

LIMIT Release Notes

Version *LIMIT2019r1*

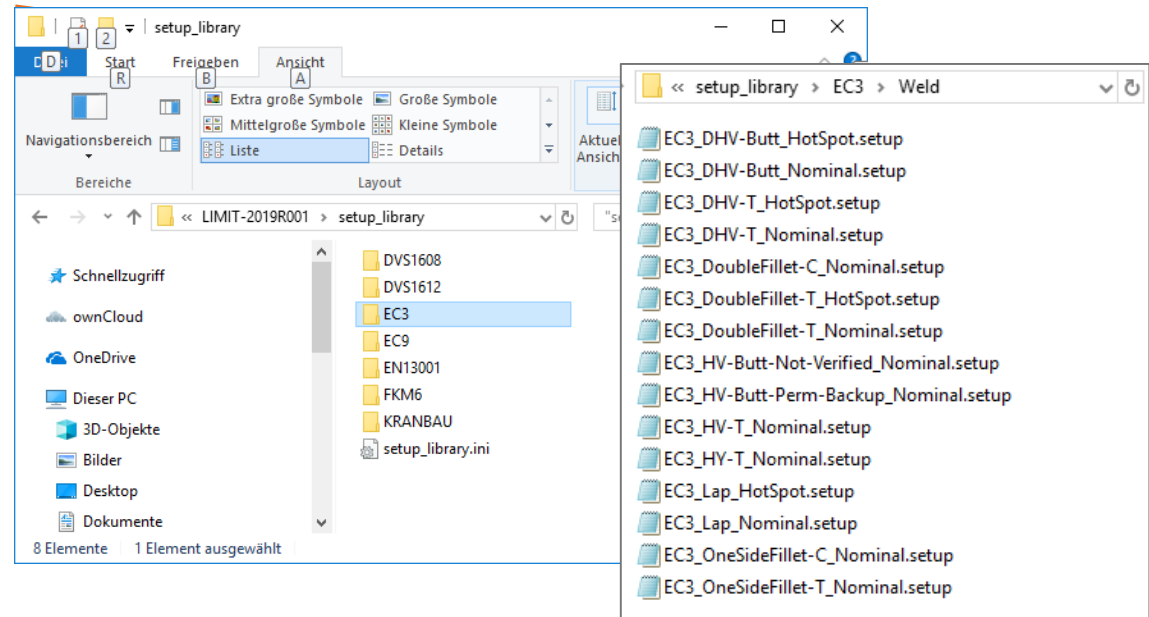
Novelties in 2019r1

- ✦ **New Default Setup Library and Easier Access**
- ✦ **Static Assessment Supported for All Active Codes**
- ✦ **New SensorManager**
- ✦ **New Method of Autocreating Setups Based on Topology Information**
- ✦ **Simplified JobManager with Global Settings for the Assessment Type**
- ✦ **Interface Updates**
- ✦ **New Weld Regeneration Algorithm after Reimporting a Model**
- ✦ **Improved Stability for Report Generator**
- ✦ **Training Videos as Part of Installation**
- ✦ **New Webpage for LIMIT: www.limit-fatigue.com**

New Default Setups for all Codes

★ Features:

- Large number of default setups available for all codes
- These setups can be used for shells **and** Sensors!
- The library of setups can be
 - Defined/modified by user and
 - stored outside the LIMIT installation.
 - Path information of library is stored in the LIMIT database



