MEMO					

USFOS

Reality Engineering

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Release Notes **USFOS Version 8-1**				
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Release notes
USFOS 8-1, July 2004

1 Introduction

The current version of USFOS is version 8-1 with release date 2004-07-01, and the release contains following:

❑ CD-ROM
❑ Release Notes (this MEMO)

Except for this MEMO, no "paper information" will be distributed in connection with this release. All information is stored on the CD.

2 New Web Site

A new USFOS web site is currently under construction, and is located on www.usfos.com., (see Figure 1). Relevant information will be sorted under the different items (main menu to the left), and depending on levels, both one and two sub menus will appear.

For example will the "Examples" site contain several **sub menus** (*basic elements, basic loads*,etc), and by selecting one example category, the available examples appear in **sub menu 2** (bottom line). In Figure 2 an example for "*hydrodynamics*" is given.

If you have any suggestions on how to improve the web site, please let us know.
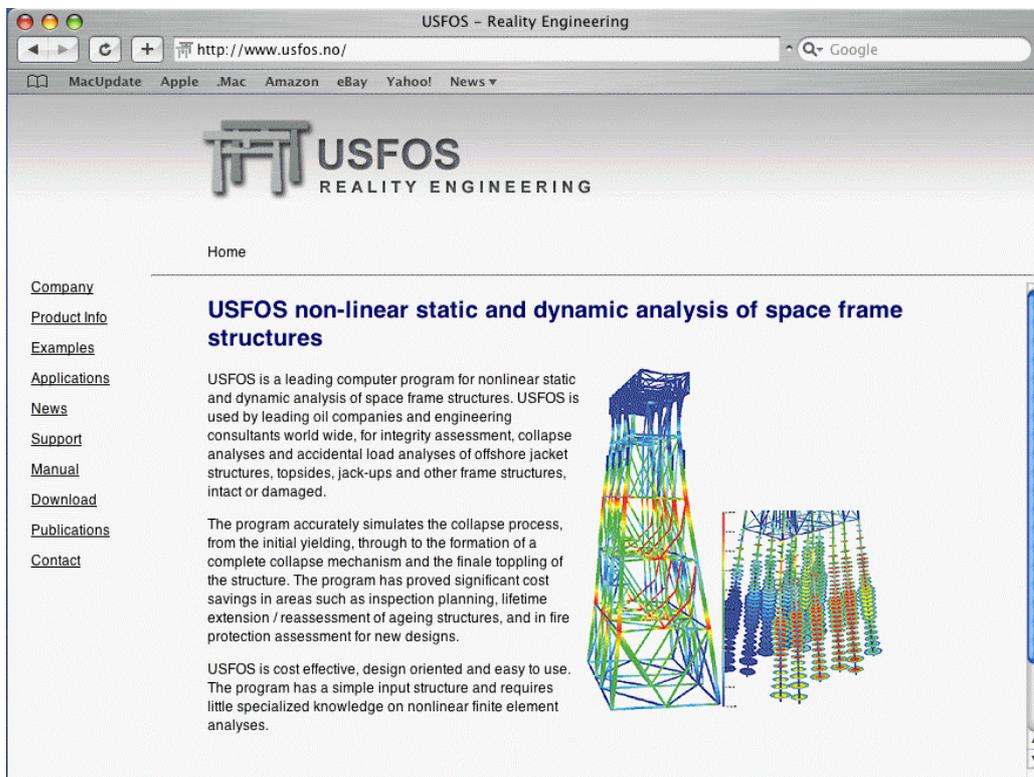
Figure 1 www.usfos.com
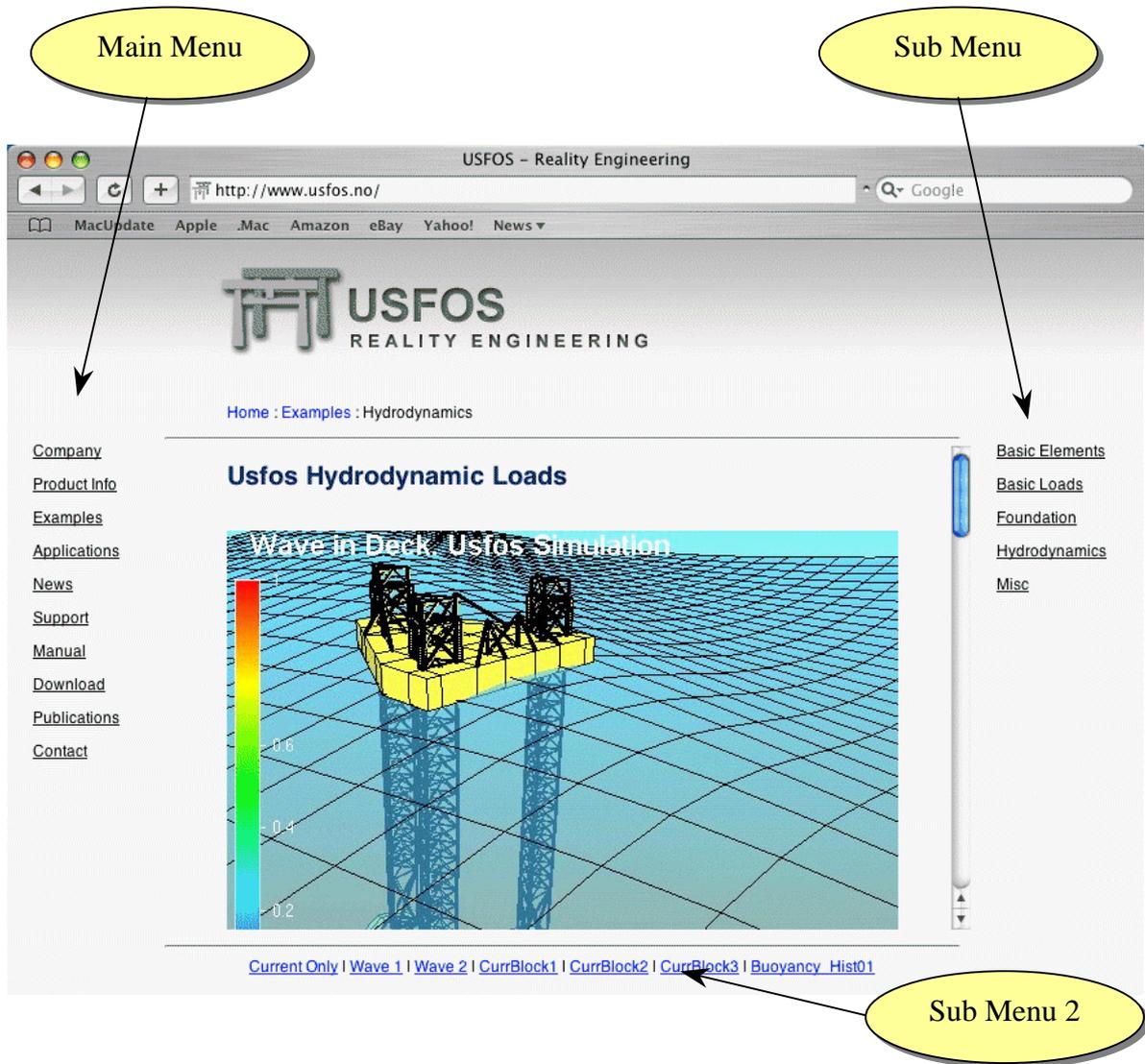
Figure 2 Description of Example/Hydrodynamics Page

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3 News in USFOS version 8-1 - 2004.

3.1 Introduction

Some of the new features are described by examples located on the web site, and reference to the actual example(s) will be given for the different new options.

3.2 Enhanced Graphical User Interface

3.2.1 Set Rotation Point

By default, the rotation point of the 3D image is set to the centre of the structure. However, it is often useful to control the rotation point, in particular when handling large structures, after the model has been "clipped", etc..

