

Overview of MSC/XL V3

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V3 is the next version of MSC/XL that will be released. This paper presents an overview of the new capabilities in the areas of error correction, performance enhancements, hardcopy support, MSC/NASTRAN support and MSC/EMAS support.

General

MSC/XL is an interactive interface to MSC/NASTRAN and MSC/EMAS. It is an interactive graphics pre- and post-processor used to prepare input and process output from MSC's analysis software packages. The current version supports MSC/NASTRAN and MSC/EMAS. Future versions will support MSC's other analysis packages.

Error Correction

For MSC/XL V2 approximately 91% of the outstanding errors were corrected. The target for MSC/XL V3 is 95%. In addition, MSC/XL V3 is being built and tested on several platforms. This increased testing of new capabilities and more frequent regression testing will improve the overall quality and portability of MSC/XL.

Performance Enhancements

We have received much feedback about performance of MSC/XL. Depending on the platform and the specific hardware configuration the performance can vary dramatically. Before undertaking a major effort in restructuring certain capabilities, concrete targets must be set forth. We are still identifying the current deficiencies and setting goals on the various platforms. Independent of this study there are a few enhancements are being completed for MSC/XL V3.

Additional graphics algorithms are being included in MSC/XL V3. Previous versions relied on a simple Z-sort (painter's) algorithm. Two additional algorithms are being offered in V3. The first algorithm filters out the hidden faces before invoking the Z-sort algorithm. Some speed improvement gained in the reduced graphics display come at the cost of additional processing time. The second algorithm builds on the underlying tools introduced in the first algorithm to improve image quality by using the Z-buffer technique. A duplicate face filter can also be used to speed up the display by eliminating interior faces of solid elements for all of these methods.

Display of entities using arrows, such as PLoad4, has been simplified. Fewer lines are drawn thereby decreasing draw time.

The time required to process group criterion expressions has been decreased by using a special internal representation of the expression.

Hardcopy Support

MSC/XL V2 has the ability to write out a specially formatted file which captures graphics images for later use such as hardcopy. V3 adds to this capability to support

PostScript — a 2D standard format. Programs built on the previous format will continue to work. Files generated by using the PostScript format can be sent directly to many devices.

MSC/NASTRAN Support

MSC/XL V3 includes pre-processing support for the MSC/NASTRAN TRIAR element, RBEs and MPCs. Post-processing support has been added for Buckling, Optimization, and stress discontinuity output.

MSC/EMAS Support

MSC/XL V3 includes support for the MSC/EMAS MATEM and MATEMA entries, support for new Boundary Elements, symbols for the capacitor, inductor and resistor elements, and post-processing on a plane cut through the model.

Enhanced Functions

Many minor changes have been made to improve the usability of MSC/XL. Some of the visible changes are in Filters, Grouping, Listing, Titling, and the addition of bar graphs in XY Plotting.