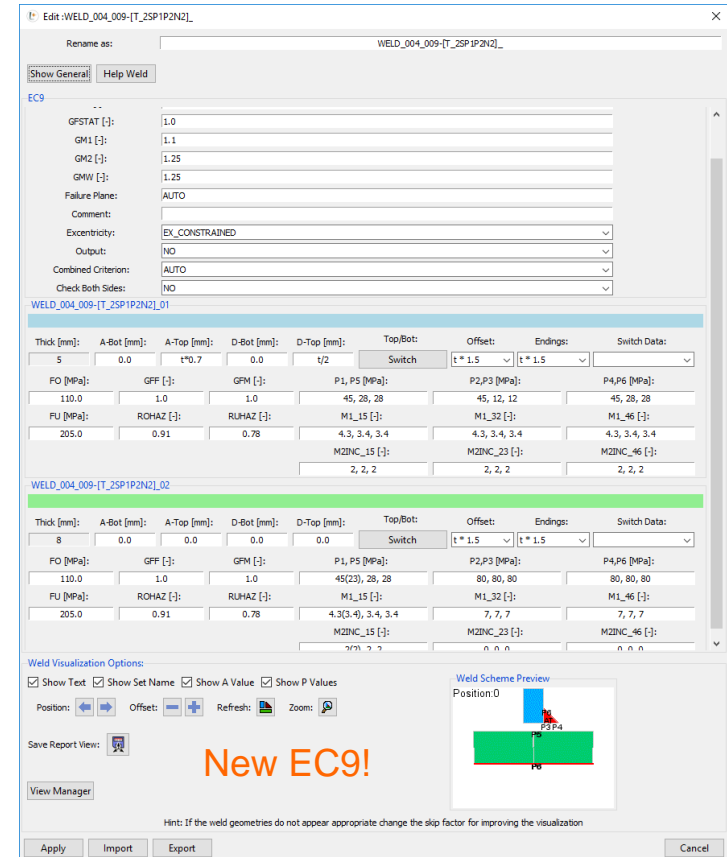
Static assessment supported for all newer codes

✦ All static and fatigue strength parameters are defined in the Setup for:

- DVS1612, DVS1608
- FKM
- Eurocode 3 and Eurocode 9
- EN13001.

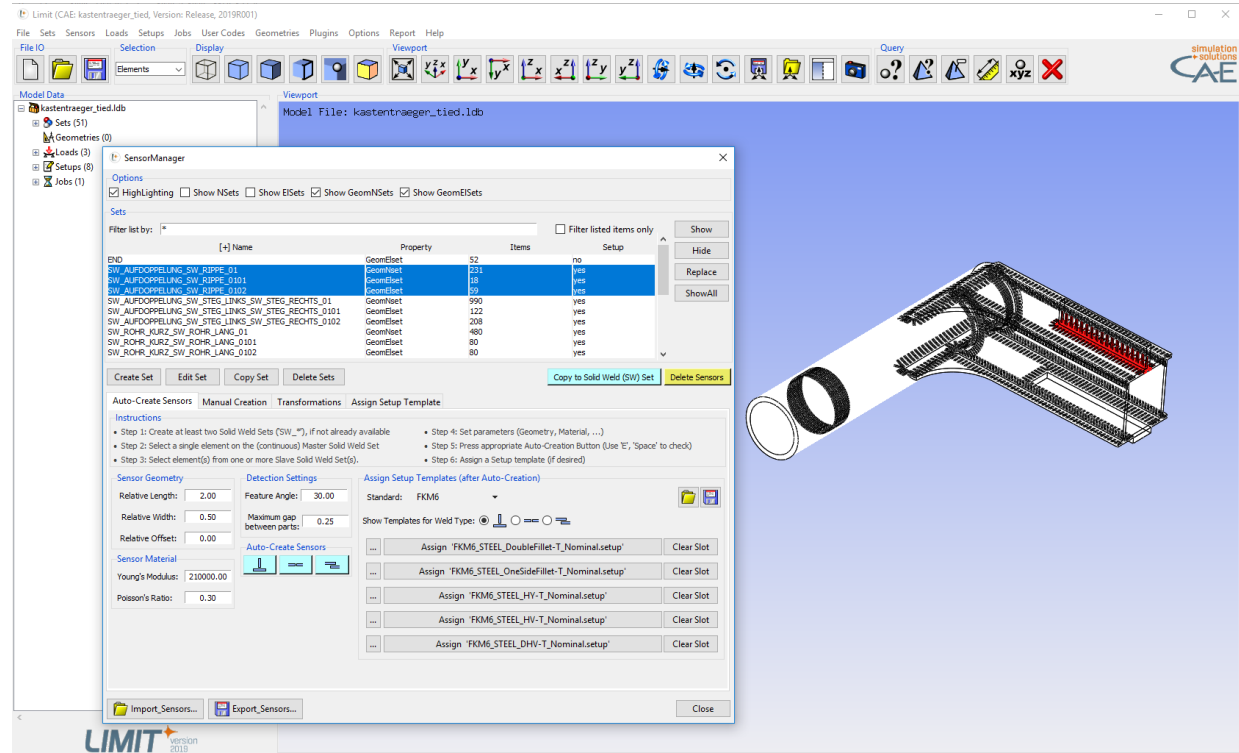
✦ In LIMIT2019 the static assessment for EC9 was added to complete the list.

