. Enter the required selection for evaluation, and push the key F8 for activation.

Options for Trace Analysis				
General restrictions       Trace Records         User name:       MLWAGENER         Client:       100         Work Process:       ✓ Authorization check         Transaction:       ✓ General Kernel         Duration (+us):       ✓ DB Access (SQL Trace)         Max. No. Records:       10.000         From:       12.05.2007       / 15:11:03         Table Buffer Trace       ✓ RFC calls				
Table Restriction (Only SQL and Buffer Trace)				
D010 D020 More tables				
File selection          • Active Trace File           • Other File				

Aside from the selection of the different trace components, you can narrow down the selection according to users, transactions work process, or times. In the context of performance analysis you can select a restriction in the field duration, which is not very useful for an authorization trace. Additionally an evaluation with consideration of tables can be set up, which might be helpful for SQL or table buffer traces.

## B. up to release 4.6D:

⊡ Trace-Datei Bearbeiten Springen System Hilfe		
◎ ▲ ▲ ■ ● ● ● M M = 単 4 A = ● ● ●		
Systemtrace: Dateiliste		
🕒 Auswerten 🔯 Dateiattribute Löschflag setzen Lösz	nflag rücksetzen 📋 🧿 Liste auffrischen	
verwendbar  schon gesehen    sci gelöscht werden      verändert L       Name der Datei	nge [Dyte] letzis Anderung	
X :\USR\SAP\P01\DVEBMGS00\LOG\TRACE000.L.	16384000 20041210 Coptionen für Trace-Auswertung	
	Schalter	Einschränkungen
	Trace für Ein/Ausgabe (ohne DB)	Benutzer Milagonon
	Trace der DB Benutzung	Prozeß
	Trace für DDic-Benutzung	Transaktion oder
	Trace der DBS. echte DB-Zugriffe	Programm
	Trace f ür direkte DB-Zugriffe	Terminalname
	Trace für Speicherverwaltung	
	Trace f ür Task-Handling	Startdatum 11.01.2005
	Trace Aufrufe von C-Moduln	Startuhrzeit 00:00:00
	Trace Aufrufe von ABAP-Moduln	
	<ul> <li>Trace allg.Meldungen v. C-Programm</li> </ul>	max.Seiten für Daten 80
	Trace für allg.Meld. von ABAP-Prog.	
	<ul> <li>Trace f ür Berechtigungspr üfungen</li> </ul>	
	Trace für Enqueue-Aufrule	
	Trace für RFC's	
	Trace für int. Tabellenspeicher	
	Zeige auch interne Einträge	
	Auswertung mit Statistik	
	O Auswerten III II X	

Double click onto the displayed file name. Select the required information in the dialog box, and activate the button *Analysis*.



#### Trace in a multiple instance environment

In case you run SAP® on different instances you have to make sure that you activate the trace for the instance on which the user is executing the transactions that need to be logged for evaluation. Users can be active on more than one instance.

[The user instance information is displayed down on the right in the SAP status bar.] You can review, and even change to the corresponding instance, with the help of transaction **SM51**.

Select the instance you want to review. Activate the button *User Info* [CTRL+SHIFT+F7]. Select the user from the correspond list. Mark the entry. In the menu bar select the path *Goto – Terminals*. Select the user. In the menu bar select the path *Goto – Remote Server*. From here you can activate the trace for the instance on which the user is located.

#### The trace evaluation

Liste Bearbeiten Springen System Hilfe				
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Traceanzeige				
Mandant: 200 Reputter: MuRCENER Transaktion	n EV02 Trong.TD: 224C0DE244DE464148227C21120182B8			
Workprozess 8 PID 8 Datum:	11.01.2005 Anfang: 10:37:59:216.253 Ende: 10:37:59:352.581			
Erster Block vom Dialogschritt - letzter Block im Dialogschritt Blockgröße: 858 - Anzahl Sätze: 5 - Dateiversion: 1				
hh:mm:ss:ms Typ Dauer(us) Objekt Text				
10:37:59:216 AUTH S_TCODE RC=0 TCD=FI	K03;			
10:37:59:372 AUTH F_LFA1_APP RC=0 ACTVT 10:37:59:602 AUTH F_LFA1_APP RC=0 ACTVT	=03;APPKZ=F; =03;APPKZ=F;			
10:37:59:614 AUTH F_LFA1_GEN_RC=0_ACTVT: 10:38:01:206 AUTH S_TCODERC=0_TCD=FI	=03; nkiisee			
Mandant: SAA Benutzer: MMAGENER Transaktion	n FK03 Trans-TO SSR802318FR14EFCR64344028F030F4			
Workprozess 0 PID 0 Datum:	11.01.2005 Anfang: 10:38:17:219.292 Ende: 10:38:17:706.271			
Erster Block vom Dialogschritt - letzter Blo Blockgröße: 861 - Anzahl Sat:	ze: 5 Dateiversion: 1			
hh:mm:ss:ms Typ Dauer(us) Objekt Text				
10:38:17:219 AUTH F_LFA1_GEN RC=0 ACTVT	=03;			
10:38:17:224 AUTH F_LFA1_GRP_RC=0_KTOKK 10:38:17:837 AUTH F_LFA1_APP_RC=0_ACTV/	=0001,ACTVT=03; =03-APPKZ=E-			
10:38:17:637 AUTH F_LFA1_GEN RC=0 ACTVT	=03;			
10:36:17:042 A018 S_1CODE RUED 100=P	DRUSER;			
Workprozess 0 PID 0 Datum:	11.01.2005 Anfang: 10:38:21:177.142 Ende: 10:38:21:189.215			
Erster Block vom Dialogschritt letzter Blo Blockgröße: 745 Anzahl Sät:	ock im Dialogschritt ze: 4 Dateiversion: 1			
hh:mm:ss:ms Typ Dauer(us) Objekt Text				
10:38:21:177 AUTH E LEAT GEN RC-8 ACTVT	=43 -			
10:38:21:177 AUTH F_LFA1_GRP RC=0 KTOKK	=0001,ACTVT=03;			
10:38:21:324 AUTH S_TCODE RC=0 TCD=FI	=1666,AUTV1=63; DKUSER;			
Mandant: 800 Benutzer: MWAGENER Transaktio	n FK03 Trans-ID: 858802316FB14FCC851311828FD29B14			
Workprozess 0 PID 0 Datum: Erster Block vom Dialogschritt letzter Blo	11:01:2005 Anfang: 10:38:26:168:019 Ende: 10:38:26:359.954 ock im Dialogschritt			
Blockgröße: 343 Anzahl Sat:	ze: 1 Dateiversion: 1			
hh:mm:ss:ms Typ Dauer(us) Objekt Text				
10:38:26:168 AUTH F_LFA1_GEN RC=0 ACTVT	=03;			
20 Sátze gelesen				

