

## Getting Started Guide

# Installing the Lisega Plugin with Aveva Everything 3D

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## 1 Introdocution

Compared to PDMS, the installation of the Lisega Plugin with E3D is rather involved. Also, the installation procedures differ slightly between E3D 1.1 and E3D 2.1.

With E3D 1.1, if the Lisega Plugin is the only plugin you are planning to use with E3D, you only need to change three environment variables (see section 3). However, if you are using multiple plugins from different vendors with E3D, you will have to create your own user interface customization files, which is described in section 4.

With E3D 2.1, you always have to change the same three environment variables as with E3D 1.1; regardless of the number of plugins you are using with E3D (see section 5).

## 2 Pitfalls

With Everything 3D (E3D) AVEVA made some changes to its start scripts, which makes installing plugins with E3D somewhat different than with Pdms. Also, AVEVA introduced some new file types with E3D, which can lead to problems when you use plugins with both E3D and Pdms.

The following sections describe some common pitfalls that you should be aware of during the installation of the Lisega Plugin with E3D.

### 2.1 Renamed Environment Variables

Like Pdms, the E3D installation directory contains an *evvars.bat* file, which sets environment variables that are required for the correct operation of E3D and its plugins. Comparing this *evvars.bat* file to the one from Pdms, you may notice that AVEVA renamed some of those environment variables. Most importantly, AVEVA renamed the variable “PDMSUI” to “PMLUI”, which most plugins in general and the Lisega Plugin in particular require for their correct operation.

“PDMSUI” ⇒ “PMLUI”

### 2.2 Multiple Paths in Environment Variables

Starting with E3D, AVEVA now allows spaces in directory names of search paths. That means, however, that you can’t use spaces to separate multiple paths in a search path. Instead, you should now use semicolon characters (;) to separate multiple paths (like in the Windows “PATH” environment variable, for example). Keep in mind to replace spaces with semicolons when you migrate old Pdms start scripts to E3D.

```
1 rem PDMS-style search path
2 set PDMSUI=%PDMSUI% E:\plugins\first E:\plugins\second
3
4 rem E3D-style search path
5 set PMLUI=%PMLUI%;E:\plugins\first;E:\plugins\second
```

### 2.3 New File Types: “pml rehash all” Considered Evil

The plugin’s program files are stored in a PMLLIB folder, which also contains a *pml.index* file. This file references the plugin’s actual program files in the PMLLIB folder. The “pml rehash all” command scans the PMLLIB folder and rewrites the *pml.index* file. Unfortunately, far too many installation manuals still consider this command as a vital installation step and far too many standard users execute it on a regular basis.

“pml rehash all” can cause problems when you use the plugin with both E3D and Pdms.

E3D introduces a new file type, the PMLCMD files, which control the integration of E3D plugins like the Lisega Plugin into the E3D graphical user interface. Like the other program files, the PMLCMD files are stored in the PMLLIB folder and are thus referenced in the *pml.index* file that ships with the Lisega Plugin. Since Pdms doesn't know how it should handle PMLCMD files, it simply ignores them and their entries in the *pml.index* file. However, it also ignores them when you or another Pdms user execute the "pml rehash all" command. This leads to a rewritten *pml.index* file without any PMLCMD entries in it. When you now try to use the Lisega Plugin in E3D, some menu entries in the LISEGA tab may be missing because of the rewritten *pml.index* file.

Consider setting the read-only attribute on the Lisega Plugin's *pml.index* file.

If you can't keep your users from executing the "pml rehash all" command, you should consider setting the read-only attribute on the plugin's *pml.index* file. This way, Pdms and E3D won't make any changes to the *pml.index* file that ships with the plugin.

### 3 Standard Installation: E3D 1.1 with a Single Plugin

Similar to the Pdms installation procedure, you have to change the values of some environment variables to use the Lisega Plugin in E3D. You can either do this in the *evvars.bat* file in the E3D installation directory or in your custom start scripts, which may be accessible on a network share. The relevant environment variables are "PMLLIB", "PMLUI" (previously "PDMSUI"), and "CAF\_UIC\_PATH".<sup>1</sup>

Suppose you unpacked the Lisega Plugin to E:\e3d-plugins\lisega with the directories pmlib, pdmsui, and uic directly below this path. Then you usually only need to set the aforementioned environment variables as follows:

```
1 set PMLLIB=%PMLLIB%;E:\e3d-plugins\lisega\pmlib
2 set PMLUI=%PMLUI%;E:\e3d-plugins\lisega\pdmsui
3 set CAF_UIC_PATH=E:\e3d-plugins\lisega\uic\E3D_1.1
```

Note that the "CAF\_UIC\_PATH" variable only contains E:\e3d-plugins\lisega\uic\E3D\_1.1 and not its previous value. If you are using an E3D standard installation without any additional plugins, the three lines above cover the entire installation procedure. However, if you want to use multiple plugins that extend the E3D user interface, you have to make further adjustments.

