

AutoVue
Web Version 19.3
Performance Recommendations

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Contents

INTRODUCTION	5
3D INI RECOMMENDATIONS.....	7
Overview	7
Type of Data.....	7
Performance/Quality Duality on Rendering.....	8
Speed/Memory Duality	8
Global INI Options	9
Format-Specific INI Options	12
AutoCAD 3D Options.....	12
CATIA V4 Options	13
CATIA V5 Options	14
IFC Options	16
IGES Options	17
MicroStation 8 3D Options	18
Pro/ENGINEER Options	18
STEP Options.....	20
EDA INI RECOMMENDATIONS	21
Global INI Options	21
EDA PCB Options	21
Format-Specific INI Options	22
Allegro Options	22
Cadence Options	22
OrCAD Layout Options	23
2D/RASTER/OFFICE INI RECOMMENDATIONS	24
Global INI Options	24
Format-Specific INI Options	25
JPEG Options	25
JPEG 2000 Options.....	26
SUMMARY	27
OTHER RECOMMENDATIONS	29
Streaming Files.....	29
FEEDBACK	31
General Inquiries	31
Sales Inquiries	31
Customer Support.....	31

Introduction

Oracle's AutoVue provides viewing, markup, and collaboration solutions support for hundreds of file formats. These formats include 3D CAD parts and assemblies, 2D CAD drawings, PCB/IC layouts and schematics, scanned raster documents, vector files, office documents, and graphics.

Engineering designs are increasing in complexity and size over the course of years. Oracle's AutoVue has recognized the need to load these complex and large designs in reasonable time and has been increasing its focus towards performance improvements.

AutoVue provides a streaming file solution to speed up subsequent loads of designs. When you load a document for the first time and close it, AutoVue generates streaming file for the design. Streaming file is a file format that is developed by Oracle that helps accelerate the display of large or complex designs and ensures optimized performance and high-speed and accurate data delivery.

AutoVue also provides several configuration options that help optimize file load performance. These options are described in this document.

This document provides performance recommendations for several 2D, 3D, Raster and EDA file formats. Some options are generic and could apply to all formats of a format group.

3D INI Recommendations

Overview

When loading a 3D model, there are different factors that can affect its loading time and rendering performance. These factors can be the type of data loaded, the performance/quality duality for rendering and memory/speed duality.

The following sections provide further details on these performance-affecting factors.

Type of Data

Loading and rendering time depends on the data loaded for the drawing or model. AutoVue enables you to tune how much information is read from the file by selecting how and if the following data is read or generated: Mesh/BREP, Topology, and PMI.

Data	Description
Mesh/BREP	<p>A mesh is a collection of vertices, edges, and faces that define the shape of a 3D object.</p> <p>BREP (Boundary representation) information represents 3D objects using their boundaries; it consists of topological and geometrical information. The topological information identifies the relationships between vertices, edges, and faces. Whereas, the geometrical information defines the vertices, edges, and faces.</p> <p>Some formats may have both mesh and BREP information. Generally, choosing mesh over BREP will mean faster loading time. However loading mesh can impact accuracy (for measurements, mass properties, model tree) because AutoVue approximates the topological information. Choosing BREP can provide higher accuracy of data since the topological information already exists, but will mean slower loading time.</p>

Data	Description
Topology	<p>Topological information is required during operations such as measurements, but not always available in the file format itself. In order to maintain a homogenous behavior across all file formats, the topology is computed by AutoVue. This process can be time consuming.</p> <p>AutoVue provides the option to turn off topology computation in order to speed up performance.</p>
PMI	<p>Some file formats allow annotations—mainly 2D—to be added to 3D models. These annotations are called Product and Manufacturing Information (PMI).</p> <p>Loading and rendering PMIs can be time consuming and requires a lot of CPU.</p> <p>AutoVue provides the option to turn off PMI loading or rendering.</p>

Performance/Quality Duality on Rendering

You can choose to improve the rendering speed by rendering small entities as primitives. AutoVue provides optimization options for rendering PMI.

Speed/Memory Duality

An increase in speed can sometimes results in an increase of memory usage. You are given the option to optimize either the speed or memory usage.

Global INI Options

Global INI options are not file format specific. These options could be applicable to all file formats or to a subset of file formats.

The following table identifies the available global INI. The option section headers are indicated in brackets [].

