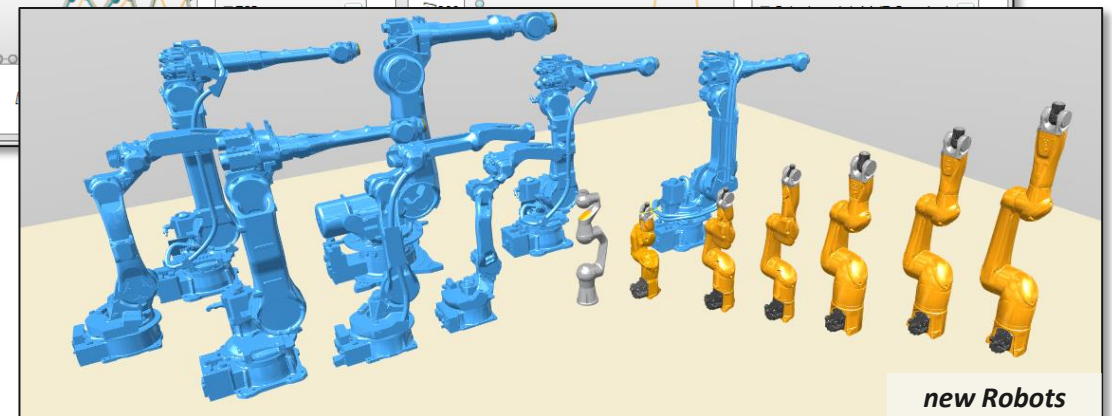
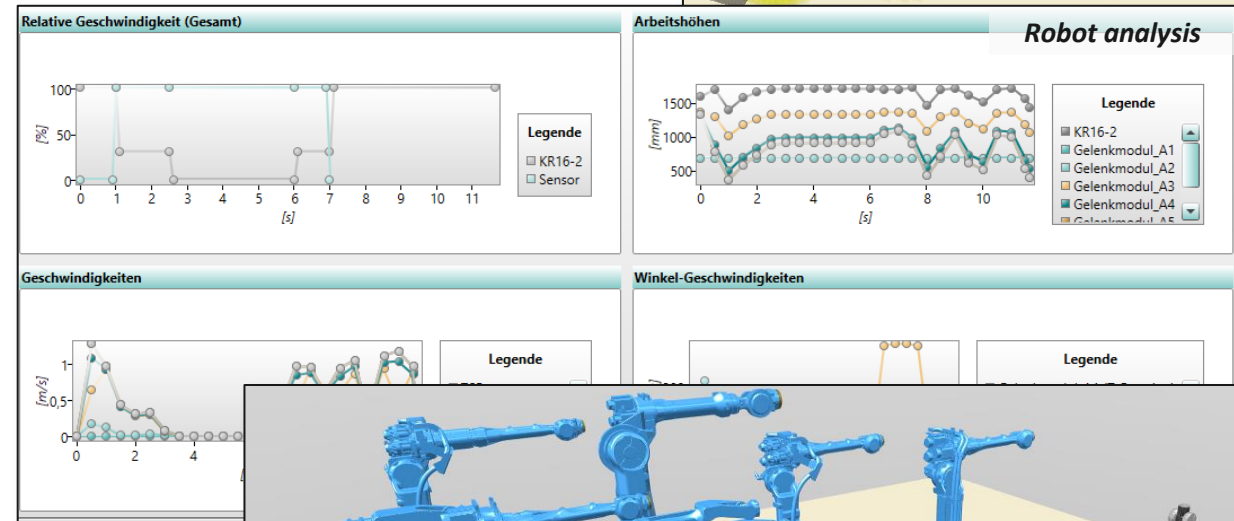
