

OpenStudio Version 2.9.0

Release Notes - 10/11/2019

These release notes describe version 2.9.0 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

Where to Find OpenStudio Documentation

- OpenStudio release documentation, including these release notes, tutorials, and other user documentation, is available at <https://www.openstudio.net/>
- C++ API documentation is available at <https://openstudio-sdk-documentation.s3.amazonaws.com/index.html>
- Measure development documentation is available at http://nrel.github.io/OpenStudio-user-documentation/reference/measure_writing_guide/
- Measure development documentation is available at http://nrel.github.io/OpenStudio-user-documentation/getting_started/roadmap/

Installation Notes

OpenStudio 2.9.0 is supported on 64-bit Windows 7 – 10, OS X 10.11 – 10.14, and Ubuntu 16.04.

OpenStudio 2.9.0 supports [EnergyPlus Release 9.2](#), which is bundled with the OpenStudio installer. It is no longer necessary to download and install EnergyPlus separately. Other builds of EnergyPlus are not supported by OpenStudio 2.9.0.

OpenStudio 2.9.0 supports Radiance 5.0.a.12, which is bundled with the OpenStudio installer; users no longer must install Radiance separately, and OpenStudio will use the included Radiance version regardless of any other versions that may be installed on the system. Other builds of Radiance are not supported by OpenStudio 2.9.0.

Installation Steps

- The OpenStudio SketchUp Plug-in requires SketchUp 2017 or 2018 (not available for Linux). OpenStudio 2.9.0 is not compatible with SketchUp 2019. The OpenStudio 3.0 prerelease in October 2019 will be the first version of OpenStudio compatible with SketchUp 2019. The OpenStudio SketchUp Plug-in does not support older versions of SketchUp. SketchUp must be installed before OpenStudio to automatically activate the plugin. If you install SketchUp after OpenStudio, simply rerun the OpenStudio installer.
- Download and install OpenStudio. Select components for installation.
- 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.

For help with common installation problems please visit, <http://nrel.github.io/OpenStudio-user-documentation/help/troubleshooting/>.

Overview

An important announcement related to future development of the OpenStudio Application is available at: <https://www.openstudio.net/new-future-for-openstudio-application>. Please read this announcement carefully to understand changes coming for the OpenStudio Application over future releases. Please send any questions, comments, or concerns to OpenStudio@nrel.gov and we will try our best to address them.

OpenStudio SDK:

The 2.9.0 release updates OpenStudio to use EnergyPlus 9.2. This update includes several new features, performance improvements, and bug fixes.

Updates, Improvement and Fixes:

- Added missing methods to model API, FT, RT and VT for HeaderedPumpsConstantSpeed and HeaderedPumpsVariableSpeed ([#3553](#)). These fields are related to the Design Sizing Method and allow you to enter electric power per flow rate, or per flow rate and head.
- Updated spider gbXML viewer ([#3668](#))
- Add new Fields in AirLoopHVACUnitaryHeatCoolVAVChangeoverBypass ([#3639](#)). Added a new 'Priority Control Mode' choice 'LoadPriority', added the 'Minimum Runtime Before Operating Mode Change' field, and the 'Plenum or Mixer Inlet Node Name'. For the latter, you can use ``AirLoopHVACUnitaryHeatCoolVAVChangeoverBypass::setPlenumorMixer(const Mixer& returnPathComponent)`` to connect it to a ``AirLoopHVAC:Mixer`` or a ``AirLoopHVAC:ReturnPlenum`` object.

