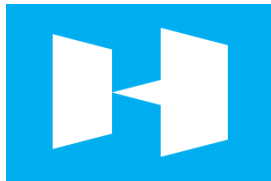




**OPAL-RT**

**RELEASE NOTES**



**HYPERSIM**

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*Latest Update: [July 29, 2020](#)*

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# HYPERSIM

## Version 2020.2.0

- Added filter to list components per task in the netlist (HYTT-3385)
- Added export/import project option in the ribbon to facilitate sharing projects with other users (HY-2027)
- Added help button in load flow panel (HY-2275)
- Added exciter library models DC2A, DC3A, ST2A, EXAC1, EXAC2, EXAC3 and T1 (HY-2293, HY-2331, HY-2332, HY-2343, HYTT-3360)
- Added governor library model HYGGOV (HYTT-3360)
- Added example model FACTS & HVDC | TCSC (HY-2307)
- Added example model Distribution & Industrial Power Systems | GHOST Microgrid Model (HY-2348)
- Added example model Distribution & Industrial Power Systems | Permanent Magnet Synchronous Machine-based Variable Frequency Drive (VFD) (HY-2349)
- Added example model How To (Components) | Filter, Fourier, Mean, Power, Sequence Analyzer (HY-2353)
- Added option to copy/paste content of error message windows (HY-2294)
- Added relative file path capability in wideband line and COMTRADE playback components (HY-1583)
- Improved user feedback when diagnostic fails during software installation (HYTT-3382)
- Improved HYPERSIM exiting time (HYTT-3292)
- Improved diagnostic to gather more logs (HYTT-3291)
- Improved tripping response time of protection model 81 - Frequency (HY-2309)
- Improved user data input in network components by standardizing units of voltage and current (HY-2087)
  
- Improved Renewable Energy example models with new PV library model (HY-2284)
- Improved duration of long tooltips to remain as long as the mouse-over (HYTT-3044)
- Fixed close connection with signal group when the last SignalGroup instance is closed/destroyed with Python API (RTLABTT-1517)
- Fixed backward reading of OPREC files when data losses occurred (RTLABTT-2759)
- Fixed consecutive data logger acquisitions after frame configuration modifications (RTLABTT-2836)
- Fixed data logger pre-trigger reconfiguration while the simulation is running (specific case: original value = 0, new value != 0)
- Fixed target crash when opening the Data Logger menu while simulation is running on CentOS (HYTT-3260)
- Fixed unsaved sensor configuration when saving the model (HY-1535)
- Fixed removing UCM definition files from the \_hyp folder when the last UCM of its kind is deleted from the model (HY-1671)
- Fixed display issue showing empty sensor list when moving a column in the summary view (HYTT-3417)
- Removed possibility to manually modify breaker status with CTRL+ALT+RIGHT CLICK when its Control type is set to External and simulation is running (HYTT-3407)
- I/O interface | IEC 61850 : Improved driver to send data types as defined in the .icd file for SV NLE (DRV-3392)
- I/O interface | IEC 61850 : Removed interface pre-configuration when adding a new interface to a project (DRVTT-42)
- I/O interface | MODBUS : Fixed issues occurring with error codes 32 and 9 (DRVTT-1079)
- I/O interface | OPAL-RT Boards : Added support for MMC UI-based configuration in central systems (DRV-3223)
- I/O interface | OPAL-RT Boards : Fixed display issue showing wrong file when fetching bitstream file information (DRVTT-1121)
- I/O interface | OPC UA Server: Added support for configuration via GUI (DRV-3393)

- I/O interface | Synchronization: Improved network interface selection using a text field instead of pre-defined list (DRV-3363)
- FPGA-Based Simulation | Added beta functionality to monitor intra-step FPGA signals with ScopeView
- FPGA-Based Simulation | Added support for spatial harmonics in PMSM
- FPGA-Based Simulation | Added support for thermal model in switches

## **Version 2020.1.0**

- Added global preferences to specify the default system unit (SI/PU/PQ/A) per component type (HY-1693)
- Added various advanced preferences in the simulation settings (HY-2226)
- Added TrigOut observable to POW component and a mask parameter to define the pulse duration (HY-2035)
- Added handles in the UCM structure to manage solver iterations (HYMODEL-49)
- Added support for relative paths for files defined in the I/O configuration tool (HYTT-3251)
- Added new machine library models Synchronous machine (pu fundamental) and Synchronous machine (pu standard) (HYMODEL-24)
- Added new machine library models Permanent Magnet Synchronous Machine (HYMODEL-31)
- Added new protection library model 25 Synchronism-Check (HY-2238)
- Added new machine control library model PSS4B (HY-2250)
- Added several new Control Measurements and Control Miscellaneous components (HYMODEL-45)
- Added example model FACTS & HVDC | STATCOM (HY-2144)
- Added example model Protection | Out of Step Detection using PMUs (HYMODEL-16)
- Added example model Protection | Transformer differential (HYMODEL-15)
- Added example model Transportation | FPGA-Based PMSM Drive (EFS-2727)
- Improved display of parameters in mask of RLC, sources and tools when switching between 1-phase and 3-phase connection (HY-2228)
- Improved Sensor window view (HYTT-3051)
- Fixed unresponsive I/O configuration tool when host IP-address changes (HY-2066)
- Fixed various stability issues when host PC is connected to a VPN (HY-1623)
- Fixed non-persisting frequency parameter value in the load flow window when closing a design (HYTT-3245)
- Fixed synchronization of "Perform load flow and set initial conditions at simulation start" box between load flow and simulation settings views (HYTT-2747)
- Fixed display issues when the Windows preference for size of text and apps is not set to 100% (HY-1523)
- Fixed Simulink import file browser filter indicating wrong supported version range (HYTT-3268)
- Fixed base voltages of Benchmark example models HVAC\_6Bus\_230kV and HVAC\_38Bus\_735kV (HYTT-3269)
- Fixed sensor file automatic load in example model DNP3\_MASTER\_SLAVE (HYTT-3271)
- Fixed topology category in the netlist for Voltage Source Converters (HYTT-3228)
- Fixed Data Logger Trigger signal fields to None in ScopeView when no trigger signal is configured (RTLABTT-2402)
- Fixed issue with the auto-transformer in the load flow calculations (HYTT-3246)
- I/O interface | ABB PS935 : Added support for configuration via GUI (DRV-3330)
- I/O interface | C37.118 Master : Added option to configure local UDP port (DRV-3318)
- I/O interface | IEC 61850 : Fixed scenario when the SVID has more than 126 bytes and/or when there are more than 16 channels configured per ASDU (DRVTT-1057)
- I/O interface | IEC 61850 : Fixed import of projects created on a different host (DRVTT-934)
- I/O interface | IEC 61850 : Fixed IED and GOOSE ID auto-filling based on the SCL file (HYTT-3255)
- I/O interface | OPAL-RT Board : Added support for time-averaged digital inputs (DRV-3244)
- I/O interface | OPAL-RT Board : Added support for PWM-synchronized analog inputs (DRV-3243)

## HYPERSIM RELEASE NOTES

- I/O interface | OPAL-RT Board : Added support for .opbin bitstream configuration file extension (DRV-3270)
- I/O interface | OPAL-RT Board : Improved browsing of .opal/.bin/.opbin files (DRV-3294)
- I/O interface | OPAL-RT Board : Fixed random voltage output on unused analog output channels (DRVTT-1046)
- I/O interface | OPAL-RT Board : Fixed disregarded 'Initial phase' value when 'Output complementary' is checked on digital outputs (DRVTT-940)

