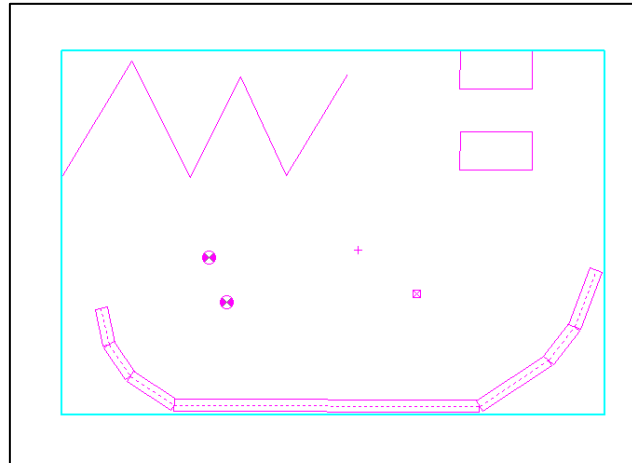



New features of CadnaA 2023

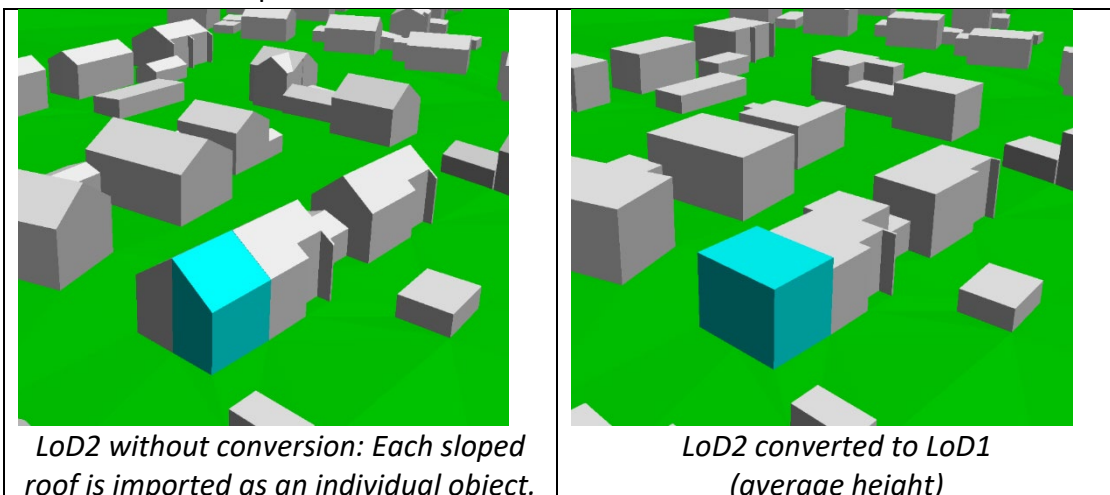
New features of CadnaA 2022 MR1 and MR2 can be found [here](#).

Features

- Multi-selection of several objects possible, e.g.
 - drag frame with right mouse button pressed
 - add objects to multi-selection: keep CTRL- key pressed and drag frame in 2D view with right mouse button or click on single object



- Object tables can be filtered to show current multi-selection
- Toolbar | New icon  for direct access to the appearance menu.
- Options | Appearance: New buttons „All“ and „None“ for activation / deactivation of appearance for all object types.
- Options | Miscellaneous: New option to define color for currently multi-selected objects.
- All point and polygon objects: Object snap when moving / creating polygon points while pressing the ALT key
- CityGML import: New option to convert LoD2 data to LoD1 data while importing. For the height of the resulting LoD1 buildings, the average, maximum or minimum height of the individual sloped roof surfaces can be used.



- Options | Appearance | Symbol: Length, Width and Angle of a symbol can now be entered as an expression. Examples:
 - Show the main direction of the directivity of a point source depending on the attribute DIR_ANGLE.
 - Visualize the search radius of a crossing object depending on the attribute SEARCHRAD.
- New function: Table | "Copy group activation" to transfer the activation states in Table | Group to the current variant for a more efficient creation of new variants based on existing variants.
- Menu Tables | Delete partial levels: New function to delete partial levels for the current / for all variants.
- Modify Objects | Generate Building evaluation: New dialog to define settings for all building evaluations upon creation (previous workflow with creation of a dummy object no longer needed)
- Crossing: Search radius for automatic assignment of roads to crossings can be defined by the user (before always 20m).
- Transformation between different zones now possible, e.g. to transform UTM data referenced in zone 33 into zone 32.
- Color Palette (local/global) library: new button "Individual" enables to define classes individually (specification of lower/upper limits, class width, taking into account the actual number of colors of the color palette, adjusting the value range of the existing classes)
- Grid Appearance dialog: direct access to currently selected local color palette (enabling direct editing)
- Calculation | PCSP: Consistency check warnings are stored as local text blocks for each tile. After importing the results, all warnings including the tile number are available in the local library.
- Function "Generate Terrain Contours from Height Points" can be executed without simplification of DTM with SHIFT+ALT+F12 (previously, contour lines < 30 meters were not created + command "Simplify geometry" with value 0.5 m was applied).
- Grid | Arithmetics: If target grid (current variant) is not yet initialized, a warning message is shown.
- Import | ESRI shape: Support for shp data with type 31 (MultiPatch).
- New Lua function `cna.import_citygml(path, building, dtm)` for import of CityGML files with definition of corresponding settings.
- New Lua commands (read/write) to grid specification with `cna.grid.dx/dy/z/exclude_src/exclude_bld/exclude_bld_3D/use_limits`
- Transformation with NTV2 grids: definition of a user defined path via the ini file (Section [GeoCoordSys], variable NTV2Path=<path>)

