
Webinar

How to start with Visual-Crash PAM?



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11. Feb. 2016



Agenda

How to start with Visual-Crash PAM - VCP ?

- What is Visual-Environment?
- Live-Demonstration
- Fragen

What is Visual-Environment?

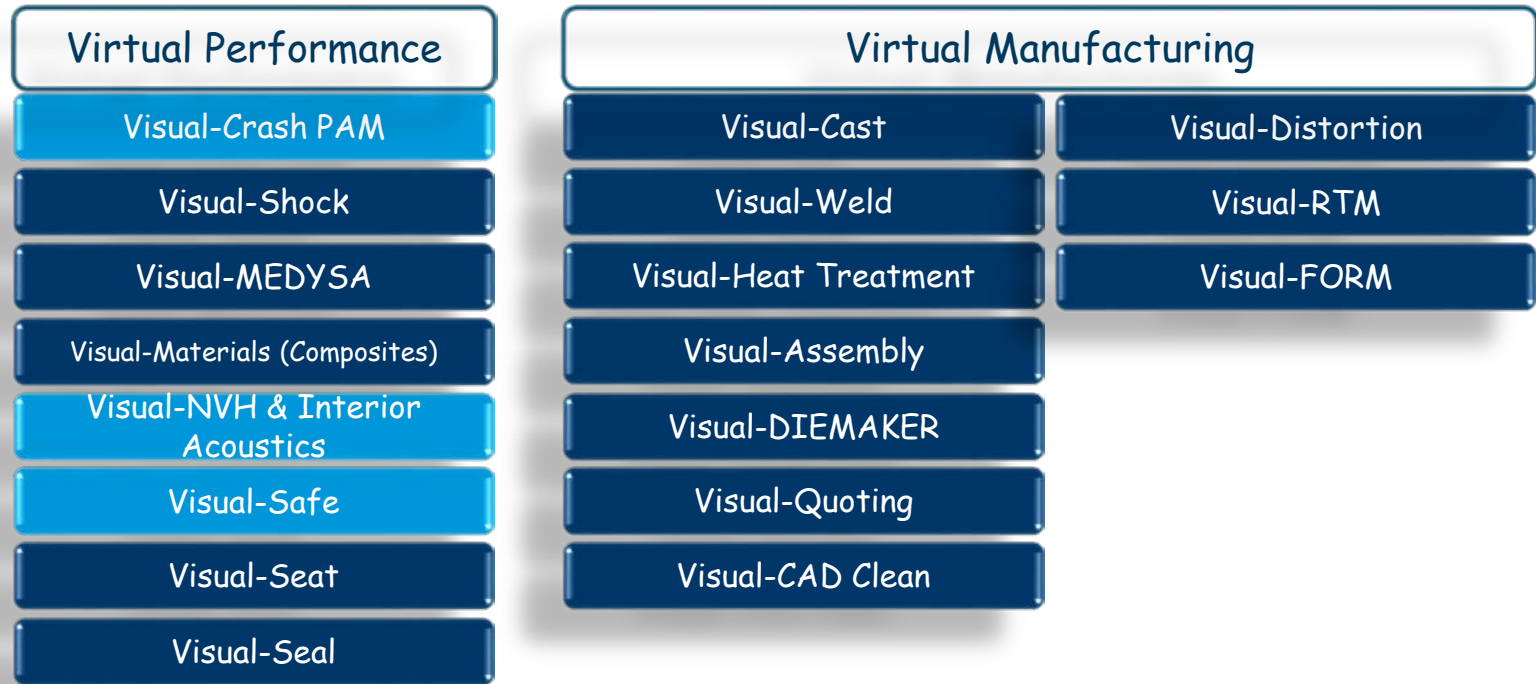
ESI multi-domain solutions



Virtual Prototyping



Visual-Environment - VE

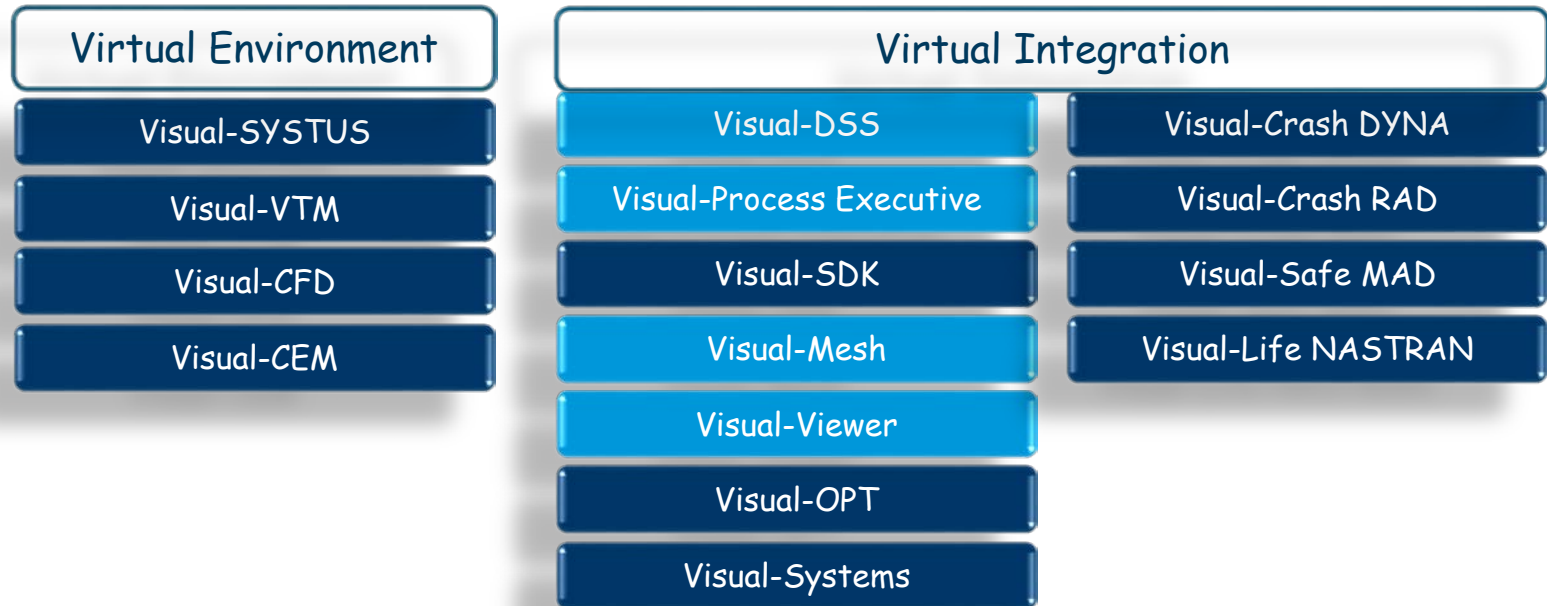
Integrated Application Suite



-  VPS related Applications
-  VE Applications via Token

Visual-Environment

Integrated Application Suite

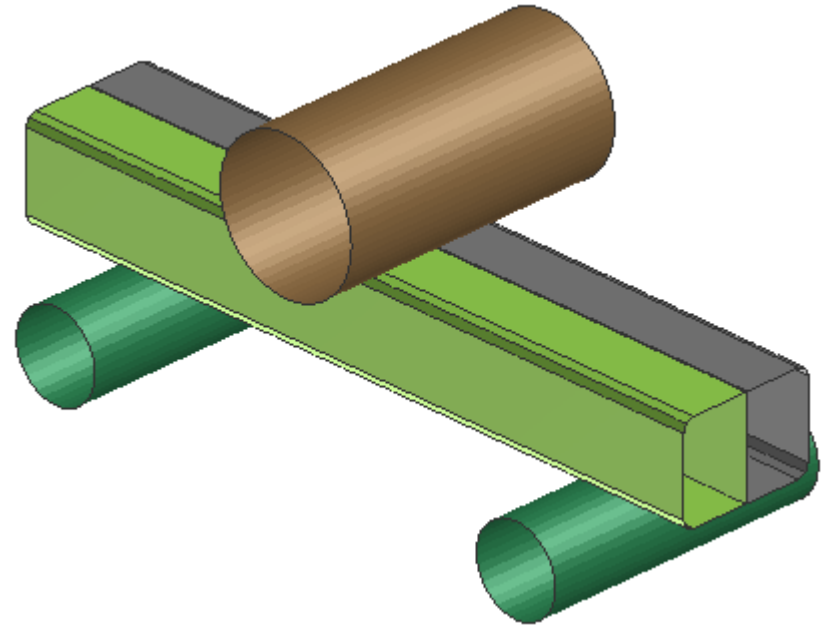


Live Demo

Live demo Topics

with the “Three point bending model”

- Graphical User Interface
- Explorer Tree & Model Window
- File Handling
- Selection
- Card Image > VPS solver card
- Model Check
- File Export



Example from the VPS 2015 installation:

.../Virtual-Performance/2015.0/Examples/examples_crash-safe/V2014/ex_cr_three_point_bending_rupture