### 4 Advanced Installation: E3D 1.1 with Multiple Plugins

If you want to use more than one E3D plugin that extends the E3D user interface, the three aforementioned changes to the *evvars.bat* won't suffice. You can,

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<sup>1</sup>CAF stands for "Common Application Framework", which provides an interface for E3D extensions like the Lisega Plugin. UIC stands for "User Interface Customization". Thus, the "CAF\_UIC\_PATH" points to a folder that contains modifications to the E3D user interface.

of course, simply extend the “PMLLIB” and “PMLUI” environment variables to refer to two, three, or more plugins. However, the “CAF\_UIC\_PATH” variable can’t handle multiple plugins very well.

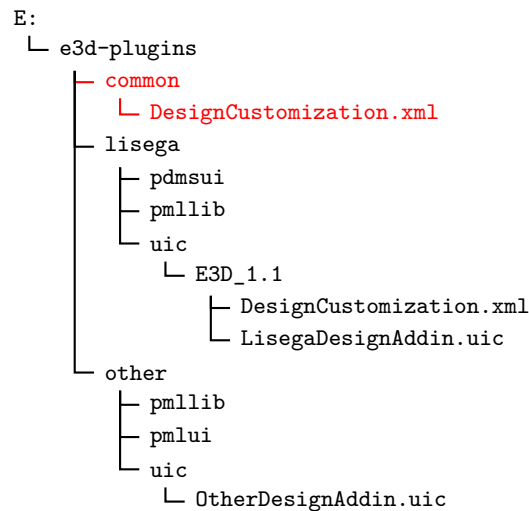
Modifications to the E3D user interface are controlled by module-specific XML files named “<ModuleName>Customization.xml”.<sup>2</sup> Usually, when an E3D module starts, it searches its installation directory for those files. However, if you set the “CAF\_UIC\_PATH” variable in your start script, E3D first looks in the directory specified by that variable. Only if it can’t find the required file in that directory, it reverts to loading the file from its installation directory.

Although “CAF\_UIC\_PATH” can hold multiple paths like “PMLLIB” and “PMLUI”, E3D 1.1 only loads the *first* “<ModuleName>Customization.xml” in its search path during module startup. Thus, you have to create a combined customization file that references the plugins you want to use. And you have to do that *for every module* that uses multiple plugins.<sup>3</sup>

E3D 1.1 only loads one “\*Customization.xml” in its search path.

## 4.1 Sample Configuration

Suppose you unpacked the Lisega Plugin to E:\e3d-plugins\lisega with the directories pmlib, pdmsui, and uic directly below this path. Suppose further that you unpacked an additional third party plugin to E:\e3d-plugins\other, which also contains a uic folder with a Uic file in it. As shown in figure 1, you could now create a common folder that contains a combined *DesignCustomization.xml*.



**Figure 1** – Sample directory structure for two independent E3D 1.1 plugins. The plugins provide the *lisega* and *other* folders. You have to create the *common* folder and its *DesignCustomization.xml* file by yourself.

<sup>2</sup>The E3D module “Model” uses the name “Design” instead.

<sup>3</sup>E3D 2.1 loads all “<ModuleName>Customization.xml” files in its search path, so this setup isn’t necessary for E3D 2.1.

Then, you extend the “PMLLIB” and “PMLUI” environment variables as usual and point the “CAF\_UIC\_PATH” variable to the E:\e3d-plugins\common folder you created in the previous step. (To improve readability I split the assignments to “PMLLIB” and “PMLUI” across multiple lines. You can, of course, assign both paths on a single line in your start scripts.)

```
1 set PMLLIB=%PMLLIB%;E:\e3d-plugins\lisega\pmllib
2 set PMLLIB=%PMLLIB%;E:\e3d-plugins\other\pmllib
3 set PMLUI=%PMLUI%;E:\e3d-plugins\lisega\pdmsui
4 set PMLUI=%PMLUI%;E:\e3d-plugins\other\pmlui
5 set CAF_UIC_PATH=E:\e3d-plugins\common
```

