



**Ensure your ESQA specification in IEASYSxx is adequate
Can lead to **systems failures** in z/OS v1.11**

Required reading for potential storage constrained systems.

If your system is running close to storage constraint, and planning to migrate to z/OS v1.11, please be aware of new ESQA requirements.

In z/OS V1R11, each address space requires 1608 bytes of additional 31-bit Extended System Queue Area (ESQA) storage. If ESQA storage is unavailable at any time to the system, the system will try to obtain the storage needed from Extended Common Storage Area (ECSA). When ESQA expands into ECSA, **IRA104E** will be issued. If ESQA and ECSA are unavailable, the system allocates space from SQA followed by CSA below 16 megabytes. As SQA storage becomes scarce, the system rejects LOGON, MOUNT, and START commands, and stops new jobs from being created and address spaces from being swapped in. ESQA/SQA storage shortages can eventually result in a system failure.

Migration action:

1. Determine the number of address spaces that you have on the system. One easy way is to issue the console command **DISPLAY A,L** and total the address spaces in the IEE144I and IEE115I messages.

i.e.

```

DNLT035 TSPP041 E DNLT035          LINE 127 RESPONSES NO
RESPONSE-DEMOMVS
IEE114I 10.53.47 2009.306 ACTIVITY 791
  JOBS    M/S    TS USERS    SYSAS    INITS    ACTIVE/MAX VTAM    OAS
00025    00253    00016    00045    00068    00015/00125    00155

```

2. Multiply the number of address spaces by 1608 (x'648') bytes to get the total additional ESQA storage required.
3. Ensure that your SQA= statement in IEASYSxx specifies an adequate amount of additional ESQA storage as required. One way to do this is to use the **VSM_SQA_THRESHOLD Health Check** from the prior release to examine the ESQA in use percent and high water mark (HWM) percent. Then add the additional ESQA storage needed from the prior step to calculate the projected ESQA in use and HWM percent. Then adjust the amount of ESQA as needed by your installation.

Note: See APAR OA29660 for additional documentation.

ESQA/SQA within z/OS contains tables and queues related to the entire system. Its contents is highly dependent on your configuration and job requirements at installation. The extended system queue area (ESQA) is a major element of z/OS virtual storage above the 16MB line. A number of services use base z/OS functions that use ESQA storage. Much of this storage is fixedconsuming main memory rather than only virtual storage.

The system also reserves additional SQA and ESQA storage for the I/O configuration. The amount of SQA and ESQA depends on the number of devices and control units installed.

Storage requirements for Page Data Sets ASM allocates storage in extended system queue area (ESQA) for every page data set that is in use.

Large amounts of messages at IPL time (whether suppressed or displayed) will increase ESQA storage needs. The installation of unlabeled DASD, for example, often results in many issuances of the following message: IEA311I UNLABELED DASD ON *device* In an IPL environment, one page of ESQA is used for every ten messages issued. (IEA311I messages can be avoided by having the unlabeled DASD offline at IPL.) If prevention of excessive messaging is not feasible, it may be necessary to increase the ESQA specification to provide space for the messages.

In z/OS UNIX, ESQA storage is required for each shared page. MAXSHAREPAGES controls the maximum number of shared pages to be used for fork, shared memory, memory map files, and ptrace.