Query Exception with type CX SY Export no Shared Memory

Applies to:

SAP NetWeaver BI 7.0. For more information, visit the EDW homepage

Summary

This article explains about the Exception with the type CX_SY_EXPORT_NO_SHARED_MEMORY resulted when executing the queries with larger set of outputs and the procedure to set the parameters *rsdb/esm/buffersize_kb* and r*sdb/esm/max_objects* in the instance profiles to resolve the Shared Memory Error.

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Introduction

When the user requires to view a query output whose result set is larger and had many calculations may ended up in filling the buffer space with no shared memory left, resulting in the Exception with the type **CX_SY_EXPORT_NO_SHARED_MEMORY**. This article explains how to overcome it by setting parameters in the instance profiles *rsdb/esm/buffersize_kb* for Size in the shared memory and *rsdb/esm/max_objects* to set the Number of the objects that can be buffered.

Background Information

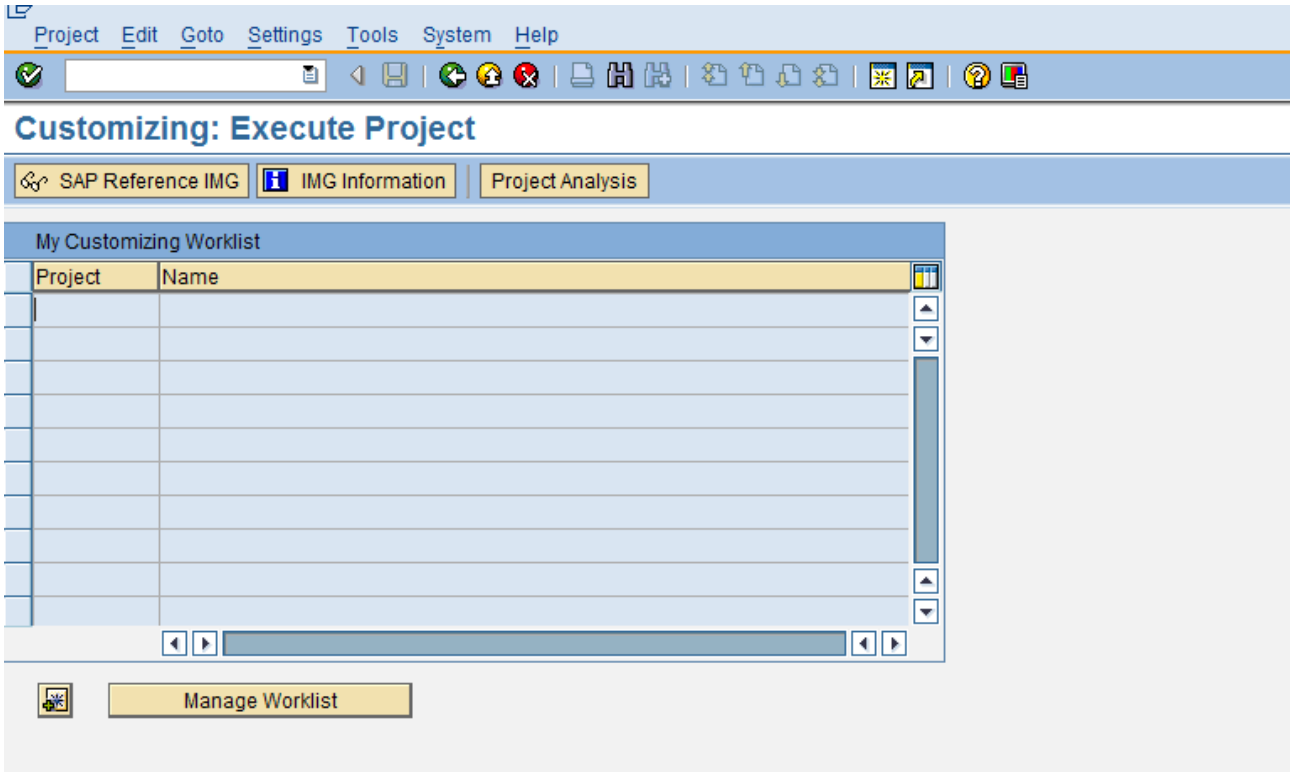
Cache Parameters

Storing the query results in the OLAP cache requires additional memory in the main memory of the Application server. The size of the OLAP cache must be appropriate to manage the frequency of query calls and the number of users. The size of the global cache depends on the size of the local cache. Cache objects that are no longer used are deleted from the roll area when the size of the local cache is exceeded—for both types of cache objects.