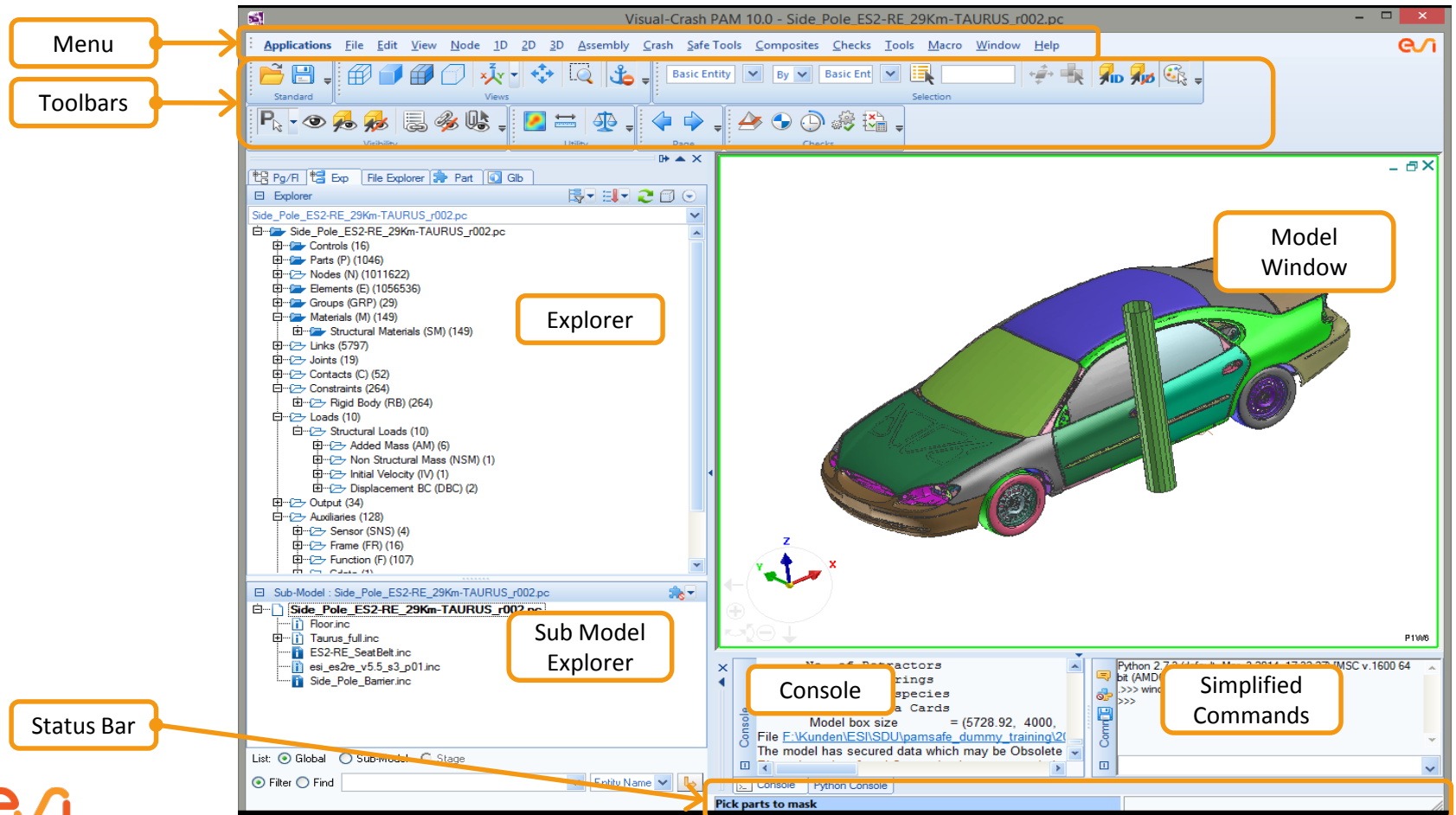
Graphical User Interface

Mouse Manipulation

Hotkeys

Graphical User Interface

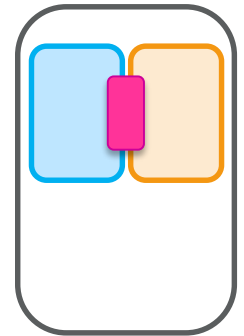
VE is a multi-model/multi-window/multi-application environment







Mouse

Manipulations

- The **left mouse button** is used for all interactions with the visible objects and features on the interface, like...
 - ▶ clicking a function button or menu option
 - ▶ selecting an element set, or
 - ▶ activating a window or dialog box
- The **right mouse button** is used for displaying contextual pop-up menus
- The **middle button** provides a shortcut to...
 - ▶ confirm selection or
 - ▶ apply current operation with **commit buttons**