[Options]

Parameter	Description	Default
LoadFacetedData=<0 1>	<p>Instructs AutoVue to load mesh data if present in the 3D model (faster display).</p> <p>Applies to the following 3D formats when both mesh and BREP data are available:</p> <ul style="list-style-type: none">CATIA V5Pro/ENGINEERSolidWorks <p>If set to 1, the mesh data loads.</p> <p>If set to 0, the BREP data is read and rendered instead of the mesh data (more accurate measurement).</p> <p>Effect on Performance:</p> <p>Usually, the mesh model loads faster than the BREP model.</p> <p>Loading the mesh model can impact measurement accuracy.</p>	0

Parameter	Description	Default
MeshBuildTopology=<0 1>	<p>Builds the topology for mesh bodies.</p> <p>If set to 1, the topology for mesh bodies is built.</p> <p>If set to 0, the topology is not built.</p> <p>Applies to the following 3D formats:</p> <ul style="list-style-type: none"> • CATIA V5 • Microstation 8 • IFC • Pro/ENGINEER • SolidWorks • STL • Unigraphics <p>Effect on Performance:</p> <p>Performance is improved if no topology is built.</p> <p>For meshes that do not have well defined topology, it may take a long time for AutoVue to detect and create it.</p>	1
MeshResolutionDefault=<0 1 2>	<p>Defines the resolution of the mesh.</p> <p>Setting values:</p> <ul style="list-style-type: none"> • 0: Medium resolution and average loading speed. • 1: Low resolution and fast loading speed. As a result, performance is improved. • 2: High resolution and slow loading speed. <p>Effect on Performance:</p> <p>This option has the least affect on the loading performance, as it only reduces the time spent during faceting after the model is built. Usually the model building time is an order bigger than the faceting time.</p>	0

Parameter	Description	Default
3DPerformancePreference=<0 1>	<p>This option controls optimizations in the product to either improve speed or memory usage. It impacts the loading process of EDA-3D and the following 3D models—CATIA V4, CATIA V5, Pro/ENGINEER, ACIS, IGES, SolidDesigner, STEP, Mechanical Desktop, and Autodesk Inventor.</p> <p>If set to 1, optimization is done for speed.</p> <p>If set to 0, optimization is done for memory usage.</p>	1

Format-Specific INI Options

The following sections list format-specific INI options available to optimize performance. The option section headers are indicated in brackets [].

AutoCAD 3D Options

Optimization options for AutoCAD 3D files.

[Options]

Parameter	Description	Default
ACAD_Fast3D=<0 1>	<p>When set to 1, display will be much faster, but individual bodies belonging to 3D parts will not be listed in the model tree and layer visibility will not be supported on those bodies.</p> <p>If set to 0, the rendering time of AutoCAD 3D file will increase. However, layer information is listed and all bodies are streamed and listed in the model tree.</p> <p>Effect on Performance: Enable option to improve rendering performance.</p>	1

CATIA V4 Options

Optimization options for CATIA V4 files.

[Options]

Parameter	Description	Default
LoadCatiaWires=<0 1>	<p>Set to 1 to load and display 3D wires for CATIA V4 3D files. Set to 0 to disable loading and display of 3D wires for CATIA V4 3D files.</p> <p>Effect on Performance: Disabling loading of 3D wires improves performance when files contain large number of 3D wires.</p>	1
CATIAFilterNonRoot=<0 1>	<p>Non-root entities are construction geometries used in helping the design of the model. AutoVue will not load non-root entities if CATIAFilterNonRoot is set to 1. Set to 0 to load and display non-root entities for CATIA V4 3D.</p> <p>Effect on Performance: Filtering out non-root entities improves performance when files contain a large number of non-root entities.</p>	1
CATIAFilterNoShows=<0 1>	<p>Controls the loading and visibility of the NoShow entity. Set to 1 to filter out hidden entities for CATIA V4 3D. Hidden entities will not be loaded or displayed. Set to 0 to load and display hidden entities for CATIA V4 3D.</p> <p>Effect on Performance: Filtering out hidden entities improves performance when files contain a lot of hidden entities.</p>	1

CATIA V5 Options

Optimization options for CATIA V5 files.

