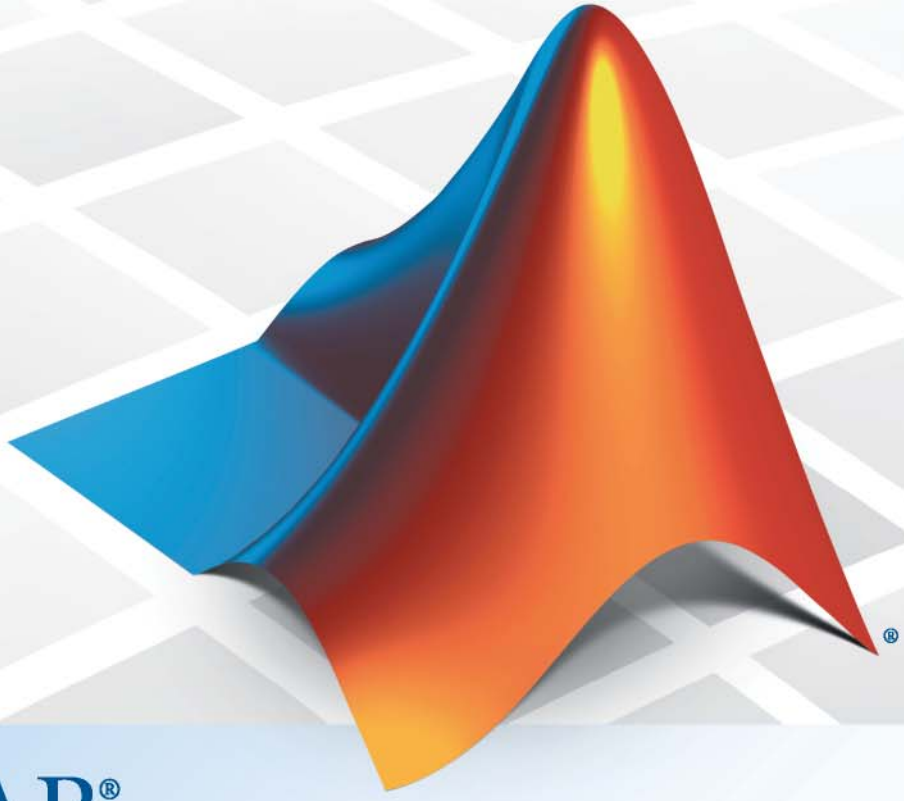
MATLAB® & Simulink®
Release Notes for R2010b



MATLAB®
&SIMULINK®

MathWorks®
Accelerating the pace of engineering and science

How to Contact MathWorks

`www.mathworks.com`	Web
`comp.soft-sys.matlab`	Newsgroup
`www.mathworks.com/contact_TS.html`	Technical Support

`suggest@mathworks.com`	Product enhancement suggestions
`bugs@mathworks.com`	Bug reports
`doc@mathworks.com`	Documentation error reports
`service@mathworks.com`	Order status, license renewals, passcodes
`info@mathworks.com`	Sales, pricing, and general information

508-647-7000 (Phone)

508-647-7001 (Fax)

The MathWorks, Inc.
3 Apple Hill Drive
Natick, MA 01760-2098

For contact information about worldwide offices, see the MathWorks Web site.

Release Notes for R2010b

Revision History

September 2010 Online only New for Release 2010b

Contents

1 General Release Notes for R2010b

1

General Release Notes for R2010b

Highlights of R2010b

In this section...

What's New in Release 2010b

Release 2010b includes new features in MATLAB® and Simulink®, and updates and bug fixes to 85 other products. Subscribers to MathWorks® Software Maintenance Service can download product updates. Visit the License Center to products, activate software, and manage your license and user information.

MATLAB Product Family Highlights

- Custom enumerated data types, 64-bit integer arithmetic, and desktop enhancements in MATLAB
- GPU computing with CUDA enabled NVIDIA devices in Parallel Computing Toolbox™
- Support for the GigE Vision hardware standard in Image Acquisition Toolbox™
- Automated PID tuning in Control System Toolbox™
- New System objects for communications design in MATLAB, supporting 95 algorithms in Communications Blockset™
- Spline Toolbox™ capabilities merged into Curve Fitting Toolbox™

- OAS and CDS calculations in Fixed-Income Toolbox™, Reuters Contribute functionality in Datafeed Toolbox™, and credit risk enhancements in Financial Toolbox™
- Graphical tool for fitting dynamic networks to time-series data in Neural Network Toolbox™
- Time lag, error models, and covariate analysis in SimBiology®

Simulink Product Family Highlights

- Arrays of buses with For Each subsystems for reducing Simulink model size, simulation time, and data copies for large scale models
- Subsystem variants in Simulink and atomic subcharts in Stateflow® to create reusable model components
- Test-harness generation, data logging and scripted test execution in Simulink® Verification and Validation™
- Parallel builds of model reference hierarchies with Real-Time Workshop® and MATLAB® Distributed Computing Server™
- SimRF™, based on Simscape™, including circuit envelope simulation and RF Blockset™ capabilities
- FPGA Workflow Advisor, critical-path highlighting, and DO-254 support in Simulink® HDL Coder™
- Multicore support for multirate models in xPC Target™ and xPC Target Turnkey systems

Polyspace Product Family Highlights

- Web interface for viewing project metrics in Polyspace® Server™ for C/C++ and Polyspace Server for Ada
- Support for all statically enforceable MISRA-C++ coding standards in Polyspace® Client™ for C/C++

R2010b Products with License-Related Changes

Three products have license-related changes in R2010b.

