GitHub issues resolved for v4.1.0

As part of this release 393 issues (including 295 pull requests (PR)) were closed.

--MSL-general--

Documentation

- #3552 (PR) Add division tag around image tags
- #3673 (PR) Update DLR contact address
- #3745 (PR) Update DLR contact link
- #4136 (PR) Unify spelling of controllers
- #4196 (PR) Fix and add ITEA links
- #4208 (PR) Bump used Modelica language version to 3.6

Miscellaneous

- #3639 (PR) Fix missing include in Common.c (CI)
- #3642 (PR) Include provided header files (CI)
- #3643 (PR) Fix and extend table tests (CI)
- #3681 (PR) Handle redirect errors in URL checker (CI)
- #3709 (PR) Utilize GitHub Actions for CI
- #3723 (PR) Check Modelica files for UTF-8 BOM (CI)
- #3805 (PR) Update CI to check for deprecated Text.lineColor annotation
- #3809 (PR) Fix exception where tag HTML was not in lower case (CI)
- #3814 Unify spelling of controllers
- #3851 (PR) Update tidy-html5 (CI)
- #3886 (PR) Generate MSL Release Notes by GitHub Actions (CI)
- #3899 (PR) Run spelling check via GitHub Actions (CI)
- #3952 (PR) Update icons almost automatically updated to have correct gradient
- #3972 (PR) Add problem matchers for GitHub Actions (CI)
- #4072 Near-zero coordinates in graphical annotations
- #4140 (PR) Clean-up of near-zero coordinates in graphical annotations
- #4165 (PR) Fix codespell exceptions (CI)
- #4175 Which Modelica Language version for MSL 4.1.0?
- #4181 (PR) Update text annotations to not use deprecated features
- #4183 (PR) Fix regex to optionally ignore quoted strings when checking for deprecated Text.lineColor annotation (CI)
- #4203 (PR) Fix codespell exceptions (CI)

Blocks

Bugs

- #3627 (PR) Blocks.Routing.Extractor: add assert for input range
- #3878 Unit-checking using Gain and LimIntegrator-blocks
- #4045 (PR) Fix startTime of (SignalPWM) -> ZeroOrderHold
- #4189 (PR) Avoid having both start-value and initial equation

Enhancements

- [#3548](#) Avoid unnecessary discontinuities in sources (Cosine, Sinc)?
- [#3691](#) (PR) Add reading of CSV files from ModelicaTableAdditions to ModelicaStandardTables
- [#3692](#) (PR) Add tableOnFile parameter to icon of CombiTable blocks
- [#3762](#) (PR) Add a block (based on time events) to calculate the extrema of a signal
- [#3806](#) (PR) Missing initialization of Blocks.Math.Mean and derived blocks
- [#3831](#) (PR) Implement ImpulseSources
- [#3864](#) Undesired minimum gain of LimPID
- [#3985](#) (PR) Added assert condition block
- [#4006](#) (PR) Added new power block for raising an input to a user parameterized exponent
- [#4015](#) (PR) Implement continuous version of SignalExtrema
- [#4065](#) Unnecessary potential state events in Modelica.Blocks.Sources.Pulse
- [#4066](#) (PR) Replaced state events by time events

Examples

- [#3727](#) Value of motor.uniformNoise.localSeed in ActuatorWithNoise

Documentation

- [#3595](#) (PR) Precising the description of u1 and u2 in Division block
- [#3683](#) (PR) Document matrix name syntax for table text files
- [#3975](#) (PR) Update wrapAngle.mo

Miscellaneous

- [#3720](#) (PR) Remove superfluous zeros from coordinates of CombiTable block icons
- [#3881](#) (PR) Revert major part of [#227](#), and remove unit from gain parameter of Modelica.Blocks.Continuous.* blocks and Modelica.Blocks.Math.Gain
- [#3893](#) (PR) Consider the derivatives at boundaries in the 2D-table
- [#3906](#) Issues with Modelica.Blocks.Math.ContinuousMean
- [#3986](#) (PR) Do not preserveAspectRatio for terminate-block
- [#4027](#) (PR) Remove discrete input
- [#4035](#) startTime of (SignalPWM) -> ZeroOrderHold
- [#4055](#) (PR) Propose better unit-handling in equation for LogSweep
- [#4118](#) (PR) Remove min attribute of gain in Blocks.Continuous.LimPID
- [#4122](#) (PR) Remove plural 's' in 'height of ramps'
- [#4150](#) (PR) Avoid discontinuities
- [#4151](#) (PR) Simpler mean
- [#4180](#) Remove deprecated Text.color attribute from graphical annotations
- [#4188](#) (PR) Fix unit errors in ExternalCombiTimeTable constructor
- [#4220](#) (PR) Remove real relation in non-discrete-time controlled if-statement

