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# MSC SimManager™ Enterprise Edition

## Version R3.1

### Release Guide

MSC.Software Corporation  
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Version R3.1 of the MSC SimManager Enterprise Edition Release Guide contains:

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## Introduction

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MSC SimManager Enterprise Edition (SimManager) is a dedicated solution for modeling and executing engineering simulation studies. SimManager automates simulation processes and content management and provides a complete pedigree of information so engineers know exactly how a particular study was performed or how it compares with other similar studies. This empowers engineers with the confidence to make knowledgeable decisions that lead to true product innovation.

The Web user interface guides engineers to quickly navigate data relationships, launch simulation processes, compare results and perform many other key engineering tasks. The system is designed to alleviate the engineers from low-value-added tasks so they can spend more time on critical engineering decisions. Key stakeholders can quickly view critical information,

collaborate when required, and make timely decision with confidence.

SimManager provides out-of-the-box integration to MSC.Software's SimEnterprise solutions, including MSC SimXpert, MSC SimDesigner, Patran, Adams, Easy5 and MSC.Software's leading solver technology, MD Nastran. SimManager also integrates with most third party applications including product and test data management systems, providing a comprehensive, single solution for all simulation process and content management needs.

## Overview

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Key services and features of SimManager include:

- **Web UI:** All simulation processes and data are managed from a Web user interface, presented in an intuitive, context sensitive pattern. Self-contained GUI widgets maintain independent states on a given web page, improving performance and providing a much improved user experience over typical web pages.
- **Simulation Content Management:** Designed around a CAE-centric, extensible data model and XML schema definition, the system is specifically engineered to efficiently manage the highly complex and non-hierarchical data relationships that exist in simulation studies. All types of data, whether directly generated from CAE applications or from supporting office applications such as spreadsheets or text

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documents can easily be managed in the context of a specific simulation.

- **Process and Data Pedigree:** Simulation processes and data pedigree are automatically captured and easily audited for inspection and comparison. For example, in a typical simulation report, users can quickly determine from which design variant and load case a key analysis result was derived from, thus, providing the traceability to establish the confidence in the reported information.
- **Comparison Reports:** Information from several simulation studies can be directly compared to quickly understand how design or environment changes influence product performance to aid decision making. Unique to SimManager, this vital capability is only possible due to the pedigree capture that ensures that like-for-like is compared whether it involves models, curves, images, text or other artifacts of the study.
- **Advanced Search:** Unlike other systems, SimManager manages data at a much finer granularity (e.g. representing curves as points and not simple images) and with complete pedigree capture that allows very intricate search paths through the network of complex simulation study relationships. It is possible to construct very specific search queries on simulation content not possible in other data management systems.
- **Job Submission:** MSC Analysis Manager is integrated with SimManager Enterprise to provide an out-of-the-box job submission environment that can also be configured with other common job scheduling tools such as Platform LSF, Sun Grid Engine and PBS Pro.

## Version R3.1 Special Notes

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SimManager Enterprise R3.1 represents a major service release to version R3 and requires a new installation if you have R3 or a previous version installed.

Please note that as a multi-component system requiring a web application server, database and file vault, SimManager should be installed only after thoroughly reading the Installation and Administration Guide.

### Important Notes:

- **Legacy Licenses:** If you have a version of MSC.SimManager that was acquired prior to SimManager Enterprise R1.2, you will need to acquire and install SimManager Enterprise Edition R3.1 with the appropriate software licenses.
- **Client Access License:** The client access license for SimManager Enterprise Edition authorizes a maximum number of simultaneous/concurrent users. An authorized user is permitted to login and run multiple sessions of SimManager, however, each session will consume an additional client access license. When individual users consume multiple licenses it may result in denied access to other users if all licenses have been consumed.
- **User Name Case Sensitivity:** The default setting for user names is set to case sensitive. This is defined in the Portal.properties file with the property "authentication.casesensitive.enabled = true". If the case insensitive behavior is preferred for the user login (the user name will be created in the database as lower case), you must set this property to "false" and ensure that all user names used in command files are lowercase.
- **Role "Nobody":** In the Portal.properties file, "role.nobody.visible", can be used to control the visibility of the "nobody" role. If this property is not specified, the default "true" is used. This means the "nobody" role will be visible on the web user interface and will also be returned among the list of roles by the Integrated Client (IC) API.
- **UI:** SimManager R3/R3.1 introduced many new features and capabilities and also introduced significant changes in the UI presentation layer with the organization and separation of the data objects and execution objects (procedures). If you have a previous version of SimManager you must migrate all existing portals and databases in accordance with the Migration Guide.
- **JSF:** The default SimManager R3/R3.1 presentation layer is Java Server Faces (JSF). The Struts/Velocity based architecture is supported for legacy purposes. JSF is a well supported and documented open source standard specification and provides capabilities and performance improvements.