For details, see "R2010b Products with License-Related Changes" on page 1-34.

Installation and Activation

See "Installation and Activation" on page 1-36 for information about new installers for Linux® and Macintosh platforms.

Summary of Changes to Each Product

See "Release Summary" on page 1-38 for a summary of what has changed for each product for R2010b, including whether the product has new features, bug fixes, and compatibility issues.

Summary of New Features

This section summarizes the major new features and enhancements introduced in R2010b for the following products:

MATLAB 7.11

Development Environment

- Editor highlighting enhanced to show all uses of a variable or subfunction and identify shared variables
- Ability to manage ZIP files as folders in the Current Folder Browser
- File previews in Current Folder Browser that show image file contents and unsaved content in MATLAB files
- Access to additional toolbox plots in the Plot Selector, including plots for System Identification, Mapping, and Bioinformatics Toolboxes
- Comparison Tool enhanced, allowing comparison among ZIP files, folders, and Simulink manifests, and improving MAT-file comparisons

Language and Programming

- Ability to define custom enumerated data types with sets of named values

Mathematics

- Support for arithmetic on 64-bit integer types

File I/O and External Interfacing

- New `VideoWriter` object for creating Motion JPEG and uncompressed AVI files larger than 2 GB
- netCDF 4.0.1 support, enabling use of HDF5 as the data storage layer for the netCDF API
- Enhanced interface to Microsoft® .NET framework, supporting delegates and interaction with Microsoft Office products

For details, see the product-specific release notes.

Simulink 7.6

Component-Based Modeling

- New array-of-buses capabilities for compact representation of structured data and efficient iterative processing using For Each subsystems
- Variant Subsystem blocks for managing design alternatives
- Expanded support for referencing a model multiple times in normal mode, improving component workflows, linearization, and model coverage analysis

Data Management

- Expanded support for defining root-level, input-port signal data using MATLAB structures and `timeseries` objects
- Enhanced Signal Builder block with ability to import multiple test cases from Excel®, MATLAB, and CSV files
- Enhanced From File block, providing additional interpolation control and support for enumerated data
- Expanded enumerated data-type support to define multiple enumerated types in a single MATLAB file
- Expanded signal data-type specification to include bus objects

Model Management

- Enhanced Simulink Manifest Tools to identify data used in models, but not defined by files in the manifest
- Comparison Tool enhanced, allowing comparison among ZIP files, folders, and Simulink manifests, and improving MAT-file comparisons
- Ability to back up Simulink models when upgrading to a newer release

Block Enhancements

- Array-of-buses support in blocks, including Vector and Matrix Concatenation, Assignment, Selector, and in bus-capable blocks
- Multiport Switch block support for specification of the default case and diagnostic option for out-of-range control input
- Bus data-type support for Constant block and Signal Specification block
- Prelookup block and Interpolation Using Prelookup block support for specification of dynamic breakpoint and table data
- Switch block support to display criteria and threshold values
- Trigonometric Function block support for expanded input range for CORDIC algorithm
- Repeating Sequence Stair block support for enumerated data types

Embedded MATLAB

- Support for Embedded MATLAB® Function blocks with distinct data types, sizes, and complexities in Simulink libraries
- Support for MATLAB linear algebra functions `sqrtm`, `linsolve`, and `schur`
- Support for creation and processing of arrays of buses

User Interface Enhancements

- New Simulation Data Inspector tool for quickly viewing and comparing data from multiple simulations

- Model Explorer tool with improved data import and export and the ability to group and filter items on the spreadsheet
- Interactive traceability between models and workspace variables based on the `Simulink.findVars` function
- Sample time display enhanced for hybrid systems
- Efficient management of model configuration sets by saving and loading them directly to and from files

For details, see the product-specific release notes.

Aerospace Blockset 3.6

- New Geoid Height block that implements the geopotential model to calculate geoid heights for Earth (EGM96, EGM2008), plus the capability to customize the effect
- FlightGear Preconfigured 6DoF Animation block and Pack `net_fdm` Packet for FlightGear block support for FlightGear 2.0

For details, see the product-specific release notes.

Aerospace Toolbox 2.6

- New `geoidheight` function that implements the geopotential model to calculate geoid heights for Earth (EGM96, EGM2008), plus the capability to customize the effect
- FlightGear animation object support for FlightGear 2.0
- `datcomimport` function enhanced for type 21 and type 6 DATCOM 2008 files, with new support for type 42 files

For details, see the product-specific release notes.

