

OpenStudio Version 0.8.1 Build 9314

Release Notes – 07/13/2012

This document contains information specific to the OpenStudio suite developed by the National Renewable Energy Laboratory – Electricity, Resources, and Building Systems Integration Center (ERBSIC), Commercial Building Research Group, Tools Development. The document contains 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>. Documentation of the OpenStudio C++ and Ruby APIs is available at <http://openstudio.nrel.gov/sdk-documentation>.

Installation Notes

OpenStudio is supported on Windows, Mac, and Linux platforms.

Installation Notes for Windows

Supported platforms are Windows XP/Vista/7.

- Download [EnergyPlus 7.1](#).
- OpenStudio SketchUp Plug-in requires [Google SketchUp](#) 8.0 or later (Free or Pro versions).
- Optionally download [ruby.zip](#) and install if you plan to use the scripts tab of the OpenStudio application or the integrated Radiance workflow. To install, unzip the download to C:\Ruby (or other desired location), and add C:\Ruby\bin to the PATH environment variable.
- Optionally download and install the 32-bit [OpenSSL libraries](#) if you will be running simulations remotely through a SSH connection.
- Optionally download and extract Radiance binaries from the [Getting Started with Radiance page](#) if you plan to use the new Radiance integration features.
- Download the [OpenStudio installer](#).
- Run the installer.

Installation Notes for Mac

Supported platforms are Mac OS X 10.6/10.7:

- Download [EnergyPlus 7.1](#).
- OpenStudio SketchUp Plug-in requires [Google SketchUp](#) 8.0 or later (Free or Pro versions).
- Ruby bindings require Ruby 1.8.6 or 1.8.7, which comes installed on Mac OS X machines. No need to install.
- Optionally download and extract Radiance binaries from the [Getting Started with Radiance page](#) if you plan to use the new Radiance integration features.
- Download the [OpenStudio installer](#).
- Run the installer.

Installation Notes for Linux

Supported platform is Ubuntu 10.04:

- Download [EnergyPlus 7.1](#).
- OpenStudio SketchUp Plug-in is not supported on Linux platform, as Google SketchUp is not available.
- Ruby bindings require Ruby 1.8.6 or 1.8.7: **sudo apt-get install ruby-full**. You will need to install ruby if you want to use the scripts tab of the OpenStudio.
- Optionally download and extract Radiance binaries from the [Getting Started with Radiance page](#) if you plan to use the new Radiance integration features.
- Optionally install the DAKOTA algorithm library as described on the [developer pages](#) if you plan to run large-scale analyses with the Ruby bindings.
- Download the [OpenStudio installer](#).
- Run the installer.

Overview

The OpenStudio version 0.8.1 release focuses on integration with the NREL Building Component Library (BCL) and EnergyPlus 7.1 support. The BCL is an online repository of building data used to create building energy models. The BCL can be accessed through a web API to search for and download data for use in energy modeling. In this release, the OpenStudio application has been extended to use this web API to enable searching, downloading, and using construction components from the BCL from within the OpenStudio application. Once components are downloaded from the online BCL to a user's local library, they are available to use in the OpenStudio application. This capability can be accessed in the OpenStudio application by selecting the menu item "Window"-> "Online BCL". A BCL API key is required to use this new functionality; instructions on how to get a BCL API key are available at <https://openstudio.nrel.gov/using-building-component-library-bcl-key-openstudio>.

In addition to hosting static building data, the BCL also hosts several "on-demand generators." On-demand generators are scripts, which are called from the online BCL API with user provided input. The scripts use these arguments to generate custom components based on user input. The OpenStudio SketchUp plug-in includes access to an on-demand generator for space type data (e.g. schedules, loads, etc) through a user script. This script can be accessed through the menu item "Plugins"-> "OpenStudio

User Scripts”->“Building Component Library”->“Get BCL Space Type”, a BCL API key is needed to access this functionality as well. When the user script runs, the user is prompted for the desired building vintage, climate zone, and primary space type. The script then calls the on-demand generator with all available options for secondary space type given then first three inputs. The on-demand generator creates a space type component for each combination, then downloads the components and adds them to the current model.

Backwards version compatibility (versions subsequent to 0.7.0) has been added to OpenStudio to support transitioning components in the local library between versions of OpenStudio. Versioning support has also been added when opening OSM files in the OpenStudio application and the OpenStudio SketchUp plug-in.

OpenStudio 0.8.1 supports EnergyPlus 7.1.

New Features

OpenStudio Platform 0.8.1

- New objects and methods were created to access the online BCL as well as the user’s local library.
- A VersionTranslator class is now available to upgrade OSM and OSC files to the current version. Transitioning from OpenStudio versions 0.7.0 and above is supported.
- A number of new objects are included in the OpenStudio Model API. For documentation on all objects and API methods please refer to the [developer section of the OpenStudio website](#).
- Legacy OpenStudio IddFiles are now included in the installer, and may be accessed through the IddFactory.
- The Idd and Idf classes now provide more support for using IDD files loaded from disk, and provide more version information by default.
- Object references in OpenStudio Idf are now serialized by handle rather than by name. This makes it possible to have object-list fields referencing \object-list AllObjects (e.g. OS:ComponentData).
- Problems can now have response functions, whose values are automatically calculated and stored in the ProjectDatabase for each DataPoint produced by running an Analysis.
- The ModelObject method createComponent now uses the same logic as clone(Model&).

OpenStudio SketchUp Plug-in 0.8.1

- User script for accessing the BCL space type on-demand generator.
- User scripts can now be organized into directories.
- Version Translator will upgrade models back to 0.7.0.
- General performance and stability improvements.