- ❑ Set Rotation point: Click on Icon to the left, "Target Icon appear", point/click with the left hand mouse button.
- ❑ Show Rotation point: Click on Icon to the right.
- ❑ Hide Rotation point: Click once more on Icon to the right
- ❑ Automatic recalculation of rotation point (f ex after clipping). Click on Icon in the middle
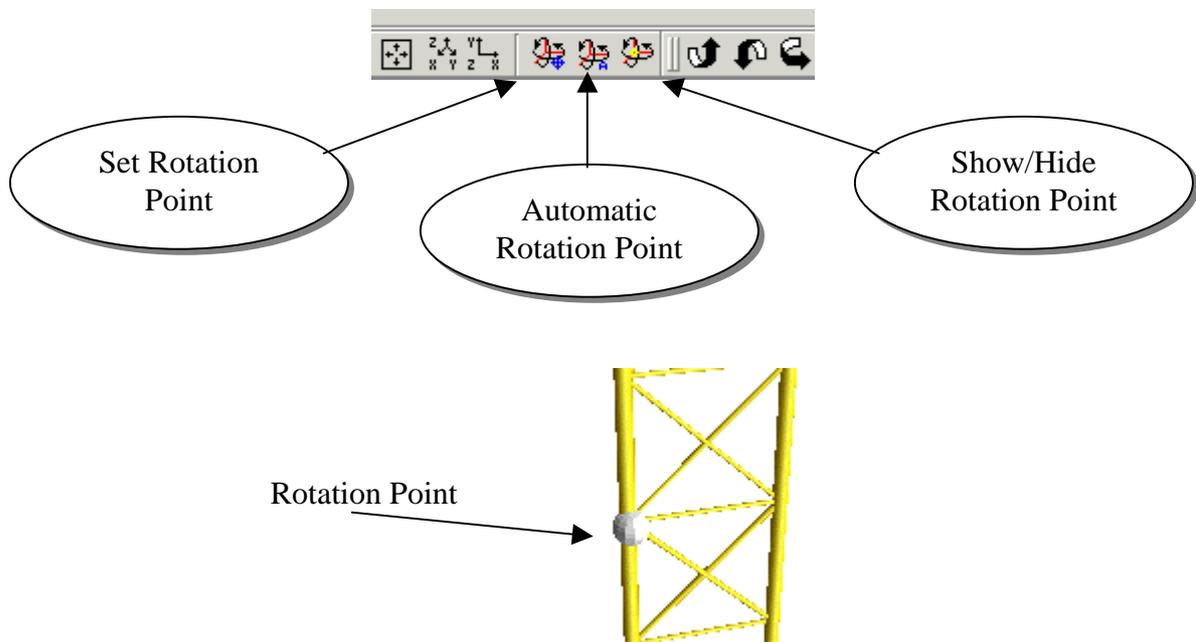
Figure 3 Adjusting Rotation Point

3.2.2 User Defined Labels

If the user wants to add some information to the Structural Model Image, this could be achieved easily by typing the information into a text file using an ordinary text editor (or Excel). The User defined labels could be grouped logically and could be attached to either nodes and elements.

See www.usfos.com under /examples/Misc (example UserLabel1 and UserLabel2)

Example 1 : http://www.usfos.no/examples/misc/UserLabels01/index.html
Example 2 : http://www.usfos.no/examples/misc/UserLabels02/index.html

