



# Upgrade Master Guide

## Complex Assembly Manufacturing Solution (CAMS)

### Release 7.2

#### Target Audience

- Consultants
- Administrators
- Others

Public  
Document version 3.0 – July 2016



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Type Style	Represents
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Example text	Emphasized words or phrases in body text, titles of graphics and tables
EXAMPLE TEXT	Names of elements in the system. These include report names, program names, transaction codes, table names, and individual key words of a programming language, when surrounded by body text, for example, SELECT and INCLUDE.
Example text	Screen output. This includes file and directory names and their paths, messages, names of variables and parameters, source code as well as names of installation, upgrade and database tools.
<b>Example text</b>	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
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Icon	Meaning
	Caution
	Example
	Note
	Recommendation
	Syntax

Additional icons are used in SAP Library documentation to help you identify different types of information at a glance. For more information, see *Help on Help* → *General Information Classes and Information Classes for Business Information Warehouse* on the first page of any version of *SAP Library*.

## History of Changes

The latest version of the Upgrade Master Guide is included in the CAMS delivery available for download on the SAP Service Marketplace.

The following table provides an overview of the most important changes that were made in the latest versions.

<b>Upgrade Master Guide Version</b>	<b>Important Changes</b>
3.0 (July 2016)	Updated supported Oracle versions
2.1 (August 2015)	Updated section 4.3
2.0 (August 2012)	Updated the Procedure information in section 2.6
1.0 (June 2012)	CAMS 7.2 Upgrade Master Guide release



## Contents

<b>1</b>	<b>Getting Started.....</b>	<b>10</b>
1.1	About this Document .....	10
	Purpose .....	10
	Constraints .....	11
1.2	Related Information.....	11
	Planning Information .....	11
	Further Useful Links .....	11
1.3	Important SAP Note.....	11
<b>2</b>	<b>CAMS Upgrade Overview.....</b>	<b>12</b>
2.1	Upgrade at a Glance.....	12
2.2	Upgrade Paths .....	12
2.3	Software Component Matrix.....	13
2.4	System Landscape .....	13
2.5	Overall Upgrade Sequence.....	13
	Purpose .....	13
	Process.....	13
2.6	Upgrade an Existing Database.....	14
<b>3</b>	<b>Business Scenario.....</b>	<b>17</b>
<b>4</b>	<b>Solution-Wide Topics .....</b>	<b>18</b>
4.1	Technology .....	18
4.2	Spell Checker.....	18
4.3	Installing and Configuring a Diff Program .....	18
	Using tkDiff as the Diff Program.....	19
4.4	PLM Vis .....	19
	Purpose .....	19
	Process.....	20
<b>5</b>	<b>References .....</b>	<b>23</b>
5.1	List of Documents .....	23
<b>6</b>	<b>Media List.....</b>	<b>24</b>
<b>7</b>	<b>The Main SAP Documentation Types.....</b>	<b>25</b>

# 1 Getting Started

This Upgrade Master Guide is intended for existing customers using the Complex Assembly Manufacturing Solution (CAMS) suite who are upgrading to Release 7.2.



New customers implementing CAMS should refer to the *CAMS Master Guide* (located in the `Documentation` folder of the CAMS core delivery) rather than to this guide.

## 1.1 About this Document

### Purpose

This Upgrade Master Guide is the starting point for a technical upgrade of CAMS. Use it to get an overview of the upgrade paths and the involved software units. It refers you to the following required detailed documentation:

- *CAMS Installation Guide*
- *CAMS Master Guide*
- SAP Notes
- CAMS application helps

The Upgrade Master Guide includes the following sections:

- **CAMS Upgrade Overview**

This section discusses the following:

- The release contents
- The upgrade path
- The software components that are part of this upgrade
- The system landscape
- The overall upgrade sequence
- Upgrading an existing database

- **Business Scenario for CAMS**

This section discusses how the upgrade affects the CAMS business scenario.

- **Solution-Wide Topics**

This section covers the technology used by the CAMS suite.