✦ User can define the type of assessment, i.e. static strength or fatigue, in the JobManager!



SensorManager

- ✦ New layout
- ✦ New functions
 - Detailed instructions
 - Transformations
 - Immediate setup definition
- ✦ Faster algorithm for Sensor generation in large models



SensorManager

New layout

Transformations

Detailed Instructions

The screenshot shows the SensorManager application window. At the top, there are options for 'HighLighting', 'Show NSets', 'Show ElSets', 'Show GeomNsets', and 'Show GeomElSets'. Below this is a 'Sets' section with a filter list and a table of sensor sets. The table has columns for Name, Property, Items, and Setup. An orange arrow points from the 'Transformations' label to the 'Transformations' tab in the 'Auto-Create Sensors' section. Another orange arrow points from the 'Detailed Instructions' label to the 'Instructions' section. At the bottom right, an orange bracket groups the 'Assign Setup Templates' section, with a label 'Immediat Setup definition after Sensor generation'.

Name	Property	Items	Setup
END	GeomElset	52	no
SW_AUFDOPPELUNG_SW_RIPPE_01	GeomNset	231	yes
SW_AUFDOPPELUNG_SW_RIPPE_0101	GeomElset	18	yes
SW_AUFDOPPELUNG_SW_RIPPE_0102	GeomElset	59	yes
SW_AUFDOPPELUNG_SW_STEG_LINKS_SW_STEG_RECHTS_01	GeomNset	990	yes
SW_AUFDOPPELUNG_SW_STEG_LINKS_SW_STEG_RECHTS_0101	GeomElset	122	yes
SW_AUFDOPPELUNG_SW_STEG_LINKS_SW_STEG_RECHTS_0102	GeomElset	208	yes
SW_ROHR_KURZ_SW_ROHR_LANG_01	GeomNset	480	yes
SW_ROHR_KURZ_SW_ROHR_LANG_0101	GeomElset	80	yes
SW_ROHR_KURZ_SW_ROHR_LANG_0102	GeomElset	80	yes

Immediat Setup definition after Sensor generation

SensorManager

Transformations

- Are used to multiply sensors in symmetric or repeating components

The screenshot shows the SensorManager window with the following components:

- Options:**
 - HighLighting
 - Show NSets
 - Show EISets
 - Show GeomNSets
 - Show GeomEISets
- Sets:**
 - Filter list by: *
 - Filter listed items only
 - Buttons: Show, Hide, Replace, ShowAll
- Table:**