Bioinformatics Toolbox 3.6

- Support for CIGAR strings for sequence mapping and alignment
- Indexed file access to BAM-formatted files
- Ability to read Bowtie- and SOAP-formatted files

For details, see the product-specific release notes.

Communications Blockset 5.0

- More than 90 new System objects for use with MATLAB
- Expanded support for HDL code generation
- New `reset` option for Convolutional Encoder block
- Sample- and frame-based processing now controlled by block parameters, instead of input signal attributes

For details, see the product-specific release notes.

Communications Toolbox 4.6

- Embedded MATLAB support for `bi2de`, `de2bi`, `poly2trellis`, and `rcosfir` functions

For details, see the product-specific release notes.

Control System Toolbox 9.0

- New commands and graphical interface for modeling and automatically tuning PID controllers
- Ability to analyze a controller design for multiple plant models simultaneously in SISO Design Tool

For details, see the product-specific release notes.

Curve Fitting Toolbox 3.0

- New functions for creating splines in piecewise polynomial form (`ppform`) and B-form
- New functions for postprocessing splines, including differentiation, integration, break/knot manipulation, and optimal knot placement
- New GUI for creating, viewing, and analyzing splines
- New SFTOOL feature for loading data stored as a table (X and Y row and column headers and Z values)
- Enhanced capability in SFTOOL to read integer and floating-point data

---

Note The first three bullets reflect Spline Toolbox capabilities merged into Curve Fitting Toolbox.

For details, see the product-specific release notes.

Data Acquisition Toolbox 2.17

- Support for more than 30 National Instruments® CompactDAQ devices installed in the following chassis: cDAQ-9172, cDAQ-9178, and cDAQ-9174
- Support for voltage, current, and thermocouple measurements using National Instruments CompactDAQ devices

For details, see the product-specific release notes.

Database Toolbox 3.8

- Ability to import data directly into a dataset array (requires Statistics Toolbox™

For details, see the product-specific release notes.

Datafeed Toolbox 4.0

- Enhanced support for Bloomberg Version 3
- Ability to export MATLAB data to Reuters service

For details, see the product-specific release notes.

DO Qualification Kit 1.3

- Simulink® Report Generator™ qualification support for System Design Description report
- Artifact explorer for accessing and managing qualification materials
- Model-Based Design for DO-178B workflow document

For details, see the product-specific release notes.

EDA Simulator Link 3.2

- New EDA Cosimulation Assistant for automating the import of HDL code to produce a customized block or function
- 64-bit Windows® support for HDL cosimulation
- Generation of Visual Studio® project for generated TLM components
- Xilinx® ISE® project and clock module generation for use with Filter Design HDL Coder™

For details, see the product-specific release notes.

Embedded IDE Link 4.2

- Expanded support for Model block PIL simulation mode using model reference
- New Makefile support for Code Composer Studio™ 4.0
- Unified Target Preferences block

For details, see the product-specific release notes.

Filter Design HDL Coder 2.7

- Support for variable-rate cascaded integrator comb (CIC) filters
- Simplified way of specifying distributed-arithmetic architecture for FIR filters
- Xilinx ISE® project and clock module generation (requires EDA Simulator Link™)

For details, see the product-specific release notes.

Financial Derivatives Toolbox 5.6

- Support for Leisen-Reimer binomial trees, enabling modeling of equity options using fewer steps with minimal oscillating behavior

For details, see the product-specific release notes.

Financial Toolbox 3.8

- New demo for credit-rating workflow, including data access, classifier training, back-testing, and report generation
- Transition matrix support for credit risk
- Enhanced performance in portfolio optimization functions

For details, see the product-specific release notes.

Fixed-Income Toolbox 2.0

- Support for Credit Default Swap pricing, marking-to-market, and default probability term structure estimation
- Expanded support for Option Adjusted Spread and effective duration
- Enhanced support for bootstrapping swap curves using the `IRDataCurve` object

For details, see the product-specific release notes.

Fixed-Point Toolbox 3.2

- Enhanced `NumericTypeScope` tool, enabling interactive usage and providing data-type recommendation
- Demo showcasing data-type independent coding
- Enhanced `bitsll` function to support floating-point calculation

For details, see the product-specific release notes.

Global Optimization Toolbox 3.1

- Output function support that enables customized monitoring of `GlobalSearch` and `MultiStart` solvers
- Plot function support for customized display of progress information during a run of `GlobalSearch` and `MultiStart` solvers
- Two new built-in plot functions in `GlobalSearch` and `MultiStart` solvers

For details, see the product-specific release notes.

IEC Certification Kit 1.3

- IEC 61508 tool certification by TÜV SÜD of Simulink® PLC Coder™ in Releases 2010a and 2010b
- Ability to launch traceability matrix from generated HTML traceability report
- Traceability matrix enhanced to include Code Interface tab

For details, see the product-specific release notes.

Image Acquisition Toolbox 4.0

- Support for QuickTime® and DCAM devices on Macintosh OS X platform
- Support for Video4Linux2 (V4L2) and DCAM devices on Linux platform
- Support for the GigE Vision interface standard on Windows and Linux platforms
- Simulink block expanded to include support for C-code generation
- Support for additional devices from Matrox Imaging on Windows platforms

For details, see the product-specific release notes.