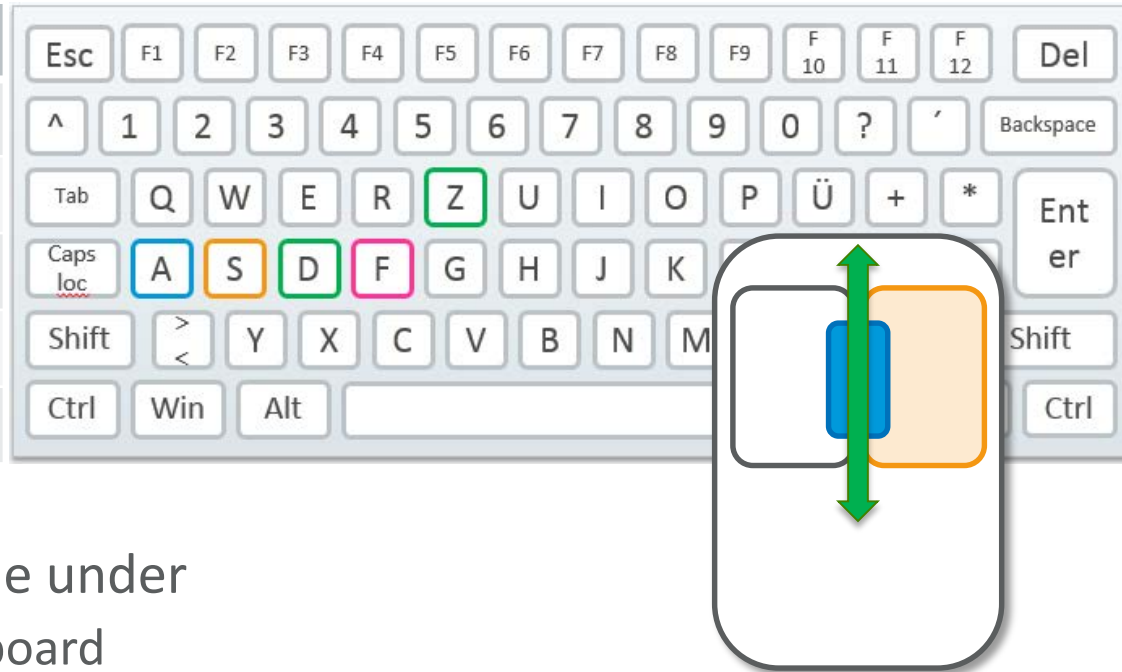


Update selection/Input	
Apply	
OK	
Preview	

Zoom, Pan, Rotate

The defaults & hotkeys

Hotkey	Functionality
a	Rotate
s	Pan
d	Zoom Progressive
z	Zoom Area
f	Fit



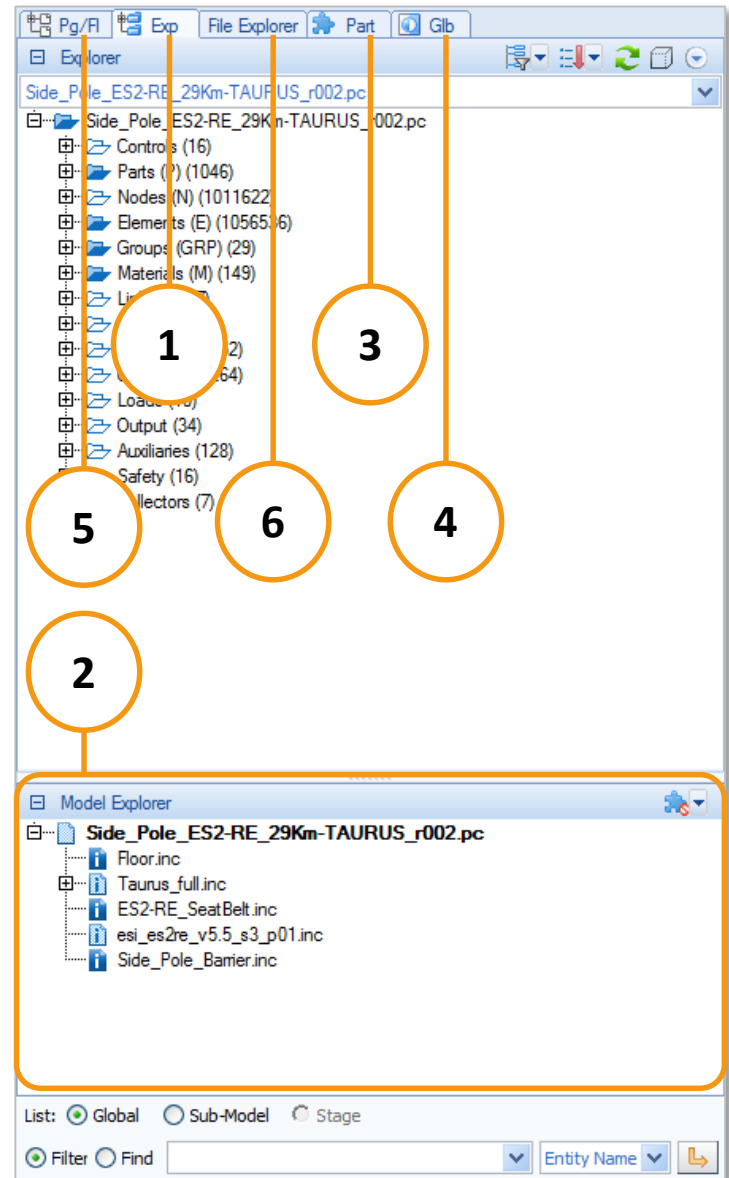
- Customization can be done under
 - Tools > Customize > Keyboard
 - Tools > Customize > Devices



Explorer Trees

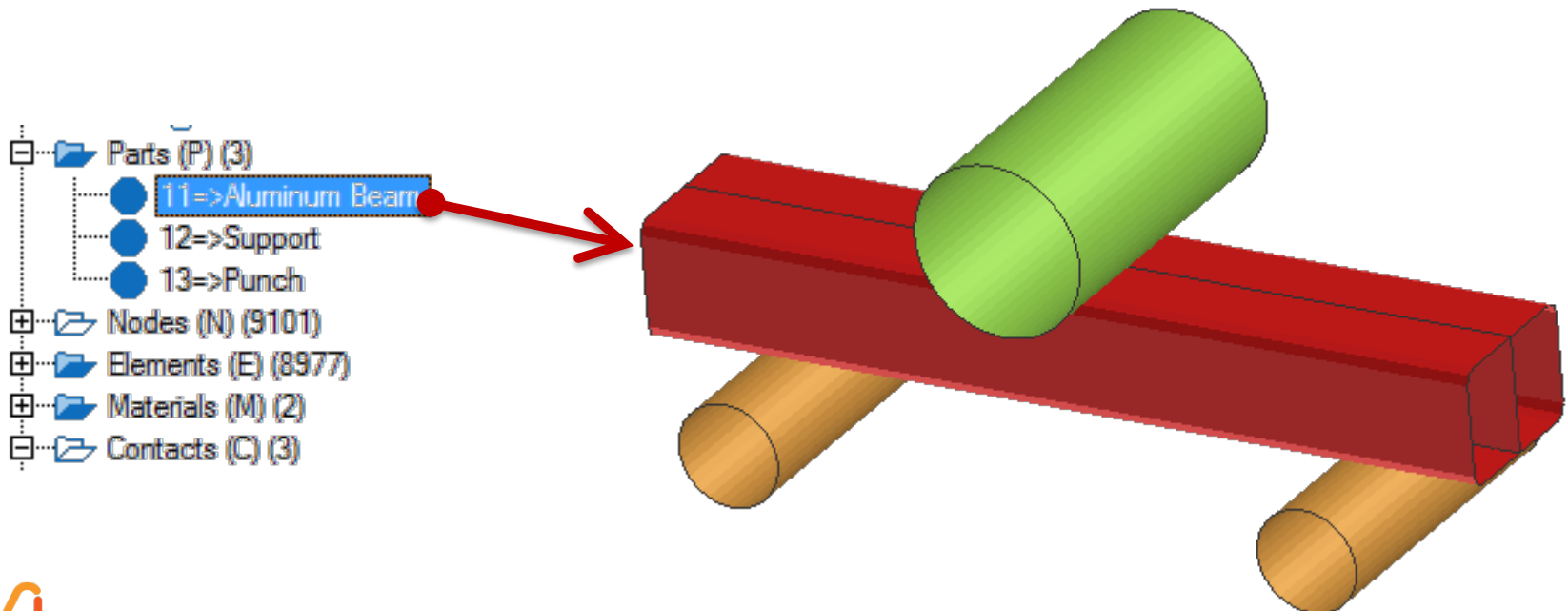
Explorer Trees

1. **Explorer Tree**, where you can visualize and manipulate the model objects tree.
2. **Model Explorer**, where you can visualize and manipulate entities in include files.
3. **Part Table**, where you can control the visualization of parts.
4. **Glb Table**, where you can maintain global display control of entities.
5. **Page View/File View** explorer is used to display the loaded information on the basis of pages and windows and file wise in the File Explorer. It lists all the imported results and shows the parent-child relation between the various curve data.
6. **File Explorer** provides easy and fast access to files stored on your computer from within the application.