### **Version 2019.3.0**

- Fixed need for administrative rights to launch the HYPERSIM installer (HYTT-3163)
- Fixed issue when importing an EDD file twice in the same design (HYTT-3133)
- Fixed issue with Squirrel Cage Induction Machine when connected directly to a converter (HYTT-3069)
- Fixed Map Tasks and Task Manager interchanged in the ribbon (HYTT-3148)
- Fixed displayed angle unit to degree in load flow input data report (HYTT-3193)
- Fixed Data Logger live acquisitions where the Play and Stop buttons were simultaneously enabled (HYTT-2742)
- Added support for MATLAB R2019a and R2019b
- Added diagnostic panel in Target Manager to help fix target setup issues (HYTT-3043)
- Added GUI to edit UCM files (HY-2143)
- Added editable timeout in Simulation Settings/Advanced to manage simulation initialization and stopping sequences (HY-2158)
- Added capability to export data to CSV format in ScopeView
- Improved workflow using snapshots (HYTT-3086)
- Example Model | How To : Added example model for Load Flow (HYTT-2891)
- Example Model | Cyber-Physical : Added Cyber Security example model (HYTT-2994)
- Component Library | Added 6-Phases FD line model (HYTT-2891)
- Component Library | Added pin to access the auto-transformer tertiary for external impedance (HYTT-2908)
- Component Library | Switching Function: Added Boost converter (HYTT-2127)
- Component Library | Switching Function: Added 2-Level converter and its PWM average generator (HYTT-2127)
- Component Library | Switching Function: Added 3-Level converter and its PWM average generator (HYTT-2127)
- Component Library | Switching Function: Added Full-bridge converter and its PWM average generator (HYTT-2127)
- Component Library | Switching Device: Added 2-Level converter and its PWM generator (HYTT-2127)
- Component Library | Switching Device: Added 3-Level converter and its PWM generator (HYTT-2127)
- Component Library | Switching Device: Added Full-bridge converter and its PWM generator (HYTT-2127)
  
- I/O interface | TCP UDP: Added support for OPAL-RT Linux 64-bit (DRV-3106)
- I/O interface | TCP UDP: Added support for configuration via GUI (DRV-3106)
- I/O interface | IEC 61850: improved ICD file parsing when element names are duplicated (DRVTT-891)
- I/O interface | IEC 61850: Fixed validation of uniqueness of GOOSE messages done using the MAC address in combination with the AppID (DRVTT-942)
- FPGA-based simulation | Added induction machine component
- FPGA-based simulation | Added PMSM VDP machine component
- FPGA-based simulation | Improved bitstream selection workflow
- Communication Network Simulation | Improved installation workflow by automating the configuration of virtual interfaces upon installing HYPERSIM (HY-2155)

## **Version 2019.2.0**

- Added PSS®E import capability (HY-2130)
- Added capability for communication network modeling and cyber-physical simulation using EXata CPS (HYTT-2966)
- Added new documentation server to replace PDF documentation (HY-2125)
- Added protection relay function 67 to the Control Protection Relays library (HY-2141)
- Added inverse time overcurrent functionality to protection relay 50/51 (HY-2141)
- Added DEGOV1 model in Control Governors library (HY-2142)
- Added Preferences menu in the ribbon to set an extra timeout for simulation initialization (HYTT-3046)
- Added validation to prevent assigning two different signals on the same output (HY-2004)
- Improved licensing experience by validating the end of support date instead of the version number (HYTT-2899)
- Improved Locate selection quick link in the Netlist when working with large models to zoom in on the component
- Improved error message when starting the simulation and the CP 2-ph line has wrong parameters (HYTT-2858)
- Improved user experience when navigating across data recording files in ScopeView (HYTT-2885)
- Improved license request workflow (HYTT-3036)
- Improved data logger example model (HYTT-2734)
- Fixed line impedance displayed unit that should have been pu/km for CP and PI lines (HY-2119)
- Fixed filtering on Category in the Sensor form (HYTT-2746)
- Fixed index display for large numbers in Sensor form (HY-2074)
- Removed unused STATE21 signals from LCC and thyristors Sensor form (HYTT-2811)
- I/O interface | Modbus Master: Added support for CentOS 64-bit
- I/O interface | Modbus Master: Added support for configuration via GUI
- I/O interface | Modbus Master: Added support for floating 32-bit registers
- I/O interface | Modbus Slave: Added support for CentOS 64-bit
- I/O interface | Modbus Slave: Added support for configuration via GUI
- I/O interface | Modbus Slave: Added support for floating 32-bit registers
- I/O interface | OPAL-RT Boards: Added support for automatic firmware validation and flashing upon starting the simulation
- FPGA-based simulation | Added support for eHSx64 solver
- FPGA-based simulation | Added support for PMSM VDQ machine
- FPGA-based simulation | Added support for AC, DC and sine wave sources
- FPGA-based simulation | Added firmware selection menu
- FPGA-based simulation | Added various features to improve user experience
- Communication Network Simulation | OPAL-RT partnered with Scalable Network Technologies to provide HYPERSIM users with the capability for communication network modeling and cyber-physical simulation on the same hardware, offering a complete real-time cyber-physical solution for the development, testing, and assessment of electrical grids with communication networks. A detailed library of cyber-attacks and cyber-defenses is also available

## **Version 2019.1.1**

- Added new Renewable Energy example models for PVGS, FCGS, BESS and CHP
- Added an option in the ribbon to export the design in EDD format
- Added support for I/O factor with new UI-based I/O system in the sensor view
- Fixed issue with .pun file not loading in the DC line model (HYTT-2767)



## **Version 2019.1**

- Added support for MATLAB R2018a and R2018b (HYTT-2714)
  - Added data logger capability to start and stop recording while the simulation is running
  - Added dynamic file management capability to the data logger
  - Added load flow support to UCM (HYTT-2831)
  - Added autotransformer model (HY-2106)
  - Added transceiver models for voltage and current signals (HYTT-2722)
  - Added point of current measurement in thyristor model (HY-2020)
  - Improved default performance factor value to 20 (HYTT-2700)
  - Improved workflow of the content editor with an expression analyzer (HY-1754)
  - Improved workflow with snapshot by providing it directly in the main HYPERSIM ribbon (HY-1474)
  - Improved workflow and fixed various issues with the Target Manager
  - Fixed Advanced target settings that were not applied before simulation or saved with the model (HYTT-2632)
  - Fixed missing iteration parameter in "3-winding, w/ sat + tap + dec" transformer
  - Fixed API function setSensorDataPoint() (HYTT-2725)
  - Fixed PT block error when using it as a network element mode (HYTT-2692)
  - Fixed transformers not displayed in Base Voltage view of the netlist if neutral pin is visible (HYTT-2733)
  - Fixed gcc compilation command not working (HYTT-2830)
  - Fixed issue with 1-phase wideband line model (HYTT-2727)
  - Fixed default value for the task mapping performance factor being too low (HYTT-2700)
  - Fixed issue with driver configuration update progress bar persisting after the update is completed (HYTT-2652)
  - Fixed various issues with non-persisting preferences (HYTT-2632, HYTT-1701, HYTT-2632, HYTT-2614)
- 
- Fixed issue with lost data when changing the number of points on a saturation curve (HYTT-2581)
  - Fixed wideband fitter failing to generate data (HYTT-2720)
  - Fixed issue with simulation preferences being saved on Apply instead of with the model (HYTT-2709)
  - Fixed R-L coupled wrong pin type that should be 3-phase only (HYTT-2664)
  - Fixed network issue that could cause a time out during code generation (HYTT-2653)
  - Fixed 1-phase to 3-phase connection type change not taken into account at the next Analyze (HY-1920)
  - Fixed issue with UCM that could introduce a step delay in electrical component calculations
  - UI: Added capability to draw diagonal signal lines
  - UI: Added capability to connect a bundle input to multiple outputs (HYTT-2202)
  - UI: Fixed various bundle and breakout connection issues
  - UI: Fixed Advanced Find window not hiding and re-showing correctly
  - UI: Fixed various issues in Edit Symbol mode
  - UI: Fixed various issues in Library Maintenance
  - UI: Fixed rename issue after copy/paste action
  - UI: Fixed issues with Observables on subcircuits (HYTT-2803)
  - UI: Fixed Parts Library disappearing when floated
  - I/O interface | C37.118 Master: Added mismatch connection point if the master has more data configured than the slave (DRVTT-730)
  - I/O interface | C37.118 Master: Improved data mapping using names instead of configured order (DRVTT-730)
  - I/O interface | DNP3 Master: Added option to execute the driver on a dedicated core (DRV-2888)
  - I/O interface | DNP3 Slave: Added option to execute the driver on a dedicated core (DRV-2888)
  - I/O interface | IEC61850: Fixed GOOSE messages corruption when daName refers directly to a basic data attribute (DRVTT-734)
  - I/O interface | IEC61850: Fixed cVal.mag.f data attribute parsing (DRVTT-2949)

