

- **Dynamic licensing model**
 - ✓ „On-Demand“ licenses are supported
 - ✓ clocking is done at the accuracy of seconds
- **Asynchronous Rendering**
 - ✓ Performance boost for 3D-Visualization
- **New Function „task finder“**
 - ✓ List of warnings and error messages after every simulation
 - ✓ Directly linked to the associated tasks
- **Import Wizard**
 - ✓ Process information and the object links could be imported from MS Excel
- **3D-Layout-Export in Collada-Format (*.dae, *.obj)**
 - ✓ Export function for static geometry
- **New task for complex object**
 - ✓ complex object DOF – for direct manipulation of degrees of freedom

objects	type or file	length [mm]	width [mm]	height [mm]	color	weight [kg]
2 _default	oCuboid					0
3 Getriebe	emaGeometry\Getriebe.dae	0	0	0		27,4
4 Unterteil	emaGeometry\ZSB_Unterteil.dae	0	0	0		10
5 Antriebswelle	emaGeometry\ZSB_Antriebswelle.dae	0	0	0		3
6 Abtriebswelle	emaGeometry\ZSB_Abtriebswelle.dae	0	0	0		3
7 Oberteil	emaGeometry\ZSB_Oberteil.dae	0	0	0		10
8 Lagerdeckel1	emaGeometry\ZSB_Lagerdeckel_1.dae	0	0	0		0,2
9 Lagerdeckel2	emaGeometry\ZSB_Lagerdeckel_2.dae	0	0	0		0,2
10 Lagerdeckel3	emaGeometry\ZSB_Lagerdeckel_3.dae	0	0	0		0,2
11 Lagerdeckel4	emaGeometry\ZSB_Lagerdeckel_4.dae	0	0	0		0,2
12 Ringschraube1	emaGeometry\ZSB_RingschraubeDIN580M20_1.da	0	0	0		0,3
13 Ringschraube2	emaGeometry\ZSB_RingschraubeDIN580M20_2.da	0	0	0		0,3
14 Werker01						
15 Tisch		1200	800	800		0
		800	500	700		0
		800	500	700		0
			500	700		0
				400		100
				400		200

3D Layout Export

Import Wizard

Worker

UR10_0: Roboter bewegen5 [5] (Roboter bewegen)

UR10_0: Roboter bewegen5 [5]:
Das angegebene Ziel 'Kugel (copy)'>>ROOT | Children: 0' konnte mit der zug Verrichtung (UR10_0: Roboter bewegen5 [5]) wurde erfolgreich simuliert.

Worker Laufen0 [0] (Laufen)

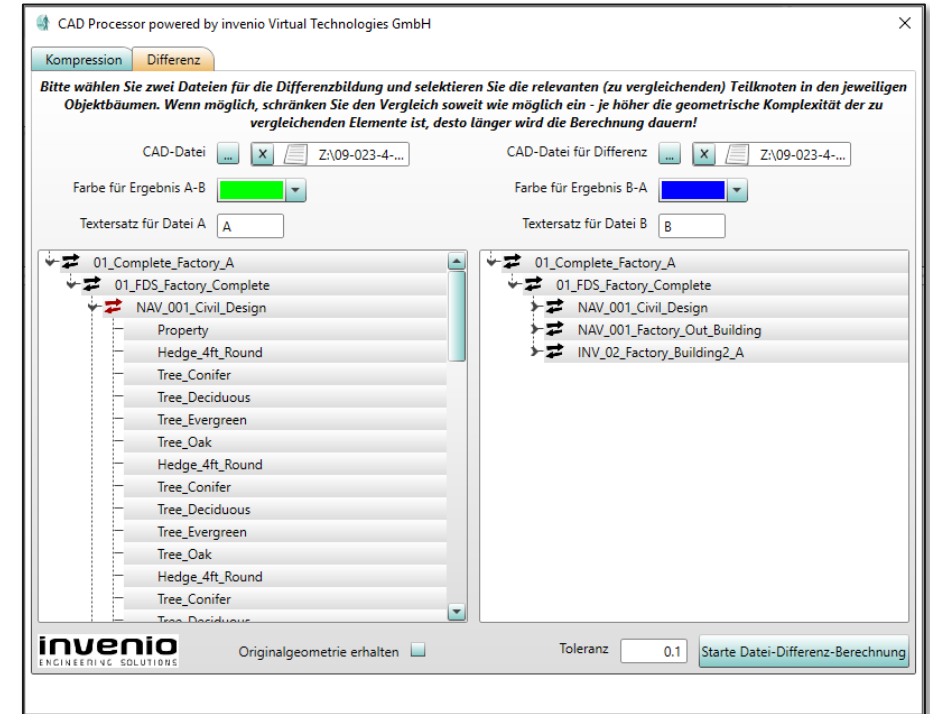
Worker: Laufen0 [0]:
Es konnte kein Pfad ermittelt werden. (Laufpfad)
Verrichtung (Worker: Laufen0 [0]) wurde erfolgreich simuliert.

