OpenStudio Version 0.10.0 Build 10520

Release Notes – 12/21/2012

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 XP – 7, OS X 10.7 – 10.8, and Ubuntu 12.04.

Installation Steps

- Download and install EnergyPlus 7.2.
- OpenStudio SketchUp Plug-in requires SketchUp 8.0 or later (not available for Linux).
- Download and install OpenStudio.

Optionally install the following

- For Radiance integration, download and install Radiance.
- If you plan to use the OpenStudio SDK and Ruby 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.
- Install the DAKOTA algorithm library as described on the developer pages if you plan to run large-scale analyses with the Ruby bindings.
- Download and install the 32-bit OpenSSL libraries if you will be running simulations remotely through an SSH connection on Windows.

Overview

The OpenStudio version 0.10.0 release focuses on a more robust and user friendly installation process, stability and performance improvements, and more control of simulation settings.

The OpenStudio installer now installs and configures Ruby and Perl for you. This allows you to use the Scripts tab in the OpenStudio application, without any additional installation and configuration. If you want to use Radiance you only need to install Radiance and then scan for tools in the OpenStudio Application. The Simulation Settings tab in the Application now gives you much greater control of EnergyPlus's simulation settings. You can for example run partial year simulations, customize the heating and cooling sizing factors, change the number of timesteps per hour, control the number of warmup days, solar distribution, and more. Available settings are listed below under "New Features." Other notable additions to OpenStudio include the ability to add multiple pieces of HVAC equipment to a single zone, the ability to inspect and set zone sizing parameters, and improved importing of design days.

OpenStudio 0.10.0 supports EnergyPlus 7.2.

New Features

OpenStudio Platform 0.10.0
- Support for restarting analyses that use DAKOTA algorithms.
- ProjectDatabase performance improvements.
- Table export to the JSON format.

OpenStudio SketchUp Plug-in 0.10.0
- Improved general performance and stability.

OpenStudio Application 0.10.0
- Space load instances (e.g. Lights, ElectricEquipment) now support fractional multipliers.
- Added Sizing Parameters to zone interface
- Four-pipe fan coil
- Multiple pieces of zone hvac equipment allowed per zone, in addition to airloop (before it was 1 or the other).
- When using Radiance for daylight simulation, all of the illuminance map points are now gathered into a single set of points; this tremendously speeds up the daylighting simulation. For a typical model of 10-30 spaces with illuminance maps in them, the result is about a 10x acceleration in calculation time.

- The "Simulation Settings" tab was implemented and includes the following OpenStudio model object inspectors:
    - RunPeriod
    - RunControl
    - SimulationControl
    - SizingParameters
    - ProgramControl
    - Timestep
    - OutputControlReportingTolerances
    - ConvergenceLimits
    - ShadowCalculation
    - SurfaceConvectionAlgorithmInside
    - SurfaceConvectionAlgorithmOutside
    - HeatBalanceAlgorithm
    - ZoneAirHeatBalanceAlgorithm
    - ZoneAirContaminantBalance
    - ZoneCapacitanceMultipleResearchSpecial
    - Within the next few weeks, the new OpenStudio model object "RadianceParameters" will be exposed in the Simulation Settings tab, and provide users full access to the Radiance object.

OpenStudio RunManager 0.10.0
- Fixed various bugs.

OpenStudio ResultsViewer 0.10.0
- Fixed various bugs.

OpenStudio PolicyAnalysisTool 0.10.0
- No changes since version 0.9.0.

OpenStudio Ruby Bindings 0.10.0
- New objects and methods are available in the Ruby bindings. Please refer to the developer documentation for details.

OpenStudio C# Bindings 0.10.0
- 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

- 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]
- Using SketchUp's undo operation on OpenStudio model elements may produce unexpected results. [bugs 438 and 797]
- 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]
- Some models may not intersect or match correctly. Email openstudio@nrel.gov for assistance if this happens. [bug 856]
- Importing Constructions and Import Schedules from the OpenStudio SketchUp Plug-in are broken, but you can load an OSM file as library in the OpenStudio application and then selectively drag specific objects into your model. [930]

OpenStudio Application

- The Site / Utility Rates subtab the workflow are marked as "coming soon," and will be completed in upcoming releases of OpenStudio.
- SystemOutliner's Ruby console functionality has not been included in the initial release of the OpenStudio Application, but is planned for a future release.
- To enable set point schedule drop zones on Thermal Zones tab, you need to first turn on the thermostat.
- New behavior for design day import. Previously when importing a design day file, any and all design days were unintelligently imported into the OpenStudio model. This behavior resulted in unnecessary design days that extended the runtime and could potentially cause sizing errors. The new behavior is to only import the most stringent design days. This behavior is based on the default naming convention of the design day (ddy) files distributed by NREL and with EnergyPlus. These names contain a string that identifies the design point, 99.6%, 99%, .4%, 1%, or 2%. The default filtering can be circumvented by removing these strings from the design day names. In this case where there are no such identifying strings, all design days from the selected file will be imported. Some combinations of system type and climate zone might require such customization of the design days to achieve proper sizing. In the majority of cases however, the new default behavior is adequate and more efficient. [bug 991]

- Using the mouse scroll wheels while hovering over graphics in the results summary tab will inadvertently zoom them in and out. [bug 574]
- 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. [bug 722]
- 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. [bug 925]
- Not all of the schedules required to make a valid People object can be assigned in the application. [bug 664]
- The 3-phase daylighting simulation method is currently inoperable, due to a fundamental change in the way the lighting calculation points are passed to Radiance. We expect this will be fixed by the next iteration release (0.10.1).

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

- EnergyPlus ForwardTranslator errors do not appear in the RunManager GUI elements (Bug 897)

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 1005]

Known Issues Specific to Mac

- At this time, we are unable to provide simple installation instructions for DAKOTA on OS X. We are working with the DAKOTA team to be able to provide this sometime in early 2013. [bug 437]

OpenStudio SketchUp Plug-in

- Inspector fields may become un-editable in some models. [bug 942]
- 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 versus the plug-in. [bug 375]
- The Color scale in the Render Settings dialog appears in grayscale versus color. Render by data is slow to update when time or date is changed. [bug 379]