- I/O interface | Modbus Slave: Added option to configure the initial values (DRV-2859)
- I/O interface | OPAL-RT Boards: Added Multi-System Expansion link (MuSE) support (IOSFP-208)
- I/O interface | OPAL-RT Boards: Added OP5143 support (DRV-2595)
- I/O interface | OPC-UA Server: Added support for CentOS 64-bit (DRV-2456)

### **Version 6.2.2.o888**

- Added license migration tools for OS license (HYTT-2629)
- Added Network Switches and Converters - DC circuit breaker (HY-1926)
- Improved protection example model Distance 21 POTT usability (HYTT-2498)
- Improved load flow report to provide an internal voltage value that considers Xd and Xq (HYTT-2773)
- Fixed Network Machines - Synch. machine (dq0-hydraulic) form: Isat and phiSat are now automatically updated (HYTT-2629)
- I/O interface | DNP3 Slave: Added example model (DRV-404)
- I/O interface | DNP3 Master: Added example model (DRV-404)
- I/O interface | Triphase: Added example model (DRV-269)
- I/O interface | C37.118 Slave: Added feature to round-up the timestamp to the nearer microsecond
- I/O interface | Synchronization: Fixed advanced parameters when synchronized by IRIG-B or 1PPS (DRVTT-555)
- I/O interface | IEC61850: Fixed ICD parser for multiple IEDs per file (DRV-2672)
- I/O interface | DNP3 Slave: Fixed the retrieval of the analog/binary event modes (DRVTT-491)

### **Version 6.2.1.o866**

- Added FPGA-based simulation capability
- Added cloud simulation capability
- Added support for a faster and more automated mean to connect to and synchronize remote I/O over fiber optics
- Added mean to monitor signal values in the schematics while the simulation is running (HY-516)
- Added several new demos in Transmission and Distribution, How To and Benchmarks (HY-453)
- Added OS license check on linux targets (HY-2028)
- Fixed "State-space" form issue with initial conditions (HYTT-1830)
- Improved default repository used in file browsers in several cases (HY-1629)

### **Version 6.2.0.o835**

- Added count of each and all components in the Netlist view (HY-1927)
- Added possibility to export the Netlist view to an Excel file (HY-1725)
- Added capability for the task mapper to take into account the I/O overhead time for interfaces configured with the I/O interfaces configuration tool (HY-1876)
- Added capability to edit the base voltage of all buses in a level at once via the Netlist view
- Added HYPERSIM program size on disk in Windows "Programs and Features" panel (HY-1832)
- Added text labels to clarify how to proceed after working in the I/O interfaces configuration tool (HY-1855, HY-1896)

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- Added help file link for each I/O interface in the I/O interfaces configuration tool (HY-1932)
- Added support for Group Unit System and Prefix Multiplier on matrices in forms (HYTT-2034)
- Added backup file creation of the TableOut Excel file in TestView before overwriting it (HYTT-2171)
- Added colors on data point names in the sensors view to distinguish inputs and outputs (HY-1887)
- Added mean to manually initialize voltage and current values in Network RLC components (HY-1755)
- Added warning message on external control of LCC models to specify that misfiring can't be used in this mode (HYTT-2045)
- Added a diagnostic on Windows 10 to validate if the Samba v1 client is installed (HYTT-2122)
- Added X and pin buttons to manage bottom/top tables in the I/O interfaces configuration tool (HY-1909)
- Added new components "GTO + Diode" and "Thyristor + Diode" to standard library (HY-1778, HY-1907)
- Added Generation example models (HY-1934)
- Added Transmission and Distribution example models (HY-1934)
- Added Wideband line/cable fitter component in Network Lines and Cables library (HYTT-2201)
- Added content comparison with previous license file before installing new target license (HY-1579)
- Added Z-based transformers current sensors for secondary and tertiary (HYTT-2402)
- Added new components "4-winding, 1-ph", "4-winding, 1-ph w/ sat" and "4-winding, 1-ph, w/ sat" to standard library (HY-453)
- Improved generic performance and usability of the I/O interfaces configuration tool (HY-1938, HY-1943, HY-1948)
- Improved license information displayed by the simulation server (HYTT-1975)
- Improved line parameters validation when comparing double values in HyperView Line tool (HYTT-966)
- Improved software stability when changing network interface or IP address, e.g. when changing from cable to WiFi or changing WiFi location (HY-1669, HY-1688, HY-1898, HY-822)
- Fixed component categories in ScopeView and the Netlist view to match the standard libraries (HY-1792)
- Fixed issue where an OPREC file opened in two different ways was treated by ScopeView as two different sources (HYTT-2198)
- Fixed TestView Hide and OK buttons in the scope window while processing (HYTT-2170)
- Fixed data logger incorrect use of the calculation step and execution time step (HY-1893)
- Fixed simulation crash when using Continuous acquisition in ScopeView (HYTT-2172)
- Fixed diode, GTO, thyristor and thyristor back-to-back forms and pins (HY-1913)
- Fixed issue in the I/O interfaces configuration tool where certain table entries were being hidden (HYTT-2291)
- Fixed wrong pin type and location in "LCC inverter oriented (avg)" (HYTT-2449)
- Fixed missing mode 3 and 4 default values in "Constant param, 4-ph" line (HYTT-2451)
- Fixed Z-based transformers current issues when using Y-ground with user-defined impedance or Y-neutral (HYTT-2462)
- Removed recordCount parameter from Datalogger interface (HYTT-2435)
- Removed "Bus to ABC" from parts library (HY-1927)
- Refactored the I/O interfaces configuration tool for better functionality
- Refactored the Netlist view for better functionality
- Refactored the Targets Manager for better functionality
- I/O interface | ABB PS935: Increased the number of analog inputs and outputs from 128 to 256 (HYTT-2374)
- I/O interface | C37.118 Master: Added support for CentOS 64-bit
- I/O interface | C37.118 Master: Broke backward compatibility with configuration via files, the I/O interfaces configuration tool must be used instead
- I/O interface | C37.118 Slave: Added support for CentOS 64-bit
- I/O interface | DNP3 Master: Added support for CentOS 64-bit
- I/O interface | DNP3 Slave: Added support for CentOS 64-bit
- I/O interface | OPAL-RT Board: Added support for configuration via GUI (HYTT-2302)
- I/O interface | Signal Generator: Added support for configuration via GUI
- I/O interface | Triphase: Added support for configuration via GUI (HYTT-2302)

