Natural Global Buffer Pool under OS/390

This document describes purpose and usage of a Natural Global Buffer Pool (GBP) under the operating system OS/390.

It covers the following topics:

- Using a Natural Global Buffer Pool
- Operating the Natural Global Buffer Pool
- Sample NATGBPMV Execution Jobs
- Localization

Certain parts of the Natural global buffer pool are identical under OS/390 and VSE/ESA.
These parts are concentrated in a separate section (see Common GBP Operating Functions under OS/390 and VSE/ESA) which covers the following topics:

- Global Buffer Pool Operating Functions
- Global Buffer Pool Function Parameters
- Examples of NATBUFFER Specifications

Using a Natural Global Buffer Pool

Definition

The Natural global buffer pool is a segment of storage assigned from the OS/390 extended common system area (ECSA) above 16 MB (or from CSA storage below, if requested), used by Natural to load and execute Natural programs.

Benefits

Using a global buffer pool, multiple Natural sessions under different TP monitors (multiple copies of CICS, TSO, IMS/TM, etc.) and/or in multiple batch sessions share the same area - thus requiring less storage than would be required for a local buffer pool in each environment.

Operating the Natural Global Buffer Pool

Installing the Natural GBP Operating Program

The global buffer pool is operated by the program NATGBPMV which must be executed from an authorized library. NATGBPMV is contained in the Natural load library, with the authorization code already set to "1".

During the installation of Natural, the modules NATGBPMV and NATBPMGR are copied into an APF-authorized library.

Setting up the Natural Global Buffer Pool

The functions available from NATGBPMV are activated in that they are

- provided by a parameter card (PARM=),
- read from a file (see below)
- or supplied by the MODIFY operator command unless NATGBPMV has not been terminated.

NATGBPMV expects the first command in the parameter field (PARM=) of the EXEC statement.

You may enter:

- one of the functions (described in the section Common GBP Operating Functions under OS/390 and VSE/ESA)
- or a reference to an input file with "CF=<*dd-name*>", where <*dd-name*> represents a DD name defined in the JCL. Only "card image" files are supported, that is, RECFM=F,LRECL=80, and only the first 72 bytes of the input record are honoured. Every record included from the input file represents a command. Blank records or records prefixed with an asterisk ("*") are ignored. A file is processed until End-Of-File (EOF).

  Example: PARM='CF=SYSIN1'

If the parameter field is not supplied or blank, the commands will be read from file SYSIN by default.

It is only possible to enter one function at a time at the console or one function per line using the command file, otherwise an error message will be returned.

Each command received, from the parameter card, from file input or from operator console input is shown on the operator console.

Starting the Natural GBP Operating Program

To start program NATGBPMV, either start a started task or submit a job, which executes NATGBPMV.

Important:
To ensure that the global buffer pool is retained after a system failure, the global buffer pool should be started automatically during machine IPL.

Stopping the Natural GBP Operating Program

After all commands are processed, NATGBPMV terminates, unless

- RESIDENT=Y was specified
- or a buffer pool with a cache was created.

NATGBPMV will return one of the following condition codes:

0	All functions executed successfully.
20	An error has occurred; see the message log for details.

Sample NATGBPMV Execution Jobs

The following examples show sample batch jobs for creating and terminating a global buffer pool.

Example 1:

```
//GBPSTART JOB
//*
//* Starts a global buffer pool with the name NAT31GBP, a size of 1 MB and
//* a text block size of 4 KB. The global buffer pool is allocated above 16 MB.
//* The subsystem used is NAT3.
//* After the allocation, the job GBPSTART terminates.
//*
//STEP EXEC PGM=NATGBPMV,PARM='BPN=NAT31GBP,N=(1000)'
//SETPLIB DD DISP=SHR,DSN=USER.APF.LINKLIB
```


Example 2:

```
//GBPRES JOB
//*
//* Starts a global buffer pool with the name GBP, a default size of
//* 100 KB and a text block size of 1 KB. The global buffer pool is allocated
//* below 16 MB. The subsystem used is SAGS.
//* After the allocation, the job GBPRES will wait for further commands.
//* Further commands may be entered using the MODIFY operator command:
//* F GBPRES,command-string
//*
//STEP EXEC PGM=NATGBPMV,PARM='BPN=GBP,N=(,BL,1),S=SAGS,R=Y'
```

Example 3:

```
//GBPSTOP
//*
//* Stops the global buffer pool GPB if it contains no active objects. If it
//* does contain active objects, the operator console will prompt for a reply.
//* Depending on the reply, the shutdown will be forced (Y) or aborted (N).
//* The subsystem used is NAT3.

//*
//STEP EXEC PGM=NATGBPMV,PARM='FSHUT,BPN=GPB'
```

Example 4:

```
//GBPSTRT2
//* Read commands from SYSIN1:
//*
//* Start 3 global buffer pools (subsystem id N315) with name
//*   NATGBP1 - size=1024KB and a cache with size 2048KB
//*            (Initialized with implicit PLUGIN=BP due to specified BPC parm)
//*   NATGBP2 - size=2048KB with standard V31 layout
//*   NATGBP3 - size=1024KB without cache, but in new NatTurbo shape.
//* Display all buffer pools of subsystem id "N315".
//*
//* Note: The job does not terminate by itself, but stays resident and waits
//*       for operator commands, because it owns the data space allocated for
//*       buffer pool NATGBP1.
//*
//* If the buffer pools should shut down, send operator command MODIFY with
//* parameter "CF=SYSIN2" to execute the corresponding FSHUTs.
//*
//STEP EXEC PGM=NATGBPMV,PARM='CF=SYSIN1'
//SYSIN1  DD *
CREATE,BPN=NATGBP1,S=N315,N=(1024),BPC=2048
CREATE,BPN=NATGBP2,S=N315,N=(2048)
CREATE,BPN=NATGBP3,S=N315,N=(1024),PLUGIN=BP
SHOWBP S=N315
//SYSIN2 DD *
FSHUT,BPN=NATGBP1,S=N315
FSHUT,BPN=NATGBP2,S=N315
FSHUT BPN=NATGBP3,S=N315
SHOWBP S=N315
//*
```


Localization

The module NATGBPTX (already included in NATGBPMV) is delivered in source form. It contains all error messages in English. The messages can be translated into other languages as required. In this case, the "new" NATGBPTX source module has to be assembled and NATGBPMV has to be newly link-edited by replacing the CSECT NATGPBTX, using the following JCL:

```
//SYSLIN  DD *
  SETCODE AC(1)
  SETOPT PARM(REUS=RENT)
  REPLACE NATGBPTX
  INCLUDE SMALIB (NATGBPTX)
  NAME NATGBPMV (R)
  /*
```