- **References**

This section provides a list of reference documents.

- **Media List**

This section contains information about the CAMS delivery.

- **The Main SAP Documentation Types**

This section contains information about the SAP documentation types.

### Constraints

The following constraint applies to this guide:

- This Upgrade Master Guide primarily discusses the overall technical upgrade of CAMS rather than its subordinate components. This means that additional software dependencies might exist without being mentioned explicitly in this document. You can find more information on component-specific software dependencies in the corresponding installation guide.

## 1.2 Related Information

### Planning Information

The CAMS delivery includes the following documentation:

- The *CAMS Installation Guide*, *CAMS Configuration Guide*, *CAMS Implementation Guide*, *CAMS Integration Guide*, *CAMS Operation Guide*, *CAMS Security Guide*, and *Release Notes*, etc.
- Sizing and calculation of hardware requirements
- Supported platforms
- CAMS application helps

### Further Useful Links

The following table lists further useful links:

Content	Location on SAP Service Marketplace
Information about creating error messages	<a href="http://service.sap.com/messages">http://service.sap.com/messages</a>
SAP Notes search	<a href="http://service.sap.com/notes">http://service.sap.com/notes</a>
SAP Software Distribution Center (software download and ordering of software)	<a href="http://service.sap.com/swdc">http://service.sap.com/swdc</a>

## 1.3 Important SAP Note

You should read the following SAP Note before you start the CAMS upgrade. This SAP Note contains the most recent information on the upgrade as well as corrections to the upgrade documentation.

Make sure that you have the up-to-date version of the SAP Note, which you can find on the SAP Service Marketplace at <http://service.sap.com/notes>.

SAP Note Number	Title	Description
1678302	CAMS 7.2 Upgrade Master Guide	Information not included in the CAMS Upgrade Master Guide

## 2 CAMS Upgrade Overview

### 2.1 Upgrade at a Glance

The following table lists major new features of CAMS Release 7.2. See the *CAMS 7.2 Release Notes* for more information.

Area	Description
SFM	Execution Operations: The new <i>Execution Operations</i> window gives shop operators visibility to several orders at one time in a view that is similar to, but expands on, that of the <i>Shop Display</i> .
Common	Security updates: Release 7.2 includes invalid password and virus scanning functionality. System administrators can build a dictionary of passwords that they do not want their users to use. CAMS also can be configured to scan any documents imported into CAMS for viruses.
Common	Globalization: Release 7.2 has been enhanced to support multiple languages.
Common	Accessibility: This enhancement includes four changes: entry, text box and table cell highlighting; the ability to increase font sizes; the ability to set the color scheme and contrast; and in application access to the Microsoft® Windows® Magnifier.

### 2.2 Upgrade Paths

See the *CAMS Installation Guide* and the *CAMS Integration Guide* for software installation and integration instructions.

The database changes required to move to Release 7.2 depend on the current version of your CAMS database. All database updates must be executed between the current database version and Release 7.2.

For those customers who are running CAMS Release 6.0 or higher, the upgrade is a direct upgrade path. There is a single upgrade script you use to upgrade the database. See the *Upgrade an Existing Database* section on page 14.

For those customers running any CAMS release prior to Release 6.0, contact your SAP representative.

The upgrade script is located in the `SAP_CAMS_7.2\Database\UpgradeScripts` folder of the release.

## 2.3 Software Component Matrix

This section provides an overview of which software components are used in the CAMS business scenario. For more information about the business scenario, see the *CAMS Master Guide*.

Business Scenario	Software Units				
	Key: X = mandatory (X) = optional				
	CAPP 7.2	BOMM 7.2	MCM 7.2	SFM 7.2	NCM 7.2
Manufacturing Planning and Execution System for Complex Assembly	X	X	X	X	X

## 2.4 System Landscape

The system landscape is unchanged from previous CAMS releases. See the *CAMS Master Guide* for information.

## 2.5 Overall Upgrade Sequence

### Purpose

This section describes the overall CAMS upgrade sequence. This upgrade sequence covers all available software units. For documentation listed in the table below, see section 5, References.