### **Version 6.1.3.o698**

- Added warning message on enabling the precision valve in switches and controllers (HYTT-2022)
- Added Control Exciters: IEEE DC2A, IEEE DC3A, IEEE ST2A; Control Governors: IEEE TGOV2; Control Stabilizers: IEEE PSS2B, IEEE PSS3B to standard libraries (HY-1863)
- Added real-time simulation mode to the Windows platform (HY-1815)
- Added Benchmarks example models (HYTT-1981)
- Added capability to configure the IP address used by the engine when using the continuous acquisition mode in ScopeView (HY-1799)
- Fixed ScopeView data source not appearing when ScopeView is started at the same time as the simulation (HY-1386)
- Fixed issue with the data logger when checking for remaining disk space on large partitions (HYTT-2104)
- Fixed wrong example model default code directory (HYTT-2111)
- Fixed Posx.x% signals from Network Transformers "3-winding w/ sat + tap + dec" unavailable in ScopeView (HYTT-1763)
- Fixed segfault of HyServer when incorrect parameter is set in hyServMain.cfg (HYTT-2019)
- Fixed Time constant filter inversion of parameters (vd\_tf2 and id\_tf1) for Network Switches LCC devices (HYTT-1922)
- Fixed code generation on target for Protection Relays and Machine Controls (HYTT-2169)
- Increased limits on Vmin value in Network Loads "Dynamic load" (HYTT-2044)

### **Version 6.1.2.672**

- Added a preference to disable transceiver validation during Analyze (HYTT-1940)
- Added support for MATLAB R2017b (HY-1817)
- Added continuous acquisition mode support in real-time (HY-1380)
- Added capability to run wideband line code in 2 tasks to reduce delay (previously only 3 tasks where possible) (HYTT-1810)
- Added ability to view the figures in the load flow solution report with 3, 6 or 9 decimal places (HY-1786)
- Added current magnitude and angle for sources and loads to the load flow solution report (HY-1819)
- Added capability to set a negative inductance value in transformers (HYTT-1974)
- Improved user interface in load flow window, including presentation of results in the text area (HY-741, HY-1821, HY-1822, HY-1823)
- Improved timeout problem with a large number of I/O boards (HYTT-1913, HYTT-1969)
- Improved ScopeView API example (HYTT-1675)
- Improved Hyperlink documentation for data type error in code generation and support of tunable variables (HY-1606, HYTT-1221)
- Fixed missing file errors that can appear during compilation by upgrading msys to msys2 (HYTT-1803, HYTT-491)
- Fixed Analyze issue with large circuits
- Fixed timeout issue with load flow
- Fixed inaccurate results when adding I/O Output sensors to electrical elements (HYTT-1805)
- Fixed issues when reading file paths with characters that are not in the default character set (HY-1827)
- Fixed I/O interfaces configuration tool issues when a path contains a special character (e.g. with accent) (HY-1827)
- Fixed issue with automatic transceiver and "Synch. machine (thermal)" (HYTT-1927)
- Fixed engine crash when there is an empty subcircuit in ECF (HYTT-1872)
- Fixed Tasks Manager error when doing a manual mapping with I/O (HYTT-1860)

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- Fixed issue with data logging signals on subcircuits (HYTT-1798)
- Fixed issue with ScopeView when opening an OPREC file more than once (HYTT-1798)
- Fixed issue with data logging when model name contains a dot (HYTT-1706)
- Fixed data logging file length when trigger's "Record count" is set to 0 (HYTT-1649)
- Fixed drivers end of asynchronous process when license is invalid (HYTT-1537)
- Fixed voltage and current sources frequency value when selecting PU option (HYTT-1832)
- Fixed data logging time step issue when using multiple signal groups (HYTT-1909)
- Fixed engine crash when entering a wrong IP address in networkConfig.opal (HYTT-1995)
- Fixed masks that were higher than 768 pixels for lower resolution laptops (HYTT-1991)
- Fixed EDD import error for the following transformers: "Zigzag, phase-shifting", "3-winding, 1-ph w/sat", "2-winding, 1-ph w/sat" (HYTT-1982)
- Fixed output signals not equals to 0 on DA port when there's no signal connected from model. (HY-1837)
  
- Fixed protection relay "81 - Frequency" code generation issue on real-time architecture (HYTT-2014)
- Fixed "Wideband line/cable" loss of engine connection when loading a new .dat file (HYTT-1857)
- Fixed "Wideband line/cable" issue with short lines running on 2 tasks (HYTT-1996)
- Decreased simulation process priority when executing on windows target to free some core processing for other processes (HYTT-1885)
- I/O interface | C37.118 Master: Added support for configuration via GUI (DRV-2108, HYTT-1926)
- I/O interface | C37.118 Master: Added example model (DRV-2237)
- I/O interface | C37.118 Slave: Added example model (DRV-2237)
- I/O interface | IEC 60870-5-104 Slave: Added example model (DRV-2237)
- I/O interface | IEC 60870-5-104 Slave: Fixed issue preventing connection of a breaker status directly to a single point output (DRVTT-226)
- I/O interface | IEC 61850: Added example model (DRV-2237)
- I/O interface | Synchronization: Added example model (DRV-2237)
- I/O interface | Synchronization: Added support for CentOS 64-bit (DRV-2188)

### **Version 6.1.1.647**

- Added a button in ScopeView to show/hide the data source parameters panel and added minor UI enhancements (HYTT-1731)
- Added possibility to add and edit expressions on combobox and radiobutton widgets in forms (HYTT-1820)
- Added a new and more efficient task mapper, configurable through the Tasks Manager (HY-1718)
- Added button in the Windows activation tool to delete a license backup file (HY-1653)
- Added button in Target Options window to restart services on the target (HY-1667)
- Added "With I/O" and "Without I/O" filters in Sensors form and Selected Summary window (HYTT-1623)
- Added option to enable/disable automatic transceiver insertion in Simulation Options (HY-1724)
- Added Control Exciters: IEEE ST1A, IEEE AC1A, IEEE AC2A, IEEE AC3A and IEEE AC8B; Control Stabilizers: IEEE PSS1A; Control Governors: IEEE TGOV1 to standard libraries (HY-1387)
- Added a data logging example model (HY-1723)
- Improved ScopeView documentation to include OPREC data logging file (HY-1680)
- Improved checkbox automatic behavior in Sensors form when using the data logger (HYTT-1597)
- Improved Sensors form by hiding nonassignable I/O interfaces depending on the signal type (input/output) and adding colors in column "Type" (HYTT-1600)
- Improved precision of time length and start time when reading OPREC files in ScopeView (HYTT-1543)
- Improved license request form by automating machine information generation and adding fields (HY-1653)
- Improved HyWorksApi and ScopeViewApi docstrings and documentation (HYTT-1663, HYTT-1665)
- Improved Python API error messages when using a wrong Python version (HY-1739)
- Improved Python API by adding an exception on HyWorksApi.getComponentParameter if the component

- or parameter does not exist (HYTT-1673)
- Fixed issue with time step values not properly rounded when generating Hyperlink code for multiple time steps (HYTT-1699)
- Fixed issue when replacing an OPREC data source in ScopeView (HYTT-1586)
- Fixed subcircuit mask corruption adding unwanted carriage returns (HYTT-1745)
- Fixed issue whereby it was possible to set multiple trigger signals in the same signal group via opening separate windows per device (HYTT-1658)
- Fixed "2-winding, series/series" transformer's net\_4 pin not connected to the internal model (HYTT-1761)
  
