

# OpenStudio Version 1.2.0

*Release Notes – 12/20/2013*

---

These release notes describe version 1.2.0 of the OpenStudio software suite developed by the National Renewable Energy Laboratory (NREL), Buildings and Thermal Systems, Commercial Buildings Research Group, Tools Development Section, and associated collaborators. The notes are organized into the following sections:

- Where to Find OpenStudio Documentation
- Installation Notes
- Overview
- New Features
- Known Issues

## Where to Find OpenStudio Documentation

- OpenStudio release documentation, including these release notes, tutorials, and other user documentation, is available at <http://openstudio.nrel.gov/documentation>.
- C++ API documentation is available at <http://openstudio.nrel.gov/sdk-documentation>.
- Measure writing documentation is available at <http://openstudio.nrel.gov/openstudio-measure-writing-guide>
- OpenStudio Life Cycle Costing Examples are available at <http://openstudio.nrel.gov/openstudio-life-cycle-examples>

## Installation Notes

OpenStudio is supported on Windows XP – 8.1, OS X 10.8 – 10.9, and Ubuntu 12.04.

## Installation Steps

- Download and install EnergyPlus 8.0.
  - [Download EnergyPlus 8.0](#). Create an account and login if you don't already have one.
  - OpenStudio will work with 32 or 64bit EnergyPlus installers.
- The OpenStudio SketchUp Plug-in requires [Sketchup 8.0](#) or [SketchUp 2013](#) (not available for Linux).
- Create an OpenStudio account, then download and install [OpenStudio](#).
- Setup a Building Component Library (BCL) account to access online building components and measures. [View instructions on how to setup your account and configure the key in OpenStudio](#).

## Optional Installation Steps

- For Radiance integration, download and install [Radiance](#).

- If you plan to use the OpenStudio SDK Ruby bindings via command prompt on Windows, download and extract [ruby.zip](#) to C:\Ruby (or other desired location), and add C:\Ruby\bin to the PATH environment variable.

## Overview

OpenStudio 1.2.0 implements entirely new results visualization. Modelers and developers can create custom reporting measures that show up directly in the OpenStudio application's results tab. These reporting measures can be shared on the Building Component Library and downloaded directly into the OpenStudio application. This release also features a number of important contributions from external collaborators:

- Oak Ridge National Laboratory added back-end functionality for the modeling of refrigeration systems.
- Penn State University added translation to CONTAM input files.
- Argonne National Laboratory implemented a fast CEN/ISO monthly building energy model calculation.

Also, several new HVAC objects were added, and the initial refrigeration GUI was created within the OpenStudio application's HVAC systems tab.

## New Features

### OpenStudio Platform 1.2.0

- Implementation of a fast CEN/ISO monthly building energy model calculation – Contributed by Argonne National Laboratory. See the OpenStudio's [Contributors page](#).
- Translation of OpenStudio Model to CONTAM input file – Contributed by Penn State University. See the OpenStudio's [Contributors page](#).
- New methods for intersection of adjacent surfaces.
- Improved Standards Data Dictionary (SDD) translation for the California Energy Commission's CBECC tool.
- Addition of model objects needed for refrigeration systems – Contributed by Oak Ridge National Laboratory. See the OpenStudio's [Contributors page](#).
- Added HVAC objects from the OpenStudio's HVAC [roadmap](#).

### OpenStudio SketchUp Plug-in 1.2.0

- Improved general performance, stability, and usability.
- Continued to develop experimental user script to convert SketchUp groups to OpenStudio spaces.

### OpenStudio Application 1.2.0

- Added user-customizable plotting in reporting measures. Reporting measures, introduced in a previous version, have access to the OpenStudio model, the IDF file, and the resulting EnergyPlus SQL results. If a reporting measure creates an html file it will be viewable via a pull-down menu in the OpenStudio application results tab. The two examples that come with

OpenStudio use the D3 library to create graphs. More reporting measures will be added to the BCL and accessible directly within the OpenStudio application.