C-Sources

Bugs

- [#3556](#) MinGW possibly neglected in safe-math.h

- [#3562](#) Error message for out of bounds column in tables is broken

  isValidCombiTable1D
- [#3568](#) (PR) Do not include intsafe.h on MinGW
- [#3660](#) Modelica.Utilities.Files.createDirectory fails if the directory does not exist
- [#3663](#) (PR) Add getcwd fallback in ModelicaInternal_fullPathName
- [#3669](#) (PR) Fix reading file with EOL=LF on Windows
- [#3894](#) Derivative signal of combiTable2Ds is set to zero outside of table with HoldLastPoint
- [#3896](#) (PR) Fix derivatives in 2D-table for one-sided extrapolation by constant continuation
- [#3983](#) (PR) Fix index-out-of-bounds exception for splines

Enhancements

- [#3603](#) Memory allocation error in CombiTimeTable when given UTF16 LE file
- [#3604](#) (PR) ModelicaIO.c: Improve error message if reading text file containing zero bytes
- [#3686](#) (PR) Add ModelicaDuplicateString and ModelicaDuplicateStringWithErrorReturn (introduced in Modelica 3.5)
- [#3691](#) (PR) Add reading of CSV files from ModelicaTableAdditions to ModelicaStandardTables
- [#3700](#) (PR) Make array inputs of external C functions const (introduced in Modelica 3.5)
- [#3839](#) External ModelicaStandardTables lack const qualifiers for array inputs (Modelica Language Specification version 3.5)
- [#4047](#) (PR) Upgrade zlib to v1.3
- [#4222](#) (PR) Update matio library to 1.5.24

Miscellaneous

- [#3246](#) (PR) Remove call of localtime
- [#3564](#) Unguarded clang pragmas in ModelicaStrings.c
- [#3565](#) (PR) Add pragma guards in ModelicaStrings.c
- [#3647](#) Linker warning mktemp is dangerous
- [#3696](#) (PR) Fix some compiler warnings
- [#3728](#) (PR) Fix Modelica.Utilities.Strings.hashString to always use provided HASH_AP and update 3rd-party header uthash to v2.3.0
- [#3783](#) (PR) Remove unused static function get_token
- [#3784](#) (PR) Fix LCC build
- [#3787](#) (PR) Fix C89 compliance
- [#3861](#) (PR) Fixed -Wundef warning by first checking if macro is defined
- [#3867](#) Is ModelicaUtilities.h tool-specific?
- [#3871](#) (PR) Remove ModelicaUtilities.h from MSL distribution
- [#3893](#) (PR) Consider the derivatives at boundaries in the 2D-table
- [#3903](#) Modelica.Blocks.Tables: Wrong format specifier is ignored
- [#3905](#) (PR) ModelicaIO.c: Fix error handling for invalid format specifier in text file

Miscellaneous

- [#3801](#) (PR) Remove duplicate "and" in doc string
- [#3971](#) Clocked noise example modifying something not in constraining class
- [#4070](#) Unused parameters in Modelica.Clocked.ClockSignals.Clocks.Logical
- [#4071](#) (PR) Propagate useSolver to these variants as well
- [#4074](#) (PR) Fix for [#3971](#)

Complex*

Bugs

- [#1260](#) Complex.scalarProduct not a scalar product
- [#3651](#) Complex transfer function block uses wrong order of coefficients
- [#3733](#) (PR) Fix interpretation of coefficients of complex transfer function
- [#3742](#) (PR) Fix implementation of scalarProduct
- [#4239](#) (PR) Simplify ComplexRampPhasor

Enhancements

- [#3584](#) (PR) Smooth complex

Documentation

- [#3659](#) (PR) Mark ComplexBlocks and FundamentalWave with DocumentationClass

Miscellaneous

- [#3638](#) (PR) Use one character instead of line drawings
- [#3677](#) (PR) Do not fail for w<=0 in Complex TransferFunction
- [#3768](#) Conversion from ModelicaServices and Complex version 3.2.3 to 4.0.0?
- [#3770](#) (PR) Add missing conversions for Complex and Services 3.2.3
- [#4264](#) (PR) Set unit instead of having it in description

Constants

Bugs

- [#2056](#) Proper definition of Modelica.Constants.{eps,small}
- [#4042](#) (PR) Give a proper definition of machine constants.