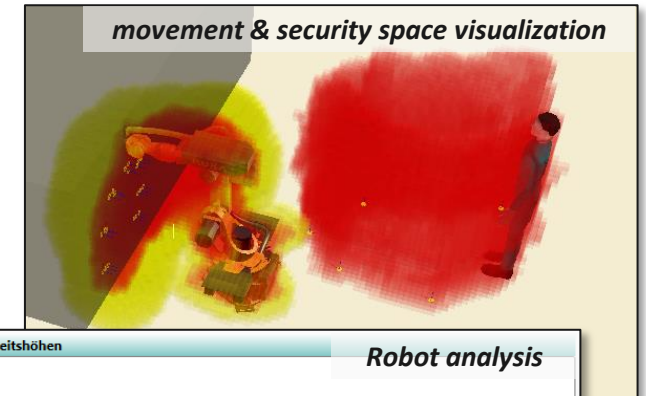
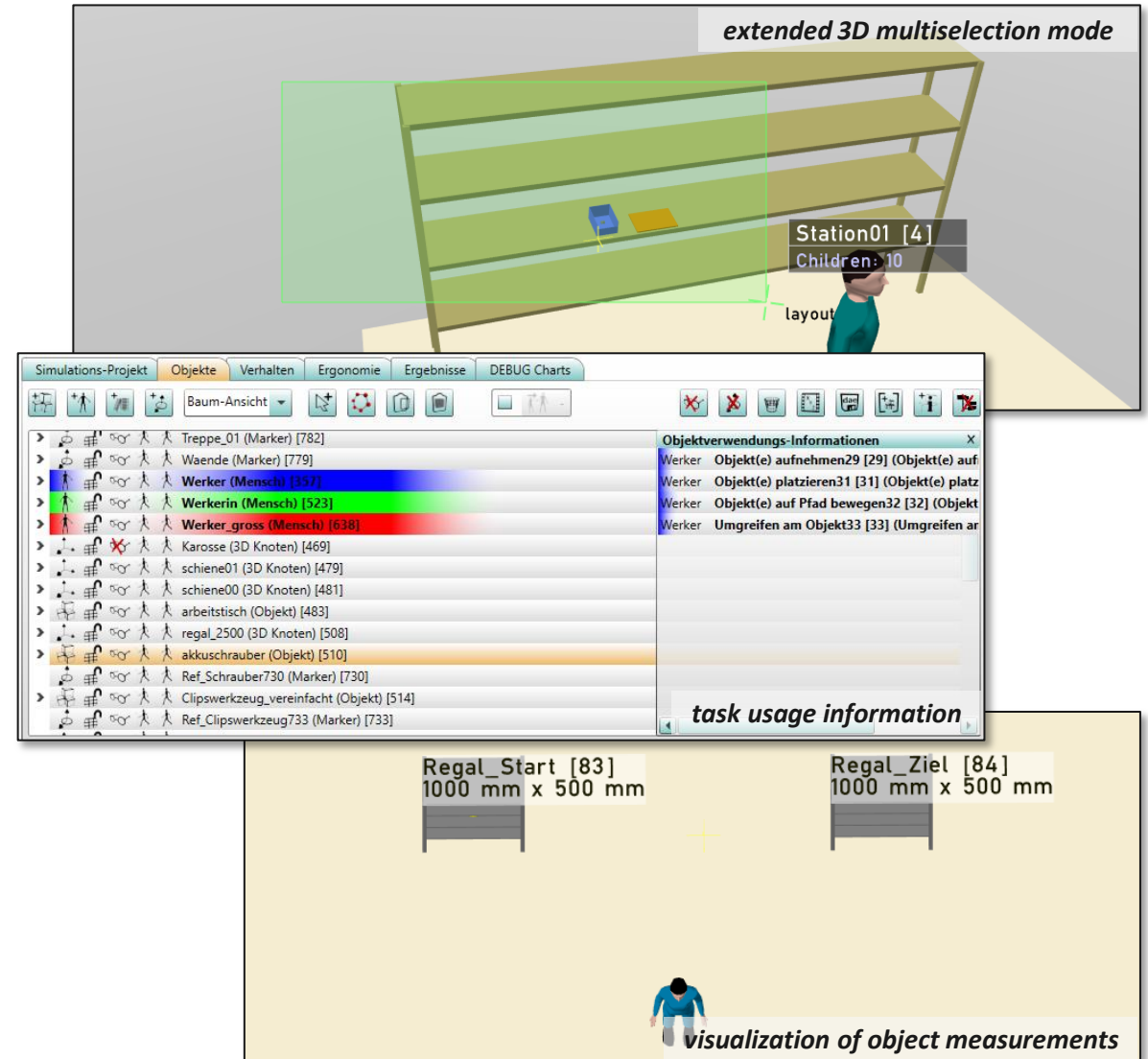


