

A large, light blue wireframe sphere is positioned on the left side of the page, extending from the top to the middle. It is composed of many thin lines that form a grid of latitude and longitude, giving it a 3D, transparent appearance. The sphere is centered vertically and horizontally on the left side of the page.

**AVEVA**

MARINE

# ExPLANT-A User Guide

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# ExPLANT-A User Guide

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# 1 Introduction

The AVEVA ExPLANT-A Export Driver allows the user to extract 3D geometric models from Outfitting Design databases and output them to a *Drawing Interchange File* (DXF or binary DXF). The resulting file can then be used to import 3D graphics models into AutoCAD or into other systems that can read DXF format files.

## 1.1 Before You Begin

It is assumed that you are familiar with the following:

- Outfitting - in particular the Outfitting Design module.
- Operating system functions such as installing software from CD-ROM/DVD, creating and editing files and directories/folders.

For general information on using the Export facilities in Outfitting, refer to the Outfitting Design *Reference Manual: Utilities*.

## 1.2 How the Manual is Organised

[Transfer from Outfitting Design to AutoCAD](#) how to transfer information from a database into a suitable format to input into AutoCAD.

[Limitations and Error Messages](#) examples of messages.

## 1.3 Installation

ExPLANT-A is supplied as an installation option on the AVEVA Outfitting DVD.

### 1.3.1 Manual or Network Installation

It is possible to copy ExPLANT-A from one machine to another, for example as part of an automated deployment using Microsoft Systems Management Server (SMS). In order to do this you must:

- Copy `explanta.dll` (installed into `%PDMSEXE%`) to the target `%PDMSEXE%` folder
- Copy `TbCadInterface.dll` (typically installed into `C:\Program Files\Common Files\Aveva Shared\Common\`) to the target machine
- Register `TbCadInterface.dll` in its new location with the command:

```
regsvr32.exe /s tbcadinterface.dll
```



## 2 Transfer from Outfitting Design to AutoCAD

The AVEVA ExPLANT-A Export Driver can be used to transfer geometric information from a Outfitting Design database into a format suitable for input into AutoCAD.

### 2.1 Prepare the Transfer

To translate a model file into AutoCAD format you must use the AVEVA ExPLANT-A Export Driver from within Outfitting Design module. Although the commands can be typed in, it is recommended that the commands be invoked automatically at the start of each session (for general information on using the Export facilities in Design, refer to Outfitting Design *Reference Manual: Utilities*).

### 2.2 Colours

When selecting geometry for output from Outfitting Design, the user can choose a colour number that is associated with each element or group of elements. ExPLANT-A maps these colour numbers to DXF colours that match the default colours in Outfitting Design.

### 2.3 Output Format

AVEVA ExPLANT-A is able to generate various versions of AutoCAD dxf files. The default is to output AutoCAD R14 dxf files. To select an alternative output format use the command:

```
export option 'version' <dxf_version>
```

Where **dxf\_version** can be one of the following:

```
'10', '11', '12', '13', '14', '2000', '2002', '2004'
```

Both **'version'** and **'14'** (for example) must include the quote characters, as the **export option** command is used for different types of data in different Export Drivers.

### 2.4 Set the Representation

The Export command was designed as a what-you-see-is-what-you-get system, where the visibility and representation settings in Outfitting Design control what is exported. This enables you to select certain elements of the Outfitting Design database for export, and to choose an appropriate level of detail for your needs.

If you are operating in a graphical mode, and working with relatively small volume of data this is ideal. When exporting large models the close integration with the graphical display can result in slow performance.

In this case you can speed up the export significantly by running Outfitting Design without graphics. It is then very important to ensure that the visual representation is set to what you require.

**Note:** Outfitting Design's default settings are different when you are running without graphics.

We suggest that you do the following:

1. Read section 4.2 Element Representation of the Outfitting Design *Reference Manual: General Commands*, which discusses the options available.
2. Using Outfitting Design with graphics enabled, set the representation to your requirements, using either the menus or commands.
3. Activate the Command Line window. (**Menu Display -> Command Line**)
4. Type the command:

**Q REPR**

5. Note the results, for example:

```
Centreline Off
Tube On
Obstruct Off
Insulation Off
Hole Off
Ppoints Off
Ppoint Length 50mm
Ppoint Numbers Off
Representation level 6
Representation level PIPE 6
Representation level NOZZ 6
Representation level STRU 6
Mass Properties Detail level 6
Pnode On
Pnode size 100mm
Pnode colour 22
Snode On
Snode size 50mm
Snode colour 31
Points Off
Pline Off
Pline length 50mm
Pkey Off
```

6. Leave Outfitting Design, and re-enter, but without graphics (by typing **dev tty** to MONITOR).
7. Type Q REPR again, note the results, for example:

```
Centreline Off
Tube On
Obstruct Off
Insulation Off
Hole Off
Ppoints Off
Ppoint Length 50mm
Ppoint Numbers Off
Representation level 0
```