3.2.3 Running Utility Tools

Different utility tools come together with the standard USFOS installation (free of charge, but not officially supported). These tools could be executed from the GUI by selecting "Run Utility). The tools will search for (and write) files on the "Current Working Directory" of the GUI. If a model file or a raf file is opened, the "Current Working Directory" is the directory where these files are located.
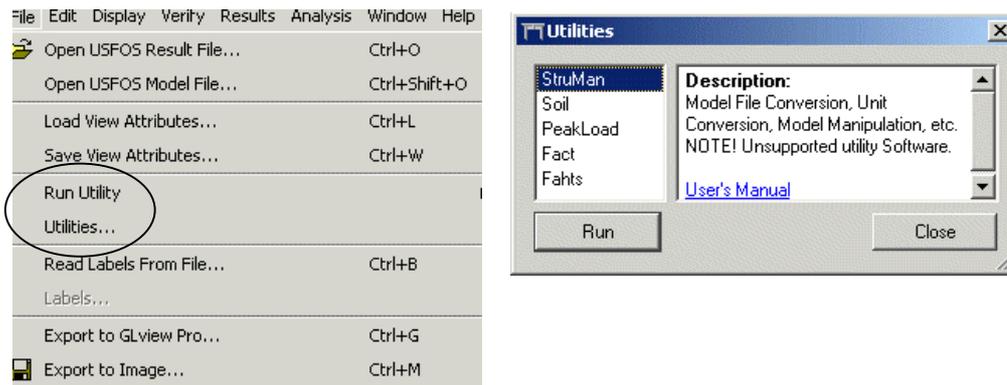
Figure 4 Utility and Run Utility ffound under "File" Menu
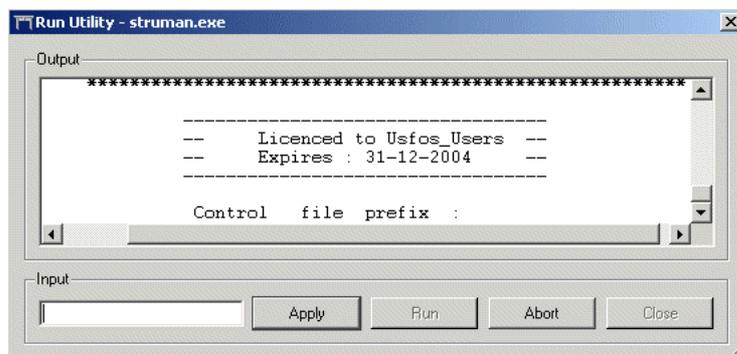
Figure 5 Running StruMan from GUI

3.2.4 Display. Modify colour / Set Transparency

Both the colour and the visibility of the displayed parts could be adjusted by the user utilizing the Display/Part Attributes option, see Figure 6.

Select actual part and adjust:

- ❑ Visibility (on/off)
- ❑ Transparency (0 – 100%)

The colour is edited under Display/Color Settings
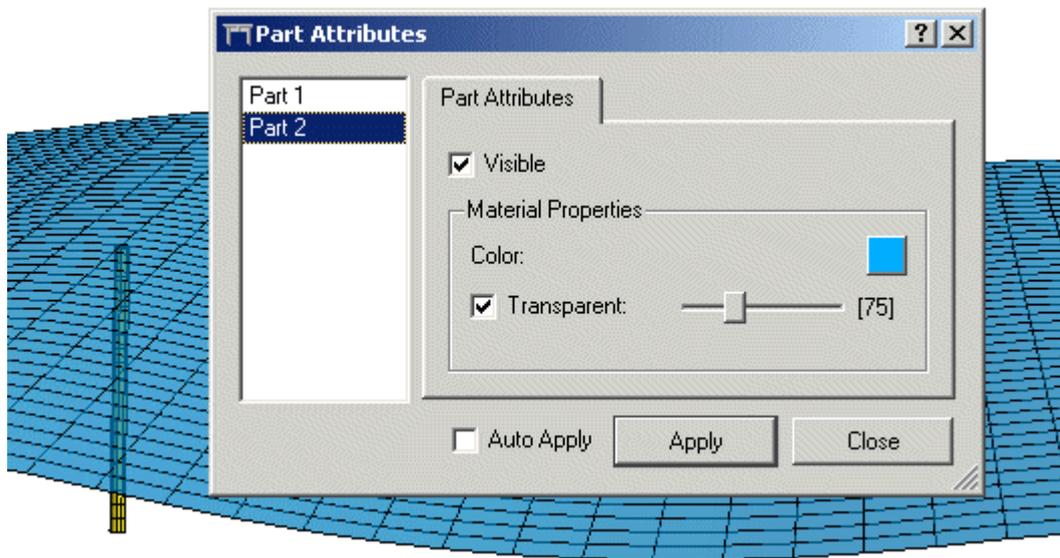
Figure 6 Adjusting transparency and visibility for the sea surface

3.3 Pile-In-Leg

Boat Impact on legs with internal piles get less denting than "empty" legs. In order to account for this strengthening effect, the pile thickness is specified directly utilising the new command BIMPDATA.

