

**ANSYS Class3 Error Report****ERROR NO:**

2014-10

**Keywords:**

TRANSIENT HARMONIC MODE SUPERPOSITION TRNOPT,MSUP  
HROPT,MSUP

**Description of Error:**

Transient or harmonic solutions using the mode-superposition method (ANTYPE,TRANS with TRNOPT,MSUP or ANTYPE,HARM with HROPT,MSUP) may be incorrect if any one of the following is true:

- multiple modal loads are specified (multiple LVSCALE commands), or
  - multiple enforced base motions are specified (multiple DVAL commands), or
  - for transient only, loads or gaps (F, ACEL, or GP commands) are applied in the transient mode-superposition solution (and not in the modal solution)
- and
- there is insufficient memory (RAM) to hold the eigenmodes in memory during the transient or harmonic solution step

If there is insufficient memory, the modes are kept on disk and read in as needed to compute the modal load vectors. This happens if the number of modes used times the number of degrees of freedom (DOFs) is greater than the available RAM.

**Typical GUI Path(s):**

Main Menu>Solution>Analysis Type>Analysis Options

**Other Comments:**

The total memory used by the modes in gigabytes (GB) is:

$(\text{Number of modes}) \times (\text{Total DOFs}) \times 8 / 1024^3$

The total number of DOFs is reported as "NUMBER OF EQUATIONS" in the output file of the modal solution step, or can be estimated by multiplying the number of nodes times the DOF per node (3 for solid elements, 6 for shells). For instance, 1 million DOFs with 500 modes requires 3.7GB of RAM.

**First Incorrect Version:**

Release 12.0

**Corrected In:**

Release 16.0

**Suggested User Action For Running on Uncorrected Version:**

Run on a machine with sufficient memory, or use only one modal load vector or one enforced base motion.

**Author Signature:**

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**Reviewed By QA:**

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**Approval:**

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