Miscellaneous

- [#3295](#) Unit of permeability
- [#3811](#) (PR) Change unit of permeability to V.s/(A.m)
- [#4155](#) (PR) Add units to mathematical constants

Electrical.Analog

Bugs

- [#3827](#) (PR) Fix M_Oline.segment as discussed in [#3826](#)
- [#3828](#) (PR) Fix initialization of Lines as discussed in [#3826](#)

Enhancements

- [#3748](#) Inconsistent M_OLine
- [#3830](#) (PR) Unify Lines models
- [#3831](#) (PR) Implement ImpulseSources
- [#3833](#) (PR) Improvements to line models
- [#3904](#) DC PowerSupply missing
- [#3926](#) (PR) Implemented and tested PowerSupply

Examples

- [#3590](#) (PR) Changed homotopy parameter to be consistent
- [#3625](#) (PR) Wrong StopTime for DifferenceAmplifier
- [#3819](#) (PR) Lines examples
- [#4020](#) This looks like a typo in the description?
- [#4025](#) (PR) [#4020](#) This looks like a typo in the description?
- [#4206](#) (PR) Remove redundant diagram text from Analog examples (second attempt)
- [#4245](#) Connect(p, p) in Modelica.Electrical.Analog.Examples.Utilities.SwitchedCapacitor?
- [#4261](#) (PR) Remove self-connect

Documentation

- [#3815](#) (PR) Fix inconsistent M_OLine model
- [#3960](#) Documentation image M_OLine error

Miscellaneous

- [#3961](#) (PR) Remove outdated unused image files
- [#3987](#) (PR) Set Evaluate = true for IdealTransformer.considerMagnetization
- [#4119](#) (PR) Fix unit error in Thyristor
- [#4147](#) (PR) Fix annotations

Electrical.Batteries

Bugs

- [#3878](#) Unit-checking using Gain and LimIntegrator-blocks
- [#3901](#) Possible bug in Modelica.Electrical.Batteries.Utilities.PulseSeries
- [#3902](#) (PR) Electrical.Batteries.Utilities.PulseSeries

Examples

- [#4098](#) Unit error in Modelica.Electrical.Batteries.Examples.BatteryDischargeCharge
- [#4112](#) (PR) Fix unit error in CCCVcharging

Documentation

- [#3804](#) (PR) Fix/remove dead links

Electrical.Digital

Examples

- [#4174](#) Unused parameters in Modelica.Electrical.Digital.Examples.Utilities.DFF
- [#4176](#) (PR) Fix (and rename) parameters of Modelica.Electrical.Digital.Examples.Utilities.DFF

Electrical.Machines

Bugs

- [#4158](#) (PR) Remove unit-casting

Enhancements

- [#3786](#) (PR) Rotational coupling
- [#3920](#) (PR) Liberate machine parameter m
- [#4052](#) (PR) Fix SI units by introducing reference phase impedance ZsRef

Examples

- [#3816](#) Remove Modelica.Electrical.Machines.Examples.ControlledDCDrives.Utilities.Battery
- [#4011](#) (PR) Remove battery model from examples

Documentation

- [#3937](#) Dead Modelica URI link in documentation
- [#3939](#) (PR) Removes commented Modelica URI link in documentation with list

Miscellaneous

- [#3472](#) Remove reference signals of zero sequence currents of electric machine examples
- [#3622](#) Unused parameter in function
- [#3623](#) (PR) Remove unused code ([#3622](#))
- [#3951](#) Missing gradient colors in some Icons
- [#4030](#) Bug in a component: Modelica.Electrical.Machines.Sensors.HallSensor
- [#4031](#) (PR) Fix HallSensor

Bugs

- [#3963](#) Parameter T not considered in Polyphase Resistors and Conductors
- [#3964](#) (PR) Propagate parameter T in Polyphase Resistors and Conductors

Electrical.PowerConverters

Bugs

- [#3626](#) (PR) Correct a bug in Modelica.Electrical.PowerConverters.DCAC.Control.SVPWM
- [#3897](#) (PR) PowerConverters.DCDC.HBridge
- [#3910](#) (PR) Fix parameter propagation of IntersectivePWM