- Fixed "H(s) w/ dynamic limit" device form that was not displayed anymore (HYTT-1782)
- Fixed "Double value expected" error when there's a new line in HyModelData array parameter (HYTT-1807)
- Fixed Hyperlink support for MATLAB R2013b to R2015a (HYTT-1708)
- Fixed subcircuit units not being correctly saved (HYTT-1679)
- Fixed basic example of Python API test\_Windows\_Api.py (HYTT-1671)
- Fixed data logger issue whereby some sensors were not being recorded because their signal group was not set to the default group (HYTT-1770)
- Removed Control Logic Operations - Buffer, logic from the library (HYTT-1726)
- I/O interface | C37.118 Master: Added option to run the driver on a dedicated core (DRV-2105)
- I/O interface | C37.118 Master: Added support for real-time simulation on Windows (DRV-2114)
- I/O interface | C37.118 Master: Fixed timeout when stopping the simulation (DRV-2172)
- I/O interface | C37.118 Slave: Added support for real-time simulation on Windows (DRV-2114)
- I/O interface | C37.118 Slave: Fixed issue with 50 Hz nominal frequency being overridden with 60 Hz (DRVTT-206)
- I/O interface | C37.118 Slave: Fixed binding with a specific network interface (DRV-2154)
- I/O interface | C37.118 Slave: Fixed use of loopback and wlan network interfaces (DRV-2158)
- I/O interface | IEC 60870-5-104 Slave: Added support for configuration via GUI (DRV-2094)
- I/O interface | IEC 60870-5-104 Slave: Fixed data update when no RMS values were configured on floating inputs (DRVTT-213)
- I/O interface | IEC 61850: Added support for real-time simulation on Windows (DRV-2128)
- I/O interface | IEC 61850: Added option to retrieve both simulation flag and test bit (DRV-2129)
- I/O interface | IEC 61850: Added option to enable all Sampled Values and GOOSE transmission/reception by default at the beginning of the simulation (DRV-2129)
- I/O interface | IEC 61850: Added support for fixed-length encoding of GOOSE messages as per IEC 61850-8-1 Ed.2 A.3 (DRV-2129)

### **Version 6.1.0.619**

- Fixed subcircuit mask corruption (HYTT-1672)
- Fixed many problems in the Sensors form causing loss of configuration (HYTT-1681, HYTT-1683, HYTT-1684)
- Fixed Hyperlink issue preventing code generation with MATLAB R2015a (HYTT-1666)
- Fixed some issues linked to the device rename functionality (HYTT-1692)
- Fixed LLC-12pulse form which was not displaying Input sensors for the Firing parameter (HYTT-1692)

### **Version 6.1.0.613**

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- Added functionality to keep device sensors upon renaming a device (HY-1702)
- Added driver core protection to avoid multiple reservations of the same core upon simulation start
- Added new driver license mechanism based on total number of data points used by all drivers
- Fixed CustomView grid construction adding unnecessary spaces at the bottom that might be noticeable depending on the number of columns (HYTT-1645)
- I/O interface | C37.118 Master: Added support for configuration via GUI
- I/O interface | C37.118 Slave: Added support for RTA simulation mode in Windows
- I/O interface | C37.118 Slave: Added timestamp initialization to system time when using local synchronization source
- I/O interface | IEC 61850: Added support for CentOS 64-bit
- I/O interface | IEC 61850: Added support for configuration via GUI
- I/O interface | IEC 61850: Added support for simulation bit
- I/O interface | IEC 61850: Fixed order of data attributes in GOOSE messages
- I/O interface | IEC 61850: Improved timing precision when transmission is synchronized by Oregon card
  
- I/O interface | Synchronization: Added support for configuration via GUI
- I/O interface | Synchronization: Added support of new profiles in PTP mode

### **Version 6.1.0.607**

- Added Ok/Apply/Cancel buttons and removed Save/Exit menu items in I/O interfaces configuration tool (HYTT-1590)
- Added capability to remember window size in sensor view and set Data Logger as the default view (HY-1705)
- Added new license version. A new license file is required with version 6.1
- Improved I/O interfaces configuration tool Exit functionality with respect to asking user whether to save changes (HY-1648)
- Improved tooltips in Network Sources library (HYTT-1311)
- Improved transformers form by disabling accelerator option in Neutral impedance tab (HYTT-1542)
- Removed controlled view option (HYTT-1609)
- Fixed issue occurring in Selected Summary window after a data point is renamed (HYTT-1520)
- I/O interface | IEC 61850: Added support for configuration through the I/O interfaces configuration tool
- I/O interface | IEC 62056 master: Fixed documentation (HYTT-1477)

### **Version 6.1.0.602**

- Added I/O mode validation, no need to set the I/O sequencing (sendMode) for OPAL-RT Boards anymore (HY-1694)
- Added MegaBytes to the available data logger file size limits (HY-1686)
- Added validation of the remaining disk space before writing the data logging file (HY-1686)
- Added new protection relay library with functions 21, 27, 40Q, 50/51, 59, 81 and 87T (HY-1252)
- Added view filters and ability to remember customized view in Sensors form and Selected Summary window (HY-1705)
- Added Global Configuration dialog box in I/O interfaces configuration tool to set the I/O sequencing (sendMode) as well as other options (HY-1697)
- Fixed host and target version check bypassed by the API (HYTT-1467)
- Fixed start/stop button greyed out incorrectly when setting a preference using the API (HYTT-1512)
- Fixed importing an example model not overwriting the entire example folder when it already exists

(HYTT-1510)

- Fixed issue with multiple definitions of S-function with Hyperlink generated code (HYTT-1487)
- Fixed failed analysis with models having large attributes in subcircuits (HYTT-1519)
- I/O interface | IEC 61850: Added capability to manipulate the data integrity (loss of data, duplication, delay and more) of Sampled Values streams (HY-1622)
- I/O interface | IEC 61850: Added "IEC 61850 data integrity" component to Control Power Tools library (HY-1622)

## **Version 6.1.0.591**

- Added external control capability on "Dynamic load" (HY-1593)
- Added "3-winding, 1-ph" to Network Transformers library (HY-1396)
- Added "3-winding, 1-ph w/tap" and "2-winding, 1-ph w/tap" to Network Transformers library (HY-1462)
- Added engine log file for each circuit (HY-1685)
- Added validation of the remaining disk space before starting the simulation (HYTT-1497)
- Added ability to open data logging record files (OPREC files) in ScopeView directly from Windows (HY-1691)
- Added a Data Source Parameters panel to ScopeView for OPREC files, allowing for navigation through the record (HY-1561)
- Added ability to open OPREC files in ScopeView's file chooser and removed Data Logger tab (HYTT-1486)
- Added default prefix unit "mega" for PQ mode in parameters form (HYTT-1298)
- Improved transformers tooltips (HYTT-1464)
- Fixed inverted pins for secondary and tertiary on "Zigzag, phase-shifting" transformer (HYTT-1480)
- Fixed Windows language issue with TestView (HYTT-1394)
- Fixed issue with version switching on the simulator using the API (HYTT-1443)
- Removed "PQ" group unit in "Decoupling element" form (HYTT-1343)

## **Version 6.1.0.574**

- Added the possibility to optimize the mapping of the tasks manually (HY-1589)
- Added validation of the license integrity before installation on Windows (HY-1576)
- Fixed equation's result in form that would revert to former value when the simulation starts (HYTT-1360)
- Fixed execution process (Analyze/ Map Tasks/ Generate Code) that is repeated even when there's no modification to the circuit (HYTT-1342)
- Fixed simulation infinite loop when using a Hyperlink model in fixed time step that is less than the simulation time step (HYTT-1249)
- Fixed short CP line issue when automatically converting to PI line (HYTT-1390)
- Fixed error when trying to add a CustomView to a subcircuit and View directory is not created (HYTT-1007)
- Fixed ScopeView template sensor assignment for configuration 11 (HYTT-1340)
- Removed UCM unit limitation; it is now possible to enter any custom unit (HY-1590)
- I/O interface | IEC 60870-5-104 Slave: Improved performance (HYTT-1407)



## **Version 6.1.0.557**

- Added I/O interfaces configuration tool and updated Sensors form (HY-1538, HY-1539, HY-1562, HY-1568)
- Added UI to configure the target analog and digital I/O [OPAL-RT Boards] (HY-1571)
- Added Data Logger in Sensors form (HY-1532)
- Added DesignWorks API functions to Python API (HY-1491)
- Added support for reloading FPGA configuration at simulation startup (HY-1412)
- Added State-space example models for single-phase and three-phase systems (HY-1270)
- Added distance relay (21) permissive overreach transfer trip (POTT) TestView example model (HY-1343)
  
