Memory Allocation and Analysis

Memory Allocation

Work process memory allocation strategy can be different according to different release and platform.

In general, we know the allocation of Dialog and Non-Dialog work process are different.

Dialog -> Roll First -> EM -> Roll Area -> Heap
Non-Dialog -> Roll Area -> Heap -> EM

AIX - With configuration of ES/TABLES = SHM_SEGS, the nonDIA allocation strategy is same as DIA.
Windows and Pase400 - the allocation order is changed in general
Linux - the order is changed when em/implemention is set to map

Please also refer to note 177226 on report RSMEMORY

Below SAP Help links are useful

- Memory Management under UNIX
- Memory Management Under Linux
- Memory Management under Windows
- Memory Management on iSeries

( Please note that Memory management issue under Windows platform is typically handled under BC-OP-NT component. )

Resource and Quota are two important terms that we need to understand. Quota limits the usage, which is important to prevent further consumption of resources. Resources can be come from R/3 itself or systems.

Example of Resource:
- em/initial_size_MB
- abap/heap_area_total
- swap space

Example of Quotas:
- ztta/roll_first, ztta/roll_area
- ztta/roll_extension
- abap/heap_area_(non)dia

Memory Analysis

There are many common memory dumps, that we can provide standard guidelines in resolving them.

- TSV_TNEW_PAGE_ALLOC_FAILED
- STORAGE_PARAMETERS_WRONG_SET

We will talk about more on memory analysis here on next update.

SAP Important Memory Notes:

General:

- #146289 : Parameter Recommendations for 64-Bit SAP Kernel
- #425207 : SAP memory management, current parameter ranges
- #153641 : Swap space requirement for R/3 64-bit kernel
- #548845 : Internal modes uses more than 2 GB
- #835474 : More than 32 GB extended memory
- #1147109 : Heap memory shortage

Operating System Specific:

AIX

- #445533 : Lots of extended memory on AIX (64 bit)
- #789477 : Large extended memory on AIX (64-bit) as of Kernel 6.20
- #323816 : User limits on AIX
- #191801 : AIX 64-bit with very large amount of Extended Memory

HPUX

- #1112627 : SAP on HP-UX: Recommendations for swap and pseudo swap
- #172747 : HP-UX Operating System kernel parameter recommendations

Linux
- #941735 : SAP memory management for 64-bit Linux systems
- #386605 : SAP Memory Management for Linux (32-bits)
- #171356 : SAP software on Linux: Essential information

**Sun Solaris**

- #570375 : SAP on Sun Solaris: Swap Space and Paging

**Windows**

- #931024 : FAQ: 64-bit platforms for Windows
- #88416 : Zero administration memory management as of 4.0A/ Windows
- #13347 : Windows editions and memory support
- #110172 : Windows: Transactions with large memory requirements
- #129813 : Windows: Problems due to address space fragmentation
- #546361 : FAQ: Storage problems on NT/Windows 2000