Representation level PIPE 0  
 Representation level NOZZ 0  
 Representation level STRU 0  
 Mass Properties Detail level 0  
 Pnode On  
 Pnode size 10mm  
 Pnode colour Visible  
 Snode On  
 Snode size 10mm  
 Snode colour Visible  
 Points Off  
 Pline Off  
 Pline length 50mm  
 Pkey Off

8. Look at the differences, in this case:

Representation level 6  
 Representation level PIPE 6  
 Representation level NOZZ 6  
 Representation level STRU 6  
 Mass Properties Detail level 6  
 Pnode size 100mm  
 Pnode colour 22  
 Snode size 50mm  
 Snode colour 31

9. Either include all of these representation commands in your macro file (see below), or select those you do need using the Outfitting Design *Reference Manual* as a guide.

## 2.5 Running ExPLANT-A

To translate a model file into a DXF file you must be in the Outfitting Design module.

If the model that you are going to export is large, then it will be a lot quicker to output the file if you enter the **device tty** mode rather than the graphics mode of Outfitting Design. The Outfitting Design EXPORT commands can be stored in a macro file.

For example:

<b>pdms</b>	From the operating system start Outfitting. The Outfitting banner will be displayed.
<b>Enter project name</b>	
<b>bas</b>	Enter valid project name
<b>Enter username and password</b>	Enter your username and password
<b>/SAMPLE</b>	Select the multiple database
<b>dev tty</b>	Select tty mode
<b>design</b>	Enter Outfitting Design module. The Outfitting Design banner will be displayed.
<b>trace off</b>	Switch tracing off

<b>repre level 6</b>	Set drawing representation level
<b>repre level pipe 6</b>	Set drawing representation level for pipes
<b>repre level nozz 6</b>	Set drawing representation level for nozzles
<b>repre level stru 6</b>	Set drawing representation level for structures
<b>export system /explanta</b>	Load the AVEVA ExPLANT-A export driver
<b>export option 'version' '2004'</b>	Specify AutoCAD 2004 output format
<b>export file /equip over</b>	Specify name of the output file
<b>export holes on</b>	Process holes in components
<b>export /EQUIP colour 3</b> <b>export /PIPES colour 4</b>	Select names of Outfitting elements that are to be exported.
<b>export finish</b>	Create export data

Full details of more powerful colour selection and element selection techniques refer to Outfitting Design [Reference Manual: Utilities](#).

## 2.6 Log File

Whenever AVEVA ExPLANT-A is run, it writes a log file. This has the same name as the dxf file, but with a **.log** extension rather than **.dxf**. If a message or warning is printed by Outfitting Design, further details will usually be available in the log file.

If warnings or errors are written to the log file, this is usually mentioned after the banner to the window from which Outfitting Design was started.

The log file is plain text, and may be viewed with **more** in a command window, or any text editor such as **notepad**.

## 3 Limitations and Error Messages

The following limitations affect the transfer of information from Outfitting Design to AutoCAD.

1. The interface translates 3D geometric elements only.
2. BOUN and DRAW elements and 3D lines are not translated.
3. Element names are not translated.
4. Element attributes are not translated.
5. The database hierarchy is not translated and any catalogue components are copied for every instance.
6. Primitives are translated in millimetre units only.
7. All geometry is transferred to the DXF file as faceted objects (cylinders are transferred references to a single prismatic extrusion - stored as an AutoCAD block).

### 3.1 Error Messages

When an error occurs the program will output a message to the standard error stream (usually the screen) and the program will then stop.

A more detailed error message may often be found in the log file.

Less serious problems will cause a warning to be output to the log file, but the program will not stop.

The following message is output by Outfitting Design if there is a problem with the software license for the AVEVA ExPLANT-A Export Driver. If this problem occurs you may need to contact AVEVA Customer Support for assistance.

```
***** FATAL SITEFILE ERROR *****
```

The following message is output by Outfitting Design if there is a problem with locating or loading the AVEVA ExPLANT-A Export Driver.

```
Unable to open dynamic library
```

The following message is output by Outfitting Design if there is a problem with the TbCadInterface.dll component.

```
Cannot create COM object instance for ExPLANT-A
```

If this occurs, locating the TbCadInterface.dll file (typically installed into C:\Program Files\Common Files\Aveva Shared\Common and running the following command may resolve it.

```
regsvr32.exe /s tbcadinterface.dll
```

The following error messages may be output during translation from Outfitting to AutoCAD.

```
library does not accept this hardware
```

iogini has not been called  
file does not exist  
cannot close the file  
end of file found  
insufficient space provided  
2D request on 3D file  
3D request on 2D file  
type does not exist  
type is invalid for query routine  
invalid level in type 9  
invalid dimension  
invalid exponent in double  
group not applicable to type  
attributes not applicable  
Invalid export option:  
Unknown error from export driver

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