Entity Highlight

- Entity highlighting shows corresponding representative with red color
 - Entity highlighting is displayed in red color if you click at any entity in the Explorer Tree
 - Entity highlight shows the entity representative independently if the entity is in show or no-show mode



Selection

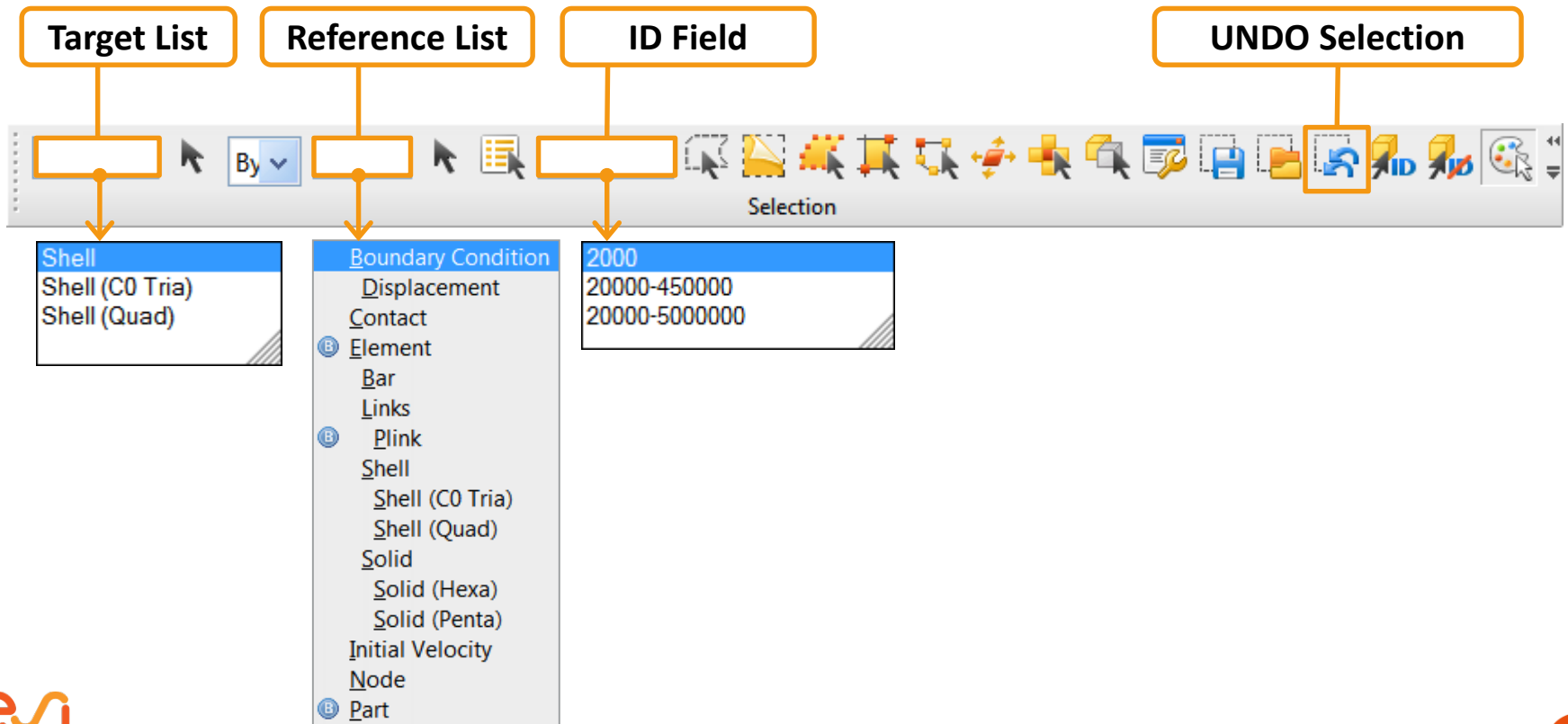
Entity Selection

Visibility Tool

Entity Selection

Selection Toolbar

- The Entity Selection toolbar allows you to select and modify several entities at one time, using different methods