### Process

#### Upgrade Sequence

Step	Action	Remarks
1	Review Phase	The review phase begins the upgrade sequence. During this phase, customers review and discuss the software enhancements and resolved issues described in the <i>CAMS Release Notes</i> with their SAP representatives. During this phase, customers and their SAP representatives assess the impact of the software enhancements to their implementations.
2	Planning Phase	During the planning phase, an upgrade plan and schedule is developed that addresses the enhancements to be implemented.
3	Installation Phase	The latest version of the software is installed during the installation phase.
4	Integration Phase	The CAMS integration phase includes the integration and configuration of enhancements to meet customer-specific business rules.

Step	Action	Remarks
5	Test Phase	During the test phase, both regression testing and acceptance testing is done to ensure the business processes still function as in the prior release and to determine that the upgrade was successful.
6	Deployment Phase	Final production deployment of the upgrade is achieved in the CAMS deployment phase after all software has been delivered, tested, and accepted by the customer.

## 2.6 Upgrade an Existing Database

### Purpose

This section covers upgrading a database from a previous CAMS release to CAMS Release 7.2.

### Prerequisites

There must be an existing database for a previous CAMS Release (7.1 or earlier) available to upgrade. Otherwise, the procedure below is not applicable.

Oracle 11g Release 2 or Oracle Database 12c must be installed and, to support multiple languages, the following must be set:

NLS_NCHAR_CHARACTER SET	UTF8
NLS_CHARACTERSET	AL32UTF8
NLS_LANG	See section 4.1 in the Installation Guide for instructions on setting this

Also, Oracle Server and Client (SQL\*Net) must be configured to use encryption to ensure secure data transmission between CAMS and Oracle. Refer to the Oracle Net Manager, Oracle Database Advanced Security Administrator's Guide for more information.

### Procedure

If your current CAMS database does not satisfy the language settings listed above, you **MUST** first create a new Oracle instance that does have these language settings. After creating this new database instance, you will need to export your existing CAMS database and import it into the new database instance. After this is complete, you can then proceed with the upgrade as described in the following paragraphs.

The database changes required to move to Release 7.2 depend on the current version of your CAMS database. All database updates must be executed between the current database version and Release 7.2.

For those customers who are running CAMS Release 6.0 or higher, the upgrade is a direct upgrade path. There is a single upgrade script you use to upgrade the database.

For those customers running any CAMS release prior to Release 6.0, contact your SAP representative.

Beginning with Release 7.1, the usual prompts were removed from the HMS\_DDL and HMS\_DML scripts used to upgrade a database to the latest version of CAMS. Therefore, it is now recommended that when performing database upgrades to CAMS 7.2, you use the new `72_MasterUpgrade.sql` script.

Run the following script to initiate the database upgrade process by entering:

```
sqlplus username/password@sid
@<SAP_CAMS_7.2>\Database\UpgradeScripts\7.2\72_MasterUpgrade.sql
```

Note that since one of the purposes of the script is to be able to upgrade any 6.0 or higher version of the database up to version 7.2, there are some additional prompts which have never been necessary before in any database upgrade scripts. These are explained below.

```
#####
#####
##
## WARNING >> If you are upgrading your system from version ##
##          6.0 to 7.2, you MUST perform this procedure as ##
##          as an Oracle user that has the privileges      ##
##          necessary to create new Oracle user accounts, ##
##          tablespaces, and datafiles.                    ##
##
##          If you are not logged in as such a user,      ##
##          enter CTRL-C now to exit this procedure.      ##
##
#####
#####
```

As indicated by the above prompt, you MUST perform this procedure as an Oracle database administrator (DBA) if you are upgrading a database that is currently at version 6.0. That is because, beginning with version 6.1, the database schemas of all of the modules of hmssoftware were added to the database, even if the particular module was not licensed by a customer.

