

Defining the Natural Swap Pool

This document describes the TP monitor environment-specific requirements that apply and the keyword parameters can be used to define the Natural swap pool.

The following topics are covered:

- Environment-Specific Requirements
 - Keyword Parameters of Macro NTSWPRM
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Environment-Specific Requirements

The following environment-specific requirements apply:

- **Under UTM:**
The Natural swap pool is defined by specifying macro NTSWPRM for assembling the Natural swap-pool parameter module.
- **Under CICS:**
The Natural swap pool is defined by specifying NTSWPRM in the NCISCPDB environment definition module.

Keyword Parameters of Macro NTSWPRM

The following keyword parameters can be used to define the Natural swap pool details:

`LABEL` | `DSPCONT` | `DSPLIFE` | `SWPFILE` | `MAXSIZE` | `SWPFACT` | `SWPINIT` | `SWPLSWP` | `SWPPWRD` | `SWPSDIF` | `SWPSLSZ` | `SWPTFIX` | `SWPTIM1` | `SWPTIM2` | `SWPUSER` | `NOVPA` | `NOVPW` | `WAITMS` | `WRITMS` |

LABEL - Name of Swap-pool Parameter Module

This parameter defines the CSECT name of the swap-pool parameter module.

<code>LABEL=nnnnnnnn</code>	The name <code>nnnnnnnn</code> may be 8 characters at maximum.
<code>LABEL=NATSWPRM</code>	The default setting is the name of macro NTSWPRM.

DSPCONT - Minutes for Data Space Slot Control

This parameter defines the time (in minutes) after which data space control takes place when the ESA Data Space area is full. When this time has elapsed, the slots in the Data Space are checked for whether their threads' life time has expired. If so, the compressed Natural user thread of each affected slot is rolled out into the roll file.

<code>DSPCONT=nnn</code>	<code>nnn</code> must be in the range of 1 to 480.
<code>DSPCONT=10</code>	The default value is 10 (minutes).

DSPLIFE - Life Time in Minutes for a Thread in the ESA Data Space

This parameter defines the life time for a compressed Natural user thread in a slot of the ESA Data Space. When the data space slots control logic becomes active, the thread is rolled out if its life time has elapsed. The life time of a thread starts when the thread is written to the ESA Data Space.

DSPLIFE= <i>nn</i>	<i>nn</i> must be in the range of 1 to 60.
DSPCONT=5	The default value is 5 (minutes).

SWPFILE - Location of Swap Pool Initialization Data

This parameter defines whether the swap-pool initialization data are stored in the Natural system file FNAT or FUSER when the function SWPINIT=AUTO is used.

SWPFILE=FNAT/FUSER	File definition for the swap pool initialization data.
SWPFILE=FNAT	The default value is FNAT.

MAXSIZE - Size of Natural User Threads

This parameter defines the size *nnn* of the Natural user threads in KB. For information on how to determine this size, see *Using the MAXSIZE Parameter*.

MAXSIZE= <i>nnn</i>	<i>nnn</i> must be in the range of 64 to 32768.
MAXSIZE=400	The default setting is 400 (KB).

Under CICS, this parameter specification is ignored, because the Natural CICS interface will automatically take the size of the largest thread for this parameter.

SWPFACT - Size of Unit in Reorganization Tables

The factor *n* you specify with this parameter determines the size of a "unit" in the swap-pool reorganization plus tables and minus tables.

SWPFACT= <i>n</i>	Possible values for <i>n</i> are 0 to 4. <i>n</i> determines the size of a "unit" as follows: 0 corresponds to 2 KB. 1 corresponds to 4 KB. 2 corresponds to 8 KB. 3 corresponds to 16 KB. 4 corresponds to 32 KB.
SWPFACT=1	The default setting is 4 KB.

These tables are used to calculate slot sizes, to dynamically reorganize the swap pool and to get swap-pool statistics see *Dynamic Swap-Pool Reorganization*.