END	[+] Name	Property	Items	Setup
	SW_AUFDOPPELUNG_SW_RIPPE_01	GeomNset	231	no
	SW_AUFDOPPELUNG_SW_RIPPE_0101	GeomElset	18	yes
	SW_AUFDOPPELUNG_SW_RIPPE_0102	GeomElset	59	yes
	SW_AUFDOPPELUNG_SW_STEG_LINKS_SW_STEG_RECHTS_01	GeomNset	990	yes
	SW_AUFDOPPELUNG_SW_STEG_LINKS_SW_STEG_RECHTS_0101	GeomElset	122	yes
	SW_AUFDOPPELUNG_SW_STEG_LINKS_SW_STEG_RECHTS_0102	GeomElset	208	yes
	SW_ROHR_KURZ_SW_ROHR_LANG_01	GeomNset	480	yes
	SW_ROHR_KURZ_SW_ROHR_LANG_0101	GeomElset	80	yes
	SW_ROHR_KURZ_SW_ROHR_LANG_0102	GeomElset	80	yes
- Buttons:** Create Set, Edit Set, Copy Set, Delete Sets, Copy to Solid Weld (SW) Set, Delete Sensors
- Navigation:** Auto-Create Sensors, Manual Creation, Transformations, Assign Setup Template
- Introduction:** Sensor Elements highlighted in the viewport can be translated, mirrored, or rotated with the functions below.
- Mirror Sensors:**
 - Plane Origin: 0,0,0,0,0,0 (Pick 1)
 - Plane Normal: 1,0,0,0,0,0 (Pick 2)
 - Button: Mirror Selected Sensors
- Translate Sensors:**
 - Translation Vector: 0,0,0,0,0,0 (Pick 2)
 - Button: Translate Selected Sensors
- Rotate Sensors:**
 - Point on Axis: 0,0,0,0,0,0 (Pick 1)
 - Axis Vector: 1,0,0,0,0,0 (Pick 2)
 - Rotation Angle: 180.0 deg
 - Button: Rotate Selected Sensors
- Global:**
 - Duplicate
 - Move to Original Set
 - Button: Undo
- Footer:** Import_Sensors..., Export_Sensors..., Close

Mirror Sensors

Translate Sensors

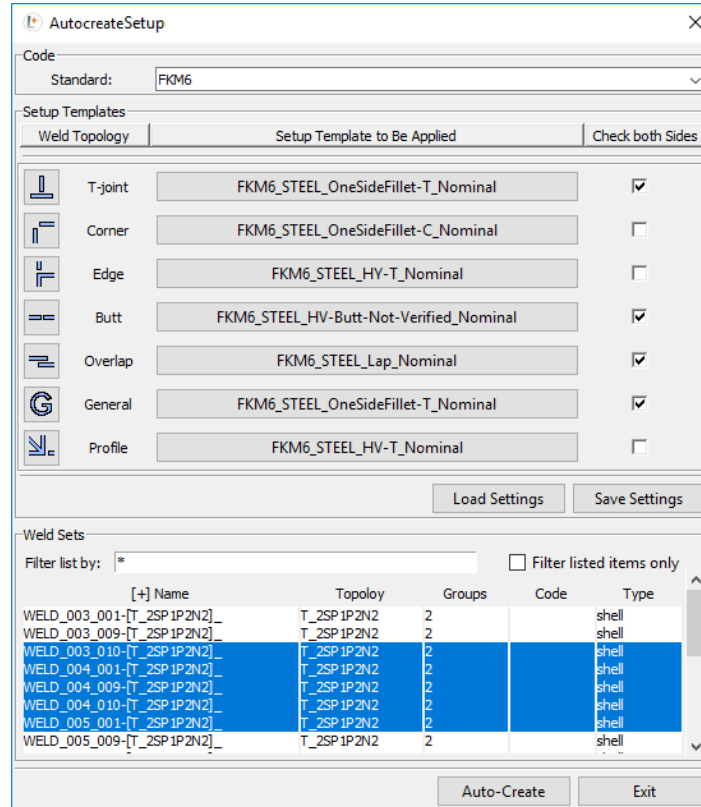
Rotate Sensors

First LIMIT-CAE Undo Button!