In addition to the usual prompts for database alias (SID), temporary file location, hmssoftware database schema user names, passwords, and tablespace names, the system also prompts for two additional pieces of information:

```
Enter CAMS home directory name (do not include trailing slash) :
```

This is the name of the directory where the core CAMS Release 7.2 software is loaded. This is the directory that contains the Database/UpgradeScripts/7.2 directory (do not include Database/UpgradeScripts/7.2 in the value you enter). For example,

```
C:/SAP/SAP_CAMS_7.2
```

```
Enter Current HMS Version (6.0/6.1/6.2/7.0/7.01/7.1) :
```

This is the version number of the database that is being upgraded to Release 7.2. Note that if either 7.0 or 7.01 is entered, the database updates performed will be exactly the same. If a value other than one of those contained in the list is entered, the system will display the following message and exit without performing any database updates.

```
#####
## You MUST enter one of the versions in the list above. ##
##          6.0, 6.1, 6.2, 7.0, 7.01, or 7.1              ##
## EXITING PROCEDURE!                                     ##
#####
```

Next, the system will prompt to determine if data globalization should be used:

```
Enter 1 if you are using Date Globalization, else enter 0 :
```

If, and only if, 6.0 is entered as the starting database version, the system will provide an additional prompt as follows:

```
Enter Oracle datafile directory name (do not include trailing slash) :
```

This is the directory where any new Oracle datafiles created for any new tablespace names being created during the version 6.1 portion of the one-step upgrade procedure. For example,

```
C:/oracle/oradata/CAMS
```



If you are upgrading your database and you receive an error during the upgrade (causing the SQL\*Plus window to close prior to completing the full upgrade), you will need to re-run the upgrade script. Before doing so, check the temporary directory specified during the startup of the script for any log files created. If you are upgrading from a version earlier than 7.1 and both the DDL and DML logs for a specific version contain the message at the end of the file indicating successful completion of the script, you do not need to re-run the script for that version. For example, if you are upgrading from version 6.0 and you see that the 6.1 DDL and 6.1 DML logs both completed successfully but there was a problem in the 6.2 DML or DDL log, you will need to re-run the upgrade script, but you can identify the starting version as 6.1, instead of 6.0 (since the 6.1 upgrades completed successfully).

One such problem you may encounter that would require re-running the upgrade script is related to serialized parts. If you see the following message at the end of the CAMS\_71\_UPGRADE\_DDL.log file:

```
You must use the supplied proc  
(::hmsShopTools::ConvertSerialRecords2NewStructure) to  
convert arc_serialized_part_history.
```

you will need to start the CAMS application, open the console, and enter the noted command

```
(::hmsShopTools::ConvertSerialRecords2NewStructure). After it  
completes, you should re-run the upgrade script, indicating that 7.1 is the starting  
database version number.
```

## **3 Business Scenario**

The business scenario is unchanged from previous CAMS releases. See the *CAMS Master Guide* for the business scenario.

## 4 Solution-Wide Topics

### 4.1 Technology

The majority of the CAMS technology remains unchanged from previous releases. See the *CAMS Master Guide* for information.

The only Release 7.2 change is that Right Hemisphere (Deep View) has been reidentified as SAP Visual Enterprise Viewer.

Also, the following new optional component can be integrated with CAMS. This component is **not** provided with the CAMS delivery:

- **SAP Visual Enterprise Generator (formerly Right Hemisphere/Deep Server)**

This application is used to populate 3D part instances in BOMM. It is also used to generate the 3D model files that are displayed in BOMM, CAPP, and SFM.

### 4.2 Spell Checker

Prior CAMS releases used iSpell for the spell checking functionality. CAMS Release 7.1 and later use Spellex; no installation or configuration is required.

For customers using CAMS releases prior to 7.1, a function is available to export words stored in the dictionary database table into an existing Spellex dictionary file or a new dictionary file. See the *Exporting the Dictionary Database to a File* topic in the *CAMS System Maintenance* application help for instructions.

If your existing implementation is currently using iSpell, you may continue to use it; however, SAP does not support the use of iSpell in CAMS Release 7.2. iSpell is not included as part of the CAMS delivery package.