[Options]

Parameter	Description	Default
CATIA5BuildCGMSets=<0 1>	<p>Controls the building and display of geometrical sets.</p> <p>Set to 1 to build and show geometrical sets structure in the Model Tree.</p> <p>Set to 0 to disable.</p> <p>Effect on Performance:</p> <p>Disabling the loading and display of geometrical sets improves performance when files contain a large number of geometrical sets.</p>	1
CATIA5BuildInvisibleCGMBodies=<0 1>	<p>Option controls the building and display of invisible BREP bodies.</p> <p>Set to 1 if you wish to process and display invisible BREP bodies.</p> <p>Set to 0 to disable the loading and display of invisible BREP bodies.</p> <p>Effect on Performance:</p> <p>Disabling the loading of invisible BREP bodies improves performance when files contain a large number of invisible BREP bodies.</p>	0

Parameter	Description	Default
CATIA5ShowPMI=<0 1>	<p>Option controls the loading and display of PMI entities.</p> <p>Set to 1 to load and display PMI entities.</p> <p>Set to 0 to not load PMI entities.</p> <p>Effect on Performance:</p> <p>Not loading PMI entities improves rendering performance when files contain a large number of PMI entities.</p>	1
CATIA5ShowPMIWithMesh=<0 1>	<p>Specify if you wish to load and display PMI entities in mesh mode.</p> <p>Set to 1 to load PMI entities in mesh mode.</p> <p>Set to 0 to not load PMI entities in mesh mode.</p> <p>Effect on Performance:</p> <p>Not loading PMI entities improves rendering performance when loading in mesh mode and files contain a large number of PMI entities.</p>	1

IFC Options

Optimization options for IFC files.

[Options]

Parameter	Description	Default
IFCLoadInvisibleSpaces=<0 1>	<p>Enable or disable loading and display of internal spaces boundary geometry.</p> <p>Set to 1 to enable loading of internal spaces boundary geometry.</p> <p>Set to 0 to disable loading of internal spaces boundary geometry.</p> <p>Effect on Performance:</p> <p>Disabling loading of internal spaces boundary geometry improves both time and memory usage when files contain a large number of invisible spaces.</p>	1
IFCReadProperties=<0 1>	<p>Enable or disable loading of supported entity properties for an IFC file.</p> <p>Set to 1 to load and display all supported entity properties for an IFC file.</p> <p>Set to 0 to load only default entity properties which are Display Mode, Name and Visibility.</p> <p>Effect on Performance:</p> <p>Choosing to load only the default entity properties improves loading performance.</p>	1

IGES Options

Optimization options for IGES files.

[Options]

Parameter	Description	Default
IGESLoadSubFigureDefinitions=<0 1>	<p>Loads the subfigure definitions.</p> <p>Note: A subfigure definition is a collection of IGES entities that can be instantiated multiple times in the file to reduce the file size and, as a result, improve performance.</p> <p>Set to 1 to load subfigure definitions when sub-figure instances are not found. Option is for IGES 3D files.</p> <p>Set to 0 to disable the loading of the subfigure definitions.</p> <p>Effect on Performance:</p> <p>Disabling the loading of subfigure definitions improves performance when files contain a large number of sub-figure definitions.</p>	0

MicroStation 8 3D Options

Optimization options for MicroStation 8 3D files.

[Options]

Parameter	Description	Default
DGN_Fast3D=<0 1>	<p>When set to 1, display will be much faster, but individual bodies belonging to 3D parts will not be listed in the model tree and layer visibility will not be supported on those bodies. As a result rendering time is decreased.</p> <p>If set to 0, the rendering time of MicroStation 3D file will increase. However, layer information is listed and each all bodies are streamed and listed in the model tree.</p> <p>Effect on Performance: Streaming all mesh and extrusions in one body improves performance.</p>	1

Pro/ENGINEER Options

Optimization options for Pro/ENGINEER files.