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SimManager uses the Apache MyFaces implementation of the JSF 1.1 specification and the Apache Tomahawk extensions. Upgrading an existing customized portal to JSF may require significant effort. Consult your MSC. Software representative before initiating this effort.

- **System/Process Actions Filter:** By default, the System/Process actions will NOT be filtered in the Workbenches. Instead, all System/Process actions will be displayed and if the user clicks on an individual action, an error message will be displayed if the user does not have sufficient privileges to perform the action. This change was done to improve performance in the case of portals with a large number of actions. This property is located in the Options Menu, under Workbench, "Filter System/Process Actions". Note: If you use an existing database, the value for "Filter System/Process Actions" will be obtained from the user's preferences stored in the database.

## Enhancements and Corrected Software Discrepancies

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There were over 100 reported issues that were corrected in version R3.1. The following is a list of notable enhancements or known issues that were addressed in R3.1:

### Installation and Startup issues:

- *SimManager does not support load balanced web servers for JSF configured portals – The auto-generated JSP pages are not properly maintained for registering procedures and publishing templates for multiple instances of web servers accessed via a common URL. (1-60197601)*  
Resolved

### User Interface Issues:

- *Changing the "options" dialog settings does not force refresh of the tree. (1-73623404)*  
Resolved
- *The Compound Publish action does not filter (restrict) available actions. All actions are available for any filtered selection. (1-73013091)*  
Resolved

### Integration and Process Issues:

- *Added the ability to input more than one "Derived From Model" for all Publish Model actions (1-76141950)*
- *Persistent status for abnormally terminated or suspended processes: If a process abnormally terminates or suspends during execution due to an out-of-memory condition, invalid or illegal argument, etc., the reported status will be persistent (i.e. queued or running). (1-33126201)*  
Resolved
- *In an AE script, specifying "toDir" in <get> of <smgetattr> will result in a null pointer exception. (1-33126248)*  
Resolved
- *AE Script containing ExecOnQueue will fail if ExecutionMode=Remote. (1-73668871)*  
Resolved
- *AE Script containing CDATA that includes a "<" will fail with a syntax error. (1-73688600)*  
Resolved
- *Integrated Client (IC) Connection Validation – On some machine configurations, it is possible that the validation of the IC connection (including connections from SimDesigner, SimXpert, Patran, Easy5, or Adams) is deemed as invalid when in fact it is valid. (1-73602731)*  
Resolved
- *PermGen errors when launching processes. "java.lang.OutOfMemoryError: PermGen space". (1-71740872)*  
Resolved
- *Failure to display curves on a headless machine - The jchart class used to generate curves requires that an X server be available for UNIX platforms. (1-71740872)*  
Resolved
- *"Import Data" action fails using a queue. (1-73475247)*  
Resolved
- *Direct vault access between the client and server using the NFS protocol (local vaults only) will fail on UNIX platforms due to incorrect shell script names, content, etc. (1-74158701)*  
Resolved

### Administration and Configuration issues:

- *Cannot disable buttons in wizards when using JSF. (1-73044421)*

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### Resolved

- *If Simulation Tool objects are not configured correctly, the Publish Input Deck action may create unintentional or inappropriate objects such as analysis models. (1-73607313)*

### Resolved

- *The Publish Input Deck action returns error message: Wrapped java.lang.ArrayIndexOutOfBoundsException. If a "Simulation Type" has been created using the enumerated item action, the Simulation Type and Tool may not be correctly associated. (1-73752592)*

### Resolved

- *Delete user - if a user has been created and has accessed the system and executed any action, this user can not be deleted. The error may return a referential constraint violation. (1-73863371)*

### Resolved

## **Known Software Discrepancies**

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MSC.Software follows a comprehensive quality assurance program in the design and development of its software products. Under the terms of this quality assurance program, MSC.Software hereby advises customers of the following known discrepancies or functionality limitations in SimManager Enterprise Edition R3.1:

### **Installation and Startup issues:**

- *If an MSC\_LICENSE\_FILE value is specified, but the License server is invalid - a null pointer exception is thrown and the resulting error message is: type Exception report, "The server encountered an internal error () that prevented it from fulfilling this request".*

Solution: Reset the MSC\_LICENSE\_FILE to a valid license server.