### 4.3 Installing and Configuring a Diff Program

#### Purpose

In order to use the CAMS document comparison (Was/Is) functionality, you must download and install a diff program, such as Windiff. SAP does not include a diff program in the CAMS delivery.

Current CAMS customers can continue to use tkDiff; however, this requires some setup steps as described under Using tkDiff as the Diff Program on the next page.

If no diff program is defined, the Was/Is functionality will not work. Attempts to use it will display an error message.

#### Prerequisite

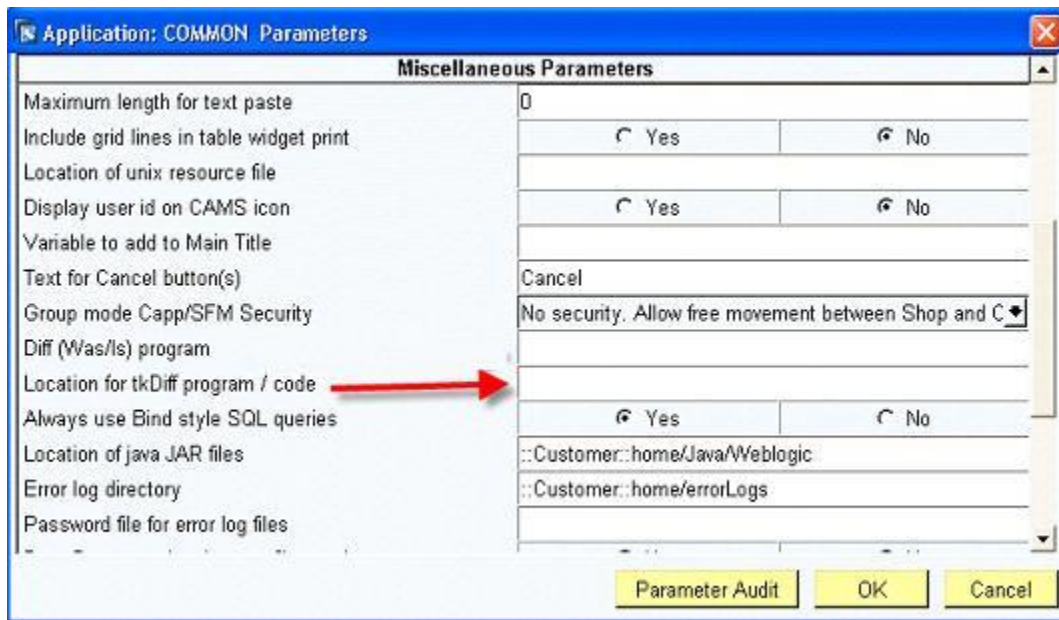
Your CAMS implementation currently uses tkDiff for Was/Is.

## Using tkDiff as the Diff Program

Existing CAMS (HMS Software) customers can setup tkDiff as the diff program to use for Was/Is comparisons. If the value entered for the *Diff (Was/Is) program* configuration parameter is "tkDiff", then Was/Is will operate as it always has. However, this requires the following steps:

1. A directory location that is outside the CAMS directory structure must be entered in the *Location for tkDiff program/code* parameter shown below.

To set this parameter, select the *CAPP Maintenance* → *Configuration Parameters* → *Common* menu and then click the *Miscellaneous Parameters* bar.



2. The following files must be copied from the previous version of the HMSSoftware/publiclib directory to the specified location.
  - diff.exe
  - tkdiff (tcl source file, renamed from tkdiff.tcl)
  - \_tkdiff.rc (optional configuration file)

## 4.4 PLM Vis

### Purpose

Users can view and annotate vector graphics, 2-D graphics, and 3-D graphic models in CAMS. CAMS currently supports integration to PLM Vis 8.1 only.

In previous CAMS releases, enabling a configuration parameter allowed 2D and 3D files, such as .JT files, to be displayed in a pop-up viewer after double-clicking on the filename. The pop-up viewer saved raster versions of the graphic and displayed the raster in the CAMS Tcl/Tk window frame. For backward compatibility, this feature is still available.

