PTC Creo Simulate 3.0

- News
- 10 “Tips & Tricks”

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Focused on PTC-Simulation Products  
Presales, Training, Consulting, …  
27+ Years Simulation-Experience (19 Years with PTC)
Agenda

• PTC Creo Simulate 3.0: News with Live -Demo
• PTC Creo Simulate 3.0: 10 "Tips & Tricks" with Live -Demo
• PTC Creo Simulate 3.0: “Best Practice” -CD
• Questions
PTC Creo Simulate 3.0: News
> Automatic preloads for fasteners

> Fatigue Analysis with Multiple Load Sets

> Stress intensity factor measures for cracks
User Experience

> Improved UI for linearized stresses

> Can enter Simulate with failed features

> Faster entrance into Simulate from Creo Parametric & Creo Direct
> Beams, shells, fasteners displayed as solid geometry

> In addition there are many other small, less impactful features added to Creo 3.0
Engineering Functionality

> New Ribbon-based UI for Results

> Contact with sliding finite friction

> Faster dynamic analyses
Live: Contact Analysis with finite Friction

Clip Analysis: LDA / Contact with finite Friction
PTC Creo Simulate 3.0: 10 "Tips & Tricks"
1. **Meaningful “config.pro”-Options**

2. **Replace Templates in Installation Directory**

3. **Inheritance-Feature to create a dependent Copy**

4. **Constrain the Center of a Hole**

5. **Temperature-dependent Material Properties**

6. **Hydraulic Pressure Load**

7. **2D-Pressfit Analysis**

8. **Mapkeys in Postprocessor**

9. **Use deformed Model in Creo Parametric**

10. **Result-Export for Creo-View**
# 1: Meaningful “config.pro”-Options
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Speed up the Model-Setup / Postprocessing with meaningful “config.pro”-Options

- `sim_pp_legend_levels` 15
- `sim_pp_template_dir` D:\PTC\admCreo3\bibliothek\mechanica
- `sim_pp_background_color` white
- `sim_display_current_csys_triad` YES
- `sim_display_z_buffered` NO
- `sim_results_on_first_pass` YES
- `sim_solver_memory_allocation` 8192
- .......
# 2: Replace Templates in Installation Directory
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Meaningful Templates are accelerating the Postprocessing

- `sim_pp_static_template.rwt`
- `sim_pp_non_lin_static_template.rwt`
- `sim_pp_modal_template.rwt`

Examples:
- `D:\PTC\Creo30_M020\Creo 3.0\M020\Common Files\mech\text\results_templates`
# 3: Inheritance-Feature to create a dependent Copy
Use Inheritance-Feature in Creo Parametric to create a dependent Copy

- PTC Windchill PDMLink will take care about this Relationship
- Use Flexible Modelling Extension (FMX) for Simplification
# 4: Constrain the Center of a Hole
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Hole can be constrained in the Center without losing Flexibility

- By using:
  - Weighted Link: Hole / Center Point
  - Very stiff Spring "to Ground" from Center Point
# 5: Temperature-dependent Material Properties
The following Material Properties can be dependent from Temperature:

- Poisson’s Ratio
- Young’s Modulus
- Coeff. Of Thermal Expansion – Press the Right Mouse Bottom (RMB)
# 6: Hydraulic Pressure Load
For hydraulic pressure use the formula:
\[ \text{if}(z>0, z \times 1e^{-9} \times 9810, 0) \]
- Unit-Sys: mmNs
- 1e-9 t/mm³ Density of Water
- 9810 mm/s² Gravity on Earth
# 7: 2D-Pressfit Analysis
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Pressfit Simulation of a rotated Assembly can be performed in 2D

- **Setup 2D-Axisymmetric Model**
  - Use Coordinate System (Y=Rot-Axis / X=Rad-Dir)
  - All Topology is in 1st Quadrant (+X / +Y)
# 8: Mapkeys in Postprocessor
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Mapkeys are accelerating the Postprocessing

- Create Mapkeys for repeatable Actions in the Postprocessor such as:
  - Capping Iso-Surfaces (AF)
  - Legend Formatting (LA)
  - ....
# 9: Use deformed Model in Creo Parametric
deformed Model can be saved in the Postprocessor as VRML (.wrl)

- Assemble VRML in Creo Parametric for:
  - Clash detection
  - Clearance Analysis
# 10: Result-Export for Creo-View
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Share Simulate-Results with Others who do not own a PTC Creo Simulate-License

• PTC Creo View (Express)
Static Analysis of a Chair Component covering 7 "Tips & Tricks"

- Meaningful “config.pro”-Options
- Replace Templates in Installation Directory
- Inheritance-Feature to create a dependent Copy
- Constrain the Center of a Hole
- Mapkeys in Postprocessor
- Use deformed Model in Creo Parametric
- Result-Export for Creo-View
now you are ready to go for gold !!!

;-)
You will find a copy of the PTC Creo Simulate 3.0 “Best Practice”-CD in your Seminar Documentation
Questions
Thank You