OpenStudio Version 0.6.0 Build 7427

Release Notes – 12/19/2011

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/2000/Vista/7.

- Download EnergyPlus 7.0
- 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 OpenStudio Ruby bindings outside of the SketchUp Plug-in. To install, unzip the download to C:\Ruby (or other desired location), add C:\Ruby\bin to the PATH environment variable, and create the environment variable RUBYOPT (leave its value blank).
- 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 developer pages 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 10.5/10.6:

- Download EnergyPlus 7.0
- 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 developer pages 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 7.0
- 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**.
- Optionally download and extract Radiance binaries from the developer pages if you plan to use the new Radiance integration features.
- Download the OpenStudio installer
- Run the installer.

Overview

The OpenStudio version 0.6.0 release builds on the changes made in 0.5.0, which introduced spaces and space types to the model. Some of the highlights of the 0.6.0 release are support for EnergyPlus 7, template HVAC systems, Green Building XML (gbXML) import, initial integration with the Building Component Library, and annual climate-based Radiance simulations of your spaces along with lighting schedules for EnergyPlus simulations.

NOTE: A temporary limitation of the refactor is that some EnergyPlus data, which was passed unchanged through tools like the SketchUp Plug-In prior to the refactor, has not been translated to the OpenStudio Model yet and therefore is lost on import from EnergyPlus IDF files. In addition, this release is not backwards compatible with data files from previous OpenStudio releases, and no tools have been provided to upgrade data files from version 0.5 and earlier.

New Features

OpenStudio Platform 0.6.0

- OpenStudio now supports EnergyPlus 7.0
- OpenStudio now supports the import of gbXML files. This version of gbXML import supports the Campus, Building, Space, Surface, SubSurface, Construction, Material, Schedule, ScheduleWeek, and ScheduleDay elements.

- A formal structure has been created to support the creation and use of user ruby scripts across multiple OpenStudio Applications and from the command line
- A space type can now be inherited from the building object, if one isn't set in the space object.
- Proof of concept integration with DAKOTA, an algorithm library developed by Sandia National Laboratories. Currently exposing the DDACE sampling algorithms for use with continuous variables. See ruby/openstudio/examples/ExampleDDACEProblem.rb.
- A significant number of new objects are included in the OpenStudio Model API and accessor, many related to HVAC systems. For documentation on all objects and API methods please refer to the developer section of the OpenStudio website.
- Several Ruby scripts have been added (and updated) to support daylighting and electric lighting analysis using the Radiance lighting simulation engine.

OpenStudio SketchUp Plug-in 0.6.0

- The gbXML import feature added to OpenStudio is accessible from the SketchUp Plug-in under the Plugins > OpenStudio > Import menu.
- Default Space type inheritance from building object is more robust.
- You can now export un-translated EnergyPlus objects to an IDF file.
- A number of improvements have been made making it easier to write or alter user scripts.
- A number of new sample user scripts have been added to the installer. A few of these are highlighted below:
  - Set Window to Wall Ratio (This will let you select spaces or surfaces and create windows at a specified window to wall ratio and offset).
  - Add Overhangs by Projection Factor (This will let you select windows and create an overhang with a specified projection factor and offset).
  - Get BCL Weather File (This will let you search the Building Component Library for weather files based on city name, download them to your local library, and import the path to the weather file into the current model).
  - Write Space Type Report (This will generate a csv file with summary information on the spaces in your model, including space type, thermal zone, story, and loads).
  - Report Space Loads (This will output loads associated with selected spaces to the ruby console).
- General performance and stability improvements.

OpenStudio RunManager 0.6.0

- Added EnergyPlus Basement and Slab support to Runmanager lib and command line interface.
- Added ModelToRad tool to RunManager lib and command line interface.

OpenStudio ResultsViewer 0.6.0

- No changes since Version 0.5.0.

OpenStudio SystemOutliner 0.6.0

- Added HVAC templates for ten common system types.

- Added support for plant loops and zone equipment.
- Added a ruby console to the interface.
- General performance and stability improvements.

OpenStudio ModelEditor 0.6.0

- The functionality of the ModelEditor application has been incorporated into the SketchUp Plug-in and SystemOutliner. As a result the standalone ModelEditor application is no longer part of the OpenStudio installation.

OpenStudio PolicyAnalysisTool 0.6.0

- The PolicyAnalysisTool is included in the 0.6.0 release, but with limited functionality. It currently includes the medium office building type. The full functionality will be restored in future releases.

OpenStudio Ruby Bindings 0.6.0

- 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 0.6.0

- 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

- The OpenStudio Plug-in has been equipped with additional validations and checks on files containing unknown or flawed objects. If your file does not open correctly, please examine the errors and warnings dialog popup. If the errors and warnings dialog does not automatically open, you can manually open it from the OpenStudio toolbar.
- 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]
- The Object Inspector does not show units for a field until you enter data for that field. [bug 198]
- 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]
- OpenStudio 0.6 will not open models made with OpenStudio 0.4 or earlier, and may not open some files made with version 0.5.
- 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]
- Setting the location in the Inspector won't update SketchUp's geo-location. If you want to use SketchUp's shadows please manually geo-locate your building. Note that if you set the geo-location in SketchUp it will update the OSM location object. This bug should be fixed by the 0.6.1 release. [bug 434]
- 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]
- Initial construction of a LocalBCL singleton from two different threads simultaneously is a very unlikely, potentially unsafe operation. [bug 436]

OpenStudio SystemOutliner

- If you repeatedly and quickly click the delete loop button SystemOutliner may crash. [bug 416]

- Zone and system sizing objects are not wrapped yet. They are created on translation to IDF. This means that importing an existing IDF file with specific sizing requirements will remove the existing sizing specification. Default sizing specifications will be written when the OpenStudio model is re-exported to IDF format. The current workaround is to edit the IDF file in a text editor after exporting from OpenStudio. [bug 439]

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 not comprehensive.
- 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. [bug 35]
- Text IDF objects whose type names are misspelled are imported under the type name Catchall, but the original misspelled name is not retained. [bug 197]

Known Issues Specific to Mac
- DAKOTA is not presently working on Mac OS, but will be supported 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]