

Storage Services Guide

=====

--SVC--		FUNCTION
DEC	HEX	
4	04	GETMAIN
4	04	GETVIS (VSE)
5	05	FREEMAIN
5	05	FREEVIS (VSE)

Other Macros

-----

STORAGE

Documentation

-----

name STORAGE OBTAIN,LENGTH=,LOC=,COND=      Acquire storage  
name STORAGE RELEASE,ADDR=,LENGTH=          Free storage

An alternative to GETMAIN and FREEMAIN.

See the equivalent descriptions below:

- LENGTH= becomes the GETMAIN/FREEMAIN parameter LV=
- LOC= is the same
- COND=NO (default) is the GETMAIN type R
- COND=YES                    is the GETMAIN type RC
- ADDR= becomes the GETMAIN/FREEMAIN parameter A=

name GETMAIN type,LV=,LOC=,A=  
Acquire storage.

type is mandatory

- R Obtain storage unconditionally.  
The default location is below 16M.
  
- RC Obtain storage conditionally.  
The default location is above 16M.  
The return code indicates whether the acquisition was successful.
  
- RU Obtain storage unconditionally.  
The default location is above 16M.

LV= is mandatory

LV=n                    Obtain n bytes (maximum value of n is 2G-1)

ZDOCSTOR.TXT

LV=nK        Obtain nK bytes (maximum value of n is 2097151)  
LV=nM        Obtain nM bytes (maximum value of n is 2047)  
LV=(reg)     Length required is in GRreg

Note: All storage requests will be rounded up to the next 8-byte boundary and is not initialised.

LOC= is optional

If omitted, type R will default to LOC=ABOVE, types RC and RU will default to LOC=BELOW.

```
LOC=BELOW        }  
LOC=RES            }  
LOC=24            } Try to acquire storage below 16M.  
LOC=(24)          }  
  
LOC=ABOVE        }  
LOC=ANY           }  
LOC=31            } Try to acquire storage above 16M.  
LOC=(31)          }  
LOC=(24,31)       }
```

A=label is optional

A=(reg) is optional

After successful completion GR1 will contain the address of the acquired storage. This 4-byte address may be placed at label,  
or at the address in GRreg.

The length will be returned in GR0, rounded as necessary.

Also see 'Advanced topics' below

Examples:

Getmain 1024 bytes below 16M, unconditionally  
GETMAIN R,LV=1024

Getmain number of bytes in GR3 below 16M, conditionally,  
GETMAIN RC,LV=(R3),LOC=BELOW

Advanced topics:

Storage is limited by the MEM(nnn) parameter on CALL EZ390, with nnn in Megabytes. The default is MEM(1).  
When the value is 16 or less then all GETMAINS will allocate storage LOC=BELOW. When the value is above 16, then 16M is

ZDOCSTOR.TXT

available LOC=BELOW and the rest LOC=ABOVE.

There is a preset maximum of MEM(50) set by Java.

If this is insufficient, then code -Xmx nnnnnnnnnn after the -Xrs option on CALL EZ370 to extend the MEM limit.

WARNING: Over-extending memory this way may degrade the performance of your operating system (eg. Windows).

Register Usage:

R0 = Input flags, output length  
R1 = Input length, output address  
R15= Return code

GR15 has a return code:

0 GETMAIN ok  
4 Conditional request unsuccessful

Abends:

S804 Invalid request  
S80A Unconditional out of memory

name GETVIS LENGTH=,ADDRESS=,LOC=

Acquire storage (VSE only).

All forms map to GETMAIN R,  
LENGTH and ADDRESS are mandatory.

Parameters map to GETMAIN as follows:

LENGTH=n	Maps to LV=n
LENGTH=(reg)	Maps to LV=(reg)
ADDRESS=label	Maps to A=label
ADDRESS=(reg)	GRreg is not a pointer, the GETMAINd area address is placed in GRreg.
LOC=	Maps the same.

Register Usage:

R0 = Input flags, output length  
R1 = Input length, output address  
R15= Return code

GR15 has a return code:

0 GETVIS ok

Abends:

S804 Invalid request

ZDOCSTOR.TXT

S80A Unconditional out of memory

name FREEMAIN LV=,LA=,A=  
Free storage.

Specify either LV= or LA=, if both are present LV= will be ignored.

LV=n Free n bytes (maximum value of n is 2G-1)  
LV=nK Free nK bytes (maximum value of n is 2097151)  
LV=nM Free nM bytes (maximum value of n is 2047)  
LV=label label must be an equated value  
LV=(reg) Length to be freed is in GRreg

LA=label The location of a 4-byte length  
LA=(reg) GRreg must point to a 4-byte length

A= is optional

If A= is omitted then GR1 must contain the address of the storage to be freed.

A=label The location of the 4-byte address of the storage to be freed.

A=(reg) The 4-byte address of the storage to be freed is in GRreg.

Note: A section of a previous GETMAIN may be freed. It is the programmer's responsibility to manage the resulting fragmentation.

Register Usage:

R0 = length  
R1 = address  
R15= return code

GR15 has a return code:

0 FREEMAIN ok

Abends:

S804 Invalid request  
SA0A Attempt to FREEMAIN an area already free

name FREEVIS LENGTH=,ADDRESS=  
Free storage (VSE only).  
All forms map to FREEMAIN R,  
Defaults are LENGTH=(0) and ADDRESS=(1).

ZDOCSTOR.TXT

Parameters map to FREEMAIN as follows:

LENGTH=n	Maps to LV=n
LENGTH=(reg)	Maps to LV=(reg)
ADDRESS=label	Maps to A=label
ADDRESS=(reg)	Maps to A=(reg)

Register Usage:

R0 = length  
R1 = address  
R15= return code

GR15 has a return code:

0 FREEVIS ok

Abends:

S804 Invalid request

Change Summary

-----

June 27, 2008

Added abend SA0A to FREEMAIN

January 18, 2008

Added abend and return code sections.

September 28, 2007

Added VSE Macros GETVIS and FREEVIS

Added LOC=RES

July 10, 2007

All macros now list possible general register usage.

Author: Melvyn Maltz

Publication date: November 24, 2008

Z390 version: V1.4.04

→