

## Simergy/Simergy Pro v2.3.4 Release

# ESSENTIAL READING!

This document provides important information about the latest version of Simergy and Simergy Professional. This version resolves issues that were reported for version 2.3 (released in December 2016), and version 2.2 (released in August 2016).

NOTE: This version no longer requires a separate installation of EnergyPlus. EnergyPlus is installed as part of Simergy.

Version 2.3.4 is an Issues Resolution Only release. The notable issues it resolves include:

- Building site dimensions – these were not editable in v2.3 (which was a regression)
- Radiant equipment Properties – these objects did not display the full set of properties in the Libraries workspace in v2.3
- Sloped roof attics spaces – in some cases, the attic spaces generated under Hip and Gable roofs did not have the correct 3D shape.
- Exceptions – several cases where v2.3 generated exceptions have been found and fixed
- Default Constructions – some data issues were resolved
- Site Location – is now accessible from the Location Template
- DWG Model-Over – significantly improved performance when using DWG/DXF files that have many layers
- Design Alternative Copy – was made more efficient while resolving issues with duplicate templates

Versions 2.1 through 2.3.4 (released in the past few months) added various new and improved features, including:

- **Simplifications**
  - MLS Editor -- Material Layer Sets can now be created in a single screen (even if the layers and materials are not yet defined)
  - Templates -- Zone loads and other templates can now be defined in a single screen (even if individual loads have not yet been defined)
  - Controllers > Control Scheme Lists > Control Schemes – have been simplified to a single object (in many cases)
- **New Licensing**
  - We now have one installer for Simergy, which begins by offering a trial of the Professional feature set
  - After that trial, the user must secure a Simergy Professional license to continue use of the extended features. Without a Simergy Professional license, the software will revert to Simergy Standard (and its feature subset)
- **New Standards Workspace**
  - This workspace enables automated ‘rule-based’ standards compliance assessment
  - The first standard to be supported is the California Building Energy Code (Title 24). Simergy has been certified by the California Energy Commission for correct assessment of building energy model compliance with the 2013 version of Title 24 (which is current until 2017).
  - We recently introduced a training course to teach Simergy users how to run Title 24 compliance assessment and to generate the compliance report that can be submitted to California building departments.
  - NOTE: for those not doing projects in California, this feature can be turned off in File > Options > Preferences
- **File > Options**
  - Improved AutoSave feature (in Preferences)
  - Expanded ‘Model Creator Defaults’ -- in which the user can define default parameters for the Building Model Creator™.
- **Cross-Workspace features**
  - NEW 3-tabbed object Properties Dialog (select object > right-click > Properties). The 3 tabs present property ‘views.’ These views are: SimModel Properties view (native properties + IFC properties + gbXML properties), EPlus Properties view (EnergyPlus properties only), T24 Properties view (properties used in T24 compliance analysis)
  - This includes support for navigating to referenced objects (just click on the “...” symbol)
  - NEW support for Thermochromic glazing materials/layers in Glazing Layer Sets
  - NEW support for schedule filtering (only schedules of the appropriate type are listed in dropdown lists)
- **Design Alternatives**
  - New support for California Title 24 weather data.
  - New Standards tab in the model status dashboard
  - New support for Undo/Redo
- **Building Model**
  - New support for Undo/Redo
  - NEW Sloped roof options (Hip and Gable roofs)
  - Improved customization of building models
    - Improved Split/merge spaces, plena, voids – on the Interiors tab
    - Change constructions for individual building elements like walls and slabs (in right-click menu)
    - Split wall tool to enable use of different constructions in segments of a wall
    - Split slab tool to enable use of different constructions in segments of a slab
  - New parameters for zone configurations in above ceiling or below floor plena or voids
  - Improved editing of imported models
  - Improved support for creating a matrix of custom openings in slabs, used to create arrays of Skylights in roof slabs