- Added support for MATLAB R2016b and R2017a
- Added licensing on number of nodes (HY-906)
- Added a warning when the selected target does not have a valid license (HYTT-1000)
- Added option to display license content in Windows activation tool (HY-852)
- Added warning at 15 days of license end on Windows (HY-1016)
- Added tool to compare license content when updating a license on Windows (HY-1578)
- Added option to recover a backed-up license file on Windows (HY-1580)
- Improved OP4510 standard bitstream (HY-1404)
- Improved UCM documentation: added available global variables (HY-1427)
- Improved ScopeView documentation with more details on the various functions (HY-215)
- Fixed hydraulic turbine diagram and location of Turb\_mod parameter in "Synch. machine (hydraulic)" form (HYTT-1264, HYTT-1283)
- Fixed acquisition for time step greater than 1 millisecond (HYTT-1066)
- Fixed "Dynamic Load" lower limit on Kq parameter (HYTT-1243)
- Fixed Hyperlink multiple time step code generation when there is a space character in the path (HYTT-1247)
- Fixed EDD importation tool: manual path input works without pressing Enter key and documentation is updated (HYTT-1230)
- Fixed EDD importation bug when folder name contains "EDD" (HYTT-1281)
- Fixed TestView hypExcel: Auto Import Data on Play not working (HYTT-1280)
- Fixed units and default values in Network Sources "AC I source, programmable" and "AC V source, programmable" (HYTT-1186)
- Fixed disappearing observable with "Circuit breaker, 1-ph" and 3-ph when analyzing network (HYTT-1299)
- Fixed "Dynamic load" equations displayed in the form (HYTT-1303)
- Fixed issue with Simulink multiple time step code generation (HYTT-1327)
- Fixed issue when taking large snapshots (HYTT-1148)

## **Version 6.0.13**

- Added support for signed integer data for I/O sensors (HYTT-1145)
- Added handshake between simulation server and thread to improve behavior at simulation stop (HY-1397)
- Added Reset console button to View tab of the ribbon for the user to reopen or clear the model consoles (HY-1089)
- Improved topology analysis report (HY-1194, HYTT-1199)
- Improved firewall checkbox behavior in the installer (HY-1432)
- Improved "Target output, digital 4" form (HYTT-1013)
- Improved API documentation (HYTT-1092)
- Improved "Synch. machine (thermal)" speed regulator diagram in the form (HYTT-1216)

- Improved "Decoupling element" form usability (HYTT-1213)
- Fixed issues with multiple time step code generation in Hyperlink (HYTT-1122)
- Fixed engine crash when the current source frequency is set to zero (HYTT-999)
- Fixed protection on the analysis of an imported MATLAB multiple time step model with a wrong time step (HYTT-1128)
- Fixed EDD importation when unit contains a space character (HYTT-1185)
- Removed device "Decoupling transformer" from library (HYTT-1225)
- I/O interface | IEC 60870-5-104 Slave: Fixed random disconnection of TCP communication

## **Version 6.0.12**

- Add OP4510 to standard bitstreams - Traditional I/O (DO, DI, Single TSDO, Single TSDI)(HY-1404)
- Added support for bundle to bundle and pin to bundle connections to the Python API (HYTT-1046)
- Added support for auto-expanding subcircuit pages when importing an EDD (HY-1420)
- Added loadSensors function to Python API (HYTT-1010)
- Added support for resetting performance monitoring with the Python API (HYTT-1016)
- Added support for excluded devices when importing an EDD (HY-1428)
- Added new probes in the SIMOUT log to monitor simulation initialization and deinitialization timings (HY-1391)
- Added support for gcc compiler on Red Hat 32-bit (HY-1406)
- Added preference to enable and disable automatic insertion of Transceiver, ItoF and FtoI block; disabled by default (HY-1364)
- Added console windows to display simulation log (.SIMOUT file) (HY-1142)
- Improved forms for transformers with tap changer and decoupling element (HYTT-542, HYTT-1036)
- Improved form for 3-ph bus and 1-ph bus (HY-1188)
- Fixed Hyperlink multiple time step generation with MATLAB R2014b (HYTT-1054)
- Fixed parallel code generation producing a compilation error (HYTT-1083)
- Fixed issue with Runners monitoring never resetting (HY-1392)
- Fixed issue with switch version function on OPAL-RT kernel modules (HYTT-1008)
- Fixed cable/line data JavaScript error (HYTT-1028)
- Fixed ribbon that could stay disabled after modifying the design (HYTT-850, HYTT-946)
- Fixed acquisition error when simulation has a large time step (HYTT-997)
- Fixed wrong text in Target output analog form (HYTT-1014)

## **Version 6.0.11**

- Added neutral pin on saturable transformers "2-winding, w/ sat", "3-winding, w/sat", "3-winding, int tertiary w/sat" (HY-1362)
- Added support for variable size parameter arrays when importing an EDD (HY-1163)
- Added function to python API to edit sensor unit and gain (HYTT-928)
- Added support for bundle port connector when importing an EDD (HYTT-986)
- Added support for multithreaded code generation (HY-1371)
- Added support for observables when importing an EDD (HY-1384)
- Added support for bus observables when importing an EDD (HYTT-990, HY-1389)
- Added option to only update parameter values from an EDD instead of importing the network (HY-1410)
- Added support for unknown devices when importing an EDD by replacing them with a dummy device to keep connections (HY-1415)
- Added support for UCM when importing an EDD (HY-1416)

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- Added support for ScopeView in the Python API
- Fixed "machine\_id not found" when displaying license info (HYTT-974)
- Fixed connections not being displayed when moving a block with a bundle connected to observables (HYTT-970)
- Fixed various issues with EDD importation (HY-871, HY-873, HYTT-984, HY-1389)
- Fixed engine crash if invalid path in network device "State-space" (HYTT-950)
- Fixed code generation error with Hyperlink multiple time steps (HYTT-942)
- Fixed syspart activation / deactivation on Red Hat 32-bit targets to avoid freezing. This fix disables parallel compilation on Red Hat targets (HYTT-882)
- Fixed "C code" form (HYTT-954)
- Fixed load flow crash after EDD importation that may appear in some case (isolated network components) (HYTT-908)
- Improved ICD parser tool to generate configuration files from any of SCL, CID or ICD file
- Improved HYPERSIM exit to close all background processes (HY-2312)
- I/O interface | DNP3 Master: Fixed binding of specific Ethernet interface
- I/O interface | DNP3 Master: Fixed core assignment of asynchronous computation
- I/O interface | IEC 61850: Added support for 256 Samples Per Cycle with IEC 61850-9-2LE
- I/O interface | IEC 61869-9: Added support of new I/O interface