Enhancements

- [#3679](#) (PR) Implement choice between sawtooth and triangle reference signal in PowerConverters/DCDC/Control/SignalPWM
- [#3774](#) (PR) Add ChopperBuckBoost to PowerConverters
- [#3895](#) Fire signals of H-Bridge

Documentation

- [#3682](#) (PR) Update link in documentation to no longer rely on Freescience.info
- [#3842](#) (PR) Fix permanent link redirect

Miscellaneous

- [#3887](#) Inadequate handling of geometric corner case in PowerConverters.DCAC.Control.SVPWM
- [#3888](#) (PR) Update block descriptions of control blocks
- [#3892](#) (PR) Avoid values out of bound, and simplify logic in PowerConverters.DCAC.Control.SVPWM
- [#4035](#) startTime of (SignalPWM) -> ZeroOrderHold
- [#4054](#) Model issues detected by unit checking ThreePhaseTwoLevel_PWM
- [#4152](#) (PR) Correct start-value for t0 in ThreePhaseTwoLevel

Electrical.QuasiStatic

Bugs

- [#4022](#) (PR) Removed duplicate definition of m

Enhancements

- [#3697](#) (PR) Quasi-static Transformer

- #3865 Why are there no single phase quasistatic RMS voltage and current
- #3876 (PR) Add QuasiRMS voltage and current single-phase sensors

Documentation

- #3873 Documentation mentions Quasi-static AC machine models not being available
- #3874 (PR) Update documentation of quasi-static AC machines
- #3938 (PR) Strip leading newline in img.alt attributes

Miscellaneous

- #4021 Duplicate non-identical component in Modelica.Electrical.QuasiStatic.Polyphase.Sources.FrequencySweepVoltageSource
- #4264 (PR) Set unit instead of having it in description

Electrical.Spice3

Documentation

- #3676 (PR) Remove repeated advice on package Internal (previously called Repository)

Miscellaneous

- #3576 Rewrite if Boolean == true then
- #3812 (PR) Simplify "if Boolean == true" to "if Boolean"
- #4135 (PR) Delete redundant points of polygon annotation of connectors

Fluid

Bugs

- #3758 Jump in Modelica.Fluid.Pipes.BaseClasses.WallFriction.LaminarAndQuadraticTurbulent.massFlowRate
- #3924 (PR) Fix the bad Evaluate annotation
- #3944 Bug in the SharpEdgedOrifice for Loss factors
- #3953 Wrong enthalpies calculated by DynamicPipe
- #3959 (PR) Fixed Wb_flows discretization terms for DynamicPipe
- #4144 Dimension mismatch in function linearPower
- #4258 (PR) Bug in SharpEdgedOrifice for Loss factors resolved
- #4259 (PR) Fix dimension error of Modelica.Fluid.Machines.BaseClasses.PumpCharacteristics.linearPower

Examples

- #3654 (PR) Remove unused/undocumented block setReal from example
- #3656 The reference solution of Modelica.Fluid.Examples.Explanatory.MomentumBalanceFittings is wrong

- [#3657](#) (PR) Add start value to ensure convergence to the right flow in

- [#3779](#) (PR) choicesAllMatching=true is the correct annotation!
- [#3782](#) What is the quality of the TankWithEmptyingPipe1 reference result?
- [#3813](#) (PR) Decrease solver tolerance of Modelica.Fluid.Examples.AST_BatchPlant.Test.TankWithEmptyingPipe1
- [#4032](#) (PR) The dT is a temperature difference
- [#4033](#) (PR) Reduce guess for initial temperature difference across wall.

Documentation

- [#3629](#) (PR) Fix outdated contact
- [#3715](#) (PR) Remove superfluous blank line in documentation of Modelica.Fluid.UsersGuide.ComponentDefinition.WallFriction
- [#3863](#) (PR) Add missing parenthesis in fluid user guide page

Miscellaneous

- [#3649](#) (PR) Just use "redeclare" instead of "redeclare final"
- [#3760](#) (PR) Fix assert message of Modelica.Fluid.Pipes.BaseClasses.WallFriction.NoFriction.massFlowRate_dp_staticHead
- [#3802](#) (PR) State temperatures in PartialHeatTransfer declared as Medium-specific type
- [#3951](#) Missing gradient colors in some Icons
- [#4104](#) (PR) Remove modification of 'quantity' for FixedBoundary.X
- [#4157](#) (PR) If the limits don't make sense use linear interpolation in Modelica.Fluid.Utilities.regfun3