- Improved support for daylighting sensors and controls. This is now supported for areas lit by windows in exterior walls (sidelights) and for windows in roofs (skylights)
- New support for lighting circuits (rather than simple Lighting Power Density)
- **Building Systems**
  - Improved support for Steam and Variable Refrigeration Loops (Pro version only)
  - Improved support for primary/secondary water loops (Pro version only)
  - Improved support for Dual Duct and Triple Duct air loops (Pro version only)
  - Improved automatic diagramming of HVAC systems imported from IDF (Pro version only)
  - Improved support for Solar Photovoltaic collector arrays
  - Improved Service Hot Water loops
  - NEW support for Solar Hot Water collector arrays
  - NEW support for Combined Heating & Power generators (CHP)
  - NEW support for Condenser to Hot Water heat exchangers
  - Several new productivity enhancements
- **Simulation workspace**
  - Error Resolutions Knowledgebase – has been improved with links that take you directly to the objects named in the error or warning
- **Libraries**
  - NEW 3-tabbed (views) presentation of library object properties - same as described above for the Properties Dialog
  - New Libraries for People, Organizations, People in Organizations, and templates for Project Type, Building Type, Thermal Zone Type, and Space Type – These were introduced for use with Title 24 compliance analysis/reporting, but are also generally useful for rapidly generating a new project from templates
  - Simplified creation of new libraries – simply copy the library “TemplateEmptyLibrary.siml” and rename it as you wish. Then add this library to the list of libraries to be loaded using File > Options > Library & Template Preferences
- **Reports and Results visualization**
  - Improved Results Visualization (Pro version only)
  - NEW support for X-Y scatter plots (Pro version only)
  - Improved comparison of results from more than one simulation
  - Improved US units in reports
  - New Utility Cost reporting
- **Import/Export and Interoperability**
  - Faster IFC import (Pro version only)
  - Improved support for Open/Save SimXML – a full fidelity XML representation of SimModels (Pro version only)
  - Improved DWG/DXF ‘Model-Over’ (creating 3D models from drawings). We now support DWG/DXF versions: 13, 14, 2000, 2004, 2007, 2010, 2013 (Pro version only)
  - Improved support for automatic diagramming when importing IDF models (Pro version feature)

This document contains an overview of feature limitations and known issues in this release of Simergy. More information in all of these areas is available at: <http://simergy.D-Alchemy.com>.

We strongly suggest that you subscribe to the support forum at [simergy-users@onebuilding.org](mailto:simergy-users@onebuilding.org) by sending a blank email to [simergy-users-subscribe@onebuilding.org](mailto:simergy-users-subscribe@onebuilding.org). Members of the Simergy Development Team will monitor the forum and will respond to questions if an answer from another forum member is not forthcoming or the answer is incorrect or incomplete. It is anticipated that additional technical support will be available from 3<sup>rd</sup> party providers.

Use the [Support Form](#) on the website to report bugs, with reproduction steps, and to propose new features. Email [Support@DigitalAlchemyPro.com](mailto:Support@DigitalAlchemyPro.com) to report problems with the Support Form and to communicate with the Simergy Development Team directly.

**See the Help Resources in Simergy and on the website as well as the Survival Tips at the end of this document!**

### Limitations of this Release

- **IDF Import**
  - IDF version -- This release of Simergy supports simulation in EnergyPlus version 8.1. Older version IDF files must be converted to v8.1 format using the conversion utility that installs with EnergyPlus. Support for newer versions of EnergyPlus will be considered in future releases.
  - IDF Import filtering -- While Simergy supports nearly all object types/concepts in the IDF schema internally, some IDF object types are not supported. Support for these will be considered in future releases.

At a high level the unsupported IDF elements are:

  - Parametric elements
  - EnergyManagementSystem elements
  - UserDefined elements
  - Refrigeration elements
  - Fuel cells