- new **human task**
  - ✓ retract objects
  
- new features for **human robot collaboration** simulations
  - ✓ definition of sensor objects
  - ✓ event reaction definition & simulation
  - ✓ new analysis charts and HRC specific evaluation
  - ✓ visualization of movement and security spaces
  
- new **robot complex tasks**
  - ✓ move to target
  - ✓ pick objects
  - ✓ place objects
  
- new **robots** added to object library
  - ✓ Stäubli, TM, Yaskawa, Pilz
  
- new **geometric primitive objects**
  - ✓ pipe, sensor, voxel grid



- Extended **CAD object handling**
  - ✓ import scaling & double sided materials
- Extended **object references**
  - ✓ selection & coloring
- Additional **commands for context menus**
  - ✓ for task and objects menus
- Extended **multi selection in 3D view**
  - ✓ rectangle or polygon selection modes
- Visualization of **object information in 3D view**
  - ✓ for measurements & names
- Extended **object comments**
  - ✓ configurable amount of comment fields per object
- Object tracking via **task usage information**



User interface:

- delete object command added for object context menu
- object performance info buttons aggregated
- collision & floor object definition added to object context menu
- collision & floor object filter for object list added
- new parameter "color" & "use original color" for reference objects
- reuse object parameter from other task enhanced with parameter name check
- userdefined parameters can now be reordered (via contextmenu) and renamed (via parameter management dialog)
- new context menu command for tasks "ignore / simulate selected tasks"
- name & id filter combined in objects tab

3D-View & geometric data:

- references are now selectable and have a color parameter
- enhanced view angle for 1st person view
- load objects with structure and merged are now combined within one command
- movement & risk area creation via object context menu

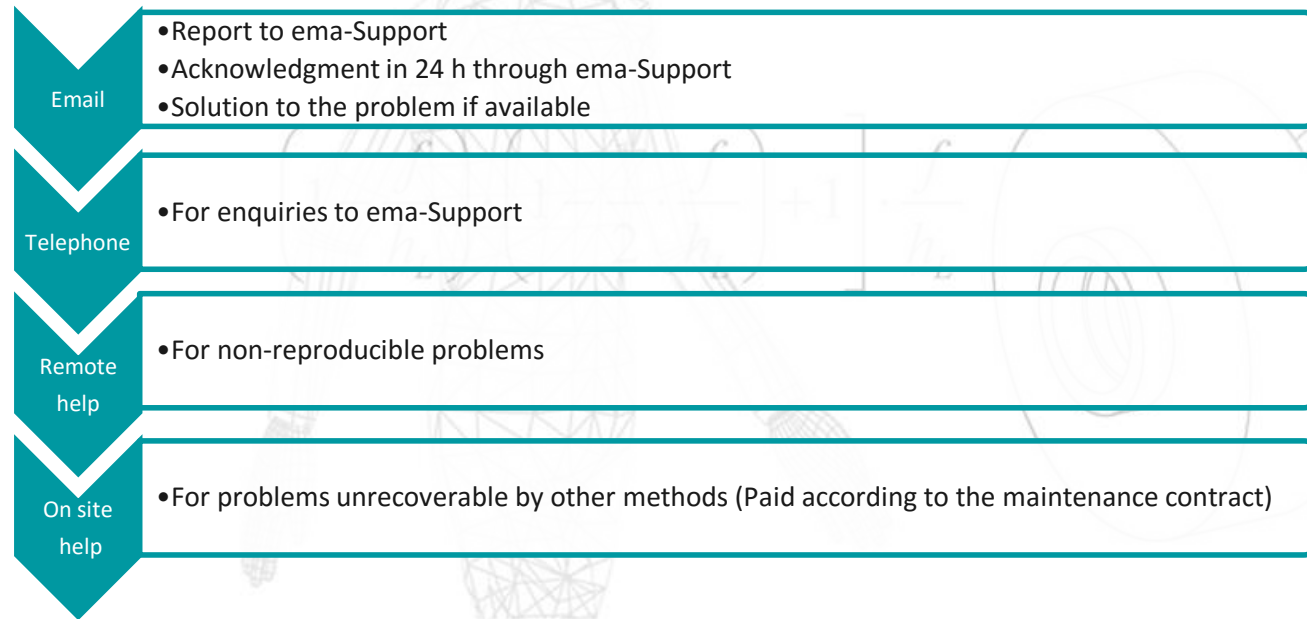
tasks & simulation logic:

- task "pick object(s)" enhanced by parameter "lift object(s) [mm]"
- pick task for objects enhanced with new parent
- new parameter "walk to start" for task "walk to target"

analysis & reports:

- EAWS user defined extra point fields added
- object size is printed out in tooltip & object report
- information about walking paths and different floor types (levels, stairs, ramps) adapted

- DXF import issues fixed
- DAE import issues fixed
- multitouch issues fixed
- UAS group time summation issue fixed
- issue with hidden objects and color change fixed
- wrong placing position after "remove object link" fixed
- optimization of multiselection
- bugfix for removable result lines in results tab
- bugfix for crash during removal of user defined parameter
- bugfix for copying images between projects



Contact address for errors, questions & tips:

**support@imk-ema.com**

**Necessary information for error reporting:**

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