- *SimManager Installation on WebSphere – During the initial attempt to install SimManager on WebSphere Application Server, the installer may stop responding while collecting information from the WebSphere server. (1-47217541)*

Solution: If the installer does not respond in 5 - 10 minutes, close the dialog windows (do not kill the process) and restart the

installation process.

- *The Activate Portal process in the Eclipse-based Studio will hang with the message "Switching to Remote File Vault implementation..." if both the local vault and remote vault locations are invalid.*

Solution: Reactivate the portal and specify a valid vault location in the DBConfig.properties dialog.

- *LINUX only – When starting the Tomcat web server an error may occur finding libraries such as "MscSdmSim.so" or "liblapi.so".*

Solution: Ensure that the environment variable LD\_LIBRARY\_PATH includes <SMAPP\_ROOT>/lib/dlls/linux.

- *Tomcat web server reports "out of memory exception"- Running multiple web applications from the same web server can cause an "out of memory exception".*

Solution: Increase the java memory size. With Tomcat, this is done by editing the <SimManager Install>/bin/start\_webserver file using the following option: CATALINA\_OPTS=-Xms512m -Xmx1024m.

- *Configurations errors can be introduced if the as-delivered configuration files are modified.*

Solution: If a configuration error occurs in the SimManager administration or portal activation process, review the message dialog for the process being executed and the command line output in the console in which the application is executed. Also review the web server log files (e.g. Catalina.out, Server.out) and the sdm.log file.

- *If a database creation partially runs and then fails, the system may not be able to delete the database and it will have to be removed manually – the Eclipse-based Studio portal activation fails because an existing database cannot be deleted after several attempts.*

Solution: Manually remove the database and the vault contents. Notice: When deleting an active database and the procedure returns "failed" to delete the database, the vault contents may have been deleted. If the delete database procedure returns a "cannot drop user" error, you can stop the web server or

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exit the current procedure and reinitiate the procedure to delete the database.

- *Duplicate Object Names - upon loading the schema the system checks for duplicate object names, including object types within the configuration files. If duplicate objects are identified, the system will abort the database creation.*

Solution: If duplicate object names are encountered you MUST correct the problem prior to database creation. Do not change the object names in the core schema. This will result in unexpected behavior.

- *Web server - "socket" errors are encountered when running multiple processes. If a database connection is attempted and there are no more connections in the pool, a Null Pointer Exception will be returned for the getConnection() method.*

Solution: Consult the Installation and Administration Guide, "Application Connection Pooling" section, and increase the max active connections parameter.

#### **User Interface Issues:**

- *Differences between Internet Explorer and Firefox browsers: The use of the browser back button may create an out-of-sync condition and unexpected results. Internet Explorer and Firefox browsers may display pages and perform differently depending on the file extension of the link being displayed.*

Workaround: The use of the browser back button is therefore discouraged whenever possible.

- *The My Projects link on the home page only returns projects in which the user is explicitly assigned. (1-71165799)*
- *If a model is published from a client application (e.g. SimDesigner) and the model is revised in the web UI, the input page will not display the current file attached to this model.*

Workaround: The file is associated to the model and can be viewed in the Single Object Display view.

- *When executing a PS Process type of SimXpert*

*template managed as Local or Remote from the SimXpert Workspace, or when executing the template from the SimManager UI as a process action, a 'java.lang.String' exception will be returned once the template is completed. (1-73244715)*

- *Inconsistent display of SimX templates - Templates published from SimXpert are displayed with the specified label under the Process Actions in the Single Object Display of the SimManager Web UI and are displayed by the name of the template when viewed from the SimXpert user interface. (1-67364331)*
- *The Propagate Comment action does not function correctly and should not be used. (1-72979671)*
- *The "Add to Folder" action will fail if more than seven items are selected at one time. (1-77821369)*

#### **Integration and Process Issues:**

- *SimManager does not support publishing a CATProduct assembly with CATPart components from the Web UI (1-62698504)*

Workaround: CATProducts can be published from client applications such as SimDesigner or can be imported into SimManager as a properly formatted structure.xml file and using the Import Data action from the SimManager web UI.

- *Client Side Execution - If the ActionRunner is not installed on the client side, no error message is returned to the server and the process object returns status "created" and cannot be discarded. The result will be a java.lang.RuntimeException: java.io.IOException. (1-43772662)*

Solution: Install ActionRunner on client, terminate and discard failed process.