- Added refrigeration systems to the HVAC Systems tab. This work will continue to develop in our next release.

### **OpenStudio ParametricAnalysisTool 1.2.0**

- Improved general performance, stability, and usability.

### **OpenStudio RunManager 1.2.0**

- No changes.

### **OpenStudio ResultsViewer 1.2.0**

- No changes.

### **OpenStudio Ruby Bindings 1.2.0**

- No changes.

### **OpenStudio C# Bindings 1.2.0**

- No changes.

### **OpenStudio Python Bindings 1.2.0**

- No Changes.
- Python bindings are not packaged with OpenStudio. To use them see our [developer page](#) for guidance on building OpenStudio.

### **OpenStudio JavaScript V8 Bindings 1.2.0**

- No Changes.
- JavaScript bindings are not packaged with OpenStudio. To use them see our [developer page](#) for guidance on building OpenStudio.

## **Known Issues**

The following are issues known at the time of publication of these release notes. Please contact [openstudio@nrel.gov](mailto:openstudio@nrel.gov) if you require further assistance.

## **Known Issues Common to All Platforms**

### **OpenStudio SketchUp Plug-in**

- If you use copy multiple on group-level OpenStudio objects, you will get one extra copy. The extra group is created by the first copy-and-paste operation and is not removed when the copy multiple occurs. To address this, after you perform a copy multiple procedure on groups or spaces, press delete. The objects you need to delete should already be selected. If you are copying loose surfaces such as windows, there are no problems, as SketchUp will merge equivalent surfaces. [issue [#28](#)]

- Using SketchUp's undo operation on OpenStudio model elements may produce unexpected results. [issues [#54](#) and [#150](#)]
- SKP and OSM link is not maintained when files are relocated. You can manually re-establish that link. When opening a SketchUp file, launch SketchUp and then Open the SketchUp file. If that doesn't work you can also directly load the OSM file, bypassing the SKP file. [issue [#409](#)]
- It is possible for the OpenStudio Plug-in to conflict with other SketchUp plug-ins. If you suspect this is a problem, try testing with other plug-ins disabled, or contact [openstudio@nrel.gov](mailto:openstudio@nrel.gov) for assistance. [issue [#26](#)]
- Using "Intersect" in the surface matching dialog can result in a crash or unexpected results. This is more common with models that were imported from other CAD formats at some point in the workflow. It is a good idea to save prior to using this to avoid any loss of data. This is related to an underlying SketchUp bug. [issue [#168](#)]
- "Project Loose Geometry" can crash SketchUp. It is a good idea to save prior to using this to avoid any loss of data. [issue [#484](#)]
- Adjacent stacked spaces in same zones may result in incorrect area and likely loads as well. [issue [#561](#)]

If your OpenStudio model crashes SketchUp or has unexpected behavior please forward it to [OpenStudio@NREL.gov](mailto:OpenStudio@NREL.gov) with a description of the problem. Please also include the directory that has the same name as the OSM file. You can attach it as a zip file.

### OpenStudio Application

- The Annual CV (RMSE) and NMBE numbers in Calibration report do not change color if they fail Calibration method (FEMP vs. ASHRAE) limits. [issue [#740](#)]
- Similar thermostats assigned in the SketchUp Plug-in are shared across thermal zones in the OpenStudio application. Changing or turning off one will do the same to others. [issue [#123](#)]
- The view does not always refresh correctly when you delete a material from a construction. If you still see a material after clicking the "x", switch away from and back to the object to refresh the view. [issue [#196](#)]
- Some pull-down lists in simulation settings don't work. [issue [#496](#)]
- OS App Schedule Editor lets me enter values outside of type limits. [issue [#531](#)]
- All drop zones under Water Use Equipment Definitions doesn't enforce schedule types. [issue [#532](#)]
- Removing CoilHeatingWater objects can result in orphaned hot water coils. [issue [#594](#)]
- Some HVAC components in OpenStudio are missing from the HVAC Library (e.g. Fan:OnOff). [issue [#599](#)]
- Many objects in OpenStudio still appear to accept bad input values, but seems like it is just displaying the bad value and not storing it. [issue [#656](#)]
- Attempting to autosize a WaterHeater will result in an error. [issue [#669](#)]
- Entering an invalid date on the Utility Bills subtab crashes OpenStudio. [issue [#739](#)]
- To enable set point schedule drop zones on the Thermal Zones tab, you need to first turn on the thermostat.