Starting with CAMS 7.1, the vector graphics processing engine, Rosetta PreVIEW, was replaced with Siemens PLM Vis ActiveX components. When enabled, CAMS Release 7.2 will display 2D vector and 3D graphic models directly in the Tcl/Tk window frames and pop-up viewer window using ActiveX.

The old context pop-up menus have been replaced by the ActiveX component's pop-up menus. ActiveX toolbars for navigation and markups are now at the top of the graphics display area. Viewing and printing of vector graphics stored in prior releases is supported.

Enabling both the previous Java-based 2D/3D double-click viewer and the new ActiveX viewer is not allowed.

Existing customers using the Java-based 2D/3D viewer should continue to use that option.

Customers who are upgrading and have stored vector graphics should choose the ActiveX configuration described below because it offers backward compatibility for viewing and printing the legacy vector graphics settings.

Upgrading customers who do not have vector graphics can choose either option below, but SAP recommends using the ActiveX components configuration.

## Process

### Component Registration

To begin, you must register the PLM Vis COM components on each computer that will use either the PLM Vis pop-up graphics viewer or the in-frame PLM Vis viewer.

To install the PLM Vis software.

1. Edit the `modules.txt` file found in the `<SAP_CAMS_7.2>/PLMVIS/81/Program` directory:

Change each line in the file to have the correct installation path. For example, each line in `modules.txt` has the prefix:

```
C:\hmsVersions7.2\PLMVis\81\Program\
```

Change each line to the actual installation folder of PLM Vis on your system, e.g.:

```
C:\SAP\SAP_CAMS_7.2\PLMVIS\81\Program\AboutBox.dll
```

2. Run the registration command on your computer:

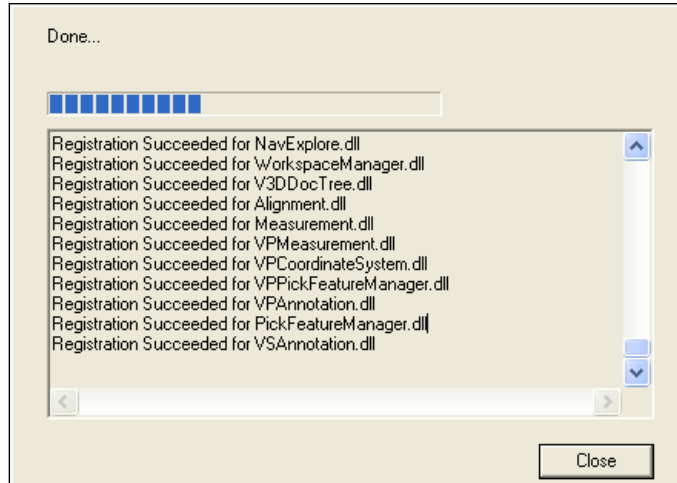
You must run the `PostReg.exe` command on every computer that will use the graphics viewer. The command displays a progress bar while it registers the viewer's COM components.

To run the registration command, open a Command Prompt window to register the DLLs on the computer. Change the directory (CD) to the folder:

```
<CAMS_7.2>\PLMVis\81\Program
```

Run `PostReg modules.txt` /from the command line to register the modules in `modules.txt`.

Check the console to verify that each module registration was successful



3. If all of the modules failed to register, then locate and run `vcredist_x86.exe` to install the required Microsoft runtime libraries:

Double-click on the following Microsoft runtime-library installer:

`<CAMS7.2_INSTALLDIR>/PLMVis/81/Deployment/Install/vcredist_x86.exe`

Rerun the `PostReg modules.txt /c` command.

### Java Runtime Environment (JRE) Download and Installation Instructions (Optional)



This step is only required if you want the graphics to display in the separate PLM Vis viewer. Otherwise, the graphics will display in the standard CAMS graphics viewer.

The CAMS interface to the PLM Vis graphics viewer requires a JRE for the separate viewer. Download and install the Windows 32-bit version of Java 2 SDK, Standard Edition (J2SE), 1.6.0\_17 from <http://www.java.com>. (CAMS Release 7.2 was validated to work with 1.6.0\_17.)