- *Executing complex EL statements including the use of the OR ( | | ) operator fails to return results. (1-50520217)*
- *DataWriter task used in AE scripts may return incorrect results for numbers that return a scientific notation with a negative exponent. (1-33125602)*
- *AE script syntax - All components of an Expression Language (EL) path or identifier must*

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adhere to the Java naming convention for variables, members, or class names. I.e., they have to start with a letter or underscore and be followed only by letters, digits, or underscores. That means an EL component must match the following expression `/^[A-Za-z_][A-Za-z0-9_]*$/`. Syntax errors will not be reported on registration, but will return an error on execution.

**Solution:** Correct the script to comply with specification.

- If the database server is stopped, the action sequence monitor must be manually restarted to restore the connection
- ActionSequence supports STRING, DOUBLE, LONG, ONE\_REFERENCE process parameters, exclusively. The FILE, DATE and MANY\_REFERENCE parameters are not supported.
- When executing a SimX template and SimXpert fails to initiate due to no license available the process will persist with the "created" state and no user message will be returned. (1-76874542)

**Workaround:** Manually execute SimXpert to verify the licensing error. Manually terminate and discard the process and try again when a license is available.

#### Administration and Configuration issues:

- Read Only (Unmanaged) vault (experimental implementation) - The "Vault" MUST be created before the database is originally created because the vault definition is part of the core schema and cannot be added. (1-67854237)
- Workspace (context) does not support spaces in name. (1-73363214)
- Creating duplicate Simulation Tool objects will not return an error, but no object will be created. (1-73596123)
- Classic Studio does not start if an edit window is open: If an edit command is executed in Studio that opens a separate window, and the window remains open when the Studio is exited, the Studio cannot be reopened.

**Solution:** Close the separate window and restart Classic Studio.

- Widget GUI when using legacy portals – The Widget-based GUI is set as the default interface. This interface is required as part of the JSF presentation layer. There are known limitations and some display issues with this interface.

**Workaround:** To use the legacy display interface, set the values of the "useWidgets" property in the Portal.properties file to "false" and configure the system to use the "struts" interface.

- Editing and re-publishing existing AE scripts from the Process Builder - If a user edits an existing AE script in the Process Builder and tries to re-publish the changed AE script back to SimManager, its functionality may get impacted. This is because the Process Builder will automatically try to convert the AE formatted procedure to the new SimActivity formatted procedure at the time of publishing it back to SimManager. (1-69178347)

**Solution:** This automatic conversion requires manual review and is not expected to work at all times. However, the AE scripts can be safely edited using other text editing tools for minor modifications and re-published using the web-based Register Procedure action available under the Administration Tree.

- Setting the SimManager case sensitivity flag to a value that is not consistent with the Directory Server (LDAP, Active Directory) case sensitivity state creates users in the SimManager database that differ only by case. This occurs when the Directory Server is configured with case insensitive names and SimManager is configured with case sensitive names. (1-74029491)

**Solution:** Set the case sensitivity flag in the Portal.properties to be consistent with the Directory Server's case sensitivity state.

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## Supported Hardware Platforms

SimManager is a Java-based application which complies with JDK 5. Specifically, this version of SimManager was validated using the following web application servers:

IBM WebSphere Application Server ND  
v6.1.0.15

Apache Tomcat 5.5.26

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Red Hat JBoss 4.0.5  
on the following platforms:

<b>Manufacturer</b>	<b>Operating System</b>	<b>Version</b>
<b>Intel x86</b>	Windows	2003 Server
<b>Intel x86</b> (WebSphere, Tomcat only)	Red Hat Linux	Enterprise 4.3 (2.6 kernel)
<b>IBM</b> (WebSphere only)	AIX	5.3 TL 4
<b>Sun</b> (Tomcat, JBoss only)	Solaris Sparc	9

For more information on supported platforms, refer to the *MSC SimManager Enterprise Edition Installation and Administration Guide*

## **Prerequisite Server Software**

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Certain third-party software applications must be installed, prior to installation of SimManager Enterprise Edition. Please refer to the *MSC SimManager Enterprise Edition R3.1 Installation and Administration Guide* for applications, application versions and installation sequence.

## **Where to Get Help**

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The SimManager installation and software components have undergone extensive functional and ease of use review. If more information is required about the system, please refer to the *MSC SimManager Enterprise Edition R3.1 Installation and Administration Guide* and the *MSC SimManager Enterprise Edition R3.1 Configuration and Deployment Guide*. For your convenience, the latest documentation is available in PDF format from the MSC.Software Solutions Download Center at: <https://mscsoftware.subscribenet.com/>. Please check with your local MSC.Software sales office for information regarding your company's access and enablement on the MSC Solutions Download Center.