Fluid.Dissipation

Enhancements

- [#1429](#) Conditionally uninitialized output variable Re in Modelica.Fluid.Dissipation.HeatTransfer.HeatExchanger.kc_flatTube used

Miscellaneous

- [#3743](#) (PR) Resort variable declarations of Modelica.Fluid.Dissipation.HeatTransfer.HeatExchanger.{kc_flatTube, kc_flatTube_KC, kc_roundTube_KC} such that they are declared before used
- [#3744](#) (PR) Add assertion in else branches of Modelica.Fluid.Dissipation.HeatTransfer.HeatExchanger.{kc_flatTube, kc_flatTube_KC, kc_roundTube, kc_roundTube_KC}
- [#4147](#) (PR) Fix annotations

Icons

Miscellaneous

- [#4135](#) (PR) Delete redundant points of polygon annotation of connectors

Magnetic.FluxTubes

Bugs

- [#4158](#) (PR) Remove unit-casting

Enhancements

- [#3993](#) (PR) FluxTubes: some improvements in shapes and material

Examples

- [#4077](#) Unit error in Modelica.Magnetic.FluxTubes.Examples.MovingCoilActuator.ArmatureStroke
- [#4109](#) (PR) Fix unit errors in ArmatureStroke

Documentation

- [#3847](#) (PR) Fix link
- [#4211](#) (PR) Fix broken link in Modelica.Magnetic.FluxTubes

Miscellaneous

- [#3295](#) Unit of permeability
- [#3951](#) Missing gradient colors in some Icons
- [#4007](#) Redundant connect equation in ConstantActuator
- [#4008](#) (PR) Remove redundant connect equation in ConstantActuator

Magnetic.FundamentalWave

Bugs

- [#4158](#) (PR) Remove unit-casting
- [#4172](#) (PR) Protect internal ports of base class machines

Enhancements

- [#3817](#) (PR) Implemented split of stray inductance in common and individual part

Examples

- [#3822](#) (PR) Add documentation of SinglePhaseInductance

Documentation

- [#3736](#) (PR) More clearly specify damper cage in synchronous machine models

Miscellaneous

- [#3472](#) Remove reference signals of zero sequence currents of electric machine examples
- [#4187](#) (PR) Remove newlines at end of Text primitive

Magnetic.QuasiStatic

Bugs

- [#3997](#) (PR) Propagate the angle alpha also in the calculation of A in HollowCylinderRadialFlux
- [#4158](#) (PR) Remove unit-casting
- [#4172](#) (PR) Protect internal ports of base class machines

Enhancements

- [#3993](#) (PR) FluxTubes: some improvements in shapes and material

Examples

- [#3592](#) (PR) Fix name of plot variable in documentation
- [#3803](#) (PR) Added an example to demonstrate ideal field weakening
- [#3845](#) (PR) QuasiStatic example induction machine with inverter

Documentation

- [#3593](#) Check documentation of induction machines' examples
- [#3659](#) (PR) Mark ComplexBlocks and FundamentalWave with DocumentationClass
- [#3736](#) (PR) More clearly specify damper cage in synchronous machine models
- [#3823](#) (PR) Remove obsolete "(quasi-static)" from documentation

Miscellaneous

- [#3472](#) Remove reference signals of zero sequence currents of electric machine examples
- [#3620](#) (PR) Refs [#3593](#): Fix documentation of quasi-static machine examples

Math

Bugs

- [#3836](#) Incorrect results from isPowerOf2 for large inputs
- [#3850](#) (PR) Avoid max({}) in Modelica.Math.Matrices.nullSpace

Enhancements

- [#3919](#) (PR) Use boolean array reductions

Miscellaneous

- [#3578](#) Order Modelica.Math.Matrices.LAPACK
- [#3602](#) (PR) Reorder Lapack functions in alphabetic order
- [#3703](#) (PR) Avoid deprecated "builtin" external language for common mathematical functions
- [#3843](#) (PR) Fully integer based version of isPowerOf2
- [#3849](#) Invalid function Modelica.Math.Matrices.nullSpace calculating max({})
- [#4036](#) Illegal value of 'lwork' in LAPACK.dtrsen
- [#4039](#) (PR) Most LAPACK routines don't want lwork=0 and/or work with size zero