Worker

- Abknien / Abhocken / Beugen1
- Objekt(e) aufnehmen4
- Objekt(e) platzieren3
- Laufen0

task finder

- New module **CADProcessor** comprises of two parts:
 - **CADReduction**
 - ✓ Reduction module, converts the input JT files to reduced/compressed JT files
 - ✓ The following reduction functions are available:
 - ✓ Surface filter (removal of invisible geometry)
 - ✓ Degree of coarseness of the geometry (based on tolerance value)
 - ✓ Combine structural elements (development of monoliths)
 - ✓ Structure elements could be deleted
 - ✓ Material information could be deleted
 - ✓ The reduction functions can be applied either to the entire file or to individual nodes. Reduction functions could also be used in combination.
 - **CADComparison**
 - ✓ Comparison module, computes the difference JT file from 2 input JT files
 - ✓ Difference is computed based on the structural and geometrical comparison between the underlying structures of the input files
 - ✓ The accuracy of the geometry check could be controlled using a tolerance value
 - ✓ For the visualization of the difference geometries, two user-defined colors (for A-B and B-A) could be set
 - ✓ The comparison function can be applied either to the entire file or to individual structure nodes from both files selected by the user in the object tree



user interface:

- copy & paste with replacement geometry have been united into single command
- paste with replacement geometry is now available for tasks as well
- guide lines for treeview control
- Improved highlighting of missing parameter
- enhanced object selection dialog (create marker during selection)
- task "place object(s)": parameter "fix hand at target" replaced by "posture (left / right) hand / arm"

3D view & geometry data:

- various 3D performance optimizations
- support for CAD files > 2GB added
- additional dialog for hierarchical changes during positioning with layout helper (on top / in middle)
- new robots added (Staeubli, Pilz, TMRobot)
- automated selection of behavior while selecting object with behavior

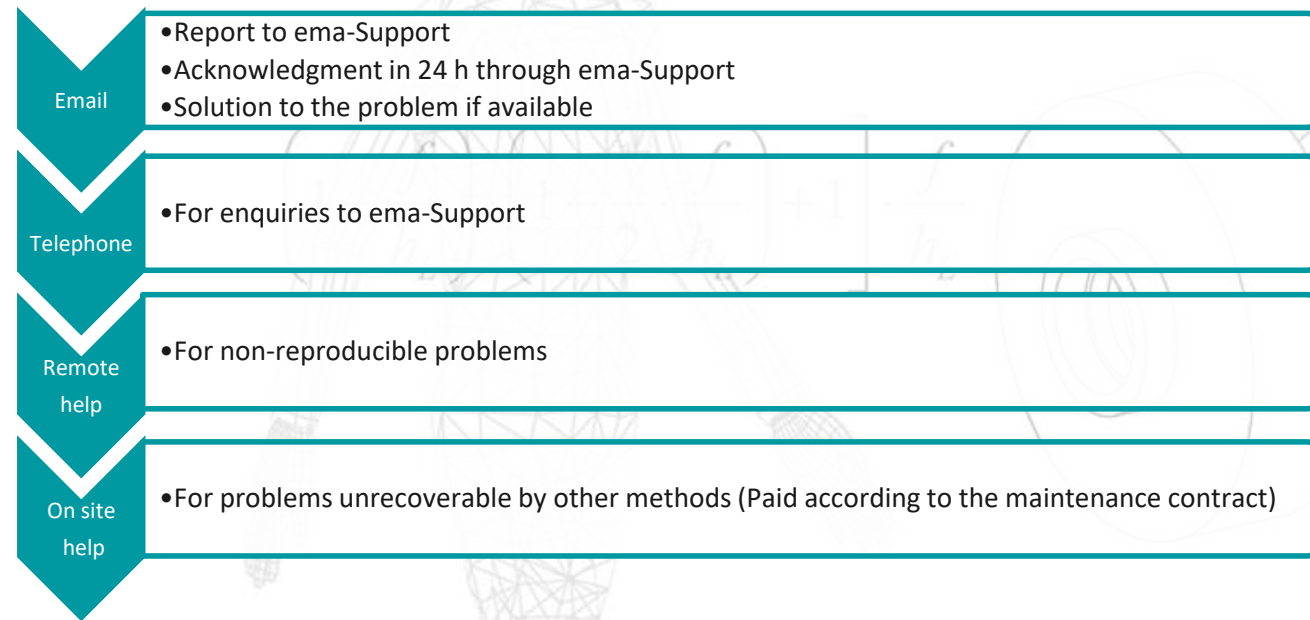
tasks & simulation logic:

- added support for user defined dropdown field parameter
- parameter for tool target changed in task "handle tool"
- task "place object(s)" and "move hand to target" enhanced with parameter "extra high force effort with delay"
- task parameter "eye travel relevant" removed
- task "retract" enhanced with parameter "marker for movement direction"
- task "pick object(s)" enhanced with parameter "object provisioning (secondary)"

reporting:

- robot library enhanced with technical specifications

- cycle time chart sub task visualization fixed
- bugfix with walk to start position
- bugfix for library preview window (prevents staying in foreground)
- issue with disappearing comments solved
- issue with incorrect task block lengths fixed
- preventing selection in underlying windows during double click
- bugfix using prevent tilting while getting into and off vehicle
- bugfix in sensor based (robot) speed adaption



Contact address for errors, questions & tips:

support@imk-ema.com

Necessary information for error reporting:

- Customer number
- ema Work Designer-Release number
- Contact person/ Telephone number
- Detailed Error description
- if possible sample data