Autocreate Setup

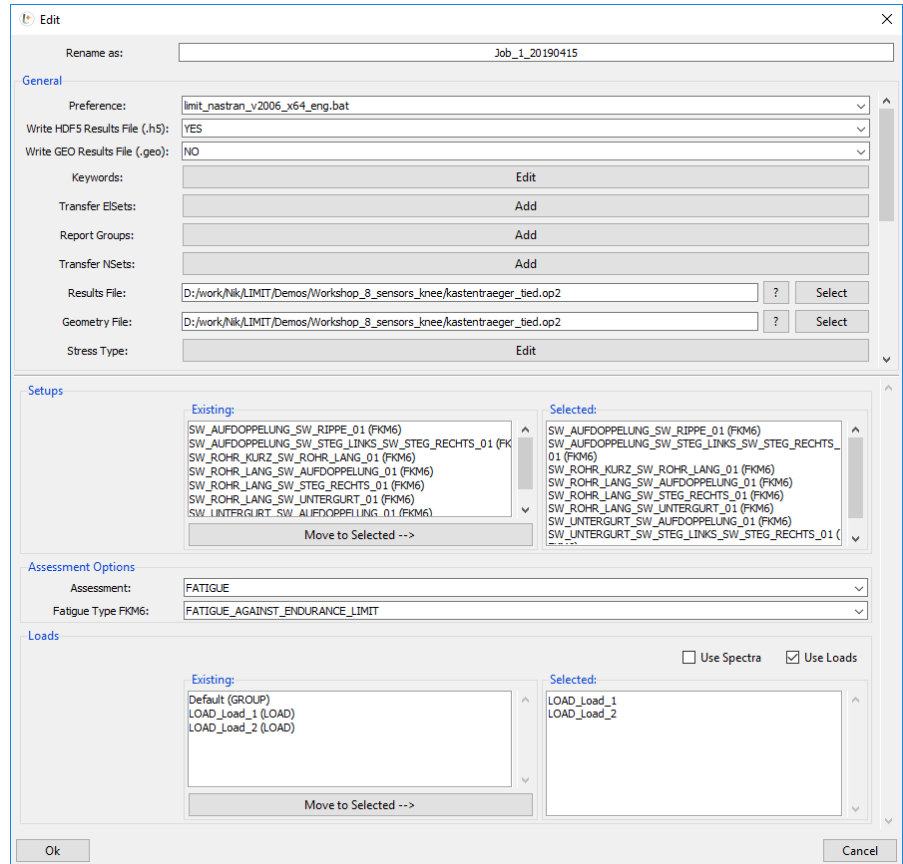
Function:

- A default setup template can be defined for each topology type
- LIMIT2019 will apply these setups to the selected Weldsets
 - Shell normals are being checked for the correct definition of the base material side of shells
 - Check for both sides (welded from top/bottom) can be activated
- All Setups can be used without Editing



JobManager

- ✦ **New result file format .h5**
 - Better performance, less space needed!
- ✦ **Old .geo format remains as option**
- ✦ **Global definition of assessment type**
 - Easier to switch between static and fatigue or endurance limit and variable amplitude fatigue assessments. No more definition on the level of Setups!
 - Global settings:
 - STATIC STRENGTH
 - FATIGUE
 - » FATIGUE AGAINST INDURANCE LIMIT
 - » VARIABLE AMPLITUDE FATIGUE STRENGTH
- ✦ **Jobs with different codes also in static assessment supported.**

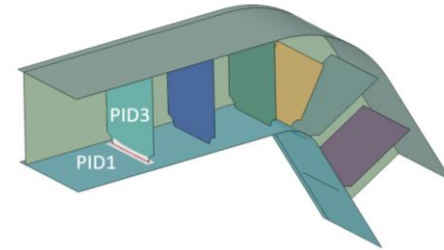


New Weld Regeneration Algorithm after Reimporting a Modified Model

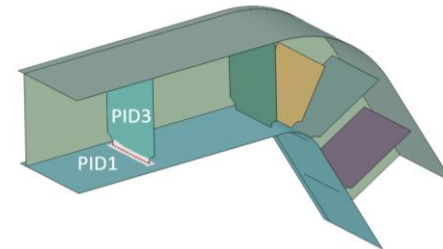
✨ **LIMIT 2019** includes different strategies in order to regenerate Weld Sets after reimporting a modified model into an existing LIMIT data base. For each weld the following checks are made:

- Check if nodes and elements are same as before. If this check fails:
- Check if the area was only renumbered without changes in the geometry (**=NEW**). If this check fails:
- Geometric recovery using Weld Lines and further information (shell orientation and thickness)!

Initial setup



Import of modified model



Further Features or Improvements in 2019R1

- ✨ **Interfaces added:**
 - Abaqus up to 2018
 - Ansys 2019
 - SolidWorks 2019
- ✨ **Improved stability of the Report Generator**
- ✨ **Default Array Sizes Increased**
- ✨ **New Webpage for LIMIT: www.limit-fatigue.com**

Last slide