- EnergyPlus HVACTemplate objects are supported, but these are converted into explicit HVAC components prior to import.
- IFC Import/Export, gbXML Import, and DWG/DXF 'Model-Over' (all are Pro version features)
  - The IFC import/export, gbXML import, and DWG/DXF Draw-Over features in v1.0 were the source of highest frustration for that release. Over 90% of the support requests were about these three feature areas. There are several reasons for this, but the most common reason is that IFC and gbXML data exported from other applications is quite frequently flawed. Often it does not even validate against the schema definition. As support for these features is very expensive, they were removed from the standard version of Simergy, as of v1.1.
  - We have been working on ways to improve these model creation options more consistent and reliable, including IFC/gbXML schema validation and rules based model checking \_before\_ the start of import. These improvements are being tested in Simergy Professional.
- Building Model
  - Material Constructions (Layer Sets)
    - By default -- Constructions (Material Layer Sets) are associated at the Building level. The default constructions to be used Building Model Creator™ are defined there. The user can override constructions for selected building elements as follows --> right-click > Change Construction.
    - Material layers in inter-zone slabs (floors, raised floors, ceilings) will be interpreted as having the 'Outside Layer' at the bottom and Layers 2-9, in order, moving upwards.
    - Material layers for all exterior (envelope) building elements (are interpreted from 'Outside Layer' facing outdoors, and 'Layers 2-9', in order moving inwards.
    - Constructions for interior walls should be symmetrical about the centerline. If they aren't, the direction will be ambiguous and thus be interpreted as either direction.
    - Adiabatic walls - users cannot tag walls/space boundaries as adiabatic. Instead, this is done by assigning a construction that has no thermal resistance (for example, a single IR transparent layer). Such walls will be treated as adiabatic by EnergyPlus
- HVAC Systems
  - Controllers that require a connection to a thermal zone (e.g. for the thermostat) use the first zone in the loop as a default controlling zone, but this can be changed by the user
  - The list of control schemes (for controllers) are automatically generated and include all supply side components. Manual selection of control scheme lists will be considered as an enhancement in the next major release of Simergy.
  - Currently there is no support for cross loop control connections (e.g. between supply and demand sides in air loops)
- Simulation
  - While it is possible for the user to edit the IDF model generated by Simergy and still use Simergy to view and compare simulation results, this can only be done after the initial simulation run (with the Simergy generated IDF model). See tutorial for more detail.
- The following requested features are not supported in this version of Simergy, but are being considered in future releases
  - Model Validation
    - Component properties - check consistency where one property is dependent on or influenced by another property.
  - HVAC System Creation
    - User drag/drop placement of equipment on the supply side of an HVAC loop AND demand side assignment has always been supported. User drag/drop of components to the demand side of a loop is limited to before and after (to the left) of the Demand Splitter and Demand Mixer shapes.
  - Simulation
    - Parametric simulation series -- i.e. scripted running of multiple simulations with certain parametric variations
  - Reporting
    - Generation of LEED baseline models
    - Generation of LEED reports
  - Import/Export
    - Pass-thru of comments in IDF files (that is: comment in imported IDF files are not currently passed thru)

### Known Issues in this Release

- Schedules
  - Most schedules in our library have been converted to the new format used by the schedule editor, which supports automatic unit conversion. However, the Legacy Schedule View does not support automatic unit conversion. Most of the schedules in Simergy are normalized and hence do not have units - the main exceptions are temperature schedules, most of which were imported from EnergyPlus and are in SI units. If you work in IP, check the values of any Legacy Schedules you use and then edit them manually as necessary.

- Note: when you select the Libraries:Schedules from the ribbon, you will be prompted to select either “Schedule Editor” or “Legacy Schedule View”. The “Schedule Editor” is the graphical tool that allows you to create, edit, view and review the schedules and it translates them into the format required to run EnergyPlus.
- Results Visualization
  - HVAC system node variables are used in cases where EnergyPlus does not have explicit output variable names, e.g. coil inlet and outlet temperatures.
- Problematic Characters -- users should refrain from using the following characters in user defined strings:
  1. ‘ (single quote)
  2. , (comma)
  3. ; (semi-colon)
  4. ^ (carrot)
  5. ` (???)
  6. ~ (tilde)
  7. ! (exclamation)