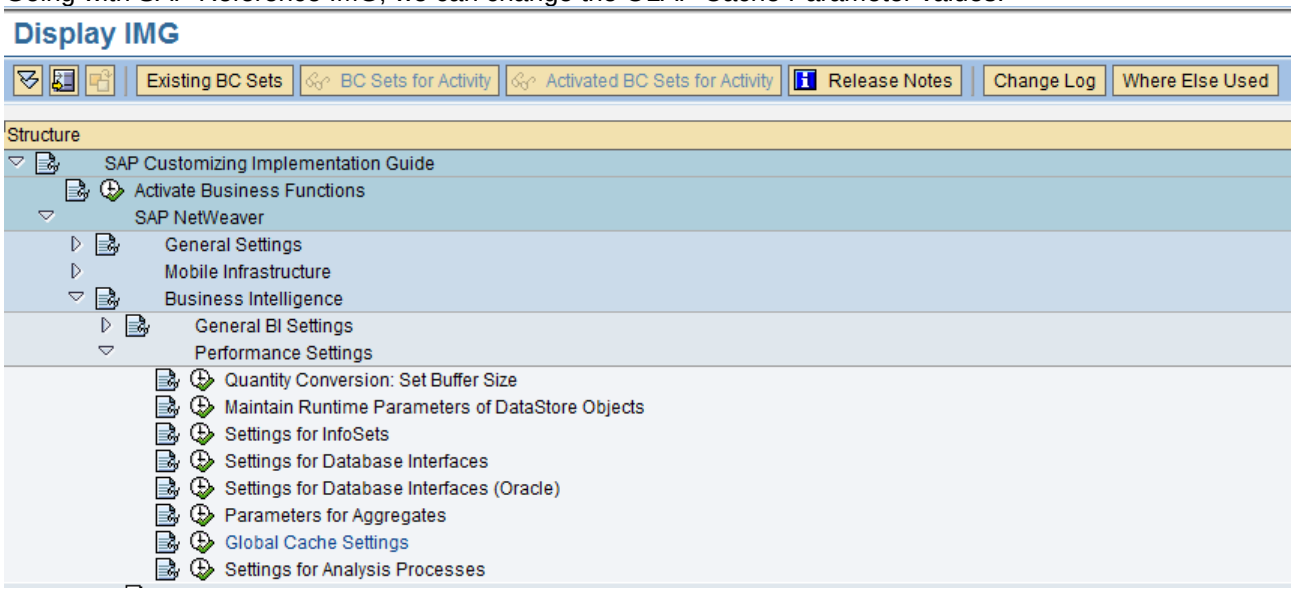
Global Cache Parameters

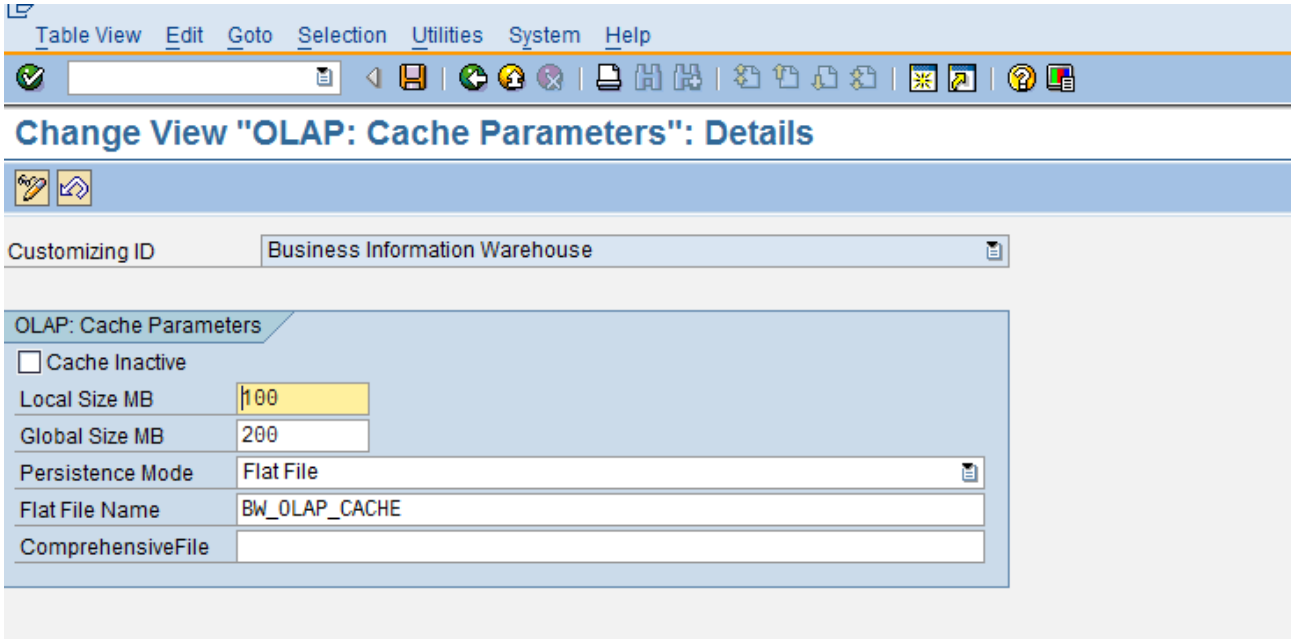
You can set the global cache parameters via the SAP BW customizing menu using Transaction

SPRO: SAP Customizing Implementation Guide -- SAP NetWeaver – Business Intelligence – Performance Settings -- Global Cache Settings



Going with SAP Reference IMG, we can change the OLAP Cache Parameter values.





We can reach the above same screen and can configure the cache parameters using Transaction RSCUSTV14.

Cache Inactive

You can find a Check Box (Below OLAP: Cache Parameters tab) to be marked to make Cache Inactive in the above screen

Activation of this configuration deactivates the cross-transaction cache. A query can no longer use the global cache—the local cache is used instead.

Local Size MB

This parameter sets the size of the local OLAP cache (in MB).

Global Size MB

This parameter sets the maximum value of memory use of all objects in the cross-transaction cache (in MB). The memory use is based on the memory requirements of the objects in the shared memory buffer. The

Memory usage in the shared memory buffer is generally greater, because it stores the OLAP cache runtime objects in compressed from in the application buffer, along with additional administrative data.

When setting the size of the global cache, note that the actual size of the cross-transaction cache is determined by the minimum value of the Global Size MB parameter and the actual memory available in the

Shared memory buffer (profile parameter rdsb/esm/buffersize_kb).

You should therefore use Transaction ST02 to check whether the size of the export/import buffer is appropriate.

The default setting of 4,096 KB is often too small.

SAP recommends the following settings:

rsdb/esm/buffersize_kb = 200000
rsdb/esm/max_objects = 10000.

Profile Parameters for the Export/ Import Buffer

We can set the Size in Shared memory and Number of objects that can be buffered to resolve **CX_SY_EXPORT_NO_SHARED_MEMORY** error which results during query execution. We can achieve this by setting the profiles parameters rsdb/esm/max_objects and rsdb/esm/buffersize with the **BASIS**.

The default setting of profile parameters rsdb/esm/max_objects and rsdb/esm/buffersize for the export/import buffer, for the ESM (export/import-shared-memory) buffer are

Size in the Shared Memory:

rsdb/esm/buffersize_kb [in kilobytes]

Default: 4,096 [kB]

Maximum: 2,097.148 [kB]

Number of the Objects that can be Buffered (Directories):