[Options]

Parameter	Description	Default
ProELoadPMIData=<0 1>	<p>Enable or disable the loading of PMI entities.</p> <p>Set to 1 to enable loading and display of PMI entities.</p> <p>Set to 0 to disable loading and display of PMI entities.</p> <p>Effect on Performance: Disabling the loading of PMI entities improves performance when files contain a large number of PMI entities.</p>	1

Parameter	Description	Default
ProELoadCosmetics=<0 1>	<p>Enable or disable the loading and display of datum planes, datum axes, datum points and coordinate systems.</p> <p>Note: ProELoadPMIData should be set to 1 for this option to take effect.</p> <p>Set to 1 to turn on loading and display of PMI entities.</p> <p>Set to 0 to turn off loading and display of PMI entities..</p> <p>Effect on Performance:</p> <p>Disabling loading of cosmetic entities improves performance when files contain a large number of cosmetic entities.</p>	1
ProELoadCosmeticWires=<0 1>	<p>Enable or disable the loading of 3D wires.</p> <p>Note: ProELoadPMIData should be set to 1 for this option to take effect.</p> <p>Set to 1 to load and display 3D wires.</p> <p>Set to 0 to turn off loading and display for 3D wires.</p> <p>Effect on Performance:</p> <p>Disabling loading of 3D wires improves performance when files contain a large number of 3D wires.</p>	1

STEP Options

Optimization options for STEP files.

[Options]

Parameter	Description	Default
STEPPDetailedTree=<0 1>	Select to enable or disable detailed model tree. Set to 1 to show detailed tree for STEP files. Set to 0 to display collapsed model tree. Effect on Performance: Displaying a collapsed model tree improves rendering performance when there are a large number of subparts	0

EDA INI Recommendations

Global INI Options

The following table indentifies the available global INI options to optimize performance. The option section headers are indicated in brackets [].

EDA PCB Options

Optimization options for EDA PCB files.

[ECAD]

Parameter	Description	Default
ECAD_Load_3D_Page=<0 1>	<p>Controls whether or not to load the 3D model for EDA PCB designs.</p> <p>Option applies to the following PCB formats:</p> <ul style="list-style-type: none">• Zuken CADSTAR• Cadence Specctra• Altium Protel• OrCAD Layout• ODB++• Mentor BoardStation• IDF• Mentor Expedition• Zuken CADIF• Cadence Allegro <p>If set to 1, AutoVue loads the 3D model.</p> <p>If set to 0, AutoVue does not load the 3D model.</p> <p>Effect on Performance:</p> <p>Not loading the 3D model improves file loading speed.</p>	1

Format-Specific INI Options

The following sections list the available format-specific INI options to optimize performance. The option section headers are indicated in brackets [].

Allegro Options

Optimization options for Allegro files.

[ECAD]

Parameter	Description	Default
Allegro_UseTrueTypeFonts=<0 1>	Select to use either stroke font or true type font. Set to 0 to use stroke font. Set to 1 to use true type font instead. Effect on Performance: Using the true type font improves performance.	0

Cadence Options

Optimization options for Cadence Project files.

[ECAD]

Parameter	Description	Default
Cadence_CPMOnly=<0 1>	Load and display all pages in the Cadence project file, or only the files listed in the CPM file. Set to 1 if you want only files listed in the CPM file displayed. Set to 0 to load and display all the pages inside the Cadence project file. Effect on Performance: Loading only the files listed in the CPM file improves performance.	1

Parameter	Description	Default
Cadence_ConceptHDLOnly=<0 1>	Controls whether or not to load and display PCB boards. Set to 1 if you do not want PCB boards displayed. Set to 0 to load and display the PCB boards. Effect on Performance: Not loading the PCB board improves performance.	0

OrCAD Layout Options

Optimization options for OrCAD Layout files.

[ECAD]

Parameter	Description	Default
OrCAD_Cutout_Copper_Pour=<0 1>	Select to display or not display the copper pour cutouts for OrCAD Layout files. Set to 1 if you wish to display the copper pour cutouts. Set to 0 to disable the display. Effect on Performance: Disabling the display of the copper our cutouts improves performance.	0

2D/Raster/Office INI Recommendations

Global INI Options

The following table identifies the available global INI options to optimize performance. The option section headers are indicated in brackets [].

[Options]

Parameter	Description	Default
TextBitmapRendering=<0 1>	Select to render small text glyphs using bitmaps. This option may affect most text in PDF, TrueType text in ME10, and PostScript text in CATIA V5. Set to 1 to enable bitmap rendering. Set to 0 to disable bitmap rendering. Effect on Performance: Enabling bitmap rendering for small text glyphs improves performance.	1

Parameter	Description	Default
ANTIALIAS=<0 1>	<p>Aliasing is the distortion of a continuous line due to the nature of screen display, which relies on a matrix of pixels. Anti-aliasing visually corrects this by introducing additional coloured pixels to give the impression of a continuous line or curve.</p> <p>If set to 1, anti-aliasing is enabled. If set to 0, anti-aliasing is disabled.</p> <p>Effect on Performance: Enabling anti-aliasing will impact rendering performance for large raster files and for PDF files. Disabling anti-aliasing will speed up rendering for large rasters and PDF files.</p>	

Format-Specific INI Options

The following sections list the available format-specific INI options to optimize performance. The option section headers are indicated in brackets [].