### **Version 6.0.10**

- Added support for gcc compiler on CentOS 64-bit (HY-1354)
- Added support for files generated with the Data Logger in ScopeView (HY-1318)
- Added option "balanced/unbalanced" to 3-phase components and set default value to "balanced" for all parameters (HYTT-814)
- Improved transformers' form (HYTT-861)
- Improved feedback when Node Connector is replaced by a resistance in the topology (HY-1111)
- Fixed GOOSE encoding/decoding of types Dbpos, Tcmd and Check
- Fixed SCL parser to handle GOOSE datasets with multiple FCDA with the same object and attribute names
- Fixed issues with C code components imported from EDD (HYTT-831 and HYTT-856)
- Fixed issues with saturation transformers' form (HYTT-815)
- Fixed "AC V source, programmable", "MMC valve (FB cells)", "MMC valve (HB cells)" forms: removed unnecessary parameters (HYTT-815)
- Fixed units for speed and torque in induction machines' form (HYTT-864)
- Fixed loading of .pun line parameter files (HYTT-765)
- Fixed HYPERSIM freeze when saving a UCM to library (HYTT-873)
- Fixed issue with several instances of multiple time step Hyperlink devices in a model (HYTT-880)
- Fixed incorrect Bus nominal voltage value before the first Analyze (HY-1294)
- Fixed issue with the Export Netlist view to Excel file feature (HYTT-888)
- Fixed wideband lines Map Tasks error (HYTT-896)
- Fixed Analyze issue when using "Node connector, 3-ph" and a single-phase signal on the same bus (HYTT-906)
- Fixed Netlist view not opening when there's more than 1 subcircuit level (HYTT-941)
- Fixed EDD importation problem with line "Frequency dependent, 2-ph" (HYTT-938)
- Fixed TestView test sequence crashing when "Start simulation" is not checked (HYTT-927)
- Fixed matrix widget not displaying data correctly (HYTT-937)
- I/O interface | DNP3 Master: Added support of new I/O interface
- I/O interface | IEC-60870-5-104 slave: Added support for CentOS 64-bit
- I/O interface | IEC-60870-5-104 slave: Fixed transmission and reception of non-floating data types

## **Version 6.0.9**

- Added "pu" to supported units in UCM (HYTT-763)
- Added automated setup of environment paths with the Python API (HYTT-742)
- Added access to lfd\_init and Pmec on machine models (HY-1339)
- Improved algebraic loop detection (HYTT-800)
- Fixed issues with subcircuits saved in a library (HYTT-780)
- Fixed data reset to default values at the creation of subcircuit (HYTT-779)
- Fixed issue with missing observables on the Thyristor Switched Capacitor (TSC) and Thyristor Controlled Reactors (TCR) devices (HYTT-1228)
- Fixed uninstaller to close hypersim.exe process (HYTT-755)
- Fixed bundle connections from device to device and from device to breakout (HYTT-751)
- Fixed crash when generating code for very large models (HYTT-773)
- Fixed issue with file selection in Network Lines and Cables - Wideband line/cable (HYTT-759)
- Fixed design that can be opened before HYPERSIM is loaded (HYTT-749)
- Fixed issue with TCR model and acquisition (HYTT-706)
- Fixed activation tool (HYTT-801)
- Fixed issue with load flow options not being updated upon execution (HYTT-758)
- Fixed issues with the Timing tab of the lines "Constant param, 6-ph w/ fault", "PI section, 6-ph w/ fault" and "PI section, 12-ph w/ fault" (HYTT-838)
- Increased the maximum number of OPAL-RT Boards supported on a target from 32 to 64 (HYTT-813)

## **Version 6.0.8**

- Added documentation: How to install HYPERSIM on a target (HY-1219)
- Added support for multiple time step (and multi-rate) Simulink models (HY-1243, HY-1241, HY-1199)
- Added remote offline Real-time Accelerated (RTA) mode for Linux platforms (HY-923)
- Added Controlled simulation by ScopeView in RTA mode (HY-1220)
- Added support for Custom View on subcircuits (HY-1218)
- Added support for basic math functions in subcircuit forms (HYTT-595)
- Added support for ode14x solver to Hyperlink (HYTT-613)
- Added information about design modifications, sensor file name, simulation time step and running simulation status in the model console title (HY-672, HY-671, HY-869)
- Added code directory validation in the Simulation options window (HYTT-677)
- Added HYPERSIM process restart when installing a new license (HYTT-683)
- Added ECF files association with HYPERSIM during installation (HY-869)
- Added single-user mode as default simulation mode (HY-1276)
- Added automatic load data source to the current design when starting ScopeView (HY-929)
- Added export to XLSX capability in Netlist view
- Added installation of .NET Framework with HYPERSIM if missing on the Windows computer (HY-1038)
- Added example model for the Python API in TOOLS (HY-645)
- Improved time to open a model when a target is unavailable (HYTT-685)
- Fixed issues with the sequence order in the TestView Excel and Miscellaneous commands (HYTT-634)
- Fixed issue with the TestView hypBreaker command and PI sections with fault (HY-654)
- Fixed issue with allowed range for tunable value in Hyperlink (HYTT-558)
- Fixed simulation crash when a second user starts another simulation (HY-1231)
- Fixed wideband data file values not loading (HYTT-645)
- Fixed link to user manual documentation in the ribbon and HyperView (HYTT-638)
- Fixed force build generation after cleaning the code generation directory (HYTT-640)

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- Fixed link to user manual in the HYPERSIM ribbon and HyperView (HYTT-638)
- Fixed issue with simulation start after cleaning the code generation directory (HYTT-640)
- Fixed task mapping using only one core in RTA mode for any load level value (HYTT-658)
- Fixed importation of Simulink models with scopes in subcircuits (HYTT-632)
- Fixed issue where a target would freeze with a model running on 2 FPGA (HYTT-644)
- Fixed verbose mode option being shared between different models (HYTT-639)
- Fixed observable bundles not persisting (HYTT-627)
- Fixed missing observables on 1-phase breaker (HYTT-505)
- Fixed backward compatibility on compilation of MATLAB Simulink 2012a models (HYTT-625)
- Fixed issue where two Simulink models would prevent code generation by giving multiple definitions (HYTT-656)
- Fixed comments causing errors in subcircuit parameters form (HYTT-674)
- Fixed unique subcircuit components value reverting to the value of the first subcircuit upon simulation start (HYTT-662)
- Fixed precision issue for Hyperlink multiple time step model (HYTT-708)
- Fixed ScopeView function Crossing\_Time impacting function Clearing\_time (HYTT-710)
- Fixed issue with LoadIn function on VC707 FPGA (HYTT-694)
- Fixed bugs and reorganized categories in Netlist view
- Fixed issue in saturation tab of 2-winding transformers' form (HYTT-709)
- Fixed issue with non-inline S-function in Hyperlink (HYTT-731)
- Fixed clear code directory that cannot be executed when using UCM and simulating on Windows (HYTT-673)
- Removed validation for I/O sensors when running Map Tasks for offline simulation (HY-1105)
- Removed duplicated error messages when updating a UCM when the reference model is missing (HY-619)
- Removed duplicated exit dialog when leaving TestView (HY-1206)
- Removed exit dialog when leaving HyperView (HY-1206)
- Grey out parameters that are not editable while the simulation is running (HY-1251)

### **Version 6.0.7**

- Added an option in TestView to set the logo appearing in the PDF report (HY-124)
- Added a progress bar when importing Excel files in TestView (HY-1115)
- Added automatic Analyze on Load preferences in the TestView Settings (HY-1127)
- Added .prj filter when opening a TestView project (HY-954)
- Added support for XLSM file type in the TestView Excel importation (HY-1168)
- Added file browser in the COMTRADE playback device to replace the path text field (HYTT-597)
- Fixed issue when opening a design too quickly at HYPERSIM startup (HY-618)
- Fixed various issues with target and simulation options GUI
- Fixed issue with bundle automatic connection when importing an EDD (HYTT-590)
- Fixed issue with ping diagnostic for Windows OS other than English (HYTT-567)
- Fixed duplicated error messages in the case of missing POW or EMTP compatibility issues (HYTT-583)
- Fixed issues with firewall exceptions configured by the installer (HYTT-581)
- Fixed issue where a model would log information in another model log (HYTT-572)
- Fixed engine crash if the code directory is invalid (HYTT-611)
- Fixed TestView Windows Settings not being updated correctly in the Simulation Options (HYTT-603)
- Fixed missing group unit in 1-phase circuit breaker (HYTT-614)
- Fixed calculation step that is not set correctly if simulation option GUI is not opened before starting a simulation (HYTT-628)
- Removed interoperability advanced options from TestView (HYTT-570)
- Replaced #DIV/0! by a double maximum value to represent infinity when exporting to Excel (HY-836)
- Accelerated opening of TestView when handling a lot of data (HY-739)