Image Processing Toolbox 7.1

- New `corner` function for identifying corner points in an image
- Enhanced performance for `iradon` and `blockproc` functions
- Enhanced `rsetwrite` function that supports arbitrary image file formats

For details, see the product-specific release notes.

Instrument Control Toolbox 2.11

- Support for devices using National Instruments NI-SCOPE driver software
- Support for devices using National Instruments NI-FGEN driver software
- Enhanced performance for `fread` and `binblockread` functions

For details, see the product-specific release notes.

Mapping Toolbox 3.2

- Support for retrieving Web Map Service data in image/BIL format
- Enhanced `mapshow` and `geoshow` functions that support raster data in 16-bit integer and single data type
- Expanded MATLAB plot selector that includes `mapshow` and `geoshow` functions

For details, see the product-specific release notes.

MATLAB Builder EX 1.3 (for Microsoft Excel)

- Ability to link to the MCR Installer from a local network
- Support for Microsoft® Visual Studio® 2010 compiler
- Windows 64-bit platform support for 64-bit Microsoft® Excel® 2010

For details, see the product-specific release notes.

MATLAB Builder JA 2.2 (for Java language)

- Ability to link to the MCR Installer from a local network
- Tool tips available for WebFigures

For details, see the product-specific release notes.

MATLAB Builder NE 3.2 (for Microsoft .NET Framework)

- Ability to link to the MCR Installer from a local network
- Support for Microsoft Visual Studio 2010 compiler
- Tool tips available for WebFigures

For details, see the product-specific release notes.

MATLAB Compiler 4.14

- Ability to link to the MCR Installer from a local network
- Ability to create standalone executables without a C or C++ compiler
- Support for C and C++ shared library targets generated using Microsoft Visual Studio 2010 compiler

For details, see the product-specific release notes.

MATLAB Distributed Computing Server 5.0

- GPU array interface that enables numerous MATLAB functions to perform single- and double-precision computations on NVIDIA CUDA-enabled GPUs (v1.3 compute capability and above)
- Ability to load and execute GPU kernels based on CUDA API directly from MATLAB
- Several linear algebra functions, such as `qr` and `chol`, enhanced to operate on distributed arrays
- MathWorks job manager enhanced, including improved secure access and the ability to run jobs as a specified user
- Generic scheduler interface enhanced, improving support for computing environments with nonshared file systems

For details, see the product-specific release notes.

MATLAB Report Generator 3.9

- Support for reporting on MATLAB objects
- Ability to generate readable layouts for hierarchical objects, such as MATLAB objects, cell arrays, and structures
- Faster response of XML comparison tool with changed parameters displayed in a separate panel for easier review
- Enhanced XML comparison report with color highlighting for new and changed items

For details, see the product-specific release notes.

Model-Based Calibration Toolbox 4.1

- Ability to define equality constraints on models
- Enhanced Feature Fill Wizard that supports filling tables directly from experimental data
- Direct transfer of data between Model Browser and CAGE

For details, see the product-specific release notes.

Neural Network Toolbox 7.0

- Time-series GUI for fitting dynamic networks to time-series data
- New functions and properties for time-series data manipulation, analysis, and plotting
- Ability to create networks without providing input and target data
- More consistent interfaces among functions of the same type, facilitating creation of custom functions
- Ability to specify error weights for training neural networks with varying error importance based on element, sample, time step, or any combination

- Ability to access context-sensitive documentation via new hyperlinks in toolbox GUIs and command-line output
- New `nnstart` graphical tool for launching toolbox GUIs for tasks such as pattern recognition, clustering, and time-series data fitting

For details, see the product-specific release notes.

Optimization Toolbox 5.1

- Enhanced finite difference algorithms in `fmincon`, improving recovery from objective and constraint function evaluation failures

For details, see the product-specific release notes.

Parallel Computing Toolbox 5.0

- GPU array interface that enables numerous MATLAB functions to perform single- and double-precision computations on NVIDIA CUDA-enabled GPUs (v1.3 compute capability and above)
- Ability to load and execute GPU kernels based on CUDA API directly from MATLAB
- Several linear algebra functions, such as `qr` and `chol`, enhanced to operate on distributed arrays
- MathWorks job manager enhanced, including improved secure access and the ability to run jobs as a specified user
- Generic scheduler interface enhanced, improving support for computing environments with nonshared file systems

For details, see the product-specific release notes.

Polyspace Client for Ada 6.0

- Redesigned graphical interface
- Enhanced data and function modeling for fine-tuning code verification using global variables data, stubbed functions, and function call inputs

- Expanded support that includes task pointer, private tasks, tasks with discriminants, entry families, and explicit tasks
- Support for preprocessing directives

For details, see the product-specific release notes.

Polyspace Server for Ada 6.0

- New Web interface (Polyspace® metrics) with predefined quality models, providing an overview of project metrics, measuring project progress and regressions
- Automated scheduling of verification jobs and e-mail notifications

For details, see the product-specific release notes.