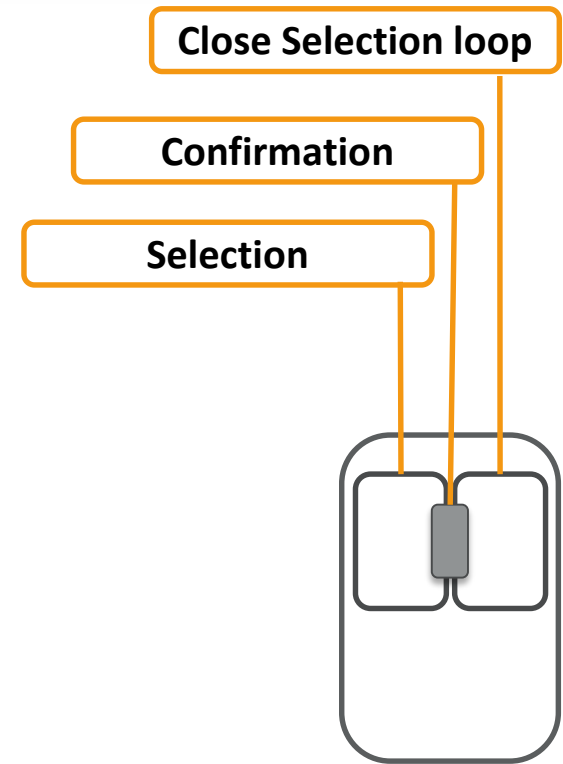


Graphical Selection

Various selection methods

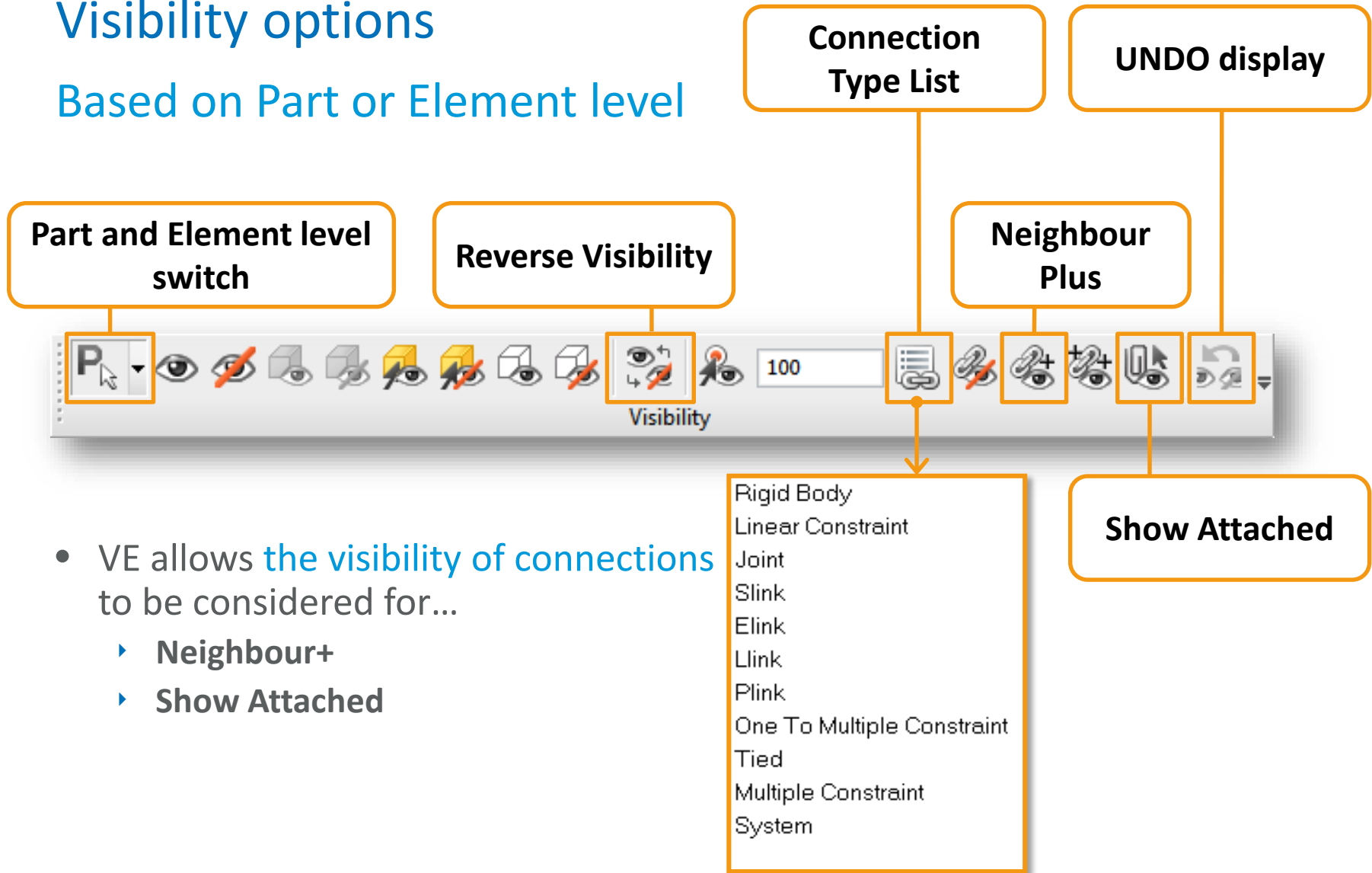


- ✓ PolySelect
- ✓ SelectAll
- ✓ SelectAllVisible
- ✓ ReverseSelection
- ✓ Select node by location
- ✓ Box selection of top seen entities
- ✓ Top2DPolygon
- ✓ Pick 2/4 nodes to select polygon
- ✓ SelectBdry
- ✓ SelectAdj
- ✓ SelectCont
- ✓ Deselect
- ✓ DeselectAll
- ✓ AdvSel
- ✓ SaveSelection
- ✓ LoadSelection
- ✓ SeqUndo
- ✓ DisplayID
- ✓ HideID
- ✓ DisplayControl



Visibility options

Based on Part or Element level



- VE allows the visibility of connections to be considered for...
 - Neighbour+
 - Show Attached

Frequently used Hotkeys

Selection

Visibility

Selection Hotkeys	Functionality	Visibility Hotkeys	Functionality
F3	RollEsSelection	L	Locate
Shift+A	Select All Visible	H	Hide
Ctrl.+A	Select All	M	Mask
Ctrl.+D	Deselect All	N	Neighbour +
Esc	Cancel operation	B	Back View