SWPINIT - Access to Swap-Pool Initialization Data

This parameter specifies the access to the swap-pool initialization data through the Natural system file.

SWPINIT=	Blank, as described above under <i>Swap Pool Initialization</i> , see <i>If You Set SWPINIT=</i> .
SWPINIT=AUTO	This is the default setting. The swap-pool initialization data are to be read from/stored in the Natural system file. See also <i>Swap Pool Initialization, If You Set SWPINIT=AUTO</i> .

For more information on how to use this parameter, see *Swap Pool Initialization*.

SWPLSWP - Number of Logical Swap Pools

This parameter defines the maximum number n of logical swap pools to be used.

SWPLSWP= n	Possible values for n are 0 to 15.
SWPLSWP=0	See Note 3 below.

Notes:

1. The minimum size of a logical swap pool is 64 KB.
2. The value defined must not be smaller than the number of slot sizes defined in the parameter SWPSLSZ.
3. If the default value 0 is used, the swap-pool manager will compute the maximum number of logical swap pools.
4. This parameter will be ignored if the swap-pool initialization data could be read from the Natural system file.

SWPPWRD - Administration Password

With this parameter, you specify the password for the administration of the swap-pool reorganization control data and the Buffer Usage Statistics in the swap-pool manager subsystem of the Natural utility SYSTP.

SWPPWRD= <i>password</i>	The <i>password</i> can be up to 4 characters long.
SWPPWRD=ADMI	This is the default value.

SWPSDIF - Minimum Difference of Slot Sizes

With this parameter, you specify the minimum difference of the slot sizes in the logical swap pools.

SWPSDIF= <i>nn</i>	<i>nn</i> must be an even number and specifies the number of kilobytes (KB). <i>nn</i> must be in the range of 2 to 98.
SWPSDIF=8	The default value is 8 KB.

Note:

This parameter will be ignored if the swap-pool initialization data could be read from the Natural system file.

SWPSLSZ - Number of Logical Swap Pools, Slot Sizes

This parameter determines the number of logical swap pools, the slot sizes and the relation of slot numbers between the different logical swap pools. Possible values are:

SWPSLSZ=(<i>nn</i> , <i>f</i> (, <i>nn</i> , <i>f</i> ...)) SWPSLSZ=(<i>nn</i> (, <i>nn</i> ...), <i>f</i> (, <i>f</i> ...)) SWPSLSZ=(<i>nn</i> (, <i>nn</i> ...))	<i>nn</i>	Determines the slot size of a logical swap pool in kilobytes (must be an even number). <i>nn</i> must be in the range of 20 to 998.
	<i>f</i>	Determines the relation in terms of a numerical factor between the slot numbers of the different logical swap pools. <i>f</i> must be in the range of 1 to 9.
SWPSLSZ=(62,1)	The default slot size is 62 KB. The default relation is 1.	

Examples:

```
SWPLSZ=(44,1,62,2)
/* SWAP POOL SIZE IS 2048 KB
/* THERE WILL BE TWO LOGICAL SWAP POOLS, RELATION BETWEEN THEM IS 1:2
/* 1 LOGICAL SWAP POOL WITH 12 (1) 44-KB SLOTS
/* 1 LOGICAL SWAP POOL WITH 24 (2) 62-KB SLOTS<
```

```
SWPLSZ=(64,80,96)
/* SWAP POOL SIZE IS 8 MB
/* THERE WILL BE THREE LOGICAL SWAP POOLS, RELATION BETWEEN THEM IS 1:1:1
/* 1 LOGICAL SWAP POOL WITH 34 (1) 64-KB SLOTS
/* 1 LOGICAL SWAP POOL WITH 34 (1) 80-KB SLOTS
/* 1 LOGICAL SWAP POOL WITH 34 (1) 96-KB SLOTS
```

This parameter will be ignored if the swap-pool initialization data could be read from the Natural system file.