Polyspace Client for C/C++ 8.0

- Redesigned graphical interface
- Support for Japanese and Korean comments in results review
- Code metric support, including cyclomatic number and other HIS metrics
- Support for statically enforceable MISRA-C++ coding standard
- Partial support of C99 extensions
- Support code that executes on a 64-bit target

For details, see the product-specific release notes.

Polyspace Server for C/C++ 8.0

- New Web interface (Polyspace metrics) with predefined quality models including run-time error thresholds
- Automated scheduling of verification jobs and e-mail notifications

For details, see the product-specific release notes.

Real-Time Windows Target 3.6

- Support for Simscape
- Support for SimDriveline™
- Enhanced serial port driver for Packet and Stream Output blocks, supporting higher sample rates

For details, see the product-specific release notes.

Real-Time Workshop 7.6

- New Simulink preferences to control the location of generated code files
- Faster parallel builds of model reference hierarchies using MATLAB Distributed Computing Server
- Enhanced ASAP2 file generation, including automatic replacement of addresses for ELF executables, expanded support for Lookup Table blocks, and GROUP and SUBGROUP hierarchies
- Largest atomic size option, enabling more efficient multiple rate code
- New Embedded MATLAB code generation options for dynamic memory allocation, reentrant code using the `emlc` function, and converting MATLAB comments to C comments

For details, see the product-specific release notes.

Real-Time Workshop Embedded Coder 5.6

- New optimization that combines global signals and state data to reduce RAM and stack usage
- Reduced data copies for Switch and Selector block pattern, and global data reuse for Unit Delay and Memory blocks
- Code variants using preprocessor directives from new Variant Subsystem block

- Support for AUTOSAR DataReceivedEvent and PerInstanceMemory blocks
- C++ encapsulation enhanced to support structure-based get and set access to external I/O signals

For details, see the product-specific release notes.

RF Toolbox 2.8

- Enhanced rational function fitting, including support for pole sharing
- Enhanced RF circuit objects, supporting additional parameters and a new method for data display

For details, see the product-specific release notes.

Robust Control Toolbox 3.5

- New commands for H-infinity synthesis of fixed-order, fixed-structure controllers

For details, see the product-specific release notes.

Signal Processing Blockset 7.1

- Three new System objects: `dsp.TimeScope`, `dsp.UDPSender`, and `dsp.UDPReceiver`
- Expanded code generation support for System objects, including new demo
- Sample- and frame-based processing now controlled by block parameters, instead of input signal attributes
- Enhanced Time Scope block that supports continuous time signals, inputs with different sample rates and arbitrary dimensions, and a new snapshot mode
- Enhanced Matrix Square block with fixed-point support

For details, see the product-specific release notes.

Signal Processing Toolbox 6.14

- Embedded MATLAB support extended to `downsample` and `upsample` functions

For details, see the product-specific release notes.

SimBiology 3.3

- Support for error models when performing a population fit using the `sbionlmefit` or `sbionlmefitsa` function
- Support for covariate analysis
- Ability to simultaneously fit multiple responses
- Support for incorporating time lags for doses into models
- Dimensionless units

For details, see the product-specific release notes.

SimElectronics 1.5

- New Thyristor block added to the Semiconductor Devices library
- New Multiplier block added to the Integrated Circuits library
- Additional Exponential Diode parameterization options, using a single I-V data point and either the emission coefficient or the saturation current
- Channel modulation parameter added to N-Channel MOSFET and P-Channel MOSFET blocks

For details, see the product-specific release notes.

SimHydraulics 1.8

- New Jet Pump block

For details, see the product-specific release notes.

SimPowerSystems 5.3

- Asynchronous Machine block enhanced with double squirrel-cage rotor option
- Enhanced code generation capabilities

For details, see the product-specific release notes.

SimRF 3.0

- New circuit-envelope simulation technology built on the Simscape platform
- New multiport blocks, including 3-port mixers and 4-port S-parameter elements
- Full support of intramodel signal probing
- New demos of RF systems that model image effects and flexible intermediate-frequency architectures, including direct-conversion receivers
- New set of impedance blocks, including Resistor, Capacitor, and Inductor, for use in filter design, matching, and modeling parasitic effects
- Incorporates RF Blockset features

For details, see the product-specific release notes.

Simscape 3.4

- New `plot` and `plotxy` commands for simplifying plotting of logged physical network data
- Enhanced zero-crossing handling and diagnostics
- Support for C++ code generation

For details, see the product-specific release notes.

Simulink 3D Animation 5.2

- Built-in 3D World editor for authoring 3D worlds
- New `stl2vrml` function for converting STL files to VRML format
- Linux support for the internal viewer integrated with MATLAB Handle Graphics®

For details, see the product-specific release notes.

Simulink Control Design 3.2

- PID Tuner GUI enhancements, new response plots and ability to specify a custom operating point for plant linearization
- New blocks for visualizing and verifying linear system characteristics of Simulink models during simulation
- New commands and Model Advisor check for detecting and disabling time-varying source blocks for frequency-response estimation
- Ability to update parameterized tuned blocks by changing the values of the corresponding workspace variables

For details, see the product-specific release notes.