File Handling

File Import

VPS - Card Image

Property GUI

File Import

Current directory

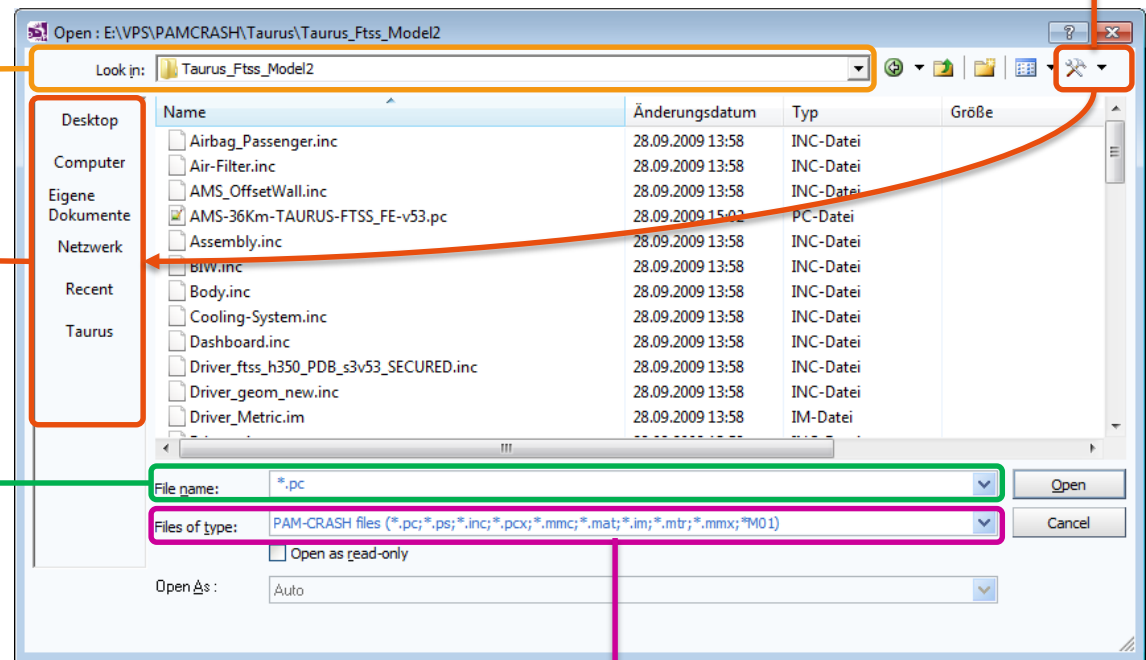
> with Explorer Drop down list

Favourites area

File name

> filter the file list based on pattern
> with quick access to the last opened files via drop down list

List the previous visited folders



Types of supported Solver formats

> filter the file list based on listed file extensions

Card Image

A cards image helps creating and alter VPS Solver entities

Dropdown list provides the different available entity types

Solver Selection type area

Comment area

VPS Solver card input

Switch to Text Editor mode

Help information from VPS reference manual

The screenshot shows the 'Rigid Body Creation/Editing' dialog box. It features a 'Type' dropdown menu set to '0: RIGID BODY REGULAR'. Below this is a '\$ comment area'. A table lists various parameters for the rigid body, including 'IDRB', 'BLANK', 'ITRB', 'IDNODcog', 'ICOG', 'ISENS', 'IFRA', and 'HRB'. A 'NAME' field is set to 'Body-Main_Frame-1'. A 'Node' dropdown is set to 'Node', and a 'Range Input/Edit ...' field is visible. At the bottom, there are checkboxes for 'Visible', 'Highlight', and 'Show', along with 'Reset', 'Apply', and 'Close' buttons. A tooltip for 'IDNODcog' is shown, indicating it is the 'Rigid body center of gravity node number'.

RBODY /	IDRB	BLANK	ITRB	IDNODcog	ICOG	ISENS	IFRA	HRB
RBODY /	4000002		0	4798827	==	0	0	
NAME	Body-Main_Frame-1							
NOD	4020094	4020095	4020096	4020178	4020179	4020180		
NOD	4020181	4020182	4020183	4386875	4386876	4386877		
NOD	4386878	4386879						
END								

PYVAR variable support

Model Window interaction options

Entity Selection type options

Card Image

Field types attributes and description

The image shows a screenshot of a VPS solver card with several callout boxes explaining field attributes. The card content is as follows:

Type: 0: RIGID BODY REGULAR

\$ comment area

RBODY /	IDRB	BLANK	ITRB	IDNODcog	ICOG	ISENS	IFRA	HRB	
RBODY /	<u>4000002</u>		<u>0</u>	4798827	---	0	0		
TITLE	Body-Main_Frame-1								
NAME									
NOD	4020094	4020095	4020096	4020178	4020179	4020180			
NOD	4020081	4020082	4020183	4386875	4386876	4386877			
NOD	4386878	4386879							
END									

IDNODcog: Rigid body center of gravity node number

Drop down list
> Type Selection

Brown
> VPS Solver Keyword
> Non editable

Green
> Non editable field

Orange
> Non editable field

Blue
> Editable field

Black header
> VPS parameter description

Magenta
> Reference to other VPS cards

Blue fields underlined
> provides VPS Solver flags

Property GUI

Browsing and Visualizing Entities

- Properties feature enables you to get detailed information of
 - selected entity/entities as to its solver card data
 - its references (contents) and
 - attributes referring it (Relations)
- The tool also lists the submodel/include file to which the chosen entity belongs to
- This feature is a very useful model debugging tool
- Backward and Forward traverse made available to crosscheck the delegations

Checks

VPS Solver Support
Solver Data Checker
Embedded Solver

Checks

VPS Solver Support

- In VCP, the below tools provide an option to perform the check/computation using the **embedded solver** or **external VPS solver**
 - ▶ Time Step, Compute Mass Inertia, Penetration/ Intersection
 - ▶ TIED and LINK Manager (Projection)
 - ▶ Auto Seat belt, Belt Tool
 - ▶ Estimate Stamping
 - ▶ Effects Acoustic Coupling Visualization

- On executing the solver for the above checks, the **temporary solver file** and the generated .out file are given as a link in the console in the respective tools

Model Check

Solver Data Checker



- Solver Data Checker
 - ▶ Checks the model data correctness and integrity using VPS solver
 - ▶ Direct editing of entities from output window
 - ▶ Use Embedded solver or user defined solver version
- VPS 2015 Solver Support
 - ▶ The keywords pertaining to VPS 2015 release are fully supported
- Embedded Solver can be changed to any VPS solver version under
 - ▶ File > General Preferences > VPS Preferences Tab > VPS Solver Launch Script

Single File Export

List Reference only in combination with Visible

Visible will filter the entity list based on the visible entities in the Model Window