Configuration Methods

- RLS-19: Road surfaces are now implemented as library object. This functionality can be used to define user defined road surface.
- CNOSSOS-EU (Spain): Aerodynamic correction for default railway classes is now applied from > 249 km/h (previously: > 250 km/h) (pending changes Guía para la aplicación de ADIF)
- HJ 2.4 2009/2021: Calculation of foliage added for noise types industry and road (as ISO 9613-2 at 500 Hz).
- HJ 2.4 2009/2021: Calculation of A_{gr} corrected when using method GB/T 17247.2. Calculation now always uses a frequency of 500 Hz for the calculation.
- HJ 2.4 2009/2021 | Configuration of Calculation: New option to select how A_{gr} should be considered when calculating A_{bar} with respect to single or multiple diffraction.
- HJ 2.4 2021 Road/Railway: Consideration of negative path difference according to formula A.24 of HJ 2.4 - 2021 if $0 > N > -0.2$.
- HJ 2.4 2021 railway noise: Function "Pass-by" not available anymore, because emission data is not suitable for the calculation of pass-by level.
- Configuration of Calculations | Tab Meteorology: Enter a user-defined north direction for consideration of meteorological effects.
- Configuration of Calculations | General | Angle Scan Method: If activated, function "Pass-by" of individual vehicles is not available anymore.
- Railway | FTA/FRA: For license configuration with FTA/FRA, calculation method Schall03 (1990) not included anymore.
- Tables | Libraries | Absorptions: Sound absorption coefficients from "LAI-Hinweise zur Lärmkartierung - Dritte Aktualisierung vom 29./30.03.22" added to the default library. For application, these can be copied to the local / global library via the library manager.
- Calculation | Multiple Source Effect: New option "DE 2020/367 (mittlere Werte Pegelband)" to take into account the level bands according to §5, Abs. 3b, 34. BImSchV when determining the number of ischaemic heart diseases, high annoyance and high sleep disturbance.
- Noise Mapping | Rounding according to 34. BImSchV / BEB (Germany):
Detailed information can be found in the German version of this document.

Bug Fixes

- When importing .cna file with option "Import only section", objects of type Building Evaluation were not considered.
- Progress bar was not shown correctly when importing big GML files.
- When using a configuration template, the check for a calculation method is performed only if objects of this corresponding noise type exist in the project.
- Fixed possible crash when importing data from WMS servers.
- CityGML import: For some files, address data was not imported correctly.
- Fixed possible crash when copying an object table including attribute MEMO.

- Calculation | Configuration | Templates | sonRoad18: Check for ALFAL == 0.21 or RVL == 1.0 for buildings adjusted. Previously, in some cases a warning appeared although a correct value was entered.
- Excel-Import: When importing a cell with multiple text variables, the line break used in Excel with ALT+ENTER is now recognized correctly in CadnaA.
- Pass-by function for noise type rail with definition of a rail penalty > 0: Correction of the calculation, because the rail penalty was previously taken into account on the emission and immission side.
- ObjectScan | Preset „EU 2021/1226 – Residents - level classes (Median) “now considers a threshold value of -66 dB (instead of -87 dB before). Building evaluations not calculated are no longer counted as part of the lowest class w/o a lower limit.

Attributes, Variables and Keywords

- Crossing: SEARCHRAD for automatic assignment of roads to crossings.
- Road, RLS-19:
 - Selection of road surface via attribute now with STRO_ID instead of STRONR.
 - Note: Attribute STRO (textual representation) is not available in combination with attribute STRO_ID
- Building, EINW: Input now with 3 decimals.
- New attribute MULTISEL to allow modification of multi-selection via object-table and "Modify Object | Modify Attribute"
- Keyword #(Time) now with optional parameter regarding format. Example: #(Time, HH_mm_ss) returns the current time in format 12_34_01

New features of CadnaA 2022 MR1

Configuration Methods

- Calculation method SonRoad18: Implementation of further developments and supplements published in 2021 ¹
- New template for the definition of calculation parameters according to SonRoad18 (2021) with propagation according to ISO 9613-2 considering 17534-3 (test cases)
- Road object (SonRoad18): New import from SonRoad18 webtool
- Road types (SonRoad18): Further vehicle categories added

Bug Fixes

- NMPB08, CNOSSOS-EU: Bug fix when using the meteorology correction in combination with industrial sources and input as A-level. In this combination it could occur that the day level was used for all reference times.
- Road (SonRoad18): Access to the global library via folder icon fixed
- Import: Bug fix when importing a CityGML file. When reaching 100% CadnaA did not react for some seconds.
- ObjectScan: Activation state of the objects was not considered for all presets.