Mechanics.MultiBody

Bugs

- [#3588](#) Quaternions.from_T returns error for valid matrix
- [#3710](#) Singular Jacobian of the initial equations for the rotational constraint in Modelica.Mechanics.MultiBody.Joints.Constraints.Prismatic
- [#3718](#) (PR) Correct Constraints.Prismatic
- [#3989](#) ForceAndTorque model does not set color of force arrow
- [#3990](#) (PR) Pass forceColor to arrow visualizer
- [#4145](#) Error with frame_resolve math in BasicAbsoluteAngularVelocity sensor
- [#4148](#) (PR) Fix false calculation of w (omega) when resolveInFrame == frame_resolve

Enhancements

- [#3724](#) (PR) Stable calculation of quaternion from transformation matrix
- [#3859](#) (PR) Fix missing or ambiguous SI-units in MultiBody.Sensors
- [#3908](#) Late inlining of Modelica.Mechanics.MultiBody.Frames.Internal.maxWithoutEvent
- [#4133](#) (PR) Replace 'Inline=false' with late inlining

Examples

- [#3706](#) Wrongly fixed initial conditions in example Modelica.Mechanics.MultiBody.Examples.Constraints.PrismaticConstraint
- [#3712](#) (PR) Initialize motion in x direction (r_rel_a_1) instead of in z (r_rel_a_3)
- [#3776](#) Link rot
- [#3866](#) startBackward and startForward should not be reference results
- [#3870](#) (PR) Remove startBackward and startForward from reference results
- [#4080](#) Unit error in Modelica.Mechanics.MultiBody.Examples.Loops.Utilities.GasForce2
- [#4081](#) (PR) Delete variables dens and R_air from Modelica.Mechanics.MultiBody.Examples.Loops.Utilities.GasForce2
- [#4108](#) (PR) Fix unit error in RobotR3.OneAxis

Documentation

- [#3610](#) shapeType documentation example for file:// is inconsistent with standard file URIs

- #3613 (PR) Add missing URI separator in file URIs

- #3933 (PR) Update documentation of Modelica.Mechanics.MultiBody.Visualizers.Advanced
- #4184 (PR) Restore documentation of Modelica.Mechanics.MultiBody.Visualizers.Internal.Lines
- #4217 (PR) Documentation: clarify mind-set of planar rotation

Miscellaneous

- #2474 Spherical, etc. render poorly on non-white backgrounds
- #3445 Wrong rotation direction in planarRotation functions
- #3634 (PR) Utilize ellipses' closure
- #3716 (PR) Improve icons of joint assemblies RRR and RRP
- #3725 (PR) Simplify selection of constraint equations to be used
- #3729 (PR) Fix position of component's and parameter's name according to icon conventions
- #3730 (PR) Use ellipses instead of arcs by lines in Mechanics.MultiBody.Forces
- #3835 (PR) Remove Evaluate=true for fixed=false parameter 'n_b'
- #3932 (PR) Remove superfluous import statements for Modelica.Units.Conversions.to_unit1
- #4147 (PR) Fix annotations
- #4171 (PR) Initialize output array C even when multiColoredSurface=false
- #4192 Unit errors when calling Modelica.Mechanics.MultiBody.Frames.from_nxy
- #4194 (PR) Correct units for normalizing vectors.
- #4246 Unused ndim in MBS World
- #4248 (PR) Use vector for visualization of physical quantities
- #4266 (PR) Delete unused protected parameters ndim, ndim2 and ndim_pointGravity

Mechanics.Rotational

Enhancements

- #3661 Improve table design of Modelica.Mechanics.Rotational.Components.Clutch to use static tables instead of dynamic
- #3662 (PR) Enhance frictional models based on ExternalCombiTable1D
- #3702 (PR) Rotational and translational inverse speed dependent torque/force
- #3786 (PR) Rotational coupling
- #3976 (PR) Eddy current sources

Examples

- #3866 startBackward and startForward should not be reference results
- #3870 (PR) Remove startBackward and startForward from reference results
- #4010 (PR) Minor fixes of the documentation of Mechanics.Rotational.Examples

Documentation

- #1493 Mechanics.Rotational.Interfaces.PartialFriction w_small

- #3594 (PR) Fix wrong or missing documentation

- [#3633](#) (PR) Describe the effect of w_small in friction elements

Miscellaneous

- [#3735](#) (PR) Use ellipses instead of arcs by lines
- [#4204](#) (PR) Use mustBeConnected annotation (introduced in Modelica 3.6)
- [#4256](#) (PR) Fix position prescribed friction