- The Site / Utility Rates subtab the workflow are marked as “coming soon,” and will be completed in an upcoming release of OpenStudio.
- The default reporting measures used for the results tab show results in IP units, and do not react to changes in the user’s unit preferences. That will be addressed in future versions of OpenStudio. The measure can be altered to show SI units instead.
- Due to the change in the results tab in OpenStudio 1.2.0, if you open an OSM model made with an earlier version of OpenStudio, you will have to re-run the simulation to see results within the OpenStudio application. The previous results still exist without a re-run if you just want access to the standard EnergyPlus output.
- The HVAC library shows a “Refrigeration Walkin” object, but the GUI doesn’t support it yet. It doesn’t let you drop it into the model. “Refrigeration Case” does work.

### OpenStudio ParametricAnalysisTool

- NOTE: when using cloud service please make sure to stop the cloud using the cloud button in PAT when your simulation session is done, and after you have downloaded all of the detailed results you want. You can then go the AWS Management Console to confirm the instances are terminated. If they are not terminated, you can manually terminate them from the console. [We have a sticky post on our forum](#) with best practices for cloud simulation in OpenStudio.
- PAT won’t prevent you from loading OSM files that are from a newer version of OpenStudio than you have installed, but the analysis won’t run. [issue [#330](#)]
- Daylighting control object variables can’t be requested in the output variables tab. [issue [#355](#)]
- Adding a design alternative using measure groups will remove any design alternatives made from external files. You can however add a design alternative made from external files without losing design alternatives made from measure groups. [issue [#369](#)]
- Always Run measures are applied to externally constructed design alternatives. This may result in unexpected results or errors. [issue [#369](#)]

### OpenStudio ResultsViewer

- Alias changes do not update in table view until the data are read in again. [issue [#25](#)]
- Re-arranged column order doesn’t stick next launch. [issue [#30](#)]

### OpenStudio RunManager

- EnergyPlus ForwardTranslator errors do not appear in the RunManager GUI elements. [issue [#181](#)]

### OpenStudio Platform, Including SWIG Bindings

- `IdfObject::getQuantity` and `IdfObject::setQuantity` functionality is almost, but not completely, comprehensive. The quantity getters and setters for fields whose units are “BasedOnField AX” are not expected to work at the `IdfObject` level, but are to be handled only for OS: prefixed objects by the specific interfaces of classes derived from `ModelObject`.
- The default naming scheme of `WorkspaceObject` (base class for `ModelObject`, etc.) sometimes results in undesired name clashes when transferring objects between models, including in the EnergyPlus translators. Therefore, some objects may be unexpectedly renamed or copied.

- OpenStudio::Model::ComponentVector objects may be inaccessible from the Ruby bindings. [bug [#239](#)]

### Known Issues Specific to OS X

- To Install OpenStudio 1.0 and greater correctly on OS X you need to first uninstall earlier versions of OpenStudio. [bug [#365](#)]
- The SketchUp Plug-in toolbar tooltips do not work correctly on OS X if you have made your toolbars horizontal. The tooltips never show on OS X in the status bar. The button state may also be incorrect. This is a bug in SketchUp versus the plug-in. [issue [#45](#)]

### Issue Statistics Since Previous Release

- 60 new issues were filed since the 1.1.0 release of OpenStudio (not including closed pull requests).
- 35 issues were closed since the 1.1.0 release of OpenStudio (not including closed pull requests).