For detailed description, see:

Example 1 :   http://www.usfos.no/examples/misc/PileInLeg1/index.html
Example 2 :   http://www.usfos.no/examples/misc/PileInLeg2/index.html

3.4 Grouted Members

The strengthening effect from grout (inside pipes) could be accounted for by adding an attribute to the actual element(s).

NOTE: The option is currently limited to *static* analysis only.

For detailed description, see:

Example :   http://www.usfos.no/examples/misc/Grouted_Member01/index.html

3.5 Tubular Joint Capacity

Enhanced versions of the different joint formulas are implemented in the new USFOS release The extensions imply:

- ❑ Individual Finite Element Formulas could be used for the different joints
- ❑ User Defined P_D curves (*iRule= -101*) could utilize JNT_FORM 3
- ❑ User Defined capacities   (*iRule=   -3*) could utilize JNT_FORM 3

In addition, the robustness of the MSL formulation is improved.

3.6 Current Blockage

The current blockage option is extended with two automatic calculations, (according to API), of the blockage factors. The user may select between using same (averaged) factor for all elements or using individual factors for the different elements. The blockage factors could be displayed (verified) in the graphical user interface.

For detailed description, see:

Example 2 : http://www.usfos.no/examples/hydrodynamics/CurrBlock2/index.html
Example 3 : http://www.usfos.no/examples/hydrodynamics/CurrBlock3/index.html

3.7 Time Dependent Buoyancy

Gradually increase of buoyancy (and gravity) is necessary during initialisation of a floating system. By letting the two loads follow same time history, (the new *S_Curve* is recommended), a smooth introduction (and smooth termination) of the forces is obtained.

The BuoyHist command could also be used to simulate partly filled members etc. The buoyancy factors could be displayed (verified) in the graphical user interface where the eventually variation over time is included.

For detailed description, see:
Example : http://www.usfos.no/examples/hydrodynamics/Buoyancy_Hist01/index.html

3.8 Conical Pipes

Transition between pipes with different diameters could be simulated by using a conical "Shell-Beam" element. The two diameters are specified in the extended PIPE command, while the "Shell-Beam" is activating by the SubShell command.

For detailed description, see:

Example : http://www.usfos.no/examples/misc/Conical_Transition01/index.html

3.9 Shell Pressure

If same pressure should be applied to a large number of shell element, (for example a pressure vessel), the new SHELPRES command offers a compact input. The shell element are defined either directly element by element (or all in once) or through their material reference.

For detailed description, see:

Example 1: http://www.usfos.no/examples/basic_loads/ShellPressure01/index.html
Example 2: http://www.usfos.no/examples/basic_loads/ShellPressure02/index.html

3.10 Model Import / Staad Compatibility

If a valid STAAD model is available, the Graphical User Interface could open and display the model directly, (searches for files with extension *.std*). The model will be converted to USFOS file format (ufo) before it's sent to the analysis engine, (user has to specify the filename).

Most relevant structural information is extracted from the model file, including load cases and their descriptive labels, etc.

The converter covers most European, British and American cross section profiles.

4 New/modified input commands

Since last main release (8-0), following input identifiers are added/extended:

CURRBLOC	:	Extended command. :	*Blockage according to API*
BIMPDATA	:	New command :	*Boat Impact Additional Data (Pile-In-Leg)*
BUOYHIST	:	New Command :	*Time dependent Buoyancy*
TIMEHIST	:	Extended Command :	*S_Curve ("smooth initialisation")*
SHLPRES	:	New Command :	*Pressure on shell elements. Compact input.*
GROUTED	:	New Command :	*Grouted Members*
MATERIAL	:	Extended Command :	*Grout Material Parameters*
PIPE	:	Extended Command :	*Conical Shape*
JNT_FORM	:	Extended Command ;	*Individual FE formulations*