SWPTFIX - Fixed Slot Size

This parameter determines if the size of the swap pool slots is to be fixed or not. Possible values are:

SWPTFIX=Y	The slot size defined with the SWPSLSZ parameter (see above) is taken as a fixed size and no reorganization of the swap pool takes place.
SWPTFIX=N	This is the default value. The slot size defined with the SWPSLSZ parameter (see above) is not taken as a fixed size and the swap pool is reorganized when necessary; that is, the size of the slots is dynamically adjusted to meet the actual requirements.

Note:

This parameter will be ignored if the physical swap pool contains more than one logical swap pool.

SWPTIM1 - Time Interval for Reorganization Check

With this parameter, you specify the time interval *nnn* at which a check is to be performed to ascertain whether a swap-pool reorganization is necessary. Possible values are:

SWPTIM1= <i>nnn</i>	<i>nnn</i> must be in the range from 1 to 540 (minutes).
SWPTIM1=(<i>nnn</i> , RESET)	The contents of the swap-pool-reorganization statistics tables are deleted after the check (normally, they are only deleted after a swap-pool reorganization).
SWPTIM1=30	The default value is 30 (minutes).

For details on how the check and a possible swap pool reorganization are performed, see *Dynamic Swap-Pool Reorganization*.

Important:

If the parameter SWPTFIX is set to Y or if the physical swap pool contains more than than one logical swap pool, the SWPTIM1 parameter does not apply.

SWPTIM2 - Lapse of Time Before Start of Reorganization

With this parameter, you can specify the time *nn* to elapse after the check for the necessity of a swap-pool reorganization is performed and before the actual reorganization is to be started.

SWPTIM2= <i>nn</i>	<i>nn</i> must be in the range from 1 to 99 (minutes)
SWPTIM2=2	The default value is 2 (minutes).

During this time, no further user areas can be placed in the swap pool, while user areas still held in the swap pool can still be used and read in the Natural user thread.

For details on how the check and a possible swap-pool reorganization are performed, see *Dynamic Swap-Pool Reorganization*.

If the parameter SWPTFIX is set to Y or if the physical swap pool contains more than than one logical swap pool, the SWPTIM2 parameter does not apply.

SWPUSER - Condition for Swap Pool Reorganization

With this parameter you can define which condition has to be met for a swap-pool reorganization to take place.

SWPUSER= <i>nn</i>	<i>nn</i> must be in the range from 1 to 99.
SWPUSER=20	The default value is 20 (percent).

You can define a percentage value *nn* which determines the percentage of dialog steps of all users where the length of the compressed user areas was 1 or more units larger (or 1 or more units smaller) than the current slot size. If a check establishes that this percentage is reached, a swap-pool reorganization takes place.

For details on how the check is performed, see Dynamic Swap-Pool Reorganization.

If the parameter SWPTFIX is set to Y or if the physical swap pool contains more than than one logical swap pool, the SWPUSER parameter does not apply.

NOVPA - Number of Waits for Completed Asynchronous Write

This parameter determines the number of waits for a completed asynchronous write.

NOVPA= <i>nnn</i>	<i>nnn</i> must be in the range of 1 to 999.
NOVPA=20	The default value is 20 (waits).

NOVPW - Number of Waits for Unlocked Swap Pool

This parameter determines the number of waits for an unlocked swap pool.

NOVPW= <i>nnn</i>	<i>nnn</i> must be in the range of 1 to 999.
NOVPW=15	The default value is 15 (waits).

WAITMS - Wait Time for Unlocked Swap Pool

This parameter determines the number of milliseconds for one wait of an unlocked swap pool.

WAITMS= <i>nnn</i>	<i>nnn</i> must be in the range of 1 to 999.
WAITMS=5	The default value is 5 (milliseconds).

WRITMS - Wait Time for Completed Asynchronous Write

This parameter determines the number of milliseconds for one wait of a completed asynchronous write.

WRITMS= <i>nnn</i>	<i>nnn</i> must be in the range of 1 to 999.
WRITMS=10	The default value is 10 (milliseconds).