Simulink Design Optimization 1.2

- Enhanced initial-state estimation, including support for model references and for Simscape, SimMechanics™, SimPowerSystems™, and SimHydraulics® blocks

For details, see the product-specific release notes.

Simulink Design Verifier 1.7

- Support for 64-bit Windows operating systems
- Support for specified input minimum and maximum values as analysis constraints
- Built-in support for automation of test execution in SIL/PIL mode via Code Generation Verification (CGV) API (requires Real-Time Workshop® Embedded Coder™)
- Support for extracting and analyzing Stateflow atomic subcharts
- Ability to eliminate unused signals from the generated harness

For details, see the product-specific release notes.

Simulink Fixed Point 6.4

- New code generation optimization that uses specified minimums and maximums, eliminating dead code and unnecessary mathematical operations
- Data-type override capability to selectively override floating-point types or fixed-point types
- Option to turn off data-type override for individual data types
- Enhanced Fixed-Point Advisor support for Discrete Filter, Transfer Function, and other floating-point inheritance blocks
- More efficient code generated for data-type conversion saturation

For details, see the product-specific release notes.

Simulink HDL Coder 2.0

- GUI support for specification of block implementations and implementation parameters
- Area optimization through serialization and resource sharing
- Resource utilization estimation and report

- Support for atomic subsystems to reduce the number of HDL files
- Expanded support for HDL code generation, including modulation, demodulation, interleaver, deinterleaver, and convolutional encoders
- Support of pipelined architectures for filter blocks, including Digital Filter, Discrete FIR Filter, FIR Decimation, FIR Interpolation, CIC Decimation, CIC Interpolation, and Biquad Filter

For details, see the product-specific release notes.

Simulink PLC Coder 1.1

- Support for triggered subsystems
- Code generation support for Siemens® SIMATIC® STEP® 7 IDE and KW-Software MULTIPROG® IDEs
- Automatic import of generated code for select PLC IDEs

For details, see the product-specific release notes.

Simulink Report Generator 3.9

- System Design Description report enhanced to include model references, truth tables, detailed workspace variable descriptions, and Embedded MATLAB Function blocks
- Faster response of XML comparison tool with changed parameters displayed in a separate panel for easier review
- Enhanced XML comparison report that provides additional filter options with color highlighting for new and changed items
- New components for reporting model configuration sets, Simulink workspace variables, and Embedded MATLAB Function blocks

For details, see the product-specific release notes.

Simulink Verification and Validation 3.0

- New functions for extraction, signal logging, harness generation, and test execution for model subsystems and subcharts
- New function for checking and maintaining link reference objects in external requirement documents
- Model coverage support for multiple instances of a referenced model in Normal mode
- Programmable interface for scripting and command-line interaction with Model Advisor
- Ability to run Model Advisor on multiple systems in parallel on multicore machines (requires Parallel Computing Toolbox)
- MathWorks Automotive Advisory Board check for identifying incorrect formatting of transition actions in Stateflow charts

For details, see the product-specific release notes.

Stateflow 7.6

- New atomic subcharts to create reusable states for large-scale modeling
- Stateflow library chart support for instances with distinct data sizes, types, and complexities
- Support for controlling Stateflow diagnostics in the Configuration Parameters dialog box
- Enhanced custom code parsing to improve reporting of unresolved symbols
- Support for using temporal logic conditions on transitions originating from junctions

For details, see the product-specific release notes.

Stateflow Coder 7.6

- Code generation support for atomic subcharts with file packaging control

For details, see the product-specific release notes.

Statistics Toolbox 7.4

- Parallel computing support for the following functions: `plsregress`, `sequentialfs`, `nnmf`, `rowexch`, `candexch`, and `cordexch` when used with Parallel Computing Toolbox
- New `relieff` feature ranking algorithm for correlated features
- Enhanced `nlmefit` algorithm that supports constant, proportional, combined, and exponential error models
- Surrogate splits option for decision trees that handles missing data, estimates variable importance, and unmasks variables
- Enhanced `dfittool` that saves fits to the workspace as distribution objects

For details, see the product-specific release notes.

Symbolic Math Toolbox 5.5

- Expanded `sym` function that provides new options for creating vectors and matrices of symbolic variables
- Enhanced solvers for first-order nonlinear and third-order linear ordinary differential equations, improving performance and handling more equation types
- New `generate::Simscape` function that generates Simscape language equations from MuPAD® expressions
- Enhanced performance for solving linear systems of equations
- New delimiter matching in the MuPAD notebook interface that provides automatic notification of matched parentheses, brackets, and braces

For details, see the product-specific release notes.

SystemTest 2.6

- Ability to automatically generate a preconfigured test harness for Simulink models
- Ability to use and manage nonvirtual buses as inputs to Simulink models
- Enhanced Test Case Editor GUI with signal tree for improved navigation and selection of bus signals
- Programmable interface for authoring, configuring, and editing test cases
- Programmable interface for linking test cases to IBM® Rational® DOORS® requirements

For details, see the product-specific release notes.