- Added 'Temperature Difference Between Cutout And Setpoint' for ZoneControl:Thermostat ([#3584](#)). This field is added to the 'ThermostatSetpointDualSetpoint' class and handled during ForwardTranslation
- Translate AirWalls to Construction:AirBoundary ([#3635](#))
- Added ThermalStorage:Ice:Detailed Charging and Discharging Curve Variable Specifications ([#3654](#))
- Updated EnergyPlus from v9.1 to v9.2
- Display plantLoop supply equipment in OpenStudioApplication in the same order as the resulting PlantEquipmentList after ForwardTranslation ([#3600](#))
- Updated idf translator for E+ change Table:MultiVariableLookup ([#3651](#)) In Energyplus version 9.2.0, the table objects such as Table:MultiVariableLookup object were replaced with a new Table:Lookup object. The corresponding OpenStudio API remains the same using TableMultiVariableLookup, and the appropriate adjustments have been made to OpenStudio's EnergyPlus translator to create valid Table:Lookup objects. For more information please review the New Feature Proposal for EnergyPlus <https://github.com/NREL/EnergyPlus/blob/v9.2.0/design/FY2018/NFP-Table-Refactor.md>.
- Display non-zero north angle ([#3594](#))
- Adds 'Calculation Method' field to ShadowCalculation ([#3571](#))
- Allow AirConditioner:VariableRefrigerant condenser Type=WaterCooled (and EvaporativelyCooled ([#3604](#)). VRFs can now be connected to the demand side of a PlantLoop, including in the OpenStudioApplication directly, be sure to update the performance curves if you do so.
- Fixed Import ScheduleFile from IDF ([#3347](#))
- Added gbXMLId and improving CADObjectId import ([#3555](#), [#3554](#))
- Fixes crash in CLI if json native gem is installed ([#3590](#))
- ForwardTranslate End Use by Subcategory for Fan:VariableVolume and Fan:ConstantVolume ([#3591](#))
- Fix FloorspaceJS json north axis not being imported into OS model ([#3585](#))
- Added exportToBCVTB field to EnergyManagementSystemGlobalVariable ([#3420](#))
- Fix crash when leaving tabs with combobox2 ([#2792](#))
- Use Custom Blocks in Foundation Kiva which implements use of custom blocks in the Foundation:Kiva object. Custom blocks can be used to represent solid materials in the two-dimensional context that are not otherwise covered by the other Foundation:Kiva fields ([#3567](#))
- Add more heating source object type and tank object type enumerations for Coil:WaterHeating:Desuperheater object ([#3565](#), [#3647](#))
- Wrap ZoneProperty:UserViewFactors:bySurfaceName object which allows users to specify the thermal radiation exchange view factors between surfaces in a zone ([#3664](#), [#3671](#))
- Wrap PerformancePrecisionTradeoffs object which enables users to choose certain options that speed up EnergyPlus simulations ([#3631](#))
- Change the Sequential Load Fractions on ZoneHVAC:EquipmentList into schedules ([#3583](#))

- ScheduleFixedInterval now with option to translate schedule to ScheduleFile using new CSVFile class ([#50](#), [#3610](#))

OpenStudio Server:

- Resolved gem dependencies issues for faraday and nio4r

OpenStudio Standards:

- Split standards data spreadsheet into multiple spreadsheets for each class of standards (e.g. DEER, 90.1)
- Split standards space types data spreadsheet into multiple spreadsheets to allow notes on individual fields
- Split out standards data into individual files per standard
- Added ComStock DEER templates to represent actual building performance in California
- Added laboratory prototype model
- Enabled DOE Prototype regression tests
- Multiple changes to better align openstudio-standards with the PNNL DOE Prototype .idf models
- Add data and methods for water source heat pump efficiency
- Added typical refrigeration methods to populate grocery store refrigeration
- Added additional properties to lighting objects specifying the LPD fraction that is linear, highbay, specialty, or exit lighting
- Parameterize schedules to allow adjustments depending on hours of operation
- Added radiant slab system option to model_add_hvac_system with control sequences developed by CBE at UC Berkeley

Issue Statistics Since Previous Release (2.8.1 to 2.9.0)

- 75 new issues were filed since the 2.8.1 release of OpenStudio (not including opened pull requests).
- 66 issues were closed since the 2.8.1 release of OpenStudio (not including closed pull requests).