Further Features

- Keyword #(SetObjAtt, ...) now also accepts GLK_OPT as parameter 1 to set parameters in the Options | Building Noise Map menu.
- New attributes for accessing parameters of the Configuration of Calculations:
 - IND_OCT_3: Calculation in 1/3 octaves, see Tab Industry, e.g. with ISO 9613-2
 - SONR_VERS: SonRoad18 version, see Tab Road

¹ Calculation Method: sonROAD18 – Berechnungsmodell für Straßenlärm – Weiterentwicklungen und Ergänzungen, Empa-Nr. 5214.019298, 5214.023513, 2020-11-30

New features of CadnaA 2022 MR2

Configuration Methods

- New Calculation method “HJ 2.4 (2021)” (China) for noise types
 - Industry noise
 - Road noise
 - Railway noise
- HJ 2.4 (2009), Road noise: Speed range of JTG B03 is now also applied for the calculation of L_{eq} (formula A.12 of HJ 2.4 (2009)).
- SonRoad18: Consideration of foliage according to ISO 9613-2, annex A implemented.
- CNOSSOS-EU (Directives 2015/996 and 2021/1226) or country-specific implementations: Reduced initialization times for projects without industry sources.

Features

- Object tables, Change Column: New option “Starting Number” for definition of the number, at which the numbering with # should start.
- New function "Zoom to Object" in the context menu for each object. The 2D view is adjusted so that the object is displayed completely.
- Consistency check warnings are now saved as local text block CALC_WARN
- Object-Scan Preset "EU 2021/1226 | People in level classes (Median)" modified to also consider buildings with multiple storeys. If a building has only one storey, there is no change in the calculation results (typical case with receivers in 4m height).
- PlotDesigner: “Display units” (defined in the Options menu) are now also used for labelling of the plan cell
- Symbol, Scale bar: Display units (defined in Options Menu) are now considered
- Aircraft Noise: Traffic-Count Calculator | Normalize Aircraft Classes: If the ID of an aircraft group ends with "-S" or "-L", it will be truncated. (Feature already included since 2022 MR1)
- CadnaA Silent Setup: Added command line option /skipwebview=true to skip WebView2 installation.
- Configuration of Calculations | Tab Standards | Template: For all CNOSSOS-EU related templates (starting with 2015/996 or 2021/1226), parameter *Modify NPD Curves* for calculation of aircraft noise is now checked to be activated.

Bug Fixes

- Object-Scan Preset "EU 2021/1226 | Noisiest grid point in/near building | Step 2" corrected. Formula for evaluation parameter 2/3/4 always used the maximum value of LP1 (instead of LP2/3/4) as input.
- Calculation method CNOSSOS-EU (Directives 2015/996 and 2021/1226) or country-specific implementations, railway object: For the calculation of the vertical directivity, the angle of direct line of sight from source to receiver is now used. Before, in case of an obstacle in the propagation path, the angle was calculated from the source to the upper edge of the obstacle.

- Railway object: Sum level was not shown for calculation methods with input of sound power level as 1/3 octaves (e.g. for CNOSSOS-EU).
- Railway object, attribute MIND_I: Prevent negative values, which could occur after import or user input.
- Fixed error "ARB_create_context" when opening 3D view
- Calculation Method Schall03 (1990), railway object: Bugfix regarding selection "Type of track". Correction was not applied correctly in the calculation.
- Road object: When using the function *self-screening* in combination with *road width per polygon point*, the width of the self-screening was not considered correctly.
- Calculation Method TNM 2.5: Maximum number of edges considered in the screening calculation increased. Potential change of calculation results with larger calculation models.
- Aircraft noise: When specifying / importing an aircraft group with suffix "-S" or "-L", the aircraft group is now correctly assigned. Example: Aircraft group with ID "S3_M070_TU_NX-S" is assigned to "S3_M070_TU_NX".
- Fixed possible crash when using the function "Optimize walls"
- Fixed incorrect display of façade bitmaps
- Bugfix for arithmetic expressions / conditions: In some cases, the expression was not evaluated correctly.

Attributes, Variables and Keywords

- Object crossing: Attribute TYPE for setting "Crossing is Roundabout" added
- Railway object: Access to list "number of trains" via attributes CXX_TYP/ND/NE/NN/V/L/P/DFZ/NAXLE extended up to C99 (instead of maximum C13 before).
- Aircraft noise, Aircraft Group: Attribute ACFTXXT/E/N extended up to ACFT99T/E/N (before max. 50)