After the Java software is installed, locate it and then copy the following folders to the `<SAP_CAMS_7.2>\JavaInterface` folder:

- o `<J2SDK_1.6.0_17>\jre\bin`
- o `<J2SDK_1.6.0_17>\jre\lib`



If you are prompted to overwrite the `<SAP_CAMS_7.2>\JavaInterface\lib` folder, select *Yes to All*.

After the Java software has been copied, you no longer need the `<J2SDK_1.6.0_17>` folder. Use *Add or Remove Programs* in the *Control Panel* to uninstall the `J2SDK_1.6.0_17` software.

### Set the Configuration Parameters

Finally, you must set some configuration parameters if you want to use the separate PLM Vis viewer.

Select the *CAPP Maintenance* → *Configuration Parameters* → *Common* menu. In the *Graphics Parameters* section, set the following:

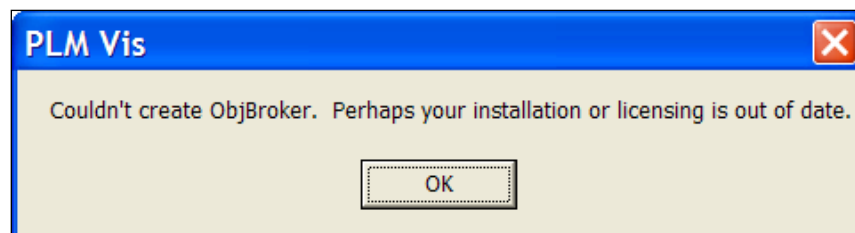
- *PLMVis popup viewer enabled*: Set this to *Yes* to use the separate PLM Vis viewer. The default is *No*.
- *PLMVis popup viewer without raster support*: Set this to *Yes* to use the PLM Vis viewer but not for raster graphics. The default is *No*, which means raster graphics will display in the CAMS graphic viewer.
- *PLMVis popup viewer without vector support*: Set this to *Yes* to use the PLM Vis viewer but not for vector graphics. The default is *No*, which means vector graphics will display in the CAMS graphic viewer.

In the *PLMVis ActiveX Parameters* section, set the following:

- *PLMVis 2D ActiveX*: Set this to *Yes* to activate PLM Vis 2D logic for vector graphics. The default is *No*.
- *PLMVis 3D ActiveX*: Set this to *Yes* to activate PLM Vis 3D logic for JT and other supported 3D graphic formats. The default is *No*.

### Possible Error Messages

If a user launches a PLM Vis graphic on a system that has not registered the PLM Vis COM components with the `PostReg.exe`, the following error may display. This error or others might also display if the path to the registered files changes or if the Java files are not installed. Other Tcl error messages might follow.



## 5 References

### 5.1 List of Documents

The following table lists all documents mentioned in this Upgrade Master Guide.

<b>Title</b>	<b>Where to Find</b>
<i>CAMS Application Helps</i>	Documentation folder of the CAMS core delivery
<i>CAMS Configuration Guide</i>	Documentation folder of the CAMS core delivery
<i>CAMS Implementation Guide</i>	Documentation folder of the CAMS core delivery
<i>CAMS Installation Guide</i>	Documentation folder of the CAMS core delivery
<i>CAMS Integration Guide</i>	Documentation folder of the CAMS core delivery
<i>CAMS Master Guide</i>	Documentation folder of the CAMS core delivery
<i>CAMS Operations Guide</i>	Documentation folder of the CAMS core delivery
<i>CAMS Release Notes</i>	Documentation/ReleaseNotes folder of the CAMS core delivery
<i>CAMS Security Guide</i>	Documentation folder of the CAMS core delivery

## 6 Media List

The delivery method for CAMS is customer download from the SAP Service Marketplace.

## 7 The Main SAP Documentation Types

The documentation types are unchanged from previous CAMS releases. See the *CAMS Master Guide* for information on the documentation types.