## Survival Tips

- Refer to the Help Resources that are available in the Application Help menu ( symbol on right side of the ribbon), and on the Simergy website. These resources include: CHM (Help) files, user guides, examples, video tutorials, and the EnergyPlus Input-Output reference.
- Join the technical support forum at [simergy-users@onebuilding.org](mailto:simergy-users@onebuilding.org) by sending a blank email to [simergy-users-subscribe@onebuilding.org](mailto:simergy-users-subscribe@onebuilding.org). Use the [Support Form](#) on the website to report bugs, with reproduction steps, and to propose new features. Email [Support@DigitalAlchemyPro.com](mailto:Support@DigitalAlchemyPro.com) to report problems with the Support Form and to communicate with the Simergy Development Team directly.
- Use Autosave – set by selecting Options from the File menu and then selecting Preferences
- Choose US or SI units for your project in File > Options > User Interface Units. Once saved, these units will be used (by default) for any new projects.
- You can run more than one instance of Simergy at once. Building a model in one instance while using another instance to look at sample files and libraries and templates is much easier, at least when getting started. Using two monitors is particularly helpful. Use a hi-res monitor, preferably HD (1080p = 1920x1080). 1600x900 should be the minimum resolution used -- to minimize the use scroll bars.
- File locations are:
  - Installation files – executables, help files, etc.
    - [64-bit version] C:\Program Files\Digital Alchemy\Simergy 64-bit) [PREFERRED]
    - [32-bit version]
      - On 64-bit Windows: C:\Program Files (x86)\Digital Alchemy\Simergy (32-bit)
      - On 32-bit Windows: C:\Program Files\Digital Alchemy\Simergy (32-bit)
  - Library files – C:\Users\Public\Simergy\LibrariesAndTemplates\Library.siml – library files
  - Sample Files – C:\Users\Public\Simergy\Samples\... this includes folders for:
    - gbXML sample files
    - IDF sample files
    - IFC sample files
    - Sample project files for:
      - EnergyPlus simulation projects
      - California T24 analysis projects
  - EPlus simulation results – C:\Users\Public\Simergy\SimulationResults\... This includes all files generated by EnergyPlus, including error files
  - California T24 analysis results – C:\Users\Public\Simergy\StandardsResults\...
  - Reference Files – C:\Users\Public\Simergy\\_ReferenceFiles\ ... This includes:
    - Simergy\_Essential\_Reading.rtf (this file!)
    - Solibri Model Checker rule set -- for checking IFC files before importing into Simergy Pro
    - End user license file (EULA)
- When building a model by modifying a sample file, start by saving the file in a separate directory, so you don’t overwrite the sample.
- When running simulations, you can start another simulation, either in the current Design Alternative or a different Design Alternative, as soon as the EnergyPlus status messages begin to appear in the Run Row – under the configuration you selected. The number of simulations that are currently running is shown in the status bar at the bottom of the application frame.
- When first running a model, run the Design Days rather than a full year. Do this by choosing the appropriate Simulation Parameters template when creating a New Configuration; also select a detailed Request Set to facilitate troubleshooting.

- In Create/Edit Building – changes made to the parameters in the Create/Edit palette are not applied to the model until the user clicks Preview, and then Save. If the user clicks to switch to another workspace before Preview/Save, the changes will be abandoned.
  - If a template has been used in a project, and is later changed in the Templates workspace (which edits the library version of the template), the template must be re-applied to the project by selecting it again. For example, if the user edits the Constructions template in the Templates workspace, and want to apply those changes to an existing project/building, they must re-select the templates in the 'Building Constructions' dropdown list (in the Create/Edit Buildings workspace).
  - When selecting a row, e.g. a loop or a Zone Group in Create/Edit or a Design Alternative, it is best to click the small box at the extreme left of the row – which selects the row. Avoid clicking on a field that contains the name of a template unless you want to reapply the template
  - Use the Tab key to enter a value (number or text string) that you have just entered – this also takes you to the next editable field.
  - When selecting a Library Entry or a Template, the user should think about whether they want to get it from the Project Library, i.e. use one that has already been used in the project, or get it from the Current Library (usually Library.siml). Entries from the Project Model are listed at the top (in black text color), and entries from the Library Model are listed below (in red text color).
  - If you have data or a configuration (e.g. an HVAC system) that you might, possibly, want to use again, create a Library entry or a Template rather than making local changes in your project. These changes will be saved to the Current Library, so avoid editing existing entries unless you are sure you want to change them permanently. Better to make a copy with a different name, better still set up your own library – the easiest way is to copy and save Library.siml with a new name and, possibly, a new location. Then, go to File | Options | Library/Template Preferences, add the library you have just created and Select it as #1, with Library.siml as #2, and then Save, or Save As Defaults to have the selection persist.
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