

New Features of CadnaR version 2021

The list of new features offered by **CadnaR** 2021 is subdivided into the following sections:

- Calculation/Configuration
- **CadnaR-Objects**
- Further New Features
- Miscellaneous
- Import/Export
- **CadnaR-Options**

Please note that some of the new features may require the appropriate **CadnaR** option.

The new features of CadnaR 2020 MR1 are in Italics.

Calculation/Configuration

- batch calculations available in **CadnaR** (new commands on **Calculation** menu: „Batch Mode on/off“, „Choose Batch-Directory“, „Select Batch-Calculations“) - requires option CAL
- partial echograms are saved for each source-receiver combination separately (new commands on **Extras** menu: „Calculate/Delete/Auralize Partial Echograms“, new dialog **Partial Echogram Auralisation**)
- *option "Calculate Echograms ... for Receivers" ("RIR-Evaluation" tab) is now activated by default (provided option T or AUDIO is available)*
- *"Particle Model" tab: Options "Use CUDA if possible" and "Particle Diffraction" are now activated by default.*

CadnaR-Objects

- new object: vertical grid (line-type object, standing perpendicular on the floor, can be lifted up, with heights z1 and z2) - requires option VIS (plus option CAL to calculate the voxel grid)
- new object: 3D-grid (forming a closed polygon line with any number of points and height per point) - requires option VIS (plus option CAL to calculate the voxel grid)
- optional color section 3D-appearance per object (via each object dialog, button „Options for 3D Representation“)
- new object attribute: ID_NO_TREE (evaluation of ID ignoring the ObjectTree part)

Further New Features

- new **Display units** dialog (**Options** menu): In **CadnaR**, geometrical and other data can be displayed in the main window and in dialogs using different units. Non-metric units can be converted on import (new transformation type “Unit Conversion”).
- Undo/Redo for additional actions on the context menu (Set Length, Break Lines, Break Areas),
- command/action „Convert to“ now enables conversion from and to vertical grid and 3D-grid (e.g. convert from PolyMesh)
- command/action "Break into Pieces" with new option “Split at closest polygon point”

- new command/action "Normalize rotation angles" (for box-type obstacle, box-type source and sections): conversion of larger rotation angles to the angular range $-45^\circ \leq \alpha < 45^\circ$, with adaptation of the coordinates and of the non-emitting sides of box-type sources
- *new Undo/Redo functions for the following objects, actions/commands or situations:*
 - Undo/Redo when entering new objects
 - Undo/Redo "Duplicate" (in a single step, not in individual steps)
 - Undo/Redo for context menu commands "Generate label", "Parallel Object", "Convert to"
 - Undo/Redo for object movements using the arrow keys (collected automatically into a single step with a pre-defined timeout)
 - Undo/Redo for PolyMesh grouping/ungrouping
 - Undo/Redo for object tables (in a single step, not as individual steps)
 - Undo/Redo for group table (in a single step, not as individual steps)
 - Undo/Redo for ObjectTree groups:
 - via context menu: for commands "Delete", "Duplicate", "Transformation"
 - via mouse: for actions "Copy" and "Transformation"
 - via keyboard: for actions transformation, deletion
 - Undo/Redo for import to the ObjectTree
 - Undo/Redo for command **Purge ObjectTree** (via menu **Tables|Purge Tables**)
 - Undo/Redo for group movements using the arrow keys (collected automatically into a single step with a pre-defined timeout)
- *for Undo/Redo: RAM limitation can be set in CADNAR.INI (e.g. section [Undo], MaxMemUndoBuf=1024, default value 512, value in MB), if exceeded, the oldest undo step is deleted step-by-step*
- *new symbols for Undo/Redo on the symbol bar (activation/deactivation status complies with menu **Edit|Undo or Redo**)*

Miscellaneous

- Consistency Check: warning in case of a modified expression in the root of the ObjectTree (warning if group expression !* changed)
- Consistency Check: warning when point sources and receivers are detected inside box-type objects
- Consistency Check: warning with partial echogram calculations without valid point sources and receivers
- *Consistency Check: warning in case the range for level regression at receiver chains deviates from the specifications of guideline VDI 2569*
- *new spectra for human speech in the global sound power library ("sti_male" according to IEC 60268-16 and "normal speech" according to DIN 3382-3)*
- *Reverberation Time diagram: recommendations according to VDI 2569: 2019-10 updated (additionally: small multi-person offices)*
- **Variant** dialog: now preceded by a minus sign (-) when variants are deactivated
- **Object Snap (Properties menu):** now also works with PolyMesh, vertical PolyMesh, Calculation Area and Auxiliary Polygon (when being entered and as a snap-to target)

- *action "Convert to" available also for symbols (from and to Text Box, Level Box and Section)*
- *default distance for grid and voxel points set to 0.5 m each*
- *Entering new objects using the mouse: By holding the ALT key depressed while finalizing the object input, the object properties from the default object are used, instead of the properties of the last object in the respective object table (i.e. with "empty" Name, ID, etc.).*

Import/Export

- -

CadnaR-Options

- option CAL: batch calculations available in **CadnaR**
- option VIS: vertical grid (requires option CAL in addition to calculate the voxel grid)
- option VIS: 3D-grid (requires option CAL in addition to calculate the voxel grid)