Finally, you have to create a combined *DesignCustomization.xml* file that references both the E3D UIC files as well as the UIC files of the two plugins, as shown in figure 2. Note that the Path attributes can be paths relative to both the E3D installation directory and the “CAF\_UIC\_PATH”. That is, you can refer to UIC files using either relative paths as shown in lines 19 and 20 of figure 2 or absolute paths like E:\e3d-plugins\lisega\uic\LisegaDesignAddin.uic.

```

1 <?xml version="1.0" encoding="utf-8"?>
2 <UICustomizationSet xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
3   <DefaultIcon>AvevaSharedIcons:ID_WARNING</DefaultIcon>
4   <UICustomizationFiles>
5     <CustomizationFile Name="Module" Path="design.uic"/>
6     <CustomizationFile Name="SchematicExplorerAddin"
7       Path="CoreSchematicMenu.uic"/>
8     <CustomizationFile Name="Project" Path="$1.uic" Optional="true"/>
9     <CustomizationFile Name="SVGCompare" Path="SVGCompare.uic"/>
10    <CustomizationFile Name="Cabling"
11      Path="AVEVA.design.cabling.uic"/>
12    <CustomizationFile Name="Hvac" Path="AVEVA.design.hvac.uic"/>
13    <CustomizationFile Name="Supports" Path="AVEVA.design.MDS.uic"/>
14    <CustomizationFile Name="Piping" Path="AVEVA.design.piping.uic"/>
15    <CustomizationFile Name="Steelwork"
16      Path="AVEVA.design.steelwork.uic"/>
17    <CustomizationFile Name="MessageAddin"
18      Path="MessageWindowCoreMenus.uic"/>
19    <CustomizationFile Name="Laser" Path="AVEVA.design.laser.uic"/>
20    <CustomizationFile Name="Integrator" Path="Integrator.uic"/>
21    <CustomizationFile Name="DiagramViewer" Path="DiagramViewer.uic"/>
22    <CustomizationFile Name="InstrumentationImportAddin"
23      Path="InstrumentationImportAddin.uic"/>
24    <CustomizationFile Name="LisegaDesignAddin"
25      Path="..\lisega\uic\LisegaDesignAddin.uic"/>
26    <CustomizationFile Name="OtherDesignAddin"
27      Path="..\other\uic\OtherDesignAddin.uic"/>
28   </UICustomizationFiles>
29 </UICustomizationSet>

```

**Figure 2** – Combined *DesignCustomization.xml* for two plugins. For E3D to load the Uic files of the Lisega and the third party plugin, the environment variable “CAF\_UIC\_PATH” has to be set to E:\e3d-plugins\common as mentioned above. Alternatively, you can also use absolute paths in lines 19 and 20 to refer to those Uic files.

## 5 Standard Installation: E3D 2.1

As with E3D 1.1 you have to change the values of the “PMLLIB”, “PMLUI” (previously “PDMSUI”), and “CAF\_UIC\_PATH” environment variables to use the Lisega Plugin in E3D 2.1. You can either do this in the *evvars.bat* file in your E3D installation directory, in the *projects.bat* file in the E3D 2.1 projects directory, or in your custom start scripts, which may be accessible on a network share.

You can set the “PMLLIB” and “PMLUI” environment variables in the same way as with E3D 1.1. Since version 2.1 E3D supports loading multiple “<ModuleName> Customization.xml” files from multiple directories in the “CAF\_UIC\_PATH” search path. However, if you want to have the Lisega tab appended to the end of the ribbon menu rather than to its front, you have to explicitly include the E3D installation directory in the “CAF\_UIC\_PATH” variable. Otherwise E3D will pick up its own configuration files last.

Suppose you unpacked the Lisega Plugin to E:\e3d-plugins\lisega with the directories pmlib, pdmsui, and uic directly below this path. Then you usually only need to set the aforementioned environment variables as follows:

```
1 rem This should go to the top of your projects.bat file otherwise
2 rem E3D will show the "LISEGA" tab as the first tab in the ribbon
3 rem menu; even before the "HOME" and "TOOLS" tabs.
4 set CAF_UIC_PATH=%AVEVA_DESIGN_INSTALLED_DIR%
5 rem ...
6 rem more projects and other plugin settings...
7 rem ...
8 set PMLLIB=%PMLLIB%;E:\e3d-plugins\lisega\pmlib
9 set PMLUI=%PMLUI%;E:\e3d-plugins\lisega\pdmsui
10 set CAF_UIC_PATH=%CAF_UIC_PATH%;E:\e3d-plugins\lisega\uic\E3D_2.1
```

Note that the “CAF\_UIC\_PATH” variable now contains its old value from line 4, the path to the Lisega Uic files in line 10, and any paths that other plugins may add to it.

E3D 2.1 can load multiple “\*Customization.xml” files.