Mechanics.Translational

Enhancements

- [#3664](#) Improve design of frictional translational components to use static tables instead of dynamic
- [#3690](#) (PR) Enhance frictional translational models based on ExternalCombiTable1D
- [#3702](#) (PR) Rotational and translational inverse speed dependent torque/force
- [#3976](#) (PR) Eddy current sources

Examples

- [#3866](#) startBackward and startForward should not be reference results
- [#3870](#) (PR) Remove startBackward and startForward from reference results

Documentation

- [#3594](#) (PR) Fix wrong or missing documentation
- [#3862](#) (PR) Improve documentation of both rotational and translational sensors
- [#3942](#) (PR) Fix copy/paste error in description of Translational.Sources.Force2

Miscellaneous

- [#4197](#) Unit issue in Modelica.Mechanics.Translational.Components.ElastoGap
- [#4200](#) (PR) Improve ElastoGap
- [#4204](#) (PR) Use mustBeConnected annotation (introduced in Modelica 3.6)
- [#4256](#) (PR) Fix position prescribed friction

Media

Bugs

- [#3666](#) ReferenceMoistAir, substances mass conservation issue
- [#3695](#) Trajectory of 'k' in R134a_setState_pTX doesn't look suitable for comparison
- [#3704](#) (PR) Changed Modelica.Media.R134a.R134a_ph.dofpT issue [#3695](#)
- [#3834](#) (PR) Correct error in function Modelica.Media.Air.ReferenceMoistAir.Utilities.pd_pTX_der

Examples

- #4099 Unit error in Modelica.Media.Examples.SimpleLiquidWater
- #4115 (PR) Fix unit errors in Examples.MoistAir

Documentation

- #3629 (PR) Fix outdated contact
- #4084 (PR) Documentation: improve indentation of HTML code

Miscellaneous

- #3576 Rewrite if Boolean == true then
- #3650 Modelica Media Interface is information incomplete w.r.t. independent mass fractions
- #3652 (PR) Fix descriptions and improve documentation style
- #3763 (PR) Make constants in functions protected
- #3766 (PR) Update FluidData.mo
- #3812 (PR) Simplify "if Boolean == true" to "if Boolean"
- #3885 (PR) Refactor spliceFunction_der
- #4038 (PR) spliceFunction_der check limits
- #4096 (PR) Fix unit error in SimpleAir
- #4100 (PR) Use plain SI.Mass instead of medium-based 'quantity' for MixtureGases.m1 and MixtureGases.m2
- #4103 (PR) Fix unit error in SimpleLiquidWater model
- #4116 (PR) Fix unit errors in ReferenceAir.MoistAir
- #4117 (PR) Fix unit error in IdealGasH2O
- #4233 Old value for universal gas constant used for calculation of specific gas constant
- #4238 (PR) R_s for each ideal gas record now calculated with R_NASA
- #4243 (PR) Add massFraction function to Media library
- #4262 (PR) Utilize PressureSlope unit in Media consistently

ModelicaReference

Documentation

- #3773 getInstanceName and spatialDistribution not listed in ModelicaReference
- #3808 (PR) getInstanceName and spatialDistribution not listed in ModelicaReference
- #3980 (PR) Fix variable name
- #4023 Obsolete form of noDerivative in ModelicaReference
- #4024 (PR) Update obsolete form of noDerivative in ModelicaReference
- #4127 (PR) Type cast result of malloc

Miscellaneous

- #3923 (PR) Fix misspelled file name

ModelicaServices

Miscellaneous

- [#3768](#) Conversion from ModelicaServices and Complex version 3.2.3 to 4.0.0?
- [#3770](#) (PR) Add missing conversions for Complex and Services 3.2.3

ModelicaTest

Bugs

- [#3695](#) Trajectory of 'k' in R134a_setState_pTX doesn't look suitable for comparison

Enhancements

- [#3689](#) (PR) Add 2 more test examples to ModelicaTest.Electrical.Machines

Examples

- [#3866](#) startBackward and startForward should not be reference results
- [#3870](#) (PR) Remove startBackward and startForward from reference results