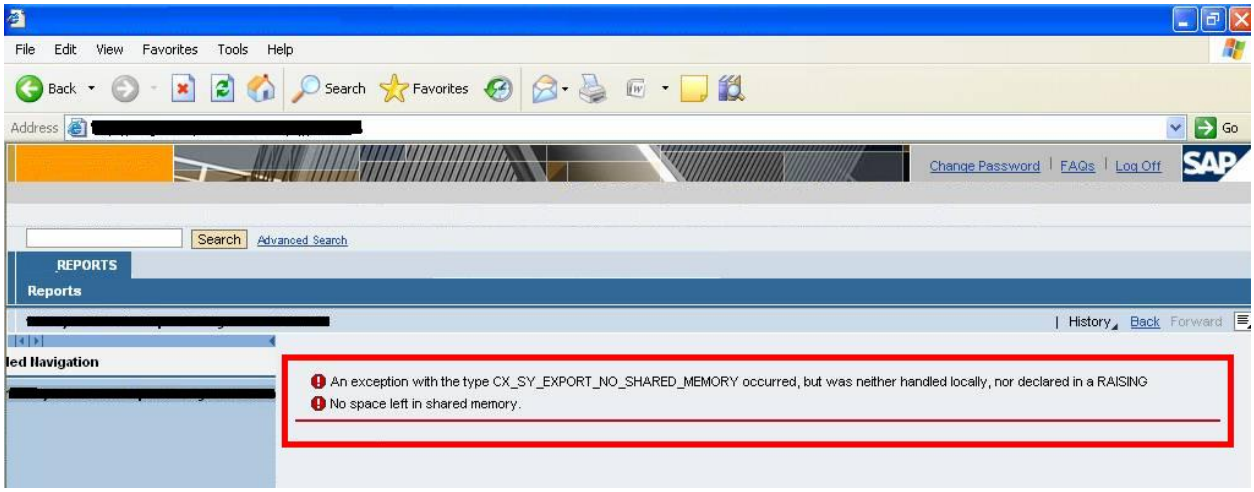
rsdb/esm/max_objects

Default: 2.000

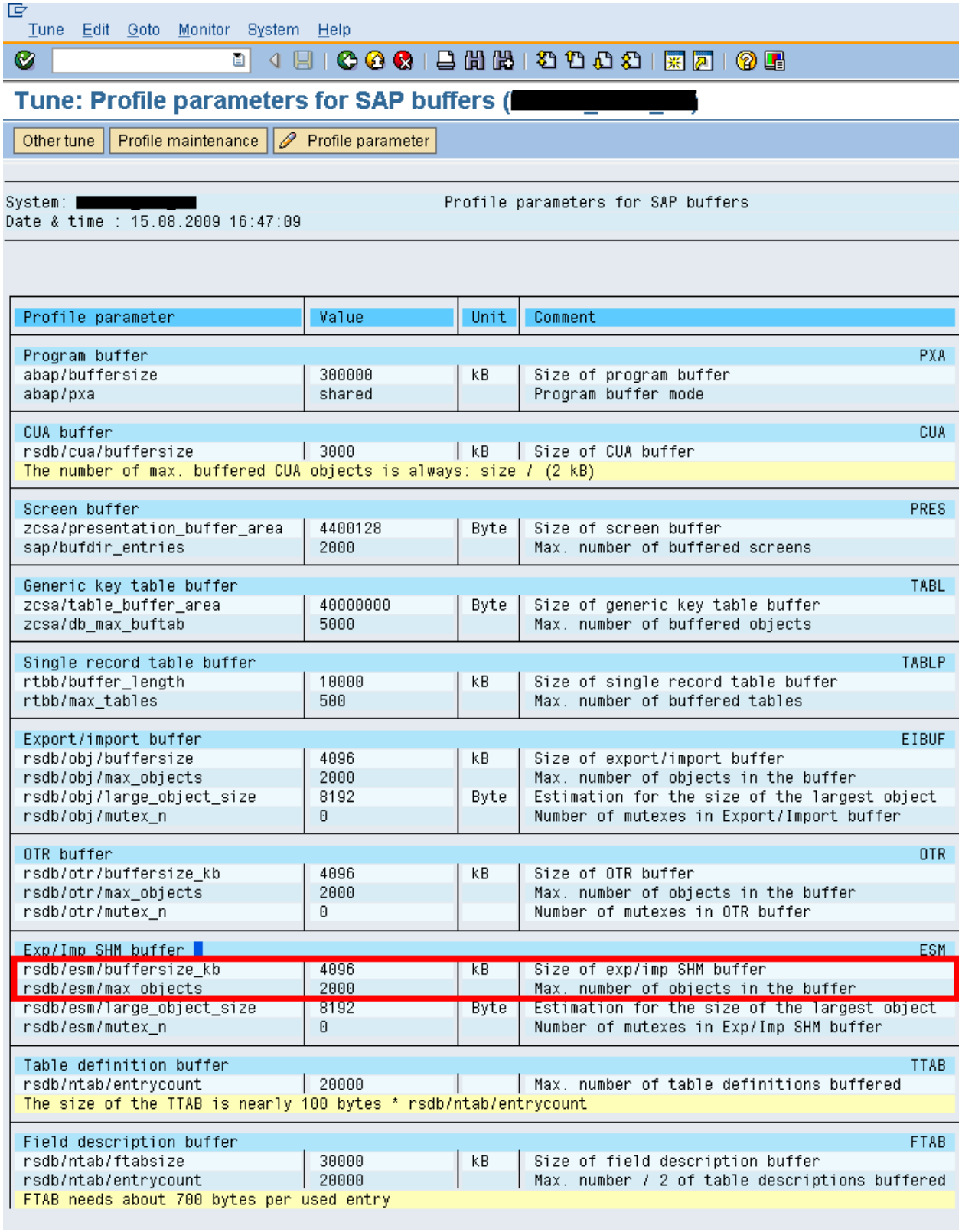
Note: Size restrictions applicable for kernel Release 3.I to 6.20 with a patch number lower than 1129 and will not be applicable for releases above this level.