- Accelerated importation of data from Excel (HY-1167)

## **Version 6.0.6**

- Fixed bug preventing Windows hosts not in French or English to compile for real-time (HYTT-601)

## **Version 6.0.5**

- Added a new target management user interface
- Added feedback for the user when running the diagnostic tool (HY-1106)
- Improved the simulation options panel
- Improved example model organization by removing one folder level (HY-927)
- Fixed contextual ribbon greyed out options (HY-1074)
- Fixed the diagnostic creating large files during the installation (HYTT-543)
- Fixed slow acquisition when using a lot of sources with high sampling rate (HYTT-530)
- Fixed Linux-based model importation: on a non-empty model, a new model is created (HYTT-524)
- Fixed tooltip too short duration in TestView (HY-964)
- Fixed target connection issue when the hostname/IP-address combination is not present in /etc/hosts (HY-1056)
- Fixed default simulation option to Real-time when on a target (HYTT-538)
- Fixed many bugs in the TestView connection settings

## **Version 6.0.4**

- Added support for parallel compilation with HYPERSIM Linux on CentOS 64-bit (HY-1048)
- Added parameters forms for all components
- Added support for I/O components in the Linux-based models importation tool (HY-860)
- Added code directory versioning (HY-1042)
- Added Scope support to Hyperlink. Scopes are replaced with a bundle of output signals
- Added a system diagnostic at the end of the installation (HY-913)
- Added more explicit error messages upon simulation crash (HY-1004)
- Added API functions to edit a design (devices, connections, sensors) (HY-1059)
- Added network tests to the diagnostic tool (HY-1076)
- Added tool to make connections between bundles
- Fixed OpalBoard I/O not functional when using only DI/DO without AD/DA
- Fixed Hyperlink to support native SPS S-functions with MATLAB R2016a
- Fixed HYPERSIM template and models to support subcircuits in libraries (HY-829)
- Fixed Zig-zag transformer form's parameter: Voltage phase shift type (HYTT-528)
- Fixed OpalBoard I/O not functional on hardware synchronized slave board (with bitstreams generated with RT-XSG version earlier than 2.3.4)
- Fixed code regeneration not executed upon renaming a bus (HY-684)
- Fixed issues with sensors importation (HY-685)
- Fixed issue when adding a subcircuit to a library (HY-829)
- Fixed issue with port loadIn on CentOS 64-bit (HYTT-500)

## HYPERSIM RELEASE NOTES

- Fixed HyCore automatic start at target startup (HYTT-508)
- Removed Netlist and Load Flow tabs in HyperView (now available in the HYPERSIM ribbon) and fixed broken links (HY-997)

### **Version 6.0.3**

- Added support non-inline S-functions in the Simulink importation tool (HY-996)
- Added support for Windows 10
- Added support for CentOS 64-bit (HY-974)
- Added option for multi-core compilation on CentOS 64-bit (HY-614)
- Added parameters forms for Sources and Transformers
- Added support for MMC configuration: different number of valves per module (HYTT-487)
- Improved license management for first time installation
- Improved speed of "Analyze" with some designs (HYTT-471)
- Improved model compilation time on Windows by removing optimizations for real-time (HYTT-490)
- Fixed error detection when UCM code does not compile (HY-478)
- Fixed UCM importation too slow or failing with big models (HYTT-498)
- Fixed hypersim.exe crashes due to XfoCT and XfoPT components
- Removed obsolete license error messages (HYTT-496)

### **Version 6.0.2**

- Added support for hardware OP4510\_TE0741 (HY-896)
- Added support for variable names for the host license (Windows) (HY-854)
- Added support for variable names for the target license (Linux) (HY-854)
- Added a graphical license activation tool (HY-683)
- Added license validation from the target manager before installing it to the target (HY-972)
- Added license validation at the end of the installation. Activation tool started if no valid license is found on the host (HY-924)
- Added UCM importation and update ability to the Python API (HY-827)
- Added a "Diagnostic" command for targets (HY-907)
- Added validation to avoid modifying the I/O sensor configuration while the simulation is running (HY-471)
- Added check for running instances of HYPERSIM, HyperView, ScopeView or TestView when installing or uninstalling (HY-880)
- Added parameters forms for Filters and RLC
- Improved startup speed (HYTT-841)
- Fixed ALT + double-click to open subcircuit content (HYTT-440)
- Fixed SI/PU conversion for transformers (HYTT-401)
- Fixed several bugs of the Linux-based design importation tool
- Fixed several bugs of the Python API
- Fixed several connection issues when using bundles or page connectors in the graphical interface
- Fixed "Hardware synchronized" mode with OPAL-RT Boards (HYTT-473)
- Fixed sensors which may disappear after "Analyze" (HYTT-472, HYTT-477)
- Merged license files into a unique file for the host and another one for the target
- UI: added check and repair bundle structure on opening file
- UI: added various improvements to bug sniffing and repair for bundles
- UI: added handle rotations of EMF pictures in device symbols
- UI: added reconnection and routing of signals after "Quick create subcircuit"

- UI: added tooltip messages for all built-in ribbon buttons
- UI: added possibility to resize single tab properties dialogs
- UI: fixed storing zoom and pan info in subcircuits
- UI: fixed issues in bundle internal signal handling when copying a circuit
- UI: fixed small issues with menu items such as adding "..." in some cases
- UI: fixed not checking device instance count for full design from top level
- UI: fixed bomb occurring if multiple subcircuits are open and "Close All But This" is selected on a subcircuit
- UI: improved port connector placement and orientation in "Make subcircuit"

## **Version 6.0.1**

- Added Apply/Cancel buttons on the "Sensors" tab in the forms
- Added an option to locate the sensor inside the design from the "Selected Summary" list
- Added ALT-Click event on devices "Circuit breaker" and "Fault to ground" to modify steady-state condition
- Added breaker automatic redraw depending on the breaker steady-state condition
- Fixed failure to load sensors when "Analyze" has not been executed before (HYTT-402)
- Fixed invalid simulation options when "Analyze" has not been executed before (HYTT-693)
- Fixed device renaming when "Analyze" has not been executed before (HYTT-387)
- Fixed bad calculation where results could diverge after some time (HYTT-356)
- Fixed breaker phase that cannot be operated while the simulation is running (HYTT-399)
- Fixed default values for switches' snubber (HYTT-389)
- Fixed task mapping to take into account performance factor when simulating on Windows (HY-886)
- Fixed crash when working with transformers in PU (HYTT-408)
- Fixed wideband line algorithm with complex poles
- Fixed missing local environment variable in TestView (HYTT-417)
- Fixed wrong pin type in "Induction Machine" devices (HYTT-411)
- Fixed internal connection of "C" device (HYTT-415)
- Removed the requirement to update the target Java version

## **Version 6.0.0**

- New graphical engine in Windows, shared with EMTP-RV
- Reorganized device libraries
- Refactored Hyperlink tool for a common functionality with UCM
- Added tool to import Linux-based models
- Added a diagnostic tool for debugging
- Added GUI to manage versions and install updates
- Added quick link to SIMOUT log
- Added quick link to enable verbose mode of SIMOUT log
- Added watchdog to force target analog and digital outputs to zero when the simulation crashes (configuration 9 on OP5142 and ML605)
- Added Simulink support for 2012a to 2016a (32-bit and 64-bit versions)
- Added offline Real-time Accelerated (RTA) solver for Windows
- Improved stability of subcircuits
- Removed Simulink support for 2009a, 2010a and 2011a
- Removed need for administrative rights to use the software (still required for installation)



## HYPERSIM RELEASE NOTES