Miscellaneous

- [#3778](#) Reference result degradation for TestValvesCompressibleReverse (fixed by Dymola 2022)
- [#3852](#) Invalid models ModelicaTest.Media.TestsWithFluids.MediaTestModels.*
- [#3881](#) (PR) Revert major part of [#227](#), and remove unit from gain parameter of Modelica.Blocks.Continuous.* blocks and Modelica.Blocks.Math.Gain
- [#3918](#) (PR) Update ModelicaTest/Media.mo: Reduce dp_nominal in TestsWithFluid.Components.PartialTestModel by a factor of 1000
- [#4114](#) (PR) Fix unit error in TestOnly.MoistAir, R134a_setState_pTX and WaterIF97_dewEnthalpy
- [#4195](#) (PR) Add all defined outputs of the test example to reference signals
- [#4229](#) (PR) Add ZeroThresholds test in Blocks
- [#4273](#) (PR) Utilize PressureSlope unit in ModelicaTest consistently

Resources

Bugs

- [#3614](#) (PR) Update Run.mos for MultiBody examples
- [#3767](#) (PR) Add more explicit conversion rules for inherited gasConstant function

Miscellaneous

- [#3580](#) (PR) Save the CFLAGS already passed to the script
- [#3591](#) (PR) Remove zero inductor currents in comparison signals

- [#3753](#) (PR) Add semicolon after conversion commands of

- [#3794](#) (PR) Turn compiler warning of implicit function declaration to error
- [#3800](#) (PR) Fix (all but one) conversion issues reported by Dymola
- [#3867](#) Is ModelicaUtilities.h tool-specific?
- [#3871](#) (PR) Remove ModelicaUtilities.h from MSL distribution
- [#3961](#) (PR) Remove outdated unused image files
- [#4179](#) (PR) Remove duplicates in SignalNames of 10 examples of ModelicaTest
- [#4268](#) (PR) Make third-party licenses explicit

StateGraph

Examples

- [#4076](#) Modelica.StateGraph.Examples.Utilities.Tank could set units for its variables.

Documentation

- [#4202](#) (PR) Fix broken links in Modelica.StateGraph

Miscellaneous

- [#4264](#) (PR) Set unit instead of having it in description

Thermal.FluidHeatFlow

Enhancements

- [#3956](#) (PR) Add animated level on the icon layer of the OpenTank

Examples

- [#4141](#) (PR) Documentation and description for FluidHeatFlow library improved

Documentation

- [#3474](#) Improve doc strings and documentation of FluidHeatFlow

Thermal.HeatTransfer

Documentation

- [#3954](#) Broken link to academia.edu
- [#4199](#) (PR) Fix link to Holman2010

Units

Enhancements

- [#3872](#) (PR) Add electrical quantities per unit length

Miscellaneous

- [#3295](#) Unit of permeability
- [#3811](#) (PR) Change unit of permeability to V.s/(A.m)
- [#4103](#) (PR) Fix unit error in SimpleLiquidWater model
- [#4264](#) (PR) Set unit instead of having it in description

UsersGuide

Documentation

- [#3804](#) (PR) Fix/remove dead links
- [#3844](#) Conflicting guidelines for HTML documentation conventions for tables
- [#3848](#) (PR) Remove `align=bottom` from guidelines and code
- [#3854](#) (PR) Remove obsoleted BMBF link
- [#4216](#) (PR) Add recommendation for styling of 'tab' and 'group' annotations
- [#4221](#) (PR) Add recommendation for code formatting (and apply it)

Utilities

Bugs

- [#3615](#) ModelicaServices classes extends from classes in a partial package
- [#3617](#) (PR) Models should be partial, not the package

Enhancements

- [#3503](#) (PR) Improve fault-tolerance of Modelica.Utilities.Strings.substring w.r.t. index arguments and remove undocumented case with endIndex=-999

Examples

- [#3608](#) Incorrect dimension parameter used when defining A in Modelica.Utilities.Examples.ReadRealMatrixFromFile
- [#3609](#) (PR) Use correct dimensions
- [#3921](#) Enhancement of Modelica.Utilities.Examples.readRealParameter
- [#3922](#) (PR) Adds optional default return value parameter

Documentation

- [#4059](#) (PR) Document unicode for String functions
- [#4073](#) (PR) Fix documentation of Modelica.Utilities.System.getTime()

Miscellaneous

- [#3728](#) (PR) Fix Modelica.Utilities.Strings.hashString to always use provided HASH_AP and update 3rd-party header uthash to v2.3.0