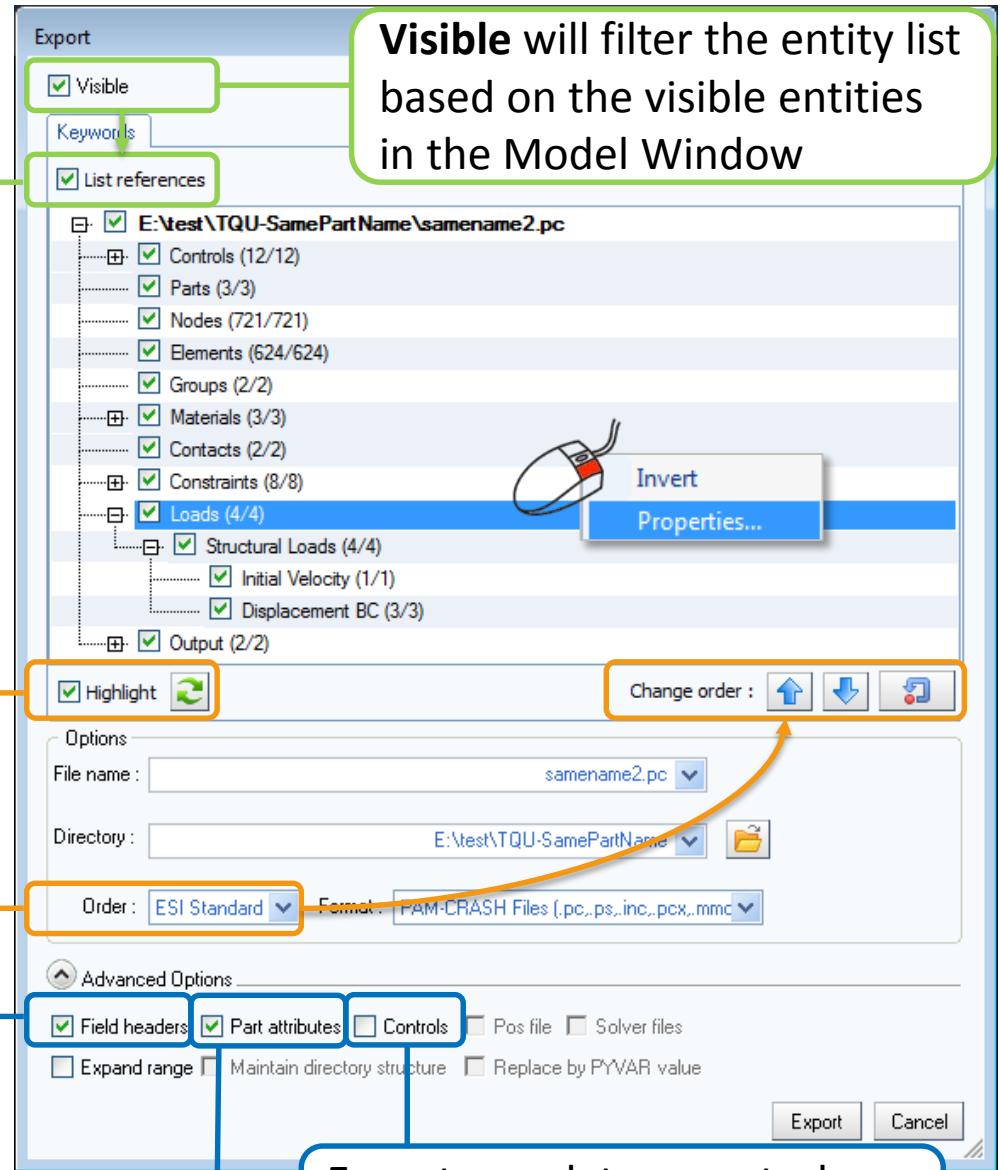
Highlight the selected entities in the Model Window

Export Order with "As Imported" and "ESI Standard" option

Export VPS parameter header as comment in the data deck

Will retain previous part attributes along with file loading

Export mandatory control cards if they are not present





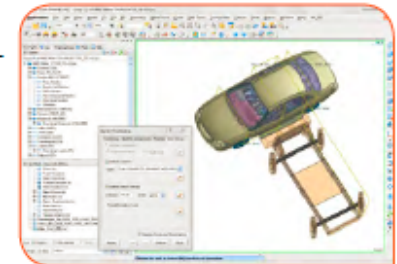
- VCP Grundlagen Training am 16.03.2016

Beschreibung

Visual-Crash PAM (VCP) ist ein speziell für VPS/PAM-CRASH entwickelter Pre-Prozessor, um ein Solverdeck schnell, einfach und effektiv aufzubauen. Zur Verbesserung der Produktivität sind alle vorhandenen Werkzeuge und Eingabemasken auf die Solverfunktionalitäten optimiert. Dieser Kurs bietet den Teilnehmern einen einfachen und effektiven Einstieg in Visual-Crash PAM. Anhand einer Vielzahl von Übungen werden die grundlegende Philosophie sowie die wichtigsten Funktionen zur Modellerstellung vorgestellt, diskutiert und angewandt. Dabei erlernen die Teilnehmer, Datensätze eigenständig aufzubauen, zu modifizieren sowie gegebenenfalls zu ergänzen.

Schulungsinhalt

- Arbeiten mit Visual-Crash PAM – Die Benutzeroberfläche
- Auswahl- und Selektionsmöglichkeiten
- Basisfunktionen und -operationen
- Modellorganisation
 - ◊ (Arbeiten mit Subsystemen und Include Files)
- VPS Solver Support in Visual-Crash PAM
- Erstellung eines VPS Inputs
 - ◊ Element- & Materialeigenschaften
 - ◊ Lasten & Randbedingungen
 - ◊ Kontakte
- Modell-Checks
 - ◊ Kinematic-Check
 - ◊ Penetration-Check
 - ◊ Time Step-Check



Voraussetzungen

Dieses Schulungsseminar setzt keine programmspezifischen Kenntnisse voraus. Grundkenntnisse in VPS/PAM-CRASH sind jedoch von Vorteil.

- http://www.esi-group.com/sites/default/files/resource/brochure_flyer/4322/schulungskatalog2016_online.pdf



Thank you!

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