OpenStudio Application 0.8.1

- BCL search engine integration and component tagging has been added for constructions.

- Plant loop bypass is now included.
- Version Translator will upgrade models back to 0.7.0.
- Validity reporting occurs when opening a model.
- Simulation results re-load when opening a previously run model.
- General performance and stability improvements.

OpenStudio RunManager 0.8.1

- No changes since Version 0.7.0.

OpenStudio ResultsViewer 0.8.1

- No changes since Version 0.7.0.

OpenStudio PolicyAnalysisTool 0.8.1

- The PolicyAnalysisTool is included in the 0.8.1 release, but with limited functionality. It currently includes the small office building type. The full functionality will be restored in future releases.

OpenStudio Ruby Bindings 0.8.1

- New objects and methods are available in the Ruby bindings. Please refer to the developer documentation for details.
- General performance and stability improvements.

OpenStudio C# Bindings 0.8.1

- New objects and methods are available in the C# bindings. Please refer to the developer documentation for details.

Known Issues

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

Known Issues Common to All Platforms

OpenStudio SketchUp Plug-in

- Unclassified surfaces may be created when a long operation is canceled. When you draw in a space and extrude your plan up, OpenStudio classifies all the newly created base surfaces. Normally this is a fast operation, but occasionally it may take longer if you have a complex shape or if you have SketchUp's Outliner window open. If you interrupt the process by exiting the space before it is complete, the surfaces will not be classified. If this happens, you should delete and redraw the incorrect surfaces. [bug 252]
- 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. [bug 36]

- Making copies of multiple spaces, or multiple copies of a single space, may be very slow. You should save your file before initiating a large copy operation. [bug 252]
- Models with a large number of spaces and surfaces may have poor performance. We are aware of this and plan to address it in future releases. [bug 252]
- Using SketchUp's undo operation on OpenStudio model elements may produce unexpected results. [bug 438]
- If you have been using OpenStudio with SketchUp 7.0, it is recommended that you upgrade to SketchUp 8. Closing the Inspector window in SketchUp 7 may result in a crash. [bug 299]
- If you have a SQL file open in ResultsViewer from an earlier simulation, re-running that simulation without closing the SQL file will result in a simulation failure. You will have to close and unlock the SQL file to resolve this. Please contact openstudio@nrel.gov for assistance. [bug 271]
- Surfaces do not always classify correctly. When this happens, you can manually re-classify the surface, or delete and redraw an edge to force OpenStudio to create a new surface. [bug 140]
- SKP and OSM link is not maintained when files are relocated. You can manually re-establish that link. [bug 61]
- 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 for assistance. [bug 25]
- When in render by data mode with a SQL file loaded, the model will be slow to respond when you change the time of day or time of year. [bug 381]
- If third-party applications using Qt binaries are in the system's environment path before OpenStudio, the OpenStudio SketchUp plug-in will attempt to load incompatible Qt libraries. This can be resolved by reordering the environment path or by copying OpenStudio's Qt dlls to your SketchUp directory. [bug 307]
- SketchUp may crash if an OpenStudio model is left open after opening and editing that same model in the OpenStudio Application. [bug 692]

OpenStudio Application

- Several tabs in the workflow are marked as "coming soon," and will be completed in upcoming releases of OpenStudio. In some cases (e.g. utility rates), alternate workflows are described within the application.
- SystemOutliner's Ruby console functionality has not been included in the initial release of the OpenStudio Application, but is planned for a future release.
- Using the mouse scroll wheels while hovering over graphics in the results summary tab will inadvertently zoom them in and out. [bug 574]
- To enable setpoint schedule drop zones on Thermal Zones tab you need to first turn on the thermostat.

- HVAC systems generated using HVAC Templates on the loops tab for some system types (PSZ-HP, Packaged VAV with Reheat, VAV with Reheat) may have significant “setpoint not met during occupied hours” in the EnergyPlus results.
- After adding constructions from the BCL window you need to change tabs on the left of the interface to refresh the library objects. [bug 773]
- When re-loading a model with scripts, you need to switch away from and back to a script to load arguments [bug 770]
- Similar thermostats assign in the SketchUp plugin are shared across thermal zones in the OpenStudio application. Changing or turning off one will do the same to others. [bug 722]
- If you select a terminal with hot water reheat and click on the checkbox for the currently selected plant loop OpenStudio will crash. [bug 679]

OpenStudio ResultsViewer

- Alias changes do not update in table view until the data are read in again. [bug 7]
- Data sets are expected to start on January 1 or later, and end on December 12 or earlier. Run periods cannot wrap around the end or beginning of the year. [bug 78]
- Table view column rearrangements are not preserved. [bug 34]

OpenStudio RunManager

- No known bugs.

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.

Known Issues Specific to Mac

- At this time, we are unable to provide simple install instructions for DAKOTA on Mac OS. We plan to work with the DAKOTA team to be able to provide this in future releases. [bug 437]

OpenStudio SketchUp Plug-in

- Toolbar tooltips may not work correctly on a Mac if you have made your toolbars horizontal. The tooltips never show on a Mac in the status bar. The button state may also be incorrect. This is a bug in SketchUp vs. the plug-in. [bug 375]
- The Color scale in the Render Settings dialog appears in grayscale vs. color. Render by data is slow to update when time or date is changed. [bug 379]
- Closing a model and then opening another or starting a new one. This can be avoided by restarting SketchUp before opening a new model. [bug 674]