For interpretation of the evaluation you can use the following overview of relevant information.



Element	Info	Additional info
Time	Exact milli second.	Per double-click onto the selected entry you branch to the detail view.
Туре	Type of the corresponding trace entry	Display of the selected trace component. See component overview
Duration	Duration of the trace	Not useful for authorization trace
Object	Objekt in dependency of the related component	See: component overview
Trace-message text		Per double-click onto the selected entry, you branch into the detail view. From there, you can branch into the related ABAP source code.

Please find the component overview with corresponding acronyms.

Component	Acronym	Object
Authorization check	AUTH	Authorization object t
Kernel-Functionen	CMOD	Related C- function in kernel
Kernel general	USER	C-Modul im Kernel, in dem der Trace geschrieben wird
DB-access (SQL-Trace)	SQL	DB-Table that was accessed
Table buffer-Trace	BUFF	DB- that was accessed
RFC-call	RFC	Called function module
Lock operation	ENQUE	Lock object



#### The return code

Successfully passed authorization check are marked in dark green already and have the value RC=0 added in the column next to the authorization object.

RC is the acronym for return code. The return values vary depending on the check result.

The return code *0* means that the authorization was successfully checked.

The return code 4 says, that the required authorization for the authorization object in the user master is not available.

The return code 12 says, that no authorization for the authorization object is available.

# Saving of trace results

There are different ways to save trace evaluation results.

You can download the trace file in the evaluation display mode by saving the list locally.

If trace information are to be protected against overwriting, you have to branch to the button *Save* after tracing.

System Trace		
🛐   😤 Change trace 🎯 Trace off   🛃 🕞   🥵 Analysis 🕒 Save   🖪 Online Documentation		
Trace status : Trace switched on (main switch on)		
Trace components		Last changed on/by
Authorization check	✓	MLWAGENER 07.05.2007 17:25:33
Kernel Functions		
General Kernel		
		📙 Settings 😂 Settings
DB Access (SQL Trace)		
Table Buffer Trace		
RFC calls		
Lock operations		
General Filters		

In the following window you can enter remarks as well as a file name.



#### **Restrictions on Saving Trace Records**

Remark About Trace		
Name of New File		
Automatically		
O Manual entry		
General restrictions	Trace Records	
User name: MLWAGENER	Authorization check	
Client: 100	✓ Kernel Functions	
Work Process:	🗹 General Kernel	E
Transaction:		
Duration (>us):	DB Access (SQL Trace)	B
Max. No. Records: 10.000	✓ Table Buffer Trace	
From: 12.05.2007 / 13:33:01	RFC calls	
To: 12.05.2007 / 13:48:01	Lock operations	
Table Restriction (Only SQL and Buffer Trace)	/	
D010		
D020		
More tables		

If you do not enter an absolute path when entering the file name manually, the file will be created in the log directory.

For the automatic file name creation, the system provides a file name, and creates the file in the log directory.

Automatically created file names can be selected with the F4 search key in the future. This option is not available for manually created names.

Automatically created file names can be deleted within this application, manually created file names need to be deleted on the OS level separately.

Therefore the automatic file name creation is to be preferred.



# Trace configuration

The system trace is configurable through different profile parameters. All trace relevant parameters are part of the category *rstr/*.

To review the parameters the transaction **RZ11** can be used. The following parameters are adjustable.

Profile parameter	Description	
rstr/buffer_size_kB	The SAP-Trace (SQL-Trace u.a.) writes the trace data into trace files. Because of performance issues this is not done directly but through a process internal buffer. The profile parameter rstr/buffer_size_kB determines the size of this buffer in kilobytes.	
rstr/filename	Since release 6.10 the SAP-Trace (SQL	
rstr/max_files	Irace etc) saves the data in different files, that are sequentially written. The Parameter rstr/filename establishes the basic name of these files. There is always only one file with this name. If the file is full (parameter rstr/max_filesize_MB), the file is renamed and a new file with the basic name is created. During the renaming a file extension with the numbers 00 to 99 is added to the file name. The parameter rstr/max_files determines, how many files there will be altogether. If this number is exceeded, the files will be overwritten.	
rstr/max_filesize_MB		

The system trace cannot only be used for the evaluation of authority checks, but also for evaluation of kernel functions, kernel modules, DB access, table buffer, RFC calls and lock operations. For system monitoring the developer trace is usually preferred.