When the exception in caught the above error is displayed.

Below is the Screen Shot for reference:



Below is the screen shot of Profile Parameters with default settings.
Execute the transaction **ST02 → Current Parameters**,
Results to **Profile Parameters to SAP Buffers**.



Tune Edit Goto Monitor System Help

Tune: Profile parameters for SAP buffers ([redacted])

Other tune | Profile maintenance | Profile parameter

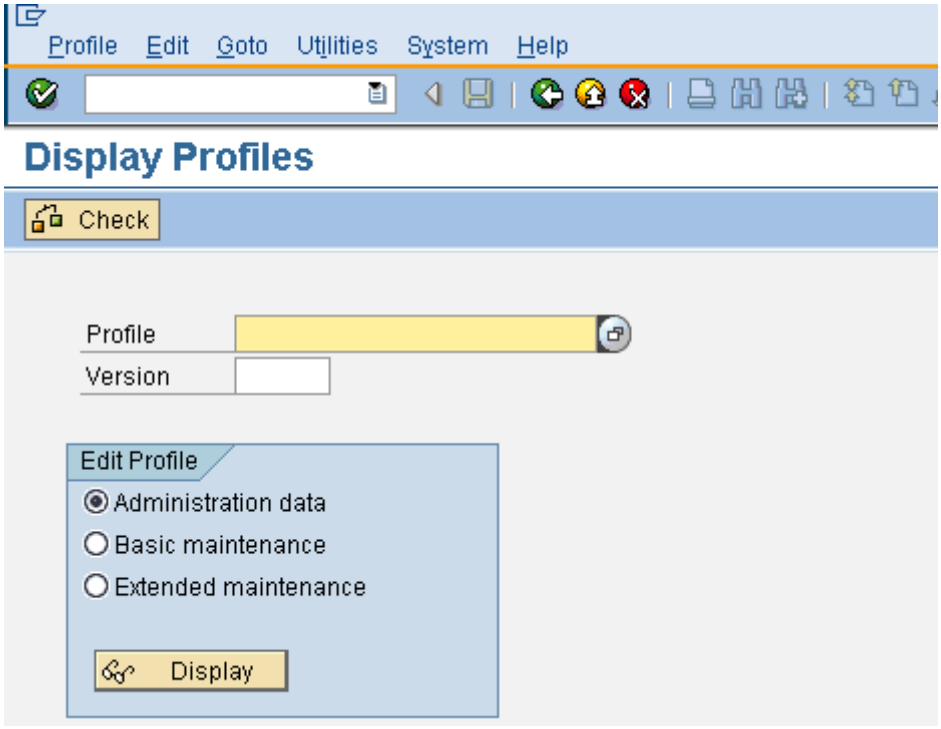
System: [redacted] Profile parameters for SAP buffers
Date & time : 15.08.2009 16:47:09