Target Support Package 4.2

- Support for Wind River® VxWorks® RTOS (through Makefile only)
- Increased PIL performance using direct host-target TCP/IP communications
- Support for TI OMAP3530-based Beagleboard
- New Local Interconnect Network (LIN) device driver blocks for TI C2803x processors

For details, see the product-specific release notes.

Vehicle Network Toolbox 1.3

- Enhanced user interface for CAN Tool and expanded options for decoding and displaying CAN messages
- Simulink and MATLAB support for automatic periodic transmission of CAN messages
- Support for automatic event-based transmission of CAN messages from MATLAB

- New `canMessageImport` function for importing Vector and Kvaser CAN message log files
- Support for Kvaser PCIEcan HS/HS and PCIEcan HS

For details, see the product-specific release notes.

Video and Image Processing Blockset 3.1

- Support for variable sizing of signals for most blocks
- New `estimateFundamentalMatrix` function for describing epipolar geometry of a stereo camera using stereo image pairs
- Enhanced performance for many binary morphology blocks
- New `video.GeometricShearer` System object
- Expanded code generation support for System objects

For details, see the product-specific release notes.

Wavelet Toolbox 4.6

- Ability to compute peak signal-to-noise ratio (PSNR) as metric for image compression
- Ability to compute wavelet coherence, cross spectrum, and the cone of influence
- Ability to generate Paley ordered structure of a wavelet packet tree
- Spectral analysis with wavelet packet tree
- New demo for wavelet coherence

For details, see the product-specific release notes.

xPC Target 4.4

- Support for EtherCAT® master protocol
- Support for XCP clients on CAN networks
- Support for Basic Linear Algebra Subprograms (BLAS) library to improve target application performance
- Multicore support for multirate models
- Support for animation of Stateflow charts

For details, see the product-specific release notes.

R2010b Products with License-Related Changes

Three products have license-related changes in R2010b. To use the latest version of each product, you must be subscribed to MathWorks Software Maintenance Service (SMS) as of R2010b.

- Communications Blockset
- RF Blockset
- Spline Toolbox

Communications Blockset

As of R2010b, Communications Blockset no longer requires Simulink. Most algorithms and tools are now available as System objects for use directly in MATLAB. Simulink continues to be required for using blocks in the blockset.

RF Blockset

As of R2010b, RF Blockset has been renamed SimRF. SimRF does not require Signal Processing Toolbox™ or Signal Processing Blockset™. SimRF does require Simscape.

Simscape 3.4 may have been added to your license at no initial cost, depending on your current license configuration. Your access to any newly added products depends on the status of your Software Maintenance Service (SMS) subscription.

If you are:	
Subscribed to SMS for RF Blockset as of R2010b	You will be able to access the updated products, SimRF and Simscape. These products have been added to your license and will appear on future SMS renewal invoices.
Not subscribed to SMS for RF Blockset as of R2010b	You will need to renew your SMS subscription to access the updated products added to your license.

Spline Toolbox

As of R2010b, Spline Toolbox has been merged into Curve Fitting Toolbox and will no longer be available for purchase separately.

Curve Fitting Toolbox 3.0 may have been added to your license at no initial cost, depending on your current license configuration. Your access to any newly added products depends on the status of your Software Maintenance Service (SMS) subscription.

If you are:	
Subscribed to SMS for Spline Toolbox as of R2010b	You will be able to access the updated product, Curve Fitting Toolbox. This product has been added to your license and will appear on future SMS renewal invoices.
Not subscribed to SMS for Spline Toolbox as of R2010b	You will need to renew your SMS subscription to access the updated product added to your license.

Installation and Activation

New Installers for Linux and Macintosh Platforms

In R2010b, there are new Installers for the Linux and Macintosh platforms. With these new Installers, MathWorks provides a consistent installation experience on all platforms. These new Installers include some new capabilities that were previously only available on Windows systems, including:

- Specifying proxy servers on Linux and Macintosh systems, if you choose to install using the Internet.
- Downloading products directly from the MathWorks Web site during installation.
- Running the Installers in silent mode, by providing input values in a text file and suppressing the display of the Installers.

As a result of this consolidation, there is now only one installation guide that covers all platforms, instead of separate installation guides for each platform.

Changes to Installer Behavior

In R2010b, the Installer includes the following changes in behavior:

- On Windows systems, the Installer no longer puts a shortcut to the MATLAB program on your desktop by default. This is consistent with Microsoft User Experience Interaction guidelines. To create a shortcut, you must select this option on the Installation Options dialog box, available only in a Custom installation.

System Requirements

The major system requirements changes for R2010b follow.

For more information on system requirements, visit Platforms & Requirements.

Platforms No Longer Available for New Releases

As of R2010b, 32-bit releases of the MATLAB product family will no longer be available for Apple Macintosh® OS X operating systems. MathWorks continues to provide 64-bit releases of MATLAB products for Macintosh OS X operating systems Version 10.5.8 and above.

Release Summary

An asterisk (*) after a product name indicates the product has had a Web release since R2010a.

Product (Links to Release Notes)	New Features	Bug Fixes	Compatibility Considerations
MATLAB	Yes	Yes	Yes
Simulink	Yes	Yes	Yes
Aerospace Blockset™	Yes	No	Yes
Aerospace Toolbox	Yes	No	Yes
Bioinformatics Toolbox™	Yes	Yes	Yes
Communications Blockset	Yes	No	Yes
Communications Toolbox™	Yes	Yes	No
Control System Toolbox	Yes	Yes	Yes
Curve Fitting Toolbox	Yes	Yes	No
Data Acquisition Toolbox™	Yes	No	No
Database Toolbox™	Yes	Yes	No
Datafeed Toolbox	Yes	Yes	Yes
DO Qualification Kit	Yes	Yes	No
Econometrics Toolbox™	Yes	No	Yes
EDA Simulator Link	Yes	Yes	No
Embedded IDE Link™	Yes	Yes	Yes
Filter Design HDL Coder	Yes	No	No
Filter Design Toolbox™	No	No	No
Financial Derivatives Toolbox™	Yes	Yes	No
Financial Toolbox	Yes	No	No
Fixed-Income Toolbox	Yes	Yes	No

Product (Links to Release Notes)	New Features	Bug Fixes	Compatibility Considerations
Fixed-Point Toolbox™	Yes	Yes	Yes
Fuzzy Logic Toolbox™	No	No	No
Gauges Blockset™	No	No	No
Global Optimization Toolbox	Yes	No	Yes
IEC Certification Kit	Yes	Yes	No
Image Acquisition Toolbox	Yes	Yes	No
Image Processing Toolbox™	Yes	Yes	Yes
Instrument Control Toolbox™	Yes	Yes	No
Mapping Toolbox™	Yes	Yes	Yes
MATLAB® Builder™ EX	Yes	Yes	No
MATLAB Builder JA	Yes	Yes	Yes
MATLAB Builder NE	Yes	Yes	Yes
MATLAB® Compiler™	Yes	Yes	Yes
MATLAB Distributed Computing Server	Yes	Yes	Yes
MATLAB® Report Generator™	Yes	Yes	No
Model-Based Calibration Toolbox™	Yes	Yes	No
Model Predictive Control Toolbox™	No	No	No
Neural Network Toolbox	Yes	Yes	Yes
OPC Toolbox™	No	No	No
Optimization Toolbox™	Yes	Yes	No
Parallel Computing Toolbox	Yes	Yes	Yes
Partial Differential Equation Toolbox™ (no release notes)	No	No	No
Polyspace Client for C/C++	Yes	Yes	Yes
Polyspace Server for C/C++	Yes	Yes	Yes

Product (Links to Release Notes)	New Features	Bug Fixes	Compatibility Considerations
Polyspace Client for Ada	Yes	Yes	Yes
Polyspace Server for Ada	Yes	Yes	Yes
Polyspace Model Link™ SL	No	Yes	No
Polyspace Model Link TL	No	Yes	No
Polyspace UML Link™ RH	No	Yes	No
Real-Time Windows Target™	Yes	Yes	No
Real-Time Workshop	Yes	Yes	Yes
Real-Time Workshop Embedded Coder	Yes	Yes	Yes
RF Blockset (renamed SimRF)	No	Yes	No
RF Toolbox™	Yes	No	Yes
Robust Control Toolbox™	No	No	No
Signal Processing Blockset	Yes	Yes	Yes
Signal Processing Toolbox	Yes	Yes	No
SimBiology	Yes	Yes	No
SimDriveline	No	Yes	No
SimElectronics®	Yes	No	No
SimEvents®	No	Yes	No
SimHydraulics	Yes	No	No
SimMechanics	No	Yes	No
SimPowerSystems	Yes	Yes	No
SimRF	Yes	Yes	Yes
Simscape	Yes	Yes	Yes
Simulink® 3D Animation™	Yes	Yes	Yes
Simulink® Control Design™	Yes	Yes	No
Simulink® Design Optimization™	Yes	Yes	No

Product (Links to Release Notes)	New Features	Bug Fixes	Compatibility Considerations
Simulink® Design Verifier™	Yes	Yes	Yes
Simulink® Fixed Point™	Yes	Yes	Yes
Simulink HDL Coder	Yes	Yes	Yes
Simulink PLC Coder	Yes	No	No
Simulink Report Generator	Yes	Yes	No
Simulink Verification and Validation	Yes	Yes	Yes
Spline Toolbox (merged into Curve Fitting Toolbox)	Yes	Yes	No
Spreadsheet Link™ EX	Yes	No	No
Stateflow and Stateflow® Coder™	Yes	Yes	Yes
Statistics Toolbox	Yes	Yes	Yes
Symbolic Math Toolbox™	Yes	Yes	Yes
System Identification Toolbox™	No	Yes	No
SystemTest™	Yes	Yes	Yes
Target Support Package™	Yes	Yes	Yes
Vehicle Network Toolbox™	Yes	Yes	No
Video and Image Processing Blockset™	Yes	Yes	Yes
Wavelet Toolbox™	Yes	No	No
xPC Target	Yes	Yes	Yes