JPEG Options

Optimization options for JPEG files.

[Options]

Parameter	Description	Default
JPGQuantize=<0 1>	<p>Quantizes JPEG images to 256 colors for quicker display.</p> <p>Set to 1 to quantize images. Set to 0 to use true colors.</p> <p>Effect on Performance: Quantizing the JPEG images to 256 colors improves performance.</p>	1

JPEG 2000 Options

Optimization options for JPEG 2000 files.

[Options]

Parameter	Description	Default
J2KResolution= [DYNAMIC HIGH MEDIUM LOW +num -num]	<p>Set the resolution of JPEG 2000 files.</p> <p>Set to HIGH to display with a high resolution.</p> <p>Set to LOW to display with low resolution. You can also set values to +n or -n, where n is a number between 1 and 100.</p> <p>Setting to +num gives the same result as DYNAMIC but increases the resolution by a factor of num where num is a value from 1 to 100 (up to the maximum possible resolution of the image).</p> <p>Setting to -num gives the same result as DYNAMIC but decreases the resolution by a factor of num where num is a value from 1 to 100 (down to the lowest possible resolution of the image).</p> <p>Effect on Performance:</p> <p>Setting to HIGH decreases performance.</p> <p>Setting to LOW improves performance.</p> <p>Setting to +num decreases performance.</p> <p>Setting to -num can increase performance.</p>	DYNAMIC

Summary

INI Options	Default	< Fast	Slow >
3DPerformancePreference	1	1 (fast)	0 (low memory)
ACAD_Fast3D	1	1	0
Allegro_UseTrueTypeFonts	0	0	1
Cadence_CPMOnly	1	1	0
Cadence_ConceptHDLOnly	0	1	0
CATIAFilterNonRoot	1	1	0
CATIAFilterNoShows	1	1	0
CATIA5BuildCGMSets	1	0	1
CATIA5BuildInvisibleCGM Bodies	0	0	1
CATIA5ShowPMI	1	0	1
CATIA5ShowPMIWith Mesh	1	0	1
DGN_Fast3D	1	1	0
ECAD_Load_3D_Page	1	0	1
IFCLoadInvisibleSpaces	1	0	1
IFCReadProperties	1	0	1
IGESLoadSubFigure Definitions	0	0	1
JPGQuantize	1	1	0
J2KResolution	DYNAMIC	LOW -num	HIGH +num
LoadCatiaWires	1	0	1

INI Options	Default	< Fast		Slow >
LoadFacetedData	1	1		0
MeshBuildTopology	1	0		1
MeshResolutionDefault	0	1 (low)	0 (medium)	2 (high)
OrCAD_Cutout_Copper_Pour	0	0		1
ProELoadPMIData	1	0		1
ProELoadCosmetics	1	0		1
ProELoadCosmeticWires	1	0		1
STEPDetailedTree	0	0		1
TextBitmapRendering	1	1		0

Other Recommendations

Streaming Files

You can leverage the streaming file feature to enhance AutoVue performance. When a file is loaded for the first time and then closed, a streaming file is generated. For subsequent loads of the file, AutoVue accesses the streaming file, rather than the native file to render. As a result, there are significant performance improvements for rendering and for functionalities such as layers, Bill of Material (BOM), Mass Properties, and so on.

AutoVue provides you with the ability to do a batch or offline generation of streaming files. By pre-generating metafiles, you can benefit from faster loading times even for the first load of a file. Contact your Customer Support representative for information regarding batch generation of streaming files.

Note: For AutoVue Web Version, streaming file generation is enabled by default.

Feedback

Oracle products are designed according to your needs. We would appreciate your feedback, comments or suggestions. Contact us by fax, e-mail or telephone. There is a feedback button on our Web page that activates an easy-to-use feedback form. Let us know what you think.

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