Profile parameter	Value	Unit	Comment
Program buffer			PXA
abap/buffersize	300000	kB	Size of program buffer
abap/pxa	shared		Program buffer mode
CUA buffer			CUA
rsdb/cua/buffersize	3000	kB	Size of CUA buffer
The number of max. buffered CUA objects is always: size / (2 kB)			
Screen buffer			PRES
zcsa/presentation_buffer_area	4400128	Byte	Size of screen buffer
sap/bufdir_entries	2000		Max. number of buffered screens
Generic key table buffer			TABL
zcsa/table_buffer_area	40000000	Byte	Size of generic key table buffer
zcsa/db_max_buftab	5000		Max. number of buffered objects
Single record table buffer			TABLP
rtbb/buffer_length	10000	kB	Size of single record table buffer
rtbb/max_tables	500		Max. number of buffered tables
Export/import buffer			EIBUF
rsdb/obj/buffersize	4096	kB	Size of export/import buffer
rsdb/obj/max_objects	2000		Max. number of objects in the buffer
rsdb/obj/large_object_size	8192	Byte	Estimation for the size of the largest object
rsdb/obj/mutex_n	0		Number of mutexes in Export/Import buffer
OTR buffer			OTR
rsdb/otr/buffersize_kb	4096	kB	Size of OTR buffer
rsdb/otr/max_objects	2000		Max. number of objects in the buffer
rsdb/otr/mutex_n	0		Number of mutexes in OTR buffer
Exp/Imp SHM buffer			ESM
rsdb/esm/buffersize_kb	4096	kB	Size of exp/imp SHM buffer
rsdb/esm/max_objects	2000		Max. number of objects in the buffer
rsdb/esm/large_object_size	8192	Byte	Estimation for the size of the largest object
rsdb/esm/mutex_n	0		Number of mutexes in Exp/Imp SHM buffer
Table definition buffer			TTAB
rsdb/ntab/entrycount	20000		Max. number of table definitions buffered
The size of the TTAB is nearly 100 bytes * rsdb/ntab/entrycount			
Field description buffer			FTAB
rsdb/ntab/ftabsize	30000	kB	Size of field description buffer
rsdb/ntab/entrycount	20000		Max. number / 2 of table descriptions buffered
FTAB needs about 700 bytes per used entry			

In order to change one of the above parameters...
1) Edit your system profile \\sbxoes01\sapmnt\OES\SYS\profile\[redacted]
(You can use the buttons Profile Maintenance or Profile Parameter above)
2) Activate the parameter by restarting your local SAP system

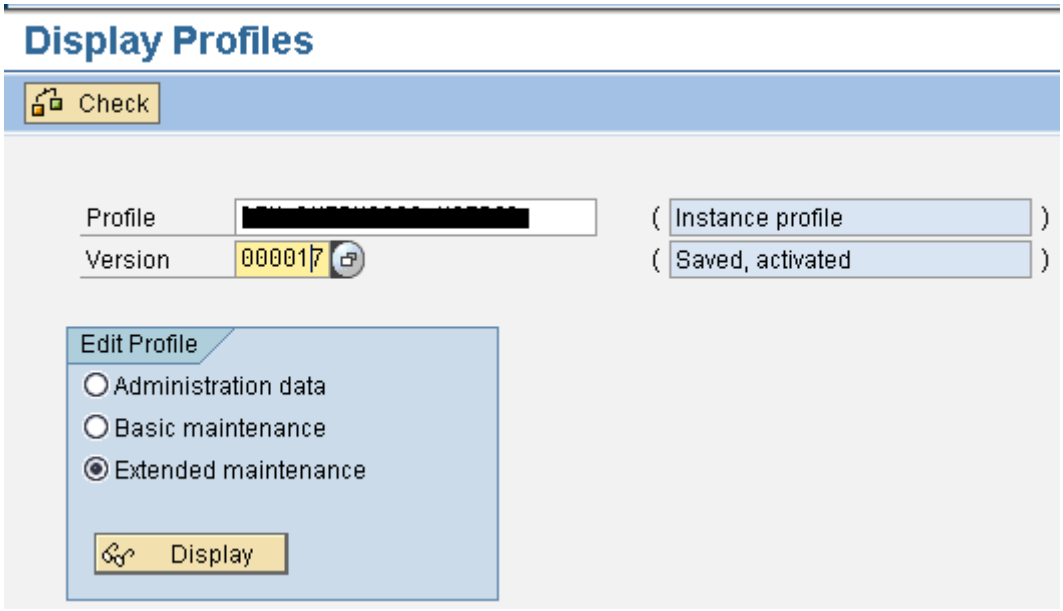
Procedure

We can set the parameters rsdb/esm/buffersize_kb for Size in the shared memory and rsdb/esm/max_objects to set the Number of the objects that can be buffered in the instance profiles by selecting the profile and going with **Profile Maintenance** option in the above screen shot.

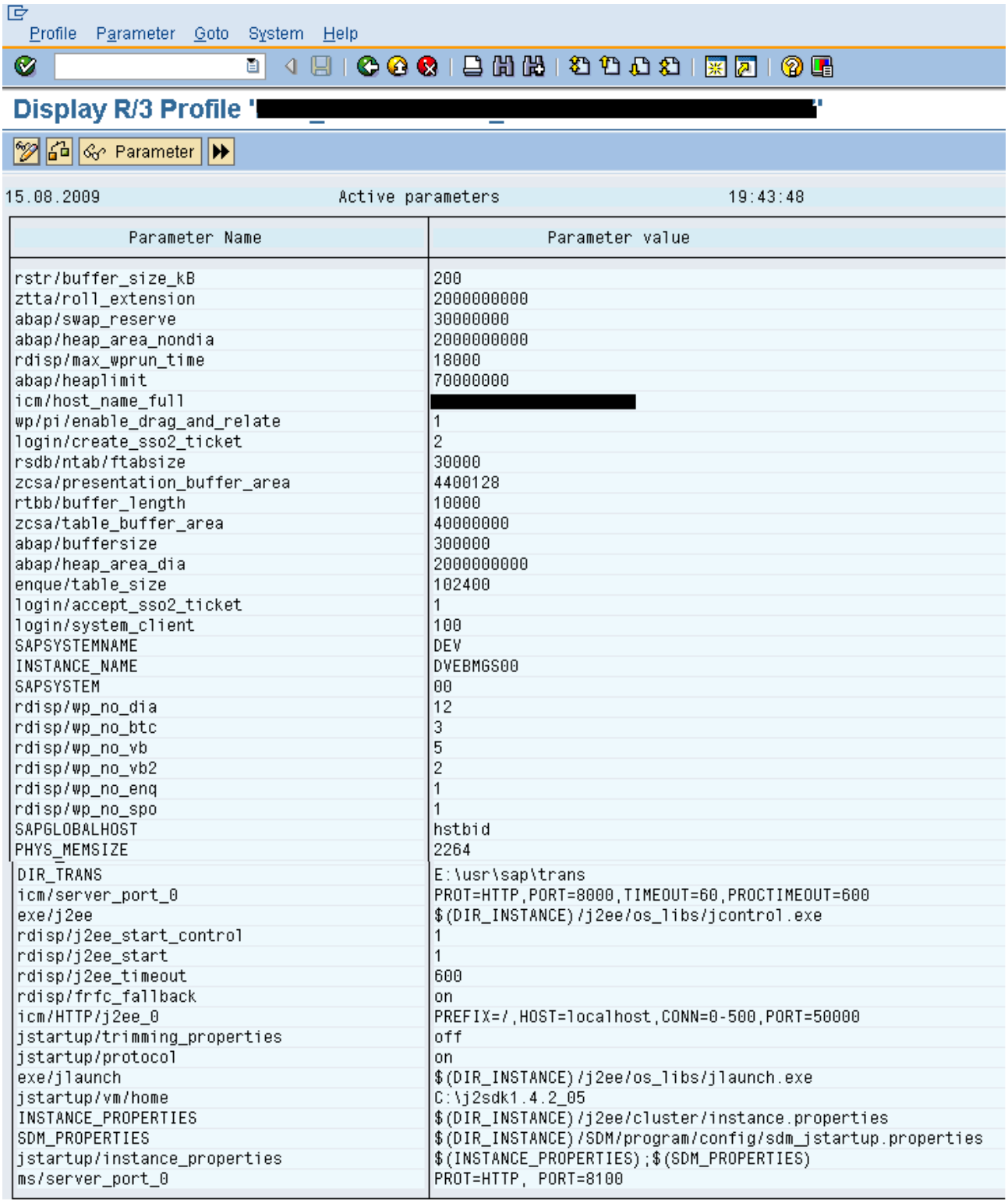


Which in turn can be maintained with transaction RZ10.

Need to have the authorization to object S_RZL_ADM in the SAP system. On selecting the Instance Profile and extended maintenance, we can maintain the required profile parameters.



On further navigation, will be driven to R/3 profiles.



Profile Parameter Goto System Help

Display R/3 Profile '[redacted]'

Parameter

15.08.2009 Active parameters 19:43:48

Parameter Name	Parameter value
rstr/buffer_size_kB	200
ztta/roll_extension	2000000000
abap/swap_reserve	30000000
abap/heap_area_nondia	2000000000
rdisp/max_wprun_time	18000
abap/heaplimit	70000000
icm/host_name_full	[redacted]
wp/pi/enable_drag_and_relate	1
login/create_sso2_ticket	2
rsdb/ntab/ftabsize	30000
zcsa/presentation_buffer_area	4400128
rtbb/buffer_length	10000
zcsa/table_buffer_area	40000000
abap/buffersize	300000
abap/heap_area_dia	2000000000
enque/table_size	102400
login/accept_sso2_ticket	1
login/system_client	100
SAPSYSTEMNAME	DEV
INSTANCE_NAME	DVEBMGS00
SAPSYSTEM	00
rdisp/wp_no_dia	12
rdisp/wp_no_btc	3
rdisp/wp_no_vb	5
rdisp/wp_no_vb2	2
rdisp/wp_no_enq	1
rdisp/wp_no_spo	1
SAPGLOBALHOST	hstbid
PHYS_MEMSIZE	2264
DIR_TRANS	E:\usr\sap\trans
icm/server_port_0	PROT=HTTP,PORT=8000,TIMEOUT=60,PROCTIMEOUT=600
exe/j2ee	$(DIR_INSTANCE)/j2ee/os_libs/jcontrol.exe
rdisp/j2ee_start_control	1
rdisp/j2ee_start	1
rdisp/j2ee_timeout	600
rdisp/frfc_fallback	on
icm/HTTP/j2ee_0	PREFIX=/,HOST=localhost,CONN=0-500,PORT=50000
jstartup/trimming_properties	off
jstartup/protocol	on
exe/jlaunch	$(DIR_INSTANCE)/j2ee/os_libs/jlaunch.exe
jstartup/vm/home	C:\j2sdk1.4.2_05
INSTANCE_PROPERTIES	$(DIR_INSTANCE)/j2ee/cluster/instance.properties
SDM_PROPERTIES	$(DIR_INSTANCE)/SDM/program/config/sdm_jstartup.properties
jstartup/instance_properties	$(INSTANCE_PROPERTIES);$(SDM_PROPERTIES)
ms/server_port_0	PROT=HTTP, PORT=8100

On increasing the rsdb/esm/buffersize_kb for Size in the shared memory to the maximum possible (e.g. above 30 MB), the exception CX_SY_EXPORT_NO_SHARED_MEMORY can be resolved.

Buffers

The profile parameters for the dimensioning of the following buffers are:

1. Export/import buffer:

You can use the ABAP command EXPORT TO SHARED BUFFER to save data clusters in a general work process buffer, the export/import buffer (or shared buffer).

2. ESM buffer:

As of kernel Release 6.10, you have an additional new ABAP command EXPORT TO SHARED MEMORY, that you can use to save data clusters in the export/import shared memory buffer (or ESM buffer for short).

3. OTR buffer:

The online text repository buffer is available as of kernel Release 6.10. Here texts are saved that are used in BSP for example.

4. CUA buffer:

The runtime objects of the GUI interface are stored in the CUA buffer. These are saved on the database in the tables D345T, D346T and D342L.

Note

Following points are to be considered for increasing the buffer parameters in the SAP profile:

- System must have enough main memory. The main memory is limited, especially on 32-bit platforms, so any increase in the buffer must be in line with existing memory management.
- We cannot prescribe definite guide values for optimal buffer sizes. The appropriate sizes depend on the hardware, release level, dataset in the system and applications used.
- For profile changes to take effect. System must be restarted.

Related Content

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https://forums.sdn.sap.com/thread.jspa?threadID=131359

https://forums.sdn.sap.com/thread.jspa?messageID=6008656

